



हर कदम, हर उमर
किसानों का हमसफर
भारतीय कृषि अनुसंधान परिषद
AgriSearch with a human touch

NETWORK PROJECT ON BUFFALO IMPROVEMENT

ANNUAL REPORT 2020 - 2021

AND

PROJECT CO-ORDINATOR'S OBSERVATIONS



**ICAR- CENTRAL INSTITUTE FOR RESEARCH ON BUFFALOES
SIRSA ROAD, HISAR – 125 001 (HARYANA)**

NETWORK PROJECT ON BUFFALO IMPROVEMENT

ANNUAL REPORT 2020- 2021

AND

PROJECT CO-ORDINATOR'S OBSERVATIONS

Published by

Director & PC(B)
ICAR-CIRB Hisar-125 001

Compiled & Edited by

Dr. T K Datta, PC(B) & Director, ICAR-CIRB
Dr. A Bharadwaj, Incharge NPBI
Sh. Ramchander, Tech. Officer

Phone: +91-1662-281630/281602

Fax: +91- 01662-275004

E mail: abharadwaj@mail.com

Website: www.cirb.icar.org.in

COORDINATING UNIT

**ICAR- CENTRAL INSTITUTE FOR RESEARCH ON BUFFALOES
HISAR – 125 001 (HARYANA)**

CONTENTS

TITLE		PAGE NO.
INTRODUCTION		1
Centrewise & Head wise allocation of fund and release during 2020-21.		2
Participating centres as on 31.03.2021		3
Objectives, Technical program, Growth, Production & Reproduction Targets of Murrah breed		4
CENTREWISE PERFORMANCE, RESEARCH ACHIEVEMENT AND PROJECT COORDINATOR'S OBSERVATIONS		5-225
Name of the centre	Breed	
<i>Institutional/SAU herds</i>		
CIRB, Hisar	Murrah	5-23
GADVASU, Ludhiana	Murrah	24-40
NDRI, Karnal	Murrah	41-54
IVRI, Izatnagar	Murrah	55-70
LUVAS, Hisar	Murrah	71-84
ICAR Res. Complex for ER Patna	Murrah	85-93
CIRB Sub Campus, Nabha	Nili-Ravi	94-106
JAU, Junagadh	Jaffarabadi	107-130
RAJUVAS, LRS Vallabhnagar	Surti	131-152
IGFRI, Jhansi	Bhadawari	153-165
GADVASI, Ludhiana	Nili Ravi	166-174
<i>Field Units</i>		
CIRB, Hisar	Murrah	175-191
GADVASU, Ludhiana	-do-	192-212
NDRI, Karnal	-do-	213-224
SUMMARY OF RESEARCH ACHIEVEMENTS AND PROGRESS OF THE PROJECT		225-240
Selection and use of Breeding Bulls for Murrah Breed		225
List of 19 th set breeding bulls (Murrah)		226
Health Evaluation and Semen Quality Testing		226
Progeny Test Evaluation of Bulls (14 th Set) and 1 to 14 th set PT bulls		226-227
Semen freezing and balance stock for bulls under test		228
Germplasm dissemination for breeding purpose		229
Performance characteristics of different centres since inception and field units		229-240

NETWORK PROJECT ON BUFFALO IMPROVEMENT

Annual Report 2020-21

All India Coordinated Research Project on buffaloes was initiated in the year 1970-71 for genetic evaluation of large and medium size buffaloes which was later on made specific on two important breeds viz. Murrah and Surti in the coordinated program. The main thrust was to test the sires with a view to produce proven bulls for enhancing milk production. The efforts made by scientific manpower through this venture are able to standardize testing methodology and germplasm evaluation for superior bull production of important breeds of buffaloes. The infrastructure has been created which is capable to generate germplasm in the form of bulls and frozen semen at some of the testing centers.

Network Project on Buffalo Improvement and running at ICAR-Central Institute for Research on Buffalo, Hisar since 1993. This has ensured sustained maintenance and production of improved germplasm on large scale for use in buffalo improvement program and for establishing linkages with institutions. This is the only centre in India where semen from progeny tested proven bulls are available. Progeny testing in Murrah Breed is carried out at Six participating institutional /SVU centres viz. CIRB Hisar, NDRI Karnal and IVRI Izatnagar, GADVASU Ludhiana, LUVAS Hisar and ICAR Research Complex for Eastern Region Patna. Three funded field centers of Murrah were also initiated in 2001 at CIRB Hisar, NDRI Karnal and GADVASU Ludhiana to produce more number of daughters per bull for accurately evaluating the breeding bulls. 16345 artificial inseminations were carried out in 2020-21 at farmer's door in the village to produce daughters. The milk yields of daughters are being recorded for use in sire evaluation.

1040 breedable buffaloes are being maintained at institutional Murrah centres for production of high genetic merit male and female calves to be used for production of future sires. As per technical program for Murrah breed, a set of upto 15 pedigreed bulls is selected in each set and it is used for AI in the associated herds (1600 AIs per annum) and field buffaloes (approximately 16000 AIs per annum) for test mating over 18 months duration. From 1st July 2020 to 31st December 2021 semen of XIX set is being used at the Murrah centres. There are 12 superior bulls (7 bulls from CIRB Hisar, 3 bulls from GADVASU Ludhiana, 1 bull from LUVAS, Hisar and 1 bull from NDRI Karnal are in the XIX set. So far, 249 superior bulls have been testmated in 18 sets.

Data of 439 daughters born from the 14th set of bulls which completed 1st lactation was compiled and bulls were evaluated. Bull no. 2357 from GADVASU, Ludhiana, 6044 from NDRI and 4196 from CIRB Hisar ranked 1st, 2nd and 3rd with sire breeding value of 2486.91 kg, 2479.00 kg and 2474.00 kg, respectively. The percent superiority over breeding value was 2.78, 2.43 and 2.27 percent, respectively.

Elite herds of Jaffarabadi, Surti, Bhadawari and Nili Ravi breeds of buffaloes have been established in their respective breeding tracts. Semen freezing laboratories have been established at all the centres. Nili-Ravi and Bhadawari breed centres are functioning as conservation and improvement units and Jaffarabadi and Surti breed centre are concentrating on field progeny testing along with maintaining the elite herd for bull production and testing. A breedable herd of 667 (Nili-Ravi-324, Jaffarabadi-204, Surti-84 and Bhadawari-55) is being maintained at the above four breeds.

During the year 288245 semen doses produced and 213365 semen doses were used for AI's/Sold/Exp. Production and dissemination of Murrah breeding bulls semen doses was 206258 and 177918 respectively, in other breed 81987 semen doses produced and 35447 disseminated i.e. sale/used in farm herd/ field under field progeny testing program.

**HEAD-WISE/YEAR-WISE PHASING OF BUDGET OUTLAY FOR NPBI
(2020-21) (Sub scheme-24 ii)**

Centre wise and Headwise allocation and release of funds for Network Project on Buffalo Improvement as per R E for the FY 2020-21

(Rs. In lakh)

Name of the centre	SALARY		General					Capital							Total			Released ICAR Share		
	Total Pay	ICAR share	Rec Cont.	ICAR share	ICAR share SCSP	TA	ICAR share	Equipment	ICAR share	ICAR share SCSP	Works	ICAR share	Live-stock	ICAR share	Fur. Fixt.	ICAR Share	Net Requirement		ICAR Share	State Share
ICAR Based centres																				
Coordinating Unit, Hisar	0.00	0.00	28.805	28.805	4.00	0.00	0.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	35.805	35.805	0.000	35.76130
CIRB, Hisar, Main Unit	0.00	0.00	21.50	21.50		0.00	0.00	3.50	3.50		0.00	0.00	0.00	0.00	0.00	0.00	25.00	25.00	0.00	24.95788
NDRI Karnal, Main Unit	0.00	0.00	16.00	16.00	3.00	0.00	0.00	3.00	3.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	23.00	23.00	0.00	23.00000
IVRI, Izatnagar Main Unit	0.00	0.00	16.00	16.00	3.00	0.00	0.00	3.00	3.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	23.00	23.00	0.00	23.00000
IGFRI Jhansi	0.00	0.00	42.00	42.00	3.00	0.00	0.00	2.50	2.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.50	47.50	0.00	47.50000
ICAR Res. Comp. ER Patna	0.00	0.00	18.00	18.00	3.00	0.00	0.00	4.00	4.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	26.00	26.00	0.00	26.00000
CIRB Sub Campus, Nabha	0.00	0.00	35.00	35.00	4.00	0.00	0.00	3.95	3.95		0.00	0.00	0.00	0.00	0.00	0.00	42.95	42.95	0.00	42.90254
CIRB, Hisar FPT	0.00	0.00	15.00	15.00		0.00	0.00	1.55	1.55		0.00	0.00	0.00	0.00	0.00	0.00	16.55	16.55	0.00	16.54813
NDRI, Karnal, FPT	0.00	0.00	18.00	18.00		0.00	0.00	2.00	2.00		0.00	0.00	0.00	0.00	0.00	0.00	20.00	20.00	0.00	20.00000
SAU's Based centres																				
GADVASU, Ludhiana (Murray)	15.26	11.45	60.00	45.00	5.00	0.32	0.24	4.00	3.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	85.58	65.69	19.89	65.6850
GADVASU, Ludhiana (FPT)	21.33	16.00	24.00	18.00	0.00	0.00	0.00	2.00	1.50		0.00	0.00	0.00	0.00	0.00	0.00	47.33	35.50	11.83	35.5000
LUVAS, Hisar	0.00	0.00	60.00	45.00	5.00	0.32	0.24	4.00	3.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	70.32	54.24	16.08	54.2400
JAU, Junagadh	17.33	13.00	52.00	39.00	5.00	0.32	0.24	4.00	3.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	79.65	61.24	18.41	61.2400
RAJVASU, Bikaner	3.33	2.50	52.00	39.00	5.00	0.32	0.24	4.00	3.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	65.65	50.74	14.91	50.7400
MPKV, Kolhapur	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000
GADVASU, Ludhiana (Nili Ravi)	0.00	0.00	30.00	22.50		0.32	0.24	4.00	3.00		0.00	0.00	0.00	0.00	0.00	0.00	34.32	25.74	8.58	25.7400
Total	57.25	42.95	488.31	418.80	40.00	1.60	1.20	45.50	40.00	10.0	0.00	0.00	0.00	0.00	0.00	0.00	642.66	552.95	89.70	552.81485
ICAR Share	42.95		418.80		40.00	1.20		40.00		10.00	0.00		0.00		0.00		552.95			
State Share	14.30		69.50			0.40		5.50			0.00		0.00		0.00		89.70			

PARTICIPATING CENTRES (As on 31.03.2021)

Coordinating Unit, CIRB, Hisar

Sr No	Name of centre	Breed	Year of start
Agricultural University based centers			
I	GADVASU, Ludhiana	Murrah	1993
II	LUVAS, Hisar	Murrah	1993
III	JAU, Junagarh	Jaffarabadi	2001
IV	RAJVASU, Vallabh Nagar	Surti	2001
V	Field Unit GADVASU, Ludhiana	Murrah	2001
VI	GADVASU, Ludhiana	Nili Ravi	2018
ICAR Institute based Centres			
I	ICAR-CIRB, Hisar (Main Unit)	Murrah	1993
II	ICAR-NDRI, Karnal (Main Unit)	Murrah	1993
III	ICAR-IVRI, Izatnagar (Main Unit)	Murrah	1993
IV	ICAR- IGFRI, Jhansi	Bhadawari	2001
V	ICAR-CIRB, Sub - Campus Nabha	Nili-Ravi	2001
VI	Field Unit NDRI, Karnal	Murrah	2001
VII	Field Unit CIRB, Hisar	Murrah	2001
VIII	ICAR Res. Comp. ER Patna (Main Unit)	Murrah	2014

Scientists Meets:	Place	Duration
1 st Scientist meet	GAU, Junagarh,	February 10-11, 1993
2 nd Scientist meet	PAU Ludhiana	April 28 – 29, 1994
3 rd Scientist meet	RAU, Udaipur	November 2 - 3, 1995
4 th Scientist meet	PAU, Ludhiana	July 28 – 29, 2000
5 th Scientist meet	AAU, Khanapara	January 3- 4, 2002
6 th Scientist meet	MPKV, Kolhapur	April 5 - 6, 2005
7 th Scientist meet	CIRB, Hisar	April 4 - 5, 2007
8 th Scientist meet	JAU, Junagadh	March 5 - 6, 2009.
Midterm Review meet	CIRB, Hisar	December 5, 2009
9 th Scientist meet	CIRB, Hisar	November 27-28, 2010
10 th Annual Review Meet	Bhuj, Gujarat	September 2 - 3, 2011
11 th Annual Review Meet	NDRI, Karnal	August 24, 2012
12 th Annual Review Meet	LRS Vallabh Nagar	September 09-10, 2014
13 th Annual Review Meet	CIRB, Hisar	September 23-24, 2015
14 th Annual Review Meet	GADVASU, Ludhiana	July 04 - 05, 2016
15 th Annual Review Meet	ICAR RCER, Patna	July 21 - 22, 2017
16 th Annual Review Meet	ICAR-NDRI, Karnal	November 19 - 20, 2018
17 th Annual Review Meet	ICAR-NASC Complex, New Delhi	August 27 - 28, 2019
18 th Annual Review Meet	Held through Zoom online mode by ICAR-CIRB, Hisar	March 19 th 2021

CENTRE WISE PERFORMANCE, RESEARCH ACHIEVEMENTS AND PROJECT COORDINATOR OBSERVATIONS

Participating Institutional herds of Murrah Breeds

1.	ICAR-CIRB Hisar	ICAR based
2.	ICAR-NDRI Karnal	ICAR based
3.	ICAR-IVRI Izatnagar	ICAR based
4.	ICAR Res. Complex for ER Patna	ICAR Based
5.	GADVASU Ludhiana	SAU based
6.	LUVAS, Hisar	SAU based

Mandate of Network Project

To undertake genetic improvement and conservation of important breeds of buffaloes

Objectives:

1. To establish elite herd of 1100 breedable Murrah / 300 Nili-Ravi / 200 Jaffarabadi / 50 Bhadawari /50 Surti buffalo for the production of genetically superior young bulls.
2. To evaluate sires through institutional / associated herd/field progeny testing.
3. To produce, test, propagate and conserve high genetic merit male germplasm.

Technical Programme: The technical programme involves testing of 12-15 bulls on about 1000 breedable buffaloes at organised farms at GADVASU, Ludhiana; CIRB, Hissar; NDRI, Karnal; IVRI, Izatnagar; LRS, Mamnour and KVASU, Pookode in every 18-month's cycle. From each bull 75-80 pregnancies are to be obtained so that 20-25 recorded daughters per bull are available at all the centres for the evaluation of bulls. The bulls will be ranked on the basis of performance of their daughters and 20% of them will be selected as proven bulls from each set. The semen of the proven bulls will be used on elite buffaloes at different centres for the production of future sires and herd replacements.

A. Growth rate targets :-

Age group	Target growth rate (g) per day		Expected body weight at terminal age (kg)	
	Female	Male	Female	Male
Birth-6 mths	450	450	112	112
6-18 mths	500	550	294	312
18-24 mths	400	530	367	410
24-30 mths	400	450	440	520
30-36 mths	300	350	495	584

N.B. Average birth weight, 30kg

B. Reproduction and production targets: -

- | | | |
|-------|--|-----------------------------|
| i. | Av. age at first service | = 24 months (300kg B. wt.) |
| ii. | Av. age at first calving | = 40 months |
| iii. | AV. age for initiating training of bulls | = 18 months (350 kg B. wt.) |
| iv. | Av. age at first collection | = 30 months (400 kg B.wt.) |
| v. | Av. service period | = 130 days |
| vi. | Calf mortality (0-3 mths) | = ≤3% |
| vii. | Wet average | = ≥ 8.5 kg |
| viii. | Herd average | = ≥5.5 kg |

**ICAR-CENTRAL INSTITUTE FOR RESEARCH ON BUFFALOES,
HISAR (MAIN UNIT)**

Report Period : 2020-21

1. Name of centre : CIRB, Hisar
2. Project Code :
3. Project Title : Network Project on Buffalo Improvement (Murrah)
4. Date of Start : 1993

5. Objective:

- i. To establish elite herd of 50 to 100 Murrah (at each center) for the production of genetically superior young bulls.
- ii. To evaluate sires through institutional / associated herd/field progeny testing
- iii. To produce, test, propagate and conserve high genetic merit male germplasm

6. Technical Programme:

- I. Establishment and maintenance of an elite herd of Murrah buffalo with a herd strength of 500 and 300 breedable females.
- II. Selection and testing of minimum 15 bulls of Murrah in every 18 months cycle.
- III. Production of minimum 10,000 frozen semen doses from each test bull.
- IV. Maintain a minimum number of 8000 frozen semen doses until the particular SET gets evaluated.
- V. Evaluation and ranking of bulls on the basis of their progeny performance (first lactation) for selection of top 20-25% as proven bulls from each set.
- VI. Application of proven bull's semen on elite buffaloes for the production of future sires and replacement heifers.
- VII. Minimum weekly recording of milk yield of individual daughters/ buffaloes at institutional herd / monthly recording in field units over complete lactation(s) with wet average, herd average, percent in milk, lactation length, dry period, TLMY, SLMY (305 days or less, up to minimum of 240 days (All breeds) / 1500 kg in Murrah) and Peak yield.
- VIII. Life time productivity traits viz: herd life, productive life, lifetime milk yield, milk yield per day of herd life for buffaloes completed 4th or more lactation.
- IX. Monthly testing of milk constituents (Fat%, SNF% and Protein%) and Somatic Cell Count, wherever feasible, at institutional herds.
- X. Recording of reproductive traits viz., AFC, Service period, Days open, Calving interval, Number of services per conception, Conception rate and Calving abnormalities.
- XI. Health management including udder health, vaccination, de-worming, disease screening, mortality and periodic body weight records

7. Financial Statement for 2020-21:

(Rs in Lakhs)

Sanctioned as per R E 2020-21		Released ICAR Share as per R E	Expenditure		Balance
Total	ICAR Share		ICAR Share	State Share	
25.00	25.00	25.00	24.95788	0.00	0.04212

8. Staff Position : Redeployment

9. Herd Performance

9.1 Herd Strength during the Period 1st April 2020 to 31st March, 2021

Sr. No.	Category	Addition			Disposal				CB
		OB	B / P	T	D	T	S	E	CB
Female									
1.	Below 3 months	14	81	-	4	76	1	--	14
2.	3-12 months	65	--	76	1	76	1	--	63
3.	1-2 years	53	--	76	-	52	-	--	77
	Above 2 years	96	--	52	-	54	11	--	83
4.	Buffaloes in Milk	133	--	54	5	19	24	--	139
5.	Buffaloes Dry P /NP	43	--	33	2	0	31	--	43
	Sub Total	404	81	291	12	277	68	1	419
Males									
1.	Below 3 months	16	79		1	80	-	-	14
2.	3-12 months	54	--	80	-	66	4	-	64
3.	1-2 years	29	--	66	-	20	43	-	32
	Above 2 years	12	--	20		10	12		10
4.	Breeding bulls	06	--	9	-	-	-	-	15
5.	Bullocks/Teasers/others	1	--	-	-	-	-	-	1
	Sub Total	118	79	175	1	176	59	-	136
	Grand Total	522	160	466	13	453	127	1	555

* Experimental not included in CB

OB = Opening Balance as on 1st April

D = Deaths S = Sale E = Experimental

B / P = Birth / Purchase T = Transfer

CB = Closing Balance as on 31st March

Table 9.2: Calving Statistics during the period April 2020 – March 2021

Month	Male	Female	Still Birth	Abortion	Overall
April-2020	6	8	--	2	16
May	5	2	1	--	8
June	1	4	--	1	6
July	8	8	--	1	17
August	9	10	2	2	23
September	6	7	--	1	14
October	14	12	--	1	27
November	8	10	--	--	18
December	8	5	1	--	14
January-2021	4	8	1	--	13
February	8	3	1	--	12
March	2	4	--	--	6
Overall	79	81	6	8	174

9.3. Disposal of Animals (1st April 2020 to 31st March 2021)

Female		Primary cause of disposal						
Category	Surplus	Low Producers	Reprod. Problem	Weak & Old	Udder Health	Death	Exptl.	Total
Calves								
0 to 3 months	1	--	--	--	--	4	--	5
3-12 months	1	--	--	--	--	1	--	2
Heifers								
1-2 years	--	--	--	--	--	--	--	--
> 2 years	--	--	8	3	--	-	--	11
Buffaloes								
Milch	5	1	7	4	7	5	--	29
Dry	8	7	8	5	3	2	--	33
Sub Total	15	8	23	12	10	12	--	80
Males		Primary cause of disposal						
Calves								
0 to 3 months	--	--	--	--	--	1	--	1
3-12 months	4	--	--	--	--	--	--	4
Young bull								
1-2 years	41	--	1	1	--	--	--	43
>2 years	06	--	4	2	--	--	--	12
Breeding bulls	-	--	--	--	--	--	--	--
Bullock+Teaser etc	--	--	--	--	--	--	--	--
Sub Total	51	--	5	--	--	1	--	60
Grand Total	66	8	28	15	10	13	--	140

9.4 Mortality during the Period 1st April 2020 to 31st March, 2021

	Female						Male					Over all
	0-3 Month	3-12 Month	1-2 Yrs.	Above 2 Yrs.	Milk + Dry	Overall Female	0-3 Month	3-12 Month	1-2 Yrs.	>2 yrs.	Overall Male	
No. Died	19	18	40	58	284	419	23	22	33	57	135	554
%	1	--	--	--	--	1	--	--	--	--	--	1
	5.26	--	--	--	--	0.24	--	--	--	--	--	0.18

Overall Calf mortality (0-3 months): 2.63 %

9.5. Causes of Mortality (qtr. wise) during the period 1st April 2020 to 31st March, 21

Particulars	1 st quarter (April-June)	2 nd quarter (July-Sept)	3 rd quarter (Oct-Dec.)	4 th quarter (Jan.-March)	Total
Enteritis	0	1	1	0	2
Pneumonities	1	1	1	1	4
Peritonitis	0	0	0	0	0
TRP / TP	0	1	0	0	1
Miscellaneous	2	2	2	0	6
Total	3	5	4	1	13

9.6 Prophylactic Measures undertaken during 2020-21

Disease	Vaccination: Month / No. of animals	No. of animals Tested / Positive		Month and No. of animals treated for Parasitism
FMD	June 2020/617, Oct 2020/573, March 2020/601	---	----	
HS	June 2020/617, Oct 2020/573, March 2020/601	----	----	
BQ	June 2020/617			
Brucellosis	Sept. 2020/20, Oct. 2020/21, Feb. 2021/27	35	Nil	
JD		17	Nil	
TB		17	Nil	
IBR		35	04	
Mastitis		135	24	
Trichomonas		17	Nil	
Campylobacter		17	Nil	

9.7 Female Conception Rate During the Period January to December 2020

AI No.→	1 st			2 ND			3 RD			4 TH & above			Over all		
	AIs	C	CR %	AIs	C	CR %	AIs	C	CR%	AIs	C	CR %	AIs	C	CR %
Parity↓															
Heifers	89	41	46.07	65	31	47.69	23	11	47.83	21	10	47.62	198	93	46.97
Adults	132	73	55.30	83	37	44.58	48	17	35.42	64	25	39.06	327	152	46.48
Overall	221	114	51.58	148	68	45.95	71	28	39.44	85	35	41.18	525	245	46.67

AIs = No. of animals inseminated C = No. of animals conceived CR % = Conception rate%

9.8 Quarter-wise conception rate

Quarter	No. of A I	Pregnancy	CR %
January – March 20 Previous year	145	66	45.52
April – June 2020	78	38	48.72
July – September 2020	133	69	51.88
October- December 2020	169	72	42.6
Overall	525	245	46.67

9.9. Bull-wise Conception Rate During the period January to December, 2020

Sr. No.	Bull No.	SET No.	Total AI	Conceived	CR%
1.	7227	18 th	13	8	61.54
2.	1150	18 th	23	8	34.78
3.	7147	18 th	9	5	55.56
4.	1219	18 th	33	16	48.48
5.	183 PT	12 th	38	20	52.63
6.	4905	18 th	16	4	25.00
7.	4995	18 th	25	9	36.00
8.	2676	18 th	2	2	100.00
9.	2677	18 th	10	5	50.00
10.	1209	18 th	27	12	44.44
11.	2645	18 th	9	6	66.67
12.	7094	18 th	6	1	16.67
13.	2234 PT	13 th	6	3	50.00
14.	1208	18 th	13	8	61.54
15.	7263	18 th	6	3	50.00
16.	2357 PT	14 th	8	5	62.50
17.	5181	19 th	51	22	43.14
18.	5232	19 th	41	28	68.29
19.	6044 PT	14 th	38	19	50.00
20.	4196 PT	14 th	36	13	36.11
21.	5246	19 th	21	9	42.86
22.	2737	19 th	31	13	41.94
23.	2674	19 th	34	12	35.29
24.	2759	19 th	29	13	44.83
Over all			525	245	46.67

9.10 Bull Wise Semen Stock

Sr. No.	Bull No	Centre	SET	Dam's Peak Yield	Opening balance	Received	Sold	Supp.	Exp.	Balance
1	392	CIRB	I PT	2594	113	0	0	0	0	113
2	3567	NDRI	I PT	2877	250	0	0	0	0	250
3	896	CIRB	I	3003	142	0	0	0	0	142
4	3098	NDRI	I	3164	250	0	0	0	0	250
5	761	CIRB	II PT	2578	276	0	0	0	0	276
6	93	CIRB	II PT	22kg	88	0	0	0	0	88
7	829	CIRB	II PT	2626	250	0	0	0	0	250
8	759	CIRB	II	2650	198	0	0	0	0	198
9	3638	NDRI	II	3278	250	0	0	0	0	250
10	3551	NDRI	II	3898	136	0	0	0	0	136
11	1253	GAD	II	3348	36	0	0	0	0	36
12	1268	GAD	II	2802	265	0	0	0	0	265
13	1290	GAD	II	2628	250	0	0	0	0	250
14	1153	CIRB	III PT	2540	250	0	0	0	0	250
15	1061	CIRB	III	2846	209	0	0	0	0	209
16	1354	GAD	III PT	3088	108	0	0	0	0	108
17	1165	CIRB	III	2627	250	0	0	0	0	250
18	3930	NDRI	III	2912	250	0	0	0	0	250
19	1131	CIRB	III	2827	98	0	0	0	0	98
20	3966	NDRI	III	3700	258	0	0	0	0	258
21	1023	CIRB	III	2710	252	0	0	0	0	252

22	1171	CIRB	III	3007	256	0	0	0	0	256
23	993	CIRB	III	2976	100	0	0	0	0	100
24	1315	GAD	III	2808	266	0	0	0	0	266
25	1084	CIRB	III	3007	98	0	0	0	0	98
26	1506	GAD	IV PT	3018	250	0	0	0	0	250
27	1451	GAD	IV PT	3401	250	0	0	0	0	250
28	1437	GAD	IV	3127	250	0	0	0	0	250
29	1319	CIRB	IV	2538	250	0	0	0	0	250
30	1341	CIRB	IV	2878	83	0	0	0	0	83
31	1538	CIRB	IV	2786	98	0	0	0	0	98
32	1363	CIRB	IV	3031	98	0	0	0	0	98
33	1434	CIRB	IV	2640	6	0	0	0	0	6
34	1360	CIRB	IV	2537	250	0	0	0	0	250
35	1485	CIRB	V	2523	246	0	0	0	0	246
36	4371	NDRI	V PT	3258	253	0	0	0	0	253
37	4245	NDRI	V	3215	250	0	0	0	0	250
38	4395	NDRI	V	3344	116	0	0	0	0	116
39	1798	CIRB	V	2753	250	0	0	0	0	250
40	1641	CIRB	V	2753	34	0	0	0	0	34
41	1536	GAD	V	3786	259	0	0	0	0	259
42	1491	CIRB	V	3148	250	0	0	0	0	250
43	1555	GAD	V	2948	175	0	0	0	0	175
44	1749	CIRB	V	2796	173	0	0	0	0	173
45	1573	GAD	V	2866	279	0	0	0	0	279
46	1717	GAD	VI	2775	68	0	0	0	0	68
47	1153	HAU	VI PT	2675	250	0	0	0	0	250
48	4506	NDRI	VI PT	3512	123	0	0	0	0	123
49	1933	CIRB	VI	2650	250	0	0	0	0	250
50	1944	CIRB	VI	2752	148	0	0	0	0	148
51	1135	CIRB	VI	3250	132	0	0	0	0	132
52	1667	GAD	VI	2988	58	0	0	0	0	58
53	1836	CIRB	VI	2744	133	0	0	0	0	133
54	1922	CIRB	VI	2684	83	0	0	0	0	83
55	2028	CIRB	VI	2689	142	0	0	0	0	142
56	1796	GAD	VII PT	3170	9	0	0	0	0	9
57	2331	CIRB	VII	2664	250	0	0	0	0	250
58	4807	NDRI	VII	3437	68	0	0	0	0	68
59	1749	GAD	VII	3182	68	0	0	0	0	68
60	1727	GAD	VII	3098	47	0	0	0	0	47
61	1419	CIRB	VII	3042	267	0	0	0	0	267
62	2363	CIRB	VII	2654	153	0	0	0	0	153
63	1746	GAD	VII	2718	40	0	0	0	0	40
64	2184	CIRB	VII	2574	188	0	0	0	0	188
65	1875	GAD	VIII PT	2714	42	0	0	0	0	42
66	4813	NDRI	VIII PT	3016(1)	18	0	0	0	0	18
67	2422	CIRB	VIII	3369	250	0	0	0	0	250
68	2522	CIRB	VIII	2567	98	0	0	0	0	98
69	1868	GAD	VIII	2591	160	0	0	0	0	160
70	2308	CIRB	VIII	2655	250	0	0	0	0	250
71	2250	CIRB	VIII	2748	100	0	0	0	0	100
72	5049	NDRI	VIII	2912	68	0	0	0	0	68
73	1867	GAD	VIII	2709(1)	250	0	0	0	0	250
74	1509	CIRB	VIII	3690	112	0	0	0	0	112
75	4865	NDRI	VIII	3392	38	0	0	0	0	38
76	1893	GAD	VIII	2753	150	0	0	0	0	150

77	2479	CIRB	VIII	2519	100	0	0	0	0	100
78	1994	GAD	IX PT	2938	253	0	0	0	0	253
79	5197	NDRI	IX	2831	250	0	0	0	0	250
80	2582	CIRB	IX	2836	111	0	0	0	0	111
81	5112	NDRI	IX	2831	250	0	0	0	0	250
82	2720		IX	2664	162	0	0	0	0	162
83	1903	GAD	IX	2718	136	0	0	0	0	136
84	1575	CIRB	IX	3194	100	0	0	0	0	100
85	2592	CIRB	IX	3336	173	0	0	0	0	173
86	5218	NDRI	IX	3333	170	0	0	0	0	170
87	2910	CIRB	IX	3062	147	0	0	0	0	147
88	1940	GAD	IX	2775	250	0	0	0	0	250
89	1913	GAD	IX	2740	251	0	0	0	0	251
90	1964	GAD	IX	2672	13	0	0	0	0	13
91	333 Golu	Didwadi	IX	22 kg PY	48	0	0	0	0	48
92	2990	CIRB	X	2655	250	0	0	0	0	250
93	3103	CIRB	X	2942	250	0	0	0	0	250
94	1693	CIRB	X PT	3194	250	0	0	0	0	250
95	2045	GAD	X PT	3369	447	0	0	0	0	447
96	507	CIRB	X	2572	250	0	0	0	0	250
97	2062	GAD	X	2672	250	0	0	0	0	250
98	2073	GAD	X	2717	250	0	0	0	0	250
99	2074	GAD	X	3050	250	0	0	0	0	250
100	2083	GAD	X	3063	250	0	0	0	0	250
101	3631	CIRB	X	18 kg PY	250	0	0	0	0	250
102	ND2	NDAUT	X	2583	135	0	0	0	0	135
103	3267	CIRB	XI PT	2489	250	0	0	0	0	250
104	3591	CIRB	XI PT	2598	820	0	0	0	0	820
105	2133	GAD	XI	2844	250	0	0	0	0	250
106	2148	GAD	XI	3008	102	0	0	0	0	102
107	2154	GAD	XI	2593	98	0	0	0	0	98
108	3226	CIRB	XI	2655	250	0	0	0	0	250
109	3255	CIRB	XI	3051	250	0	0	0	0	250
110	12-HAU	CIRB	XI	2858	250	0	0	0	0	250
111	5489	NDRI	XI	3031	250	0	0	0	0	250
112	5496	NDRI	XI	2780	250	0	0	0	0	250
113	5516	NDRI	XI	2765	250	0	0	0	0	250
114	ND6	NDAUT	XI	2702	250	0	0	0	0	250
115	ND8	NDAUT	XI	2702	250	0	0	0	0	250
116	2185	GAD	XII PT	3423	246	0	0	0	0	246
117	183	HAU	XII PT	2824	1288	0	0	0	0	1288
118	2176	GAD	XII	2754	208	0	0	0	0	208
119	2177	GAD	XII	3024	275	0	0	0	0	275
120	3598	CIRB	XII	2655	250	0	0	0	0	250
121	R-10	CIRB	XII	5192	412	0	0	0	0	412
122	R-11	CIRB	XII	4000	614	0	0	0	0	614
123	220	HAU	XII	2631	271	0	0	0	0	271
124	4059	CIRB	XIII	2510	250	0	0	0	0	250
125	3964	CIRB	XIII	3369	250	0	0	0	0	250
126	4440	CIRB	XIII	2850	250	0	0	0	0	250
127	4441	CIRB	XIII	3805	250	0	0	0	0	250
128	4442	CIRB	XIII	2882	250	0	0	0	0	250
129	5943	NDRI	XIII	3232	83	0	0	0	0	83
130	2234	GAD	XIII PT	3114	25	0	0	0	0	25
131	2269	GAD	XIII PT	3617	230	0	0	0	0	230

132	2304	GAD	XIII	3114	96	0	0	0	0	96
133	4439	CIRB	XIV	22 kg PY	951	0	0	0	0	951
134	4093	CIRB	XIV	3040	250	0	0	0	0	250
135	4196	CIRB	XIV PT	3304	1003	0	0	0	0	1003
136	4100	CIRB	XIV	2971	250	0	0	0	0	250
137	6014	NDRI	XIV	3072	250	0	0	0	0	250
138	6044	NDRI	XIVPT	3567	849	0	0	0	0	849
139	6136	NDRI	XIV	4341	1158	0	0	0	0	1158
140	2369	GAD	XIV	3114	250	0	0	0	0	250
141	2357	GAD	XIVPT	3559	853	0	0	0	0	853
142	4354	CIRB	XV	3605	6378	0	0	0	0	6378
143	4324	CIRB	XV	3528	6224	0	0	0	0	6224
144	4438	CIRB	XV	3222	4533	0	0	0	0	4533
145	4363	CIRB	XV	3068	6483	0	0	0	0	6483
146	4403	CIRB	XV	3059	5574	0	0	0	0	5574
147	4328	CIRB	XV	3228	6217	0	0	0	0	6217
148	2371	GAD	XV	3053	2055	0	0	0	0	2055
149	2412	GAD	XV	2998	5418	0	0	0	0	5418
150	2417	GAD	XV	3565	1218	0	0	0	0	1218
151	2429	GAD	XV	3435	5886	0	0	0	0	5886
152	2459	GAD	XV	4636	4990	0	0	0	0	4990
153	6007	NDRI	XV	3260	1652	0	0	0	0	1652
154	6139	NDRI	XV	2828	2152	0	0	0	0	2152
155	6290	NDRI	XV	4341	500	0	0	0	0	500
156	6405	NDRI	XV	2743(1)	2000	0	0	0	0	2000
157	4889	CIRB	XVI	4120	8000	0	0	0	0	8000
158	4705	CIRB	XVI	3990	6199	0	0	0	0	6199
159	4592	CIRB	XVI	3528	5975	0	0	0	0	5975
160	M-29	CIRB	XVI	4600	7268	0	0	0	0	7268
161	1027	LUVAS	XVI	3763	6926	0	0	0	0	6926
162	1053	LUVAS	XVI	3559	6622	0	0	0	0	6622
163	1064	LUVAS	XVI	3579	5816	0	0	0	0	5816
164	2467	GAD	XVI	3574	2026	0	0	0	0	2026
165	2501	GAD	XVI	3053	2788	0	0	0	0	2788
166	2383	GAD	XVI	4636	1981	0	0	0	0	1981
167	6379	NDRI	XVI	3505	2257	0	0	0	0	2257
168	6409	NDRI	XVI	4090	2207	0	0	0	0	2207
169	6646	NDRI	XVI	3533	2023	0	0	0	0	2023
170	6753	NDRI	XVI	3389	2508	0	0	0	0	2508
171	M-51	CIRB	XVII	4668	8000	0	0	0	0	8000
172	4715	CIRB	XVII	3059	6043	0	0	0	0	6043
173	4733	CIRB	XVII	2851 (1)	6376	0	0	0	0	6376
174	4687	CIRB	XVII	3309	3998	0	0	0	0	3998
175	M-53	CIRB	XVII	4100	8000	0	0	0	0	8000
176	Sikander	PVT	XVII	28.9 kg	3823	0	0	0	0	3823
177	Daara	PVT	XVII	28.9 kg	1635	0	0	0	0	1635
178	2565	GAD	XVII	3287	494	0	0	0	0	494
179	2594	GAD	XVII	3557	849	0	0	0	0	849
180	7010	NDRI	XVII	3068	2205	0	0	0	0	2205
181	4837	CIRB	XVII	3076	7418	0	0	0	0	7418
182	2558	GAD	XVII	3574	1194	0	0	0	0	1194
183	B1-330	CIRB	XVII	4595	7958	0	0	0	0	7958
184	2607	GAD	XVII	3899	375	0	0	0	0	375
185	1148	LUVAS	XVII	3124	8000	0	0	0	0	8000
186	6942	NDRI	XVII	3188	2625	0	0	0	0	2625

187	4905	CIRB	XVIII	3371/14	8000	0	0	0	0	8000
188	5147	CIRB	XVIII	3057/14.8	8000	0	0	0	0	8000
189	1209	LUVAS	XVIII	3593/17.2	7485	0	0	0	0	7485
190	4995	CIRB	XVIII	3064/15.5	8000	0	0	0	0	8000
191	7094	NDRI	XVIII	3465/17	948	0	0	0	0	948
192	7227	NDRI	XVIII	3099/16.5	498	0	0	0	0	498
193	7147	NDRI	XVIII	3108/15.5	748	0	0	0	0	748
194	2676	GAD	XVIII	3023/15.5	2375	0	0	0	0	2375
195	2677	GAD	XVIII	3135/16.5	2375	0	0	0	0	2375
196	1219	LUVAS	XVIII	3837/17.8	4230	0	0	0	0	4230
197	2689	GAD	XVIII	3151/18.8	737	0	0	0	0	737
198	7263	GAD	XVIII	3465/17.0	1080	0	0	0	0	1080
199	1208	CIRB	XVIII	3437/15.1	8000	0	0	0	0	8000
200	1150	CIRB	XVIII	3127/15.9	8000	0	0	0	0	8000
201	2645	GAD	XVIII	3394/19	1799	0	0	0	0	1799
202	2674	GAD	XIX	3583/23.0	1917	0	0	0	0	1917
203	2737	GAD	XIX	3241/22.8	930	0	0	0	0	930
204	2759	GAD	XIX	3340/20.7	1170	0	0	0	0	1170
205	2767	GAD	XIX	3097/19.8	0	0	0	0	0	0
206	2781	GAD	XIX	3129/18.0	0	0	0	0	0	0
207	7604	NDRI	XIX		0	0	0	0	0	0
			Total		291721	0	0	0	0	291721
	Non-set/Field bulls				Opening B.	Received	Sold	Supply	Exp.	Balance
1	M-188	CIRB	NS	4100	620	0	0	0	0	620
2	Yuvraj	PVT	Field		17	0	0	0	0	17
3	Heera	PVT	Field		50	0	0	0	0	50
4	Dhanna	PVT	Field		100	0	0	0	0	100
5	Ramu Haryana	Sirsa	cow bull		223	0	0	0	0	223
	Total				1010	0	0	0	0	1010
Opening balance of NPBI on 1st April, 2021									=	292731

Summary Report (2020-21)					
Sr. No.	Brief Information		2020-21	2019-20	2018-19
1	Opening balance on 1 st April		373330	393017	478012
2	Semen Production up to March		129334	80279	173840
3	Semen doses received		9267	920	4500
4	Semen doses supplied NPBI		25389	4720	8832
5	Semen doses sold up to March		94320	138906	97657
6	Semen doses used for Experiment		359	8	40
7	Closing Balance		394325	383757	473650

9.11 Average Body weight (kg) since inception (Indicate number of animals in parenthesis) : NA

9.12 Production Performance during 1st April 2020 to 31st March 2021

Lact. No.	No. of obs.	TLMY (kg)	Lact. Length (days)	SLMY (kg)	Peak yield (kg)
1 st	72	2682.11	313.03	2557.82	11.90
2 nd	26	3011.85	308.12	2870.88	14.06
3 rd	24	2982.92	308.25	2870.71	14.70
4 th	07	3288.29	310.57	3203.00	16.73
5 th & above	19	2881.16	285.79	2840.05	14.68
Overall	148	2843.04	307.78	2730.30	13.32

9.12.1 Production Performance of Buffaloes since Inception of Network

Year	Av. Lact. Yield (Kg)	Av. Lact. Length (days)	305-day Lact. Milk Yield (Kg)	Av. Peak yield (Kg)
1991-92	1761 ± 77 (154)	374 ± 9 (154)	1552 ± 60 (154)	-
1992-93	1804 ± 48 (137)	395 ± 8 (137)	1508 ± 34 (137)	7.46
1993-94	1980 ± 58 (148)	419 ± 7 (148)	1686 ± 46 (148)	8.20
1994-95	1930 ± 37 (206)	334 ± 5 (206)	1787 ± 0 (206)	8.89
1995-96	1936 ± 47 (147)	313 ± 7 (147)	1855 ± 42 (147)	9.40
1996-97	1879 ± 51 (173)	313 ± 7 (173)	1775 ± 45 (173)	-
1997-98	1784 ± 44 (123)	304 ± 6 (123)	1688 ± 37 (123)	-
1998-99	1762 ± 36 (153)	284 ± 6 (153)	1702 ± 33 (153)	-
1999-00	2138 ± 38 (141)	313 ± 4 (141)	2042 ± 31 (141)	-
2000-01	1997 ± 41 (173)	306 ± 9 (173)	1914 ± 36 (173)	9.68
2001-02	1954 ± 40 (152)	290 ± 4 (152)	1898 ± 35 (152)	9.71
2002-03	1987 ± 39 (148)	303 ± 5 (148)	1902 ± 32 (148)	9.20
2003-04	1910 ± 37 (148)	299 ± 5 (148)	1837 ± 31 (148)	9.18
2004-05	2017 ± 40 (167)	319 ± 5 (167)	1886 ± 33 (167)	9.33 ± 0.16
2005-06	2047 ± 45 (149)	321 ± 5 (149)	1921 ± 38 (149)	8.76 ± 0.19
2006-07	1994.9 ± 37 (170)	322 ± 4 (170)	1882 ± 32 (170)	9.23 ± 0.15
2007-08	1954 ± 38.02 (127)	299 ± 4 (127)	1891 ± 34 (127)	9.72 ± 0.19
2008-09	2076 (138)	325 (138)	1926 (138)	9.50 (138)
2009-10	2285 (102)	361 (102)	1995 (102)	9.54 (102)
2010-11	2471 (113)	337 (113)	2247 (113)	10.48 (113)
2011-12	2598 (116)	338 (116)	2374 (116)	12.29 (116)
2012-13	2478 ± 54.36 (110)	318 ± 6.14 (110)	2335 ± 45.71 (110)	11.23 ± 0.23 (110)
2013-14	2394 ± 44.16 (98)	333 ± 6.92 (98)	2291 ± 58.25 (98)	11.03 ± 0.19 (098)
2014-15	2501.72 ± 60.17 (110)	313.05 ± 5.57 (110)	2354.65 ± 47.55 (110)	11.26 ± 0.17 (110)
2015-16	2483.1 ± 43.68 (152)	322.19 ± 4.91 (152)	2336.06 ± 33.36 (152)	11.17 ± 0.15 (152)
2016-17	2567 ± 49.75 (133)	312 ± 4.44 (133)	2457 ± 39.61 (133)	12.22 ± 0.15 (133)
2017-18	2480.38 ± 55.06 (140)	294.98 ± 3.62 (140)	2423.79 ± 48.86 (140)	12.74 ± 0.23 (140)
2018-19	2640.56 ± 56.76 (123)	304.63 ± 3.83 (123)	2566.96 ± 49.21 (123)	13.36 ± 0.24 (123)
2019-20	2732.47 ± 59.27 (128)	300.02 ± 4.46 (128)	2648.39 ± 52.53 (128)	13.90 ± 0.21 (128)
2020-21	2843.04 ± 50.25 (148)	307.78 ± 4.27 (148)	2730.30 ± 41.52 (148)	13.32 ± 0.19 (148)

9.13 Average Milk Composition from April 2020 to March 2021: NA

9.14: Reproductive Performance 2020-21

Lactation / Parity	N	AFC (Months)	SP (Days)	DP (Days)	CI (Days)
1 st	71	42.48	--	--	--
2 nd	44	--	114.02	155.52	453.85
3 rd	20	--	138.60	154.69	471.38
4 th	14	--	143.71	188.80	492.10
≥5 th	22	--	131.55	111.21	410.07
Over all	171	42.48 ± 0.73 (71)	126.95 ± 7.29 (100)	126.79 ± 5.61 (100)	436.78 ± 7.43 (100)

9.14.1 Reproduction Performance of Buffaloes Since inception of Network.

Years	AFC (Months)	Service Period (days)	Dry Period (days)	Calving Interval (days)
1991-92	51.0 ± 0.8 (26)	236±11 (108)	138±6 (74)	502±12 (74)
1992-93	50.7 ± 1.5 (27)	304±15 (96)	132±7 (42)	489±16 (42)
1993-94	59.1 ± 1.6 (48)	312±12 (158)	230±14(161)	625±1 (161)
1994-95	55.3 ± 1.3 (48)	202±15 (105)	180±12(113)	527±10 (116)
1995-96	51.5±1.5 (22)	193±10 (149)	186±7 (149)	501±9 (152)
1996-97	47.6±1.0 (23)	182±10 (149)	204±7 (173)	473±9 (152)
1997-98	45.5±0.5 (49)	175±14 (106)	203±11 (118)	491±10 (118)
1998-99	50.0±0.1 (57)	137±9 (121)	159±14 (126)	455±10 (126)
1999-00	46.2±1.0 (54)	138±9 (104)	142±7 (120)	451±8 (120)
2000-01	46.2±1.2 (45)	146±9 (151)	153±7 (154)	454±9 (154)
2001-02	49.8 ± 0.8 (51)	146 ± 11 (125)	158±8 (135)	456±11 (135)
2002-03	47.83 ± 0.51 (61)	133 ± 9 (126)	143±6 (128)	440±9 (130)
2003-04	50.52 ± 0.84 (77)	151 ± 10 (142)	147±7 (149)	458 ± 10 (151)
2004-05	48.18 ± 0.82 (76)	111 ± 7 (100)	134±6 (100)	426 ± 7 (101)
2005-06	47.89 ± 0.73 (76)	184 ± 12 (112)	168±8 (117)	499 ± 12(117)
2006-07	46.90 ± 1.06 (43)	183 ± 10.11 (113)	178±8 (116)	495 ± 10 (116)
2007-08	48.27 ± 0.64	159 ± 11.55	177 ± 9.26	482 ± 12.06
2008-09	47.66 ± 0.97 (44)	171 ± 12.31 (80)	160 ± 10.50 (85)	469 ± 12.20 (85)
2009-10	49.22 ± 0.75 (51)	212 ± 16.64 (77)	170 ± 12.99 (77)	520 ± 16.21 (77)
2010-11	49.92 ± 1.04 (35)	186 ± 13.74 (80)	157 ± 10.47 (83)	492 ± 13.96 (83)
2011-12	51.91 ± 0.98 (37)	181 ± 13.24 (80)	155 ± 8.63 (81)	485 ± 12.65 (81)
2012-13	44.48 ± 1.42 (37)	174 ± 11.53 (72)	153 ± 8.19 (72)	481 ± 11.87 (73)
2013-14	45.62 ± 10.78 (37)	190 ± 11.27 (86)	170 ± 9.77 (85)	495 ± 11.64 (87)
2014-15	42.84 ± 0.79 (61)	168.43 ± 8.31 (88)	149.33 ± 6.46 (88)	472.92 ± 8.45 (88)
2015-16	44.96 ± 1.23 (24)	138.39 ± 7.39 (111)	140.78 ± 5.52 (111)	449.26 ± 7.43 (111)
2016-17	44.91 ± 0.81 (38)	148.75 ± 9.01 (93)	142.52 (93) ± 6.44	457.83 ± 8.82 (93)
2017-18	43.58 ± 0.67 (67)	167.32 ± 9.82 (101)	162.42 ± 7.54 (101)	477.75 ± 9.87 (101)
2018-19	45.76 ± 0.80 (31)	136.35 ± 6.98 (97)	151.39 ± 6.41 (97)	446.25 ± 7.08 (97)
2019-20	43.62 ± 0.80(71)	143.19 ± 8.29 (90)	145.73 ± 7.24 (90)	450.71 ± 8.49 (90)
2020-21	42.48 ± 0.73 (71)	126.95 ± 7.29 (100)	126.79 ± 5.61 (100)	436.78 ± 7.43 (100)

9.15 Month wise Milk Production and Disposal during the Period 01/04/2020 to 31/03/2021

Month	Total milk produced (kg)	Disposal(Kg)		
		Milk Sold	Calf feeding	Expt.
April, 2020	36625.50	31716.50	4909.00	--
May	38961.50	33531.50	5430.00	--
June	36305.00	30534.50	5770.50	--
July	34526.00	28855.00	5671.00	--
August	36240.00	30097.50	6142.50	--
September	33863.50	27867.50	5996.00	--
October	36864.00	31383.50	5480.50	--
November	42163.00	34015.00	8148.00	--
December	43998.50	35260.00	8738.50	--
January, 2021	44239.50	36475.50	7764.00	--
February	40920.00	33764.50	7155.50	--
March	44606.00	36576.00	8030.00	--
Total	469312.50	390077.00	79235.50	--

9.16 Feed and Fodder purchased and offered to animals during the year 2020-21

Quarter	Type of Fodder	OB	Produced at CIRB	Qty. Purchased	Actually Fed.	Balance
I	Green	--	8890.35	--	8890.35	--
	Dry	1213.75	907.75	6622.05	2010.8	5825
	Sugar beet pulp	198.0	--	416.50	233	381.5
	Concentrate	--	--	--	1886.45	--
II	Green	--	11944.3	--	11944.3	--
	Dry	5825	--	--	1515	4310
	Sugar beet pulp	381.5	--	--	381.5	--
	Concentrate	--	--	--	2198.60	--
III	Green	--	7420.9	--	7420.9	--
	Dry	4310	--	--	1790	2520
	Sugar beet pulp	--	--	833.10	400	433.10
	Concentrate	--	--	--	1921.54	--
IV	Green	--	11202.85	--	11202.85	--
	Dry	2520	--	--	645.00	--
	Sugar beet pulp	433.10	--	--	433.10	--
	Concentrate	--	--	--	1819.91	--
Total	Green	--	39458.4	--	39458.4	--
	Dry	1213.75	907.75	6622.05	5960.8	--
	Sugar beet pulp	198.0	--	1249.6	1447.6	--
	Concentrate	--	--	--	7826.5	--

9.17 Milking performance 1st April 2020 to 31st March 2021

Month	Buffaloes in Milk	Dry Buffaloes	Total	% in Milk	Wet Av. (kg)	Herd Av. (kg)
April 2020	132	45	177	75	9.18	6.87
May 2020	138	44	182	76	9.10	6.91
June 2020	132	53	185	71	9.07	6.54
July 2020	124	62	186	67	8.88	5.98
August 2020	124	68	192	65	9.45	6.12
September 2020	112	64	176	64	9.98	6.33
October 2020	116	59	175	66	10.38	6.83
November 2020	133	50	183	73	10.67	7.69
December 2020	132	41	173	76	10.71	8.14
January 2021	132	37	169	78	10.88	8.48
February 2021	141	35	176	80	10.42	8.37
March 2021	141	42	183	77	10.19	7.91
Overall	130	50	180	72	9.91	7.15

9.17.1 Milking performance since inception

Year	Animal in Milk	No. of Animal dry	Total Animal	% in Milk	Wet Av. (kg)	Herd Av. (kg)
1991-92	182	147	329	55.3	4.70	2.61
1992-93	165	111	276	60.60	4.80	2.83
1993-94	153	125	178	55.00	5.65	3.10
1994-95	181	85	266	68.10	6.09	4.15
1995-96	153	82	235	65.19	6.43	4.19
1996-97	122	83	205	59.56	5.62	3.35
1997-98	121	76	197	61.38	6.12	3.75

1998-99	133	73	206	64.52	6.77	4.37
1999-00	137	72	209	65.48	6.85	4.49
2000-01	148	78	226	65.39	6.68	4.37
2001-02	147	70	217	67.70	6.59	4.46
2002-03	143	71	214	67.00	6.27	4.20
2003-04	151	72	223	67.69	6.49	4.39
2004-05	154	69	224	68.97	6.39	4.40
2005-06	151	77	238	66.37	6.57	4.36
2006-07	137	92	229	59.81	6.45	3.86
2007-08	146	71	217	67.32	6.64	4.47
2008-09	133	66	199	66.00	6.50	4.35
2009-10	106	65	171	62.00	7.01	4.35
2010-11	109	64	173	62.97	7.45	4.69
2011-12	110	58	168	65.38	7.83	5.12
2012-13	109	69	178	62.24	7.74	4.76
2013-14	105	65	170	61.78	8.01	4.95
2014-15	116	50	166	69.97	8.25	5.77
2015-16	114	62	176	65	8.04	5.21
2016-17	110	57	167	66	8.08	5.32
2017-18	115	54	169	67.8	8.71	5.90
2018-19	101	54	155	65	8.92	5.80
2019-20	124	48	172	72	9.66	6.94
2020-21	130	50	180	72	9.91	7.15

9.18: Bull wise daughters born during 2020-21

Sr. No.	Bull No.	Set No.	Daughter born
1	1150	18	4
2	1208	18	7
3	1208	18	5
4	1219	18	5
5	2645	18	7
6	2676	18	3
7	2677	18	5
8	4905	18	3
9	4995	18	8
10	7094	18	5
11	7147	18	3
12	7227	18	5
13	7263	18	2
14	183PT	12	2
15	2234PT	13	9
16	2269PT	13	8
Total			81

9.19 Bull wise daughters completing 1st lactation in 2020-21

Sr No	Bull No	Daughter No	D.O.B.	D.O.C.	AFC (Month)	Lact. Length (Days)	TLMY (kg)	SLMY (KG)
1.	6405	5061	23-06-16	04-08-19	37.38	250	2003	2003
2.	6139	5075	05-08-16	22-08-19	36.56	232	2146	2146
3.	M188	5033	10-03-16	29-07-19	40.64	263	2196	2196
4.	1693PT	4978	25-10-15	07-04-19	41.42	390	4717	3874
5.	4354PT	5027	29-02-16	01-10-19	43.07	220	2056	2056
6.	2412	5106	15-10-16	20-08-19	34.16	276	2193	2193
7.	4196PT	4890	20-03-15	16-07-19	51.91	318	2937	2876
8.	2371	5049	26-04-16	09-08-19	39.45	294	2817	2817
9.	2412	5013	10-01-16	22-08-19	43.40	288	2661	2661
10.	2417	4971	09-10-15	30-08-19	46.72	280	2380	2380
11.	4328	5014	14-01-16	14-08-19	43.00	303	2284	2284
12.	6290	4924	22-08-15	04-10-19	49.45	252	1839	1839
13.	6139	5073	27-07-16	26-09-19	38.01	260	2093	2093
14.	2412	5101	08-10-16	26-09-19	35.61	260	2087	2087
15.	6290	4934	01-09-15	15-07-19	46.45	340	3032	2888
16.	4403	4991	23-11-15	27-07-19	44.12	328	2383	2289
17.	6290	4936	02-09-15	01-09-19	48.00	292	2438	2438
18.	4438	5030	06-03-16	06-08-19	41.03	325	2437	2377
19.	6007PT	4919	13-08-15	07-10-19	49.84	270	2332	2332
20.	6136	4827	08-11-14	12-09-19	58.16	302	2704	2704
21.	4403	4990	17-11-15	17-09-19	46.03	297	1839	1839
22.	4100	4812	09-10-14	28-09-19	59.67	293	2166	2166
23.	2371	5083	28-08-16	07-10-19	37.32	284	2367	2367
24.	2412	5012	08-01-16	06-08-19	42.94	353	3062	2768
25.	2459	5112	24-10-16	30-09-19	35.21	298	2430	2430
26.	4324	5121	03-11-16	30-09-19	34.88	298	2174	2174
27.	4889	5122	03-11-16	27-11-19	36.79	247	2021	2021
28.	4328	5016	31-01-16	02-10-19	44.05	303	1895	1895
29.	Virat	4893	02-04-15	29-09-19	53.95	306	2325	2323
30.	2459	4926	27-08-15	02-10-19	49.22	303	2685	2685
31.	2371	5095	28-09-16	28-08-19	34.98	345	3128	2926
32.	M-53	5029	01-03-16	17-08-19	41.56	363	2892	2625
33.	1693PT	4989	17-11-15	18-08-19	45.04	362	3005	2708
34.	4354PT	5022	19-02-16	24-08-19	42.15	356	3119	2891
35.	2417	4947	13-09-15	11-09-19	47.97	338	2811	2685
36.	6044PT	4899	01-05-15	15-10-19	53.52	304	3505	3505
37.	1693PT	4988	16-11-15	30-11-19	48.49	265	2403	2403
38.	M-53	5017	01-02-16	17-08-19	42.51	370	3240	2900
39.	1693PT	5105	15-10-16	10-12-19	37.84	269	2523	2523
40.	6290	4929	28-08-15	10-08-19	47.44	398	3031	2526
41.	6007PT	5080	22-08-16	02-10-19	37.35	345	3381	3127
42.	4328	4964	03-10-15	18-11-19	49.55	298	2538	2538
43.	4403	5056	29-05-16	30-09-19	40.08	347	2369	2225
44.	4363	5001	20-12-15	08-11-19	46.65	308	2272	2249

45.	2417	4916	08-08-15	03-11-19	50.89	320	3198	3138
46.	2357PT	4802	28-09-14	18-08-19	58.68	432	3329	2688
47.	6007PT	4981	01-11-15	20-10-19	47.64	369	3507	3166
48.	4100	4860	06-01-15	22-01-20	60.56	275	2349	2349
49.	6405	5068	09-07-16	10-02-20	43.10	256	1757	1757
50.	4354PT	5097	03-10-16	10-09-19	35.24	430	3210	2654
51.	2045PT	5092	24-09-16	28-09-19	36.13	412	3443	2956
52.	4403	5052	10-05-16	25-12-19	43.53	331	2802	2710
53.	4363	5005	25-12-15	14-01-20	48.69	311	2588	2544
54.	4889	5103	12-10-16	13-11-19	37.05	387	3651	3267
55.	4889	5133	21-11-16	06-03-20	39.48	280	2361	2361
56.	M-29	5199	02-06-17	11-03-20	33.30	275	1987	1987
57.	Virat	4886	01-03-15	25-11-19	56.88	389	3105	2747
58.	4363	5008	03-01-16	04-04-20	51.06	258	2112	2112
59.	6409	5254	01-09-17	03-04-20	31.07	259	1929	1929
60.	NK	E183	29-05-17	04-05-20	35.21	228	1675	1675
61.	M-53	5096	01-10-16	24-11-19	37.78	397	3330	2928
62.	4438	5025	23-02-16	15-01-20	46.75	352	3318	3120
63.	6405	5066	07-07-16	14-01-20	42.28	360	3551	3275
64.	6405	5065	06-07-16	03-04-20	44.94	280	2465	2465
65.	4354PT	5020	15-02-16	22-05-20	51.22	266	2670	2670
66.	4438	5040	27-03-16	20-01-20	45.83	396	3335	2843
67.	4592	5151	07-01-17	31-03-20	38.76	332	3564	3430
68.	4363	4963	02-10-15	12-05-20	55.36	290	3008	3008
69.	1354PT	5223	28-07-17	24-02-20	30.94	375	3800	3364
70.	Virat	4935	01-09-15	11-04-20	55.36	328	3046	2959
71.	6290	4945	10-09-15	30-04-20	55.69	323	3105	3028
72.	M-29	5155	18-01-17	04-08-20	42.54	234	2001	2001

9.20: Breeding bulls for test mating (18th & 19th Set from CIRB Unit)

Bull no.	D.O.B.	Dam No.	Sire No.	Dam's Best Yield / PY (kg)	Parity
Set 18					
4905	09/06/15	3633	4324 Set 15	3371/14.0	4
4995	07/12/15	4713 P	M 51 Set 17	3064/15.5	3
5147	01/01/17	4384	4592 Set 16	3057/14.8	2
Set 19					
5181	11/04/17	4340	3591 PT Set 11	3428/17.9	4
5232	06/08/17	4322	1354 PT Set 3	3568/17.0	5
5246	20/08/17	4672	4371 PT Set 5	3124/15.7	2
5310	23/12/17	4545	6646 Set 16	4069/21.0	3
5320	15/01/18	4017	1053 Set 16	3340/15.2	4
5333	02/02/18	3485	1354 PT Set 3	3304/17.6	5
5374	12/07/18	4344	1148 Set 17	3244/17.4	3

9.20.1: P T Bulls for nominated mating (2020 on ward).

Sr. No	Bull No.	Institute	DoB	Dam No.	Sire No.	Dams' Best yield	Sire Index	Superiority (%)
1	2234 Set 13	GADVASU	06-03-08	2138	5396 Set X	3114	2688.44	+14.80
2	2269 Set 13	GADVASU	17-12-08	2295	3631 Set X	3617	2618.87	+13.86
3	2357 Set 14	GADVASU	24-07-10	P2488	1933 PT Set VI	3559	2486.91	+2.78*
4	6044 Set 14	NDRI	15-01-09	430	4371 PT Set V	3567	2479.00	+2.43*
5	4196 Set 14	CIRB	10-05-10	3586	1153 PT Set VI	3304	2474.00	+2.27*

* BLUP Method

9.20.2 Bulls selected for 19th set (CIRB Unit)

Sr. No.	Bull no.	D.O.B.	Dam No.	Sire No.	Dam's Best Yield (305 day or less days) kg	Highest yield/ Peak yield
1	5414	03/10/18	4593	4998 Clone Non-Set	2708, 3321 ,3025, 3177	3321/19.0
2	5427	10/11/18	3633	2594 Set 17	2726,2300,3241, 3371 , 3025,3211, 3014	3371/15.3
3	5473	22/03/19	4458	R-25 Field	3044,3631,3571, 4028	4028/17.0
4	5462	13/02/19	4479	Sikander Set 17	2851,2837,3118, 3204	3204/18.7
5	5465	23/02/19	4713P	M-53 Set 17	NK,NK,867,2084,3064, 2695, 3257 , 2845,2075	3257/16.5
6	5466	24/02/19	4369	M-53 Set 17	2068,2816, 3297 ,2785, 2788,3196	3297/15.3
7	5467	27/02/19	4197	B1/330 Set 17	2209,2891,2760,2854, 3112, 3184 , 2582	3184/17.3
8	5481	29/03/19	4621	4733 Set 17	2002,1455, 3332	3332/16.6
9	5500	15/07/19	4934	1148 Set 17	2888, 3171	3171/16.5
10	5505	22/07/19	4251	Dara Set 17	2407,3184, 4138 ,3784	4138/22.0
11	5511	27/07/19	4800	1148 Set 17	2612, 3356 ,3262	3356/17.4
12	5579	03/10/19	4672	Dhanna Field	2166, 3124 ,2828	3124/15.7
13	5588	15/10/19	4899	4687 Set 17	3505, 4216 ,	4216/18.9
14	5592	21/10/19	4241	Heera Field	2387,3232,2663,2949, 3192, 3242	3242/17.0

All Bulls are negative for TB, JD, Brucellosis, IBR, BVD, Tricomonas and BGC

Table 9.20.3 Future Breeding bulls (CIRB Unit)

Sr. no.	Bull no.	D.O.B.	Dam no.	Sire no.	Dam's Yield (305 or less days)	Highest Yield/ Highest Peak
1.	5618	07/01/20	4559	4995 Set 18	2168, 3030 ,2855,2365	3030/15.0
2.	5620	14/01/20	5066	4995 Set 18	3275 , In Milk	3275/17.0
3.	5622	15/01/20	5025	1150 Set 18	3120 , In Milk	3120/15.0
4.	5626	23/01/20	4622	1150 Set 18	2328, 3791 , In Milk	3791/20.0
5.	5629	29/01/20	4613	2645 Set 18	2475,3501, 4043 , In Milk	4043/18.0
6.	5636	19/02/20	3485	2269 PT Set 13	1916,2868,3073,2868, 3304 , 2555,3211,2780, 3118, 2785, 341 (Auct)	3304/17.6
7.	5638	24/02/20	5223	2234 PT Set 13	3364	3364/14.0

8.	5647	31/03/20	4462	2185 PT Set 12	2566, 4045 ,2505,2610	4045/23.4
9.	5650	04/04/20	4504	1198 Set 18	2343,2870,2461, 3342 , In Milk	3342/17.3
10.	5651	05/04/20	3773	2185 PT Set 12	2079,2935,2780,2703, 2667, 3005 , 2986 (Auct)	3005/16.7
11.	5661	30/04/20	4945	2645 Set 18	3028 , In Milk	3028/15.0
12.	5663	07/05/20	4878	2269 PT Set 13	2958, 3118 (Auct)	3118/13.6
13.	5664	12/05/20	4963	1150 Set 18	3008 , In Milk	3008/15.0
14.	5668	31/05/20	4372	2269 PT Set 13	2413,2598,2766,2714, 3124, 3282 , In Milk	3282/17.5
15.	5671	14/06/20	4235	7263 Set 18	2874,3169, 3533 ,3009, In Milk	3533/16.9
16.	5676	16/07/20	4420	4905 Set 18	2304,2552,2141, 3197 , 2804, In Milk	3197/15.9
17.	5682	27/07/20	4767	4995 Set 18	2468,3697, 4268	4268/18.3
18.	5686	30/07/20	4978	2234 PT Set 13	3874, 4366	4366/18.9
19.	5688	31/07/20	4524	2234 PT Set 13	2089,3002, 3070 ,2551, In Milk	3070/14.5
20.	5689	31/07/20	4344	2269 PT Set 13	2484,3087, 3244 ,3028, 2852, In Milk	3244/17.4
21.	5690	02/08/20	5021	4905 Set 18	3573 , In Milk	3573/21.0
22.	5700	13/08/20	5106	1208 Set 18	2193, 3040 , In Milk	3040/16.0
23.	5706	26/08/20	4448	2234 PT Set 13	2575,3193, 3252 ,2200, In Milk	3252/16.9
24.	5710	05/09/20	5158	7227 Set 18	3136	3136/13.5
25.	5713	14/09/20	4572	2269 PT Set 13	2427, 3678 ,3099 (Auct)	3678/20.1
26.	5715	17/09/20	4812	2645 Set 18	2166, 3011	3011/14.0
27.	5720	24/09/20	4917	2676 Set 18	2459, 3181	3181/13.0
28.	5723	07/10/20	5179	7094 Set 18	4073	4073/17.7
29.	5727	10/10/20	4934	2645 Set 18	2888, 3171	3171/16.5
30.	5730	12/10/20	E186	2676 Set 18	3018	3018/12.7
31.	5732	14/10/20	4384	1208 Set 18	2373, 3057 ,2273,1869 (Auct)	3057/16.6
32.	5736	19/10/20	5012	7227 Set 18	2768, 3127	3127/13.5
33.	5743	24/10/20	4089	183 PT Set 13	2370,2691,2908,3036,2755,305 6,3047, 3302 , In Milk	3302/15.5
34.	5752	05/11/20	E194	7227 Set 18	2857 (1)	2857/11.7
35.	5756	13/11/20	4724	183 PT Set 13	2810,3222, 3646 , In Milk	3646/20.7
36.	5764	22/11/20	4989	4905 Set 18	2708, 3616	3616/16.5
37.	5771	11/12/20	4916	2676 Set 18	3138, 3777	3777/16.5
38.	5776	24/12/20	4933	2645 Set 18	2341,3006, 3764	3764/18.5
39.	5780	29/12/20	5274	2645 Set 18	2886 (1)	2886/13.5

Table 9.21 A: No. of Elite animals having 305 DLMY \geq 3000 kg.

Sr. No.	305 DLMY groups	No. of elite buffalo
1	3000 to 3500 kg	45
2	3500 to 4000 kg	15
3	\geq 4000 kg	08
Total		68

9.21: Accomplishment and Targets Achieved:

S. N.	Trait	Target	2016-17	2017-18	2018-19	2019-20	2020-21
1	Av. AFC (Months)	40.0	44.91±0.81 (38)	43.58±0.67 (67)	45.76±0.80 (31)	43.62±0.80 (71)	42.48±0.73 (71)
2	Av. service period (Days)	130	148 ± 9.01 (93)	167±9.82 (101)	136.35±6.98 (97)	143.19±8.29 (90)	126.95±7.29 (100)
3	Calf mortality (0-3 months)	≤ 3 %	8.88 %	6.96 %	13.98 %	6.34 %	2.63 %
4	Wet average (Kg)	≥ 8.50	8.08 kg	8.71 kg	8.92 kg	9.66 kg	9.91 kg
5	Herd average (Kg)	≥ 5.50	5.32 kg	5.90 kg	5.80 kg	6.94 kg	7.15 kg

11. Achievements and summary:

Herd Strength: The overall herd strength of Murrah buffalo in March 2021 was 555, which included 265 breedable buffaloes, 155 suckling calves (< 1 year), 109 young males and females (1-2 years), 25 breeding males (>2.0 years) and 1 Bullocks/Teasers.

Mortality: During the period April 20 to March 2021 calf mortality (0-3 month) was reported 2.63 percent, which is lowest in the last few years of calf mortality.

Milk Production Performance: The overall wet average and herd average were reported **9.91 and 7.15** kg, respectively. The overall 305 days lactation milk yield and total lactation milk yield during April 20 to March 2021 was reported **2730** and **2843** kg, respectively. During the period under report 148 buffaloes completed their lactation.

Reproductive Performance: The overall conception rate during January to December 2020 was reported 46.67 %. The other reproductive traits viz. Age at first calving, service period and calving interval were observed 42.48 months, 132 days and 410 days, respectively for buffaloes calved during April 20 to March 2021.

Semen Production and Dissemination: A total 129,334 semen doses frozen at CIRB Lab during April 20 to March 2021. A total of 25,389 doses of frozen semen were supply in NPBI and 94,320 frozen semen doses sold during the period under report.

Project Co-ordinator's observations on centre performance

Financial Statement for the year 2020-21

(Rs in Lakhs)

Sanctioned as per R E 2020-21		Released ICAR Share as per R E	Expenditure as per AUC		Balance
			ICAR Share	State Share	
Total	ICAR Share				
25.00	25.00	25.00	24.95788	0.00	0.04212

Herd Performance

Herd Strength: The overall herd strength of Murrah buffalo in March 2021 was 555, which included 265 breedable buffaloes, 155 suckling calves (< 1 year), 109 young males and females (1-2 years), 25 breeding males (>2.0 years) and 1 Bullocks/Teasers

Mortality: During the period April 2020 to March 2021 calf mortality (0-3 month) was reported 2.63 percent, which is lower than the last year calf mortality and under the target.

Milk Production Performance: The overall 305 days lactation milk yield and total lactation milk yield during April 2020 to March 2021 was reported **2730** and **2843** kg, respectively, revealed an improvement of 3.10 and 4.05 % respectively, over the performance of 2019-20. The wet average and herd average were reported **9.91** and **7.15** kg, respectively which is improved 2.59 % and 3.03 % as compared to previous year performance.

Reproductive Performance: The overall conception rate during January to December 2020 was reported 46.67 %. The other reproductive traits viz. Age at first calving, service period and calving interval were observed 42.48 months, 127 days and 435 days, respectively for buffaloes calved during April 2020 to March 2021. The AFC was reported lower (2.14 months @ -2.61%) as compared to previous year performance (43.62 months). Total 160 calving reported which involved 71 first calvers during the period under report.

Semen Production and Dissemination: Total 129334 semen doses frozen at CIRB Lab during April 2020 to March 2021. A total of 25389 doses of frozen semen were supply in NPBI and 94320 frozen semen doses sold to farmers, developmental agencies and NGOs during the period under report.

Accomplishment and Targets Achieved:

Sr. No.	Trait	Target	2016-17	2017-18	2018-19	2019-20	2020-21
1	Av. AFC (Months)	40.0 months	44.91±0.81 (38)	43.58±0.67 (67)	45.76±0.80 (31)	43.62 (71)	42.48 (71)
2	Av. service period (Days)	130 days	148 ± 9.01 (93)	167±9.82 (101)	136±6.98 (97)	143.19 (90)	127 (100)
3	Calf mortality (0-3 months)	≤ 3 %	8.88	6.96 %	13.94%	6.37 %	2.63 %
4	Wet average (Kg)	≥ 8.50 kg	8.08 kg	8.71 kg	8.92 kg	9.66 kg	9.91 kg
5	Herd average (Kg)	≥ 5.50 kg	5.32 kg	5.90 kg	5.80 kg	6.94 kg	7.15 kg

Recommendations:

1. Emphasis given on heifers and buffalo management at farm to reduce involuntary culling.
2. Significant improvement observed in milk production traits during the 2019-20 as compared to previous year performance.

**GURU ANGAD DEV VETERINARY AND ANIMAL SCIENCES
UNIVERSITY, LUDHIANA, MAIN UNIT (MURRAH)**

- Report period** : 1st April 2020 to 31st March, 2021
- 1. Name of Centre** : Guru Angad Dev Veterinary & Animal Sciences
University, Ludhiana
- 2. Project Code** : F.No. 18(I)2002- ASR- II
- 3. Project Title** : Network Project on Buffalo Improvement
- 4. Date of Start** : 01/04/1992
- 5. Objectives** : As per NPBI
- 6. Technical Programme** : The GADVASU Centre of the All India Coordinated Research Project on Buffalo Breeding is one of the participating units of the Network Project on Buffalo Improvement from 1.4.1992. Broadly, the technical program involves testing of 12-15 bulls on about 1000 breedable buffaloes at organized farms at GADVASU, Ludhiana; CIRB, Hisar; NDRI, Karnal; IVRI Izatnagar, LUVAS, Hisar and ICAR-RCER, Patna in every 18-month's cycle. From each bull, 75-80 pregnancies are to be obtained so that 20-25 recorded daughters per bull are available at all the centers for the evaluation of bulls. The bulls will be ranked based on the performance of their daughters and 20% of them will be selected as proven bulls from each set. The semen of the proven bulls will be used on elite buffaloes at different centers for the production of future sires and herd replacements.
- 7. Financial Statement:** Statement showing budget sanctioned, amount spent and receipt realized for the period 1st April 2020 to 31st March 2021.

	Budget Sanctioned (Rs.)	Amount Spent (Rs.)
Pay & Allowances	15,26,667	7,50,269
T. A.	32,000	32,000
Contingencies		
i) Recurring Cont.	59,99,333	59,99,333
SCSP Recurring General	5,00,000	5,00,000
ii) Non-Recurring Cont.		
Furniture		
Livestock		
Vehicles/Building Works		
Machinery and Equipment	4,00,000	4,00,000
SCSP Equipments	1,00,000	1,00,000
Total	85,58,000	77,81,602

Receipts: The project transferred 1,52,735 kg of milk to the College of Dairy Sciences, GADVASU for sale after processing. The department sold 37 surplus/breeding animals and 55721 doses liquid & frozen semen to the progressive dairy farmers and dairy developed agencies.

8. Staff and Infrastructure Build up during the year: Staff in position :

Name & Designation of the person employed on the sanctioned post with pay scale	Date of joining	Date of leaving	Other project (assignment) in the institution besides the project	Total time spent for the project	Transfer or upgrading of the post if any, give details of sanction from the ICAR	Remarks
Statistical Assistant in Rs. 10300-34800	18/02/12	-	-	Full Time	-	-

Herd performance:-

9.1. Herd strength during the period 4/2020 to 3/2021

Sr. No	Category	Addition			Disposal			CB
		OB	B/P	T	D	T	S	
Female								
1.	Calves 0 – 3 months	6	45/1	-	8	36	01	07
2.	Calves >3 – 12 months	31	0/8	36	-	42	01	32
3.	Heifers							
	1 – 2 years	46	0/5	42	1	45	01	46
	> 2 years	70	0/2	45		36	05	76
4.	Buffaloes in Milk	69	0/1	36	1	8	25	72
5.	Buffaloes Dry P /NP	38	0/0	8			28	18
	Sub Total	260	45/17*	167	10	167	61	251
Male								
1.	Calves 0 – 3 months	6	50/2		1	35	4	18
2.	Calves >3 – 12 months	29	0/1	35	1	23	25	16
3.	Male above							
	1 – 2 years	29	0/2	23	1	27	14	12
	> 2 years	9	0/0	27		2	13	21
4.	Breeding bulls	10		2		0		12
5.	Bullocks	0		0				0
6.	Teasers	0						0
	Sub Total	83	50/5*	87	3	87	56	79
	Grand Total	343	95/22*	254	13	254	117	330

OB = Opening Balance

D = Deaths

S = Sale

B/P = Births/Purchase

T = Transfer

CB = Closing Balance

9.2. Calving statistics during the period 4/2020 to 3/2021

Month	Male		Female		Dystokia		Prolapses		Still Birth		Abortion		Overall	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
April, 20	2	4.0	1	2.2	0	-	0	-	0	-	0	-	3	3.1
May	0	0.0	2	4.4	0	-	0	-	0	-	0	-	2	2.1
June	3	6.0	3	6.7	0	-	0	-	0	-	0	-	6	6.2
July	6	12.0	4	8.9	0	-	0	-	0	-	0	-	10	10.3
August	2	4.0	1	2.2	0	-	0	-	1		0	-	4	4.1
September	6	12.0	6	13.3	0	-	0	-	0	-	0	-	12	12.4
October	4	8.0	9	20.0	0	-	0	-	0	-	0	-	13	13.4
November	5	10.0	3	6.7	0	-	0	-	0	-	0	-	8	8.2
December	6	12.0	6	13.3	0	-	0	-	0	-	0	-	12	12.4
January,21	7	14.0	10	22.2	0	-	0	-	0	-	0	-	17	17.5
February	4	8.0	0	0.0	0	-	0	-	0	-	0	-	4	4.1
March	5	10.0	0	0.0	0	-	0	-	0	-	1	16.66	6	6.2
Overall	50	100	45	100.0	0	-	0	-	1	1.03	1	1.03	97	100

Sex ratio Male: Female = 1.0:0.9

9.3 Disposal of animals during the period 4/2020 to 3/2021

Sr. No.		Surplus	Rep. Problem	Weak & Old	Death	Experimental purpose	Total
Female							
1.	Calves 0 – 3 months	-		1	8	-	9
2.	Calves >3 – 12 months	-		1		-	1
3.	Heifers 1 – 2 years	-		1	1	-	2
	> 2 years	-	5	-			5
4.	Buffaloes in Milk	-	25	-	1	-	26
5.	Buffaloes Dry P /NP	-	28	-		-	28
	Sub Total	-	58	3	10	-	71
Male							
1.	Calves 0 – 3 months	4			1	-	5
2.	Calves >3 – 12 months	25			1	-	26
3.	Male 1 – 2 years	14			1	-	15
	> 2 years	13				-	13
4.	Breeding bulls	-				-	
5.	Bullocks	-				-	
6.	Teasers	-				-	
	Sub Total	56			3	-	59
	Grand Total	56	58	3	13	-	130

37 Bulls/bull calves sold for breeding purpose.

9.4. Month-wise mortality during the period 4/2020 to 3/2021

Female								Male					
Month		0-3 (mo)	3-6 (mo)	6-12 (mo)	1-2 yrs	Abo. 2 yrs.	Overall female	0-3 (mo)	3-6 (m)	6-12 (mo)	Above 1 yr.	Oveall male	Overall Herd
April	No.	4	10	23	44	177	258	6	13	18	48	85	343
	Died												
	%												
May	No.	5	7	26	44	178	260	6	4	26	49	85	345
	Died				1		1						1
	%				2.27		0.04						0.03
June	No.	6	7	21	40	187	261	4	6	27	49	86	347
	Died					1	1						1
	%					0.05	0.04						0.03
July	No.	9	5	22	40	191	267	9	6	23	52	90	357
	Died									1	1		2
	%									0.04	1.92		0.06
August	No.	8	4	21	35	200	268	12	6	17	55	90	358
	Died	1					1						1
	%	12.5					0.04						0.03
Sept.	No.	11	3	17	37	195	263	14	5	14	53	86	349
	Died												
	%												
October	No.	17	10	17	40	192	276	13	8	14	52	87	363
	Died												
	%												

Nov.	No.	18	10	15	42	195	280	15	11	4	54	84	364
	Died	1					1	1					2
	%	5.55					0.03						0.05
Dec.	No.	18	11	17	39	172	257	14	9	4	48	75	332
	Died	2					2						2
	%	11.11					0.08						0.05
January	No.	17	16	15	42	174	264	19	8	5	47	79	343
	Died	2					2						2
	%	11.76					0.07						0.06
Feb.	No.	14	15	15	45	176	265	19	13	5	48	85	350
	Died												
	%												
March	No.	9	15	17	46	66	253	18	10	6	45	79	332
	Died	2					2						2
	%	22.22					0.08						0.06
Total	No.	8			1	1	10	1		1	1		13

Note: 8.18 % calf mortality (0 – 3 months)

9.5. Causes of Mortality (quarter-wise) during the period 4/2020 to 3/2021

Particulars	1 st quarter	2 nd quarter	3 rd quarter	4 th quarter
A. Respiratory System :				
1. Pheumo-Enteritis	-	-	-	-
2. Broncho-Pneumonia	-	2	1	-
B. Digestive System :				
1. Enteritis	-	-	1	-
2. Septicemia & Toxaemia	-	-	-	-
3. Peritonitis	1	1	-	-
4. Haem. Enteritis	-	-	-	-
C. Circulatory				
D. Others				
1. Chronic debility	-	-	-	-
2. JD/TB	-	-	-	-
3. Accidents	-	-	-	-
4. Diarrhoea	-	-	2	4
5. Miscellaneous	1	-	-	-
Total	2	3	4	4

9.6. Prophylactic measures taken during the period 4/2020 to 3/2021

Vaccination	No. of animals		Screening for disease	No. of animals		No. of animals treated for Parasitism etc.
	Available	Inoculated		Tested	Results	
FMD (Thrice)		925	TB JD		All Negative All Negative	No clinical case of parasitic infestation was observed during the year. All the animals were dewormed as per normal schedule.
HS (Thrice)		1261	Brucellosis		All Negative	
BQ (Once)		265	-	-	-	
Brucellosis		18	-	-	-	

9.7. Female conception rate during the period 4/2020 to 3/2021

Month	Heifer									First Calver									Multiparous									Overall				
	1 st AI			2 nd AI			3rd & Above AI			1 st AI			2 nd AI			3rd & Above AI			1 st AI			2 nd AI			3rd & Above AI							
	I	C	CR	I	C	CR	I	C	CR	I	C	CR	I	C	CR	I	C	CR	I	C	CR	I	C	CR	I	C	CR	I	C	CR	I	C
Jan. 20	6	2	33.3	4	2	50.0	1	0	0	3	1	33.3	2	0	0	0	0	0	10	6	60	3	2	66.6	1	0	0	30	13	43.3		
Feb.	9	4	44.4	5	4	80.0	2	1	50.0	0	0	0	0	0	0	3	1	33.3	3	0	0	1	1	100	6	4	66.6	29	15	51.7		
March	9	4	44.4	3	2	66.0	0	0	0	3	0	0	2	1	50.0	0	0	0	8	5	62.5	4	3	75	2	1	50.0	28	16	57.1		
April	1	0	0	1	1	100	0	0	0	1	0	0	1	1	100	2	0	0	3	1	33.3	3	2	66.6	3	2	66.6	17	7	41.1		
May	2	0	0	5	2	40	3	1	33.3	2	1	50.0	0	0	0	1	1	100	3	2	66.6	2	0	0	3	2	66.6	21	9	42.8		
June	4	2	50.	6	3	50	5	3	33.3	1	1	100.0	0	0	0	2	1	50.0	5	2	40.0	3	1	33.3	3	1	33.3	29	14	48.7		
July	5	2	40.0	3	0	0	3	1	33.3	2	0	0	2	0	0	0	0	0	2	2	100	0	0	0	1	1	100	18	6	33.3		
Aug.	6	1	16.6	2	1	50	6	0	0	2	0	0	1	0	0	1	0	0	4	3	75	3	1	33.3	2	1	50.0	27	7	25.9		
Sep.	6	3	50.0	5	3	60.0	4	3	75.0	1	0	0	0	0	0	1	0	0	2	1	50	2	1	50	2	2	100.0	23	13	56.5		
Oct.	2	1	50.0	0	0	0	2	1	50.0	3	3	100	4	2	50.0	1	0	0	4	1	25	0	0	0	3	1	33.3	19	9	47.3		
Nov.	6	2	33.3	3	0	0	8	4	50.0	1	0	0	1	1	100.0	5	4	80.0	4	4	100	0	0	0	2	1	50.0	30	16	53.3		
Dec. 21	4	0	0	3	2	66.6	0	0	0	1	1	100	0	0	0	2	2	100	5	2	40.0	3	2	66.6	1	0	0	19	9	47.3		
Total	60	21	35.0	40	20	50.0	34	14	41.1	20	7	35.	13	5	38.4	18	9	50.0	53	29	54.7	24	13	54.1	29	16	55.1	290	134	46.20		

I = No. of animals inseminated C. = No. of animals conceived CR%= Conception rate %

9.8. Bull-wise conception rate during the period 4/2020 to 3/2021

Sr. No.	Bull No.	Total Number of AI	Total Conceived	CR%
1.	1150	3	1	33.3
2.	1208	15	9	60.0
3.	1209	7	3	42.8
4.	1219	6	3	50.0
5.	1875	3	1	33.3
6.	1994	13	5	38.4
7.	2045	8	2	25.0
8.	2185	4	0	0
9.	2269	11	4	36.3
10.	2357	19	9	47.3
11.	2565	11	4	36.3
12.	2607	4	3	75.0
13.	2645	14	6	42.8
14.	2674	14	3	21.4
15.	2676	2	0	0
16.	2677	2	1	50.0
17.	2689	20	11	55.0
18.	2737	18	8	44.4
19.	2759	17	8	47.0
20.	4196	13	2	15.3
21.	4905	3	2	66.6
22.	4995	2	1	50.0
23.	5145	1	1	100
24.	5147	17	9	52.9
25.	5181	12	7	58.3
26.	5232	7	5	71.4
27.	5246	8	5	62.5
28.	6044	5	4	80.0
29.	7263	24	13	54.1
30.	7283	1	1	100
31.	298400	2	1	50.0
32.	NAWAB	1	0	0
33.	MU574	1	1	100
34.	MU288	1	1	100
35.	YOGRAJ	1	0	0
Total		290	134	46.20

9.9. Bull-wise semen stock 4/2020 to 3/2021

Sr. No	Bull No.	Set No	Opening Balance	Semen Prod./ Received	Consumption for AI/Supplies etc					Balance
					Dairy Farm	Field Unit	Other agencies	Sold	Total Consumption	
1	M 82	7	200	0	0	0	0	0	200	
2	M 156	1	200	0	0	0	0	0	200	
3	M 293	4	200	0	0	0	0	0	200	
4	M 432	8	34	0	0	0	0	0	34	
5	M 458	3	200	0	0	0	0	0	200	
6	M 584	9	200	0	0	0	0	0	200	
7	M 558	5	200	0	0	0	0	0	200	
8	M 675	10	79	0	0	0	0	0	79	
9	M 610		200	0	0	0	0	0	200	
10	M 888	2	200	0	0	0	0	0	200	
11	M 1354	NW3	1834	0	0	0	0	0	1834	
12	M 1451	NW4	1062	0	0	0	0	0	1062	
13	M 1437	NW4	1150	0	0	0	0	0	1150	
14	M 1506	NW4	3595	0	0	0	0	0	3595	

15	M 1796		594	0	0	0	0	0	0	594
16	M 1875	NW8	2678	0	0	0	0	58	58	2620
17	M 1994	NW9	1277	0	0	0	0	4	4	1273
18	M 1749	NW6	323	0	0	0	0	0	0	323
19	M 2045	NW10	272	0	0	0	0	0	0	272
20	M 2073	NW10	231	0	0	0	0	0	0	231
21	M 2074	NW10	303	0	0	0	0	0	0	303
22	M 2083	NW10	293	0	0	0	0	0	0	293
23	M 2133	NW11	359	0	0	0	0	0	0	359
24	M 2148	NW11	200	0	0	0	0	0	0	200
25	M 2154	NW11	534	0	0	0	0	0	0	534
26	M 2176	NW12	2806	0	0	0	0	0	0	2806
27	M 2177	NW12	3500	0	0	0	0	100	100	3400
28	M 2185	NW12	1419	0	0	0	0	10	10	1409
29	M 2234	NW13	50	0	0	0	0	0	0	50
30	M 2269	NW13	389	0	0	0	0	25	25	364
31	M 2304	NW13	5015	0	0	0	0	0	0	5015
32	M 2357	NW14	4164	0	40	0	250	15	305	3859
33	M 2369	NW14	5155	0	0	0	0	0	0	5155
34	M 2371	NW15	4407	0	0	0	0	0	0	4407
35	M 2412	NW15	4440	0	0	0	0	0	0	4440
36	M 2417	NW15	5410	0	0	0	0	0	0	5410
37	M 2429	NW15	4144	0	0	0	0	0	0	4144
38	M 2459	NW15	3040	0	0	0	0	50	50	2990
39	M 2383	NW16	4882	0	20	0	0	115	115	4767
40	M 2467	NW16	6822	0	0	0	0	0	0	6822
41	M 2501	NW16	7846	7950	0	0	0	8067	8067	7729
42	M 2565	NW17	13842	10880	30	0	0	12647	12677	12045
43	M 2588	-	310	0	0	0	0	0	0	310
44	M 2607	NW17	6600	8463	0	0	0	7285	7285	7778
45	M 2645	NW18	1958	6195	20	230	0	921	1171	6982
46	M 2676	NW18	6085	3860	0	325	0	1145	1470	8475
47	M 2677	NW18	2104	0	0	0	0	0	0	2104
48	M 2689	NW18	250	1860	0	0	0	0	0	2110
49	M 2594	NW17	10396	0	0	0	0	0	0	10396
50	M 2707		0	155	0	0	0	155	155	0
51	M 2558	NW17	10459	11350	0	0	0	8801	8801	13008
52	M 2737	NW19	0	4110	60	1745	2230	0	4035	75
53	M 2759	NW19	0	5128	50	765	2820	0	3635	1493
54	M 2767	NW19	0	0	0	0	0	0	0	0
55	M2781	NW19	0	0	0	0	0	0	0	0
56	M 2786		0	2105	0	0	0	0	0	2105
57	M 2792		0	959	0	0	0	0	0	959
58	M 2674	NW19	1445	7019	40	1330	3017	80	4457	3997
Grand Total			133356	70034	260	4395	8317	39478	52450	150960

9.10 Body weights since inception of Network

Year	At birth	3 Months	6 Months	12 Months	18 Months	24 Months	At AFC	Adult
Female								
1991-92	32.08	54.53	78.74	143.86	238.40	297.26	433.07	
1992-93	30.64	51.40	87.89	161.61	203.40	293.26	399.31	
1993-94	32.71	61.53	93.14	160.38	222.27	284.25	440.92	
1994-95	30.62	59.92	93.91	165.60	242.29	304.86	435.68	
1995-96	31.11	62.02	87.98	154.51	236.73	322.04	441.69	
1996-97	31.48	65.96	97.06	174.88	242.09	330.71	476.09	
1997-98	29.27	59.87	95.59	168.95	252.98	318.33	455.27	
1998-99	29.13	62.68	92.62	187.02	269.70	343.06	458.21	
1999-00	30.27	60.59	86.46	163.34	277.21	342.58	461.34	
2000-01	31.74	61.32	94.43	159.20	243.10	329.79	490.33	
2001-02	32.44	62.04	94.96	188.23	271.09	341.46	512.25	
2002-03	34.26	62.12	95.02	187.45	287.49	368.89	485.89	

2003-04	32.00	61.57	92.04	160.65	261.52	349.24	461.74	
2004-05	31.67	59.85	90.61	168.47	265.27	354.22	486.85	
2005-06	30.57	70.23	96.21	162.58	235.74	314.75	481.06	
2006-07	30.94	65.11	104.38	169.75	246.33	324.79	516.50	
2007-08	29.47	59.68	91.76	171.21	238.38	322.80	480.07	
2008-09	31.62	62.69	99.45	180.28	274.86	352.00	507.28	
2009-10	30.04	60.49	104.76	194.36	281.54	361.78	500.69	
2010-11	31.35	61.50	101.58	202.80	306.67	380.00	477.14	
2011-12	29.77	65.31	96.40	183.75	267.71	359.11	469.25	
2012-13	31.08	62.63	106.07	222.56	311.48	380.00	492.42	
2013-14	29.35	67.46	110.68	217.78	301.91	376.20	543.75	
2014-15	30.50	65.88	101.73	212.20	289.52	363.59	490.65	
2015-16	29.18(17)	65.44(18)	102.54(13)	211.71(16)	287.76(22)	358.50(25)	490.46(24)	553(120)
2016-17	29.4(29)	67.26(24)	99.45(37)	197.63(35)	284.30(32)	374.09(17)	528.33(23)	560(101)
2017-18	31.7(27)	68.64(26)	97.24(48)	195.2(21)	294.3(19)	377.8(23)	547(24)	582(99)
2018-19	31.6	67.9	100.6	200.7	297.7	388.8	552.2	578
2019-20	30.82	68.4	99.7	198.6	296.2	385.3	542.9	589
2020-21	30.34	67.86	98.09	197.2	299.4	381.9	539.7	598

Male

Year	At Birth	3 Months	6 Months	12 Months	18 Months	24 Months
1991-92	33.53	57.23	81.76	161.00	246.44	262.75
1992-93	33.04	55.46	83.23	163.29	-	-
1993-94	33.90	63.57	94.64	138.00	250.71	322.63
1994-95	33.60	64.69	96.61	181.27	271.00	325.75
1995-96	32.60	61.45	94.08	145.47	267.00	346.29
1996-97	32.41	72.24	100.29	198.75	312.33	350.43
1997-98	29.88	58.90	105.52	201.59	288.77	384.00
1998-99	30.35	59.73	97.00	206.67	312.00	410.00
1999-00	33.40	65.13	91.69	148.30	318.75	415.00
2000-01	33.40	64.05	97.00	159.25	213.63	340.56
2001-02	33.17	62.53	103.11	187.27	340.00	-
2002-03	34.79	65.00	99.38	205.56	346.88	460.00
2003-04	33.03	64.32	106.94	193.75	284.84	405.62
2004-05	34.36	60.53	105.88	195.25	288.44	408.56
2005-06	31.36	69.37	112.58	204.30	313.18	386.10
2006-07	33.44	70.86	111.81	215.08	335.63	403.75
2007-08	31.25	61.27	101.90	202.81	295.42	402.45
2008-09	32.37	67.50	108.53	211.43	286.11	387.27
2009-10	32.35	60.94	108.89	198.75	308.75	371.67
2010-11	32.73	66.60	98.70	200.00	287.00	398.00
2011-12	32.62	68.70	107.79	209.44	320.00	402.50
2012-13	31.96	63.36	110.88	262.00	370.71	397.50
2013-14	32.32	69.72	120.71	230.42	372.56	430.00
2014-15	30.03	68.53	97.70	201.20	360.00	356.67
2015-16	30.07(29)	67.18(28)	105.04(23)	203.9(14)	348.91(12)	421.25(04)
2016-17	30.82(24)	69.37(19)	103.40(15)	207.13(5)	337.24(9)	490.24(6)
2017-18	33.6(33)	68.5(22)	99.4(14)	224(6)	334(7)	456(5)
2018-19	32.5	66.1	101.0	224.5	335.2	451.3
2019-20	32.04	67.8	99.8	222.3	331.4	438.9
2020-21	33.8	69.6	102.7	219.4	342.2	480.4

9.11. Production performance of buffaloes completing their lactation during the period 4/2019 to 3/2020

Lactation No.	No. of Obs.	Av. Lact. Yield (kg)	Av. Lact. Length (days)	305-day Milk Yield (kg)	Av. Peak yield (kg)
1 st	6	2643.85±169.85	322.66±21.39	2509.01±208.14	12.47±0.43
2 nd	19	2663.56±95.76	307.21±10.14	2597.33±79.05	14.14±0.92
3 rd	13	3145.33±219.25	335.31±16.45	2945.39±156.78	15.5±1.66
4 th	6	2377.28±100.55	292.33±9.97	2372.13±98.34	14.06±1.09
5 th & onwards	6	2295.62±74.16	275±7.68	2295.62±74.16	13.55±0.58
Overall	50	2707.95±81.30	310.72±6.84	2614.00±60.88	14.21±0.58

9.12 Production performance of buffaloes (general herd) since inception

Years	No. of Obs.	Av. Lact. Yield (kg)	Av. Lact. Length (days)	305-day Milk Yield (kg)	Av. Peak yield (kg)
1991-92	157	1858	321	1738	10.80
1992-93	138	1894	340	1730	10.81
1993-94	144	2238	370	1948	11.01
1994-95	121	2003	320	1877	12.06
1995-96	126	2248	350	2008	11.86
1996-97	125	2115	334	1948	11.40
1997-98	098	2255	354	1995	11.03
1998-99	125	2411	372	2101	11.50
1999-00	114	2238	375	2041	11.41
2000-01	103	2257	347	2032	11.82
2001-02	112	2419	344	2175	12.95
2002-03	105	2245	304	2144	13.16
2003-04	111	2464	342	2233	12.90
2004-05	106	2501	346	2270	12.74
2005-06	78	2480	322	2327	13.17
2006-07	91	2389	326	2235	12.39
2007-08	67	2362	323	2176	12.62
2008-09	88	2346	329	2141	11.96
2009-10	67	2478	336	2271	12.73
2010-11	81	2836	376	2470	13.28
2011-12	87	2454	322	2306	13.38
2012-13	75	2741	349	2528	13.84
2013-14	55	2789	366	2509	13.63
2014-15	46	2948	353	2674	14.84
2015-16	45	2959	383	2640	14.63
2016-17	53	2924	390	2561	14.60
2017-18	54	2906	338	2707	14.73
2018-19	62	2904	334.5	2771	15.10
2019-20	73	2936	316.43	2841	15.43
2020-21	50	2708	310.7	2614	14.21

9.12.1 Production performance of buffaloes (elite) since inception of network project

Year	No. of Obs.	Av. Lact. Yield (kg)	Av. Lact. Length (days)	305-day Milk Yield (kg)	Av. Peak yield
1991-92	16	2798	390	2490	13.20
1992-93	07	2822	433	2371	10.60
1993-94	18	3162	429	2657	14.40
1994-95	13	3060	381	2751	16.07
1995-96	21	3148	409	2630	14.08
1996-97	25	3021	390	2651	14.34

1997-98	18	3296	418	2773	14.27
1998-99	31	3410	440	2778	13.71
1999-00	21	3199	424	2684	13.42
2000-01	23	3133	410	2672	14.01
2001-02	35	3156	377	2815	15.31
2002-03	32	3030	337	2849	15.45
2003-04	39	3183	397	2757	14.58
2004-05	38	3160	380	2793	14.40
2005-06	34	2967	340	2755	14.52
2006-07	39	2893	349	2681	13.68
2007-08	19	3143	383	2752	14.02
2008-09	22	3106	388	2654	13.43
2009-10	25	3000	362	2694	13.71
2010-11	40	3474	404	2941	14.85
2011-12	32	3172	360	2879	15.41
2012-13	38	3188	367	2899	15.46
2013-14	13	3685	406	3186	16.07
2014-15	12	4046	423	3366	17.28
2015-16	10	3846	393	3332	20.07
2016-17	16	3855	407	3267	17.4
2017-18	14	3638	379	3417	17.8
2018-19	15	3693	374	3431	17.8
2019-20	13	3669	351	3497	18.3
2020-21	8	3414	356	3414	20.8

9.13. Average milk components during the period (month-wise) 4/2020 to 3/2021

Month	Number of Observation	Fat %	SNF	Protein	Lactose
April, 2020	67	7.68	9.32	3.51	5.24
May	59	7.53	9.58	3.48	5.55
June	65	7.39	10.03	3.51	5.61
July	66	7.33	9.63	3.38	5.66
August	61	7.38	9.88	3.41	5.71
September	56	7.32	9.38	4.31	5.27
October	58	7.12	9.42	4.29	5.32
November	66	7.29	9.48	4.08	5.68
December	60	7.33	9.28	3.88	5.41
January, 2021	73	7.28	9.57	3.92	5.31
February	70	7.77	9.72	3.53	5.83
March	72	7.68	9.65	3.38	5.73
Overall	64	7.42	9.58	3.72	5.53

9.14. Reproduction performance of buffaloes calving during the period 4/2020 to 3/2021

Traits/Lac	1 (34)	2 (19)	3 (21)	4 (10)	5 & Above (11)	Overall (95)
Average Age at Calving (Months)	40.56±0.70	55.66±1.43	67.35±2.15	86.77±4.28	117.82±4.99	64.10±2.90
Average Service Period (Days)	-	181.27±29.59	122.47±13.78	118.56±26.31	129.22±29.60	137.75±12.11
Average Dry Period (days)	-	151.00±16.69	112.87±10.84	119.11±17.84	137.11±15.00	128.64±7.46
Average Calving Interval (Days)	-	430.09±26.89	431.93±14.44	432.44±26.02	442.88±32.41	433.82±11.47

9.14.1. Reproduction performance of buffaloes calving since inception of network.

Years	AFC (Months)	Service Period (days)	Dry Period (days)	Calving Interval (days)
1991-92	49.2 (73)	169 (93)	187 (101)	493 (101)
1992-93	44.4 (48)	207 (100)	190 (98)	510 (100)
1993-94	46.7 (24)	228 (105)	184 (106)	532 (106)
1994-95	47.5 (37)	206 (96)	182 (96)	512 (96)
1995-96	45.6 (43)	218 (105)	196 (104)	526 (105)
1996-97	49.4 (34)	196 (76)	167 (76)	510 (76)
1997-98	45.0 (45)	248 (94)	203 (94)	553 (94)
1998-99	47.0 (34)	232 (81)	204 (84)	553 (87)
1999-00	42.0 (54)	213 (59)	175 (63)	518 (63)
2000-01	44.4 (27)	197 (81)	170 (82)	511 (82)
2001-02	44.7 (32)	164 (95)	149 (84)	496 (84)
2002-03	40.2 (39)	133 (95)	147 (95)	463 (95)
2003-04	36.8 (23)	160 (107)	153 (93)	455 (93)
2004-05	41.7 (27)	140 (80)	155 (80)	478 (80)
2005-06	43.7 (35)	143 (65)	119 (60)	433 (60)
2006-07	43.3 (20)	166 (69)	115 (61)	438 (61)
2007-08	42.8 (30)	147 (53)	126 (58)	419 (58)
2008-09	42.6 (43)	142 (90)	134 (52)	438 (52)
2009-10	39.3 (29)	151 (76)	174 (72)	492 (72)
2010-11	39.1 (21)	154 (94)	150 (76)	457 (76)
2011-12	37.4 (22)	136 (65)	154 (85)	473 (85)
2012-13	38.9 (34)	151 (53)	136 (59)	435 (59)
2013-14	42.3 (12)	159 (67)	190 (64)	471 (64)
2014-15	38.6 (23)	160 (40)	185 (40)	513 (41)
2015-16	40.1 (24)	162 (26)	119 (25)	458 (25)
2016-17	41.5 (27)	184(26)	104(26)	472(26)
2017-18	41.3 (25)	152 (41)	122 (41)	459 (41)
2018-19	40.7 (39)	136 (104)	130 (104)	441 (104)
2019-20	40.4(23)	125 (82)	133(82)	436 (82)
2020-21	40.56(34)	138(95)	129(95)	434(95)

Figures in parenthesis indicate number of observations

9.15. Month-wise milk production and disposal during the period 4/2020 to 3/2021

Month	Production	Disposal			
	Total milk produced (kg)	Liquid milk (kg)	Calf feeding (kg)	Experimental purposes (kg)	Milk lost in handling (kg)
April, 2020	14437.9	13129	1280	0	28.9
May	12620.1	11663	931.5	0	25.6
June	11478.7	10548	899.7	0	31
July	12395.4	10920	1444.9	0	30.5
August	12540.3	10881	1632.5	0	26.8
September	11840	10229	1580.9	0	29.1
October	14587.1	11852	2707.2	0	27.9
November	14815.7	12027	2762.7	0	25
December	15358.8	12309	3012.5	9	28.3
January, 2021	19545.9	15851	3667.1	1	26.8
February	19379.2	16484	2854.7	14	26.5
March	19125.6	16842	2146	111	26.6
Total	178124.7	152735	24919.7	135	333

9.16. Feed and fodder purchased and offered (qtls) to animals during the period 4/2020 to 3/2021

Month	Type of fodder/feed	Qty. produced at Farm	Qty. Purchased	Fed	Balance
April,2020	Green	2407		2407	
	Dry	235		235	
	Silage			--	
	Concentrate		728.250	728.250	
May	Green	1039		1039	
	Dry			273	
	Silage	758		758	
	Concentrate		765.750	765.750	
June	Green	813		813	
	Dry	366		366	
	Silage	969		969	
	Concentrate		794.00	794	
July	Green	2526		2526	
	Dry	239		239	
	Silage			--	
	Concentrate		807.750	807.250	
August	Green	2104		2104	
	Dry	173		173	
	Silage	406		406	
	Concentrate		837	837	
September	Green	1584		1584	
	Dry	225		225	
	Silage	423		423	
	Concentrate		800.250	800.250	
October	Green	1844		1844	
	Dry	783		218	
	Silage			253	
	Concentrate		809.750	809.750	
November	Green			940	
	Dry			203	
	Silage			414	
	Concentrate		803.250	803.250	
December	Green			1321	
	Dry			212	
	Silage			279	
	Concentrate		733.00	733	
January 2021	Green			1758	
	Dry			197	
	Silage			32	
	Concentrate		717.00	717	
February	Green			1590	
	Dry			201	
	Silage			--	
	Concentrate		671.750	671.750	
March	Green			2239	
	Dry			215	
	Silage			--	
	Concentrate		694.500	694.5	
Total	Green			20165	
	Dry			2758	
	Silage			3534	
	Concentrate			9161.75	

9.17. Milking performance during the period 4/2020 to 3/2021

Month	No. of Animal in milk	No. of Animal dry	Total Animal	% in Milk	Wet average (kg)	Herd average (kg)
April, 2020	61	44	105	64.06	7.15	4.73
May	59			53.89	7.2	3.88
June	65			61.11	7.12	3.63
July	66			56.04	7.65	3.63
August	61			58.39	8.14	3.93
September	56			53.46	8.42	3.65
October	67			53.16	8.1	4.31
November	63			68.03	8.25	5.61
December	64			60.7	8.87	5.38
January, 2021	79			70.71	8.81	6.24
February	81			76.13	9.7	8.46
March	72			75.99	9.23	7.24
Overall				62.64	8.22	5.06

9.17.1. Milking performance since inception

Years	No. of Animal in milk	No. of Animal dry	Total Animal	% in Milk	Wet average (kg)	Herd average (kg)
1991-92	148	74	222	66.67	5.65	3.79
1992-93	149	77	226	65.93	5.54	3.68
1993-94	115	76	191	60.21	6.20	3.71
1994-95	116	67	183	63.39	6.09	3.86
1995-96	123	66	189	65.08	6.43	4.21
1996-97	112	72	194	60.87	6.17	3.73
1997-98	116	61	177	65.54	6.53	4.30
1998-99	119	65	184	64.67	6.26	4.06
1999-00	109	55	164	66.46	6.26	4.17
2000-01	105	58	163	64.42	6.70	4.36
2001-02	94	48	142	66.20	7.09	4.70
2002-03	109	48	157	69.43	7.22	5.00
2003-04	108	52	160	67.50	7.01	4.80
2004-05	91	45	136	66.91	7.33	5.00
2005-06	74	31	105	70.48	7.36	5.21
2006-07	81	27	108	75.00	7.03	5.27
2007-08	70	29	99	70.35	6.90	4.90
2008-09	78	38	116	67.00	7.07	4.73
2009-10	83	40	123	69.17	7.62	5.15
2010-11	88	47	135	64.93	7.21	4.72
2011-12	88	51	139	63.06	7.56	4.79
2012-13	78	45	123	63.49	7.74	4.90
2013-14	61	43	104	58.29	7.98	4.67
2014-15	54	32	86	62.34	7.97	4.98
2015-16	54	35	89	61.89	8.04	5.01
2016-17	49	25	74	70.00	7.92	5.45
2017-18	49	30	79	64.84	8.03	5.25
2018-19	68	34	102	65.9	8.40	5.38
2019-20	67	38	105	66.46	8.31	5.44
2020-21	64	39	103	62.64	8.22	5.06

9.18. Bull-wise daughters born/daughters reaching A.F.C. and completing 1st lactation records during the period 4/2019 to 3/2020.

Bull No.	Total No. of daughters born	No. of daughters reaching A. F. C.	No. of daughters completing 1st Lactation	Last Lactation
1208	2	-	-	-
1209	5	-	-	-
1354	1	-	-	-
1875	2	-	-	-
1994	1	-	-	-
2185	1	-	-	-
2234	1	-	-	-
2269	2	-	-	-
2565	1	-	-	-
2643	1	-	-	-
2645	1	-	-	-
2665	1	-	-	-
2676	1	-	-	-
2677	1	-	-	-
2689	4	-	-	-
4905	5	-	-	-
4995	5	-	-	-
7094	2	-	-	-
7147	1	-	-	-
7227	2	-	-	-
7263	5	-	-	-
Total	45	-	-	-
Bull No.	No. daughters born	No. reaching A. F. C.	No. completing 1st Lact.	Last Lact.
1027	-	1	-	-
2371	-	1	-	-
2383	-	2	-	-
2412	-	1	-	-
2417	-	1	-	-
2467	-	2	-	-
3267	-	2	-	-
4438	-	1	-	-
4592	-	1	-	-
4705	-	1	-	-
4889	-	1	-	-
6007	-	1	-	-
6409	-	1	-	-
6646	-	1	-	-
298400	-	1	-	-
M51	-	1	-	-
PUR	-	15	-	-
Total	-	34	-	-
2371	-	-	1	-
2417	-	-	1	-
2459	-	-	1	-
4324	-	-	1	-
4438	-	-	1	-
6405	-	-	1	-
Total *	-	-	6	-

* Set bulls only

9.19. Bull-wise daughters completing 1st lactation during the period 4/2020 to 3/2021

Sr. No	Bull No.	Daughter No.	Date of birth	Date of calving	1 st lactation 305-day milk yield (kg)	Total lactation yield (kg)	Lactation length (days)
1	2371	3028	13-Nov-16	4-Aug-19	2567.2	2567.2	301
2	2417	3013	26-Jun-16	13-Jun-19	2693.2	2834.9	360
3	2459	2954	21-Jan-16	31-Jul-19	2424.5	2424.5	277
4	4324	2999	16-Mar-16	19-Oct-19	2740	3382.3	408
5	4438	3040	27-Dec-16	7-Apr-20	2422.5	2447.5	317
6	6405	3010	4-Jun-16	25-Jul-19	2206.7	2206.7	273

9.20 List of breeding/young bulls as on 3/2021

Sr. No.	Bull No.	Date of Birth	Dam No.	Sire No.	Dam's 305 days or less yield (kg)	Semen doses available	Remarks
1.	M2383	13.10.10	P2489	MU3267	4636	4767	
2.	M2501	10.10.12	P1794	M1875	3053	7729	
3.	M2558	20.12.13	P2279	M1875	3574	13008	
4.	M2565	24.01.14	P2522	M2269	3287	12045	
5.	M2584	03.04.14	P2530	M1875	3395	278	
6.	M2594	30.07.14	P2221	M1994	3557	9913	
7.	M2607	17.12.14	P2605	M2369	3899	7778	
8.	M2645	20.06.15	P2530	M1994	3394	6982	
9.	M2674	01.03.16	P2532	M2412	3583*	3997	
10.	M2676	15.03.16	P2759	M2412	3023*	8475	
11.	M2689	03.07.16	P2436	M1693	3151	2110	
12.	M2699	12.09.16	P2530	M1693	3394	Under Training	
13.	M2707	02.12.16	P2604	M6405	2902*		
14.	M2737	04.08.17	P2543	M2383	3108		
15.	M2741	23.08.17	P2718	6753	2958		
16.	M2758	03.11.17	P2601	M2133	3172		
17.	M2759	09.11.17	P2502	M2133	3340		
18.	M2769	20.12.17	P2760	M51	2730		
19.	M2781	03.04.18	P2470	M2133	2470		
20.	M2782	17.04.18	P2700	6379	3149*		
21.	M2786	08.05.18	P2969	6753	2981*		
22.	M2792	30.06.18	P2759	6379	3023*		
23.	M2793	06.07.18	P2788	M2467	3339		

* Dam's 1st Lactation.

9.21 Target achieved during the years 4/2019 to 3/2020

S.N	Trait	Target	2017-18	2018-19	2019-20	2020-21
1.	Av. Age at first calving	40 months	41.3	40.74	40.42	40.56
2.	Av. Service period	130 days	152	135.9	124 days	138 days
3.	Calf mortality (0-3 months)	≤3 %	8.22	1.94	3.45%	8.18 %
4.	Wet average	≥8.5 kg.	8.03 kg.	8.40	8.31 Kg.	8.22 Kg.
5.	Herd average	≥5.5 kg.	5.25 kg.	5.38	5.44 Kg.	5.06 Kg.

10. Salient Research Achievements including survey reports/farmers animals covered in the project:

- Fourteen bulls have been presented for proposed 20th set of the project.
- The average age at 1st calving is achieved to 40.56 months.
- The average age at first collection of the bulls at the institute was 28.8 months.
- The average 305-day yield of the herd was 2614 kg and wet average of 8.22 kg and herd average of 5.06 kg during the period 4/2020 to 3/2021.

11. Publications:

- Ankita Singla, Jaspal Singh Hundal, Amlan Kumar Patra, Manju Wadhwa, Veena Nagarajappa and **Puneet Malhotra**. (2021) Effect of dietary supplementation of *Emblica officinalis* fruit pomace on methane emission, ruminal fermentation, nutrient utilization and milk production performance in buffaloes. *Environmental Science and Pollution Research*
- Ramandeep Kaur, Puneet Malhotra, Neeraj Kashyap, Shaktikant Dash and Simarjeet Kaur, (2020). Selection of Elite Murrah buffaloes based on association of Production traits. *Journal of Community Mobilization and Sustainable Development* 15(1): 219-226

12. Expected Socio-economic impact in the tract :

- Supply of high genetic merit frozen semen has helped to increase the production average of animals in the tract
- Farmers are adopting AI as main mean of mating rather than natural service
- Awareness among farmers of rearing animals on scientific lines like making concentration of their own and other managemental practices

13. Constraints if any:

Regular staff like beldars, cattle attendants and milk recorder has been reduced in the strength in the project which is causing working problems in maintaining the herd.

14. Focus of work in the coming year:

Efforts are being made to further improve the reproductive efficiency and herd strength with special focus on increasing elite animals and keeping calf mortality at lower levels.

Project Co-ordinator's observations on centre performance

Financial Statement for the year 2020-21

(Rs in Lakhs)

Sanctioned as per R E 2020-21		Released ICAR Share as per R E	Expenditure as per AUC		Receipts (ICAR Share)	Balance
			ICAR Share	State Share		
Total	ICAR Share					
85.58	59.685 + 6.00 (SCSP)	65.68500	59.86202	17.95400	8.34143	+ 14.16441

Herd Performance:

Herd strength at the centre was 330 animals with 166 breedable buffaloes (> 2 year). During the period 95 calving were reported with 50 male and 45 females, one still births and one abortion. The calf mortality (0-3 months) during the period was 8.18 % (9/110) higher than the previous year 3.85 % (4/104). The female conception rate at the farm was 46.20 % lower as compared to 49.20 % in 2019-20.

During the report period 70034 semen doses were produced and 52450 semen doses were sold and supplied to field unit/ other Murrah centers and other agencies. 150960 frozen semen doses from superior bulls are available at the centre. 305 day or less day milk yield was 2614 kg (503) with average peak yield 14.21 kg lower than previous year 2841 kg (73) with average peak yield of 15.43 kg. The average lactation lengths of 311 days (n=50). The reproductive performance viz. AFC, SP, DP and C I were 40.56 months (34), 138 days (95), 129 days (95) and 434 days (95), respectively. The wet 8.22 kg and herd average 5.06 is slightly lower than the previous year 8.31 kg and 5.06 kg respectively.

Accomplishment and Targets Achieved:

Sr. No.	Trait	Target	2016-17	2017-18	2018-19	2019-20	2020-21
1	Av. AFC (Months)	40.0 months	41.51 (27)	41.3 (25)	40.74±1.43 (39)	40.42±1.05 (23)	40.56±1.05 (34)
2	Av. service period (Days)	130 days	184 (26)	152 (41)	135.8±9.5 (104)	124.89±9.59 (82)	137.75±12.11 (95)
3	Calf mortality (0-3 months)	≤ 3 %	8.11	8.22	1.94	4.82	8.18 %
4	Wet average (Kg)	≥ 8.50 kg	7.92	8.03	8.40 kg	8.31 kg	8.22 kg
5	Herd average (Kg)	≥ 5.50 kg	5.45	5.25	5.38 kg	5.44 kg	5.06 kg

Recommendations:

- Production and reproduction traits improved during report period and need to be maintained.
- Bulls from other centre to be use for test mating at farm.

ICAR-NATIONAL DAIRY RESEARCH INSTITUTE, KARNAL

1. Name of Center **NDRI, Karnal, Main Unit**
2. Project Code **1010476**
3. Project Title **Network project on buffalo improvement-Institute herd
(Lead Division: Animal Genetics & Breeding-ICAR-NDRI, Karnal)**
4. Date of Start **1993-1994**
- Name of the Project In-charge **Dr. Vikas Vohra**
5. Objectives **To establish elite herd of 50 to 100 Murrah for the production of genetically superior young bulls. To evaluate sires through institutional progeny testing. To produce, test, propagate and conserve high genetic merit male germplasm.**

6. Technical Programme

- Establishment and maintenance of an elite herd of buffalo breed with a herd strength of 500 and 300 breedable females (Murrah).
- Selection and testing of minimum 15 bulls of Murrah / 4-6 bulls for other breeds in every 18/24 months cycle.
- Production of minimum 10,000 (Murrah) and 3000 to 5000 (Other breeds) frozen semen doses from each test bull.
- Maintain a minimum number of 8000 (Murrah) and 2000 (other breeds) frozen semen doses until the particular SET gets evaluated.
- Evaluation and ranking of bulls on the basis of their progeny performance (first lactation) for selection of top 20-25% as proven bulls from each set.
- Application of proven bull's semen on elite buffaloes for the production of future sires and replacement heifers.
- Minimum weekly recording of milk yield of individual daughters/ buffaloes at institutional herd / monthly recording in field units over complete lactation(s) with wet average, herd average, percent in milk, lactation length, dry period, TLMY, SLMY (305 days or less, up to minimum of 240 days (All breeds) / 1500 kg in Murrah) and Peak yield, Milk yield per day of herd life (total milk produced from date of birth till completion of 4th or more lactation).
- Monthly testing of milk constituents (Fat %, SNF % and Protein %) and Somatic Cell Count, wherever feasible, at institutional herds.
- Recording of reproductive traits viz., AFC, Service period, Days open, Calving interval, Number of services per conception, Conception rate and Calving abnormalities.
- Health management including udder health, vaccination, de-worming, disease screening, mortality and periodic body weight records

7. Financial Statement

Financial Statement NBPI/ICAR-NDRI (Main Unit)	: Head wise budget allocation and utilization		
	Equipments	Contingency	Total
Total funds Received during 2020-21	4,00000 (including 1.0 lakh for SCSP)	19,00000 (including 3.0 lakh for SCSP)	23,00000
Expenditure up to 31-03-2021	2,77,150	18,95,290	21,72,440 (94.15%)
Closing Balance on 31-03-2021	1,22,850	4,710	1,27,560

8. Staff Position - Staff associated with the project through Redeployment

Discipline	Name of Scientist / Staff	Status PI/Co-PI
AGB	Dr. Vikas Vohra, Principal Scientist (from Jan. 2021)	PI
	Dr. G. R Gpwane, Principal Scientist (from March 21)	Co-PI
ARGO	Dr. T. K. Mohanty, Principal Scientist & I/c ABRC	Co-PI
	Dr. Mukesh Bhakat, Senior Scientist	Co-PI
LPM	Dr. Pawan Singh, Principal Scientist & I/c LPM	Co-PI
No. of staff		
Contractual staff	2 (High Skilled) – 10 months	2 (Skilled) – 08 months

9. Herd Performance

Enclosed Tables 9.1 to 9.21

9.1 Herd Strength during the Period 1st April 2020 to 31st March, 2021

Sr. No.	Category	Addition			Disposal				CB
		OB	B / P*	T/E	D	T/E	S	E	CB
Female									
1	Below 3 months	3	61		3	50	-		11
2	3-12 months	57		50	1	59	2		45
3	1-2 years	28		59	1	27	2		57
	Above 2 years	79		27	5	25	8		68
4	Buffaloes in Milk	101		25	2	26	10		88
5	Buffaloes Dry P /NP	110		26	13	10	44		69
	Sub Total	378	61	187	25	197	66		338
Males									
1	Below 3 months	10	49		2	51	-		6
2	3-12 months	43		51	4	22	39		29
3	1-2 years	25		22	-	16	30		1
	Above 2 years	19		16	5	-	30		-
4	Breeding bulls	49		-		-	-		49
5	Bullocks / Teasers	2		-		-	-		2
	Sub Total	148	49	89	11	89	99		87
	Grand Total	526	110	276	36	286	165		425

OB = Opening Balance; B = Birth; P = Purchase; T = Transfer;
E = Experimental; D = Death; S = Sale; CB = Closing Balance

* Including either one female or one male as followers of three buffaloes purchased

9.2 Calving Statistics including abnormalities (1st April 20 to 31st March 2021)

Month	Male	Female	Still Birth	Abortion	Dystokia	ROP	Prolapse	Overall
April 20	1	-	-	-	-	-	-	1
May	-	2	-	-	-	-	-	2
June	2	2	-	1	-	1	-	6
July	-	1	-	1	-	-	-	2
August	8	8	2	-	-	2	-	20
September	8	10	2	1	-	3	-	24
October	9	7	-	-	-	-	-	16
November	8	17	1	-	-	2	-	28
December	7	3	1	-	-	2	-	13
January 21	2	9	-	-	-	2	-	13
February	3	-	-	1	-	-	-	4
March	1	2	-	-	-	-	-	3
Overall	49	61	6	4	-	12	-	132

Sex ratio Male : Female 1:1.24; SB% = 4.5%; Abortion % = 3.03%

9.3. Disposal of Animals during the Period 1st April 20 to 31st March 21

Female	Primary cause of disposal							
	Surplus	Below farm production standard	Reprod. Problem	Weak & Old	Udder Health	Death	Experimental purposes	Total
Calves								
0 to 3 months						3		3
3-12 months				1		1		2
Heifers								
1-2 years						1		1
> 2 years		1		2		5		8

Buffaloes													
Milch			-	-						2			2
Dry			1	-	1					13			15
Sub Total			2	-	4	-				25			31
Males	Primary cause of disposal												
Calves													
0 to 3 months										2			2
3-12 months	39									4			43
1 to 2 year	29									-			29
>2 year	25									5			30
Breeding bulls													
Bullock+Teaser+Others													
Sub Total	93									11			104
Grand Total	93	2	-	4	-	36							135

9.4. Mortality during the Period 1st April 2019 to 31st March, 2020

Month	No. Died %	Female						Male					Over all Herd
		0-3 Month	3-12 Month	1-2 Yrs.	> 2 Yrs.	Milk + Dry	Overall Female	0-3 Month	3-12 Month	1 -2 Yrs.	>2 yrs.	Overall Male	
Apr, 19	No.	2	55	28	80	211	376	8	40	28	0	76	452
	Died	0	0	0	1	2	3	0	2	0	0	2	5
	%	0	0	0	0.1	0.9	0.8	0	0.5	0	0	0.3	0.1
May, 19	No.	4	54	26	83	210	377	4	42	28	0	74	451
	Died	0	0	0	3	1	4	0	0	0	0	0	4
	%	0	0	0	3.6	0.4	1.1	0	0	0	0	0	0.8
Jun, 19	No.	4	55	27	83	208	377	2	41	30	0	73	450
	Died	0	0	0	0	1	1	1	0	0	1	2	3
	%	0	0	0	0	0.4	0.3	0.5	0	0	0	0.3	0.7
Jul, 19	No.	5	51	28	85	208	377	1	32	26	0	59	436
	Died	0	1	0	0	1	2	0	1	0	1	2	4
	%	0	1.0	0	0	0.4	0.5	0	0.3	0	0	0.3	0.9
Aug, 19	No.	11	41	36	81	198	367	9	3	6	0	18	385
	Died	0	0	0	2	0	2	0	0	0	3	3	5
	%	0	0	0	2.5	0	0.5	0	0	0	0	0.7	0.1
Sep, 19	No.	19	31	47	77	182	356	16	4	6	0	26	382
	Died	0	0	0	0	0	0	0	0	0	0	0	0
	%	0	0	0	0	0	0	0	0	0	0	0	0
Oct, 19	No.	24	19	58	68	188	357	26	3	6	0	35	392
	Died	0	0	0	1	2	3	0	0	0	0	0	3
	%	0	0	0	1.5	0.1	0.8	0	0	0	0	0	0.8
Nov, 19	No.	32	23	59	69	193	376	34	3	6	0	43	419
	Died	1	0	0	1	1	3	0	0	0	0	0	3
	%	3.1	0	0	1.4	0.5	0.8	0	0	0	0	0	0.7
Dec, 19	No.	23	26	64	70	193	376	23	19	6	0	48	424
	Died	2	0	0	0	0	2	1	0	0	0	1	3
	%	8.7	0	0	0	0	0.5	0.4	0	0	0	0.2	0.7
Jan, 20	No.	26	31	64	68	194	383	15	26	6	0	47	430
	Died	0	0	0	1	0	1	0	1	0	0	1	2
	%	0	0	0	1.5	0	0.3	0	0.3	0	0	0.2	0.5
Feb, 20	No.	11	46	60	71	196	384	10	34	4	0	48	432
	Died	0	0	1	0	1	2	0	0	0	0	0	2
	%	0	0	1.6	0	0.5	0.5	0	0	0	0	0	0.4
Mar, 20	No.	11	45	57	68	184	365	6	29	1	0	36	401
	Died	0	0	0	0	2	2	0	0	0	0	0	2
	%	0	0	0	0	1.0	0.5	0	0	0	0	0	0.5
Overall	Died	3	1	1	9	11	25	2	4	0	5	11	36
	%	1.7	0.0	0.0	1.3	0.4	0.5	0.1	0.1	0.6	4.7	0.2	0.7

Overall (0-3 months calves) (Opening Balance + Born = 13+110 = 123; calf died =5 => 5/123 = 4.07%)

9.5. Causes of Mortality (quarter wise) during the period 1st April 20 to 31st March 2021

Particulars	1 st quarter (April-June)	2 nd quarter (July-Sept)	3 rd quarter (Oct-Dec.)	4 th quarter (Jan.-March)	Total
Enteritis	-	-	3	-	3
Pneumonities	-	-	-	2	2
Septicamia / Toxaemia	-	-	1	1	2
Peritonitis	-	-	1	-	1
JD/TB	-	-	-	-	-
Milk Fever / metabolic diseases	-	-	-	-	-
TRP / TP	-	-	-	-	-
Parasitism	-	-	-	-	-
Sudden death	1	-	-	-	1
Peri-parturient disorders	-	-	-	-	-
General Debility	9	2	-	-	11
Miscellaneous	2	7	4	3	16
Total	12	9	9	6	36

9.6 Prophylactic Measures undertaken

Disease	Vaccination Date / No. of animals	No. of animals Tested / Positive		Dates and No. of animals treated for Parasitism
FMD	20-10-2020 to 25-10-2020	All		Dewormed all Calves up to 6 months and other buffaloes as required.
HS	21-11-2020 to 25-11-2020	All		
BQ	-			
Brucellosis	-			
JD	-			
TB	-			
IBR	-			
Mastitis	-			

9.7. Female Conception Rate During the Period January to December 2019

AI No. →	1 st			2 nd			3 rd			4 th & above			Over all		
	AIs	C	CR %	AIs	C	CR %	AIs	C	CR%	AIs	C	CR %	AIs	C	CR %
Heifers	36	18	5.0	16	8	50	5	1	20	10	2	20	67	29	43.3
1 st calvers	44	19	43.1	13	4	30.7	14	8	57.1	6	2	33.33	77	33	42.8
Multiparous	89	41	46.06	55	27	49.09	26	10	38.46	25	5	20	195	83	42.5
Overall	169	78	46.15	84	39	46.42	45	19	42.22	41	9	21.9	339	145	42.77

AIs = No. of animals inseminated; C = No. of animals conceived ; CR % = Conception rate%

9.8 Quarter-wise conception rate During the Period January to December 2020

Quarter	No. of A I	Preg. animals	CR %
Jan – Mar	144	59	40.97
Apr- Jun	32	12	37.50
Jul- Sep	39	14	35.90
Oct- Dec	124	60	48.38
Overall	339	145	42.77

9.9. Bull-wise Conception Rate During the period January to December, 2020

Sr. no.	Bull No.	Set No.	Total Number of AI	Total Conceived	CR%
1	2689	18	4	2	50.00
2	7147	18	29	15	51.72
3	3591 (P)	11	20	4	20.00
4	4995	18	17	12	70.60

5	5147	18	13	4	30.77
6	1219	18	14	4	28.57
7	2676	18	28	11	39.28
8	2677	18	14	5	35.71
9	1208	18	16	6	37.05
10	4506 (P)	6	5	2	40.00
11	4905	18	16	6	37.05
12	2645	18	7	3	42.86
13	5232	19	24	10	41.67
14	2357 (P)	14	10	5	50.00
15	5181	19	27	11	40.74
16	5246	19	40	20	50.00
17	4196 (P)	14	12	4	33.33
18	7604	19	42	21	50.00
	Total	19	339	145	42.77

9.10 Bull Wise Semen Stock (April-2020 to March 2021)

S. No.	Bull No.	Centre	Opening balance on date 01.04.2020	Total semen received & produced	Utilization-NPBI			Total utilization	Closing Balance on date 31.03.21
					NDRI, Karnal		CIRB Hisar		
					Main Unit	Field Unit			
19th set bull									
1	1315	LUVAS	0	0	0	0		0	0
2	2674	GADVASU	450	450	50	150		200	250
3	2737	GADVASU	450	450	55	100		155	295
4	2759	GADVASU	600	600	50	250		300	300
5	2767	GADVASU	0	0	0	0		0	0
6	2781	GADVASU	0	0	0	0		0	0
7	5181	CIRB	750	750	130	500		630	70
8	5232	CIRB	750	750	80	615		695	55
9	5246	CIRB	600	600	100	500		600	0
10	5310	CIRB	500	500	30	200		230	270
11	5320	CIRB	250	250	30	200		230	20
12	5333	CIRB	250	250	30	150		180	70
13	5374	CIRB	250	250	30	0		30	220
14	5375	CIRB	0	0	0	0		0	0
15	7604	NDRI	1740	1740	200	750	200	1150	760
Proven	2357	GADVASU	100	100	60	0		60	140
Proven	4196	CIRB	200	200	60	0		60	140
Proven	6044	NDRI	4079	0	30	0	750	780	3329
Total			4079	6890	935	3515	950	5400	5819

9.11 Average Body weight (kg) since 1999 (Indicate number of animals in parenthesis)

Year	Birth	3 Months	6 Months	12 Months	18 Months	24 Months	At AFC
Female							
Since 1999	31.32	65.00	104.62	171.67	251.95	333.05	559.23
Current year	31.16	65.00	104.61	171.67	251.95	333.05	559.23
Male							
Adults							
Current year	28.95	66.51	97.84				

9.12 Average Production Performance of Buffaloes Completing their Lactation

Lact. No.	No. of obs.	TLMY (kg)	Lact. Length (days)	SLMY (kg)	Peak yield (kg)
1 st	17	2311.6	373.4	2026.2	11.7
2 nd	30	2394.6	338.7	2229.1	12.3
3 rd	21	2524.9	355.7	2288.3	12.5
4 th	10	2356.8	332.1	2245.3	12.4
5 th & above	12	2284.8	325.2	2135	11.9
Overall	90	2390	346.73	2198.75	12.2

9.12.1 Average production performance of Buffaloes since Inception of Network

Year	TLMY (kg)	Lact. Length (days)	SLMY (kg)	Peak yield (kg)
1993-1994	2513.70 (117)	311.00 (117)	2351.80 (137)	-
1994-1995	2382.30 (128)	325.90 (128)	2270.10 (128)	11.70 (128)
1995-1996	2750.90 (106)	323.10 (106)	2576.10 (106)	14.20 (106)
1996-1997	2636.50 (105)	330.00 (105)	2423.10 (105)	13.20 (105)
1997-1998	2336.10 (128)	301.00 (128)	2191.20 (128)	11.80 (128)
1998-1999	2190.00 (112)	328.30 (112)	2032.60 (112)	11.10 (112)
1999-2000	1951.00 (095)	316.80 (095)	1822.40 (102)	11.10 (102)
2000-2001	2075.30 (116)	292.30 (116)	2019.10 (126)	12.00 (126)
2001-2002	2070.80 (085)	315.90 (085)	1963.20 (091)	11.80 (091)
2002-2003	2209.44 (072)	330.07 (072)	2000.67 (081)	12.01 (081)
2003-2004	2009.08 (077)	315.23 (077)	1897.08 (089)	10.93 (092)
2004-2005	2091.94 (080)	317.00 (080)	2025.00 (098)	10.86 (098)
2005-2006	2226.97 (126)	301.25 (126)	2159.06 (142)	12.41 (142)
2006-2007	2143.65 (099)	307.39 (099)	2053.77 (111)	11.80 (111)
2007-2008	2254.75 (112)	322.15 (112)	2094.16(127)	12.50(127)
2008-2009	2419.13 (081)	341.61 (081)	2256.01 (086)	12.43 (086)
2009-2010	2272.54 (077)	313.04 (077)	2221.61 (084)	12.08 (084)
2010-2011	2146.04 (125)	310.69 (125)	2014.70 (130)	11.24 (130)
2011-2012	2344.16 (67)	331.83 (67)	2191.83 (67)	10.67 (67)
2012-2013	2381.05 (78)	304.87 (78)	2255.81 (83)	11.56 (83)
2013-2014	2631.90 (82)	332.68 (82)	2430.91 (82)	11.98 (98)
2014-2015	2486.33 (119)	305.15 (119)	2223.57 (124)	12.86 (124)
2015-2016	2727.78 (118)	329.77 (118)	2523.32 (118)	14.10 (118)
2016-2017	2716.96 (87)	335.97 (87)	2535.51 (87)	13.36 (87)
2017-2018	2523±58.3 (96)	335.3±6.1 (96)	2386.7±44.8 (96)	13±0.2 (96)
2018-2019	2390.93 (123)	307.39 (123)	2318.78 (123)	12.10 (123)
2019-2020	2256.1 (106)	296.82 (106)	2184.1 (106)	12.8 (106)
2020-2021	2390±62.55 (90)	346.73±8.3 (90)	2198.75±41.48 (90)	12.21±0.13 (90)

9.12.2 Herd Life Production (up to >4th Lactation) during 2020-21

Sr. No.	Traits	2017-18	2018-19		2019-20		2020-21	
			Animal No.	Mean	Animal No.	Mean	Animal No.	Mean
1	LTM (kg)	10561	30	11289	26	10795	27	11319
2	HLF (Days)	3557	30	3845	26	3967	27	3960
3	PLF (days)	2129	30	2430	26	1503	27	2276
4	UPLF (days)	--	30	1415	26	896	27	867
5	MY/HLF	2.98	30	3.00	26	3.00	27	2.87
6	MY/PLF	5.04	30	4.65	26	5.00	27	4.82

HLF (Herd Life) = Date of birth to date of completion of 4th or more lactations Or date of disposal

PLF (Productive Days) = Date of first calving to total days in milk

UNPLF (Unproductive days) = Total days when buffalo not give milk from the date of first calving

9.13 Average Milk Compositions from 1st April 2020 to 31st March 2021

Month	No. of Animals	Fat (%) (Mean ± SE)	SNF (%) (Mean ± SE)	Total solids (%)	Protein (%)	Lactose (%)
Apr, 20	NE	NE	NE	NE	NE	NE
May, 20	NE	NE	NE	NE	NE	NE
Jun, 20	76	7.97 ± 0.10	9.86 ± 0.03	17.83	3.75	5.25
Jul, 20	59	8.33 ± 0.79	9.85 ± 0.29	18.18	3.81	5.25
Aug, 20	54	8.37 ± 0.11	9.89 ± 0.04	18.26	3.75	5.16
Sep, 20	65	8.19 ± 0.12	9.93 ± 0.03	18.12	3.71	5.15
Oct, 20	70	8.16 ± 0.11	9.98 ± 0.03	18.14	3.74	5.17
Nov, 20	81	7.97 ± 0.09	9.97 ± 0.03	17.94	3.86	5.26
Dec, 20	91	8.07 ± 0.009	9.94 ± 0.03	18.01	3.80	5.20
Jan, 21	103	7.26 ± 0.077	9.871 ± 0.03	17.13	3.80	5.26
Feb, 21	99	7.798 ± 0.112	9.885 ± 0.03	17.68	3.83	5.27
Mar, 21	92	7.572 ± 0.09	9.845 ± 0.03	17.42	3.62	5.26
Overall	79	7.969 ± 0.160	9.902 ± 0.05	17.87	3.76	5.22

NE = Not estimated due to COVID-19

9.14: Reproductive Performance during the period 1st April, 2020 to 31st March 2021

Lactation / Parity	AFC (Months) (N)	SP (Days) (N)	Dry Period (Days) N	Calving Interval CI (Days) N
1	45.1 (26)	141.3 (7)	136.0 (7)	434.4 (7)
2		155.5 (15)	135.5 (15)	456.3 (15)
3		142.2 (10)	140.7 (10)	445.3 (10)
4		112.6 (3)	105.3 (3)	417.6 (3)
5 th and above		150 (4)	119.7 (4)	447.2 (4)
Over all	45.1 (26)	140.3 (39)	127.4 (39)	440.1 (39)

9.14.1 Reproduction Performance Since inception of Network.

Years	AFC (Months)	Service Period (days)	Dry Period (days)	Calving Interval (days)
1993-1994	45.50 (44)	148.63 (97)	123.26 (98)	428.02 (98)
1994-1995	46.00 (37)	119.70 (70)	103.18 (71)	428.20 (70)
1995-1996	43.84 (27)	114.79 (72)	113.03 (72)	422.64 (72)
1996-1997	46.81 (27)	114.33 (66)	96.06 (66)	423.27 (66)
1997-1998	44.84 (34)	96.80 (59)	93.49 (59)	394.68 (60)
1998-1999	46.24 (54)	118.24 (63)	108.50 (62)	424.40 (62)
1999-2000	42.60 (29)	159.18 (82)	113.94 (52)	435.19 (52)
2000-2001	42.40 (42)	107.10 (53)	111.50 (56)	407.70 (56)
2001-2002	44.03 (34)	123.56(77)	118.65 (43)	428.12 (43)
2002-2003	44.02 (20)	140.87 (59)	82.98 (31)	405.90 (31)
2003-2004	43.87 (62)	131.65 (117)	103.59 (37)	438.58 (37)
2004-2005	43.37 (47)	126.45 (93)	106.03 (35)	427.99 (35)
2005-2006	39.90 (36)	149.06 (68)	109.61 (54)	413.31 (54)
2006-2007	41.42 (50)	131.40 (80)	113.86 (50)	419.02 (50)
2007-2008	41.82 (42)	119.61 (84)	121.95 (55)	441.01 (55)
2008-2009	40.75 (31)	130.58 (61)	102.04(21)	423.71(21)
2009-2010	41.08 (25)	145.96 (62)	107.08(30)	412.54(30)
2010-2011	41.26 (50)	145.06 (76)	119.36 (44)	442.40 (44)
2011-2012	42.13 (24)	120.66 (87)	110.83 (56)	428.33 (56)
2012-2013	41.58 (29)	123.93 (69)	96.94 (55)	401.96 (55)
2013-2014	41.87 (36)	128.37 (73)	100.73 (48)	423.74 (48)
2014-2015	40.39 (35)	134.71 (71)	111.45 (40)	420.97 (40)

2015-2016	39.29 (24)	134.03(92)	130.75 (92)	429.99 (92)
2016-2017	43.21 (29)	132.20 (54)	110.81 (27)	428.44 (27)
2017-2018	43.40 ±0.8 (44)	145.0±10.8 (37)	162.4±9.7 (37)	454.1±11.1 (37)
2018-2019	44.39 (41)	118.93 (54)	115.62 (55)	415.22 (55)
2019-2020	44.52 (37)	133.5 (60)	162.63 (60)	443.6 (60)
2020-2021	45.10 (26)	140.3 (39)	127.4 (39)	440.1 (39)

9.15 Milk Production and Disposal during the period Apr, 2020- Mar, 2021

Month	Total milk produced (kg)	Disposal (Kg)		
		Milk sold	Calf feeding	Expt.
April 2020	1931.0	Total milk produced was supplied to the milk plant, NDRI, Karnal		
May	16330.0			
June	11290.0			
July	9625.5			
August	7697.5			
September	10975.5			
October	16396.5			
November	20348.0			
December	25853.0			
January 2021	26896.0			
February	24561.0			
March	24313.5			
Total	2,13,417.5			

9.16 Feed and fodder (Quintals) availability:

Months	Green fodder produced at Farm	Green fodder Purchased	Total
April	9952.2	-	9952.2
May	8012.57	-	8012.57
June	11917.2	-	11917.2
July	13558.47	-	13558.47
August	3482.08	-	3482.08
September	10046.1	-	10046.1
October	10868.29	-	10868.29
November	2557.65	-	2557.65
December	2723.7	-	2723.7
January	2777.12	-	2777.12
February	13615.28	-	13615.28
March	3492	-	3492
Total Green	93002.66	-	93002.66
Silage	-	-	-
Dry	1872.11	-	1872.11
Concentrate	-	12115	12115

9.17: Milk performance during during the period Apr, 2019- Mar, 2020

Month	Buffaloes in Milk	Dry buffaloes	Total	% in Milk	Wet Av. (kg)	Herd Av. (kg)
April 2020	101	110	211	47.86	6.3	3.0
May	91	119	210	43.33	5.8	2.5
June	77	131	208	36.67	4.9	1.8
July	62	146	208	29.81	5.0	1.5
August	59	139	198	29.80	4.2	1.3
September	70	112	182	38.46	5.2	2.0
October	76	112	188	40.43	7.0	2.8

November	85	108	193	44.04	8.0	3.5
December	101	92	193	52.33	8.3	4.3
January 2021	106	88	194	54.64	8.2	4.5
February	104	92	196	53.06	8.4	4.5
March	98	86	184	53.26	8.0	4.3
Total	86	111	197	43.65	6.6	3.0

9.17.1 Milking performance since inception

Year	No. of Animals in Milk	No. of Animals in Dry	Total No. of Animals	% in Milk	Wet Av. (Kg)	Herd Av. (Kg)
1993-1994	115	45	160	72.15	7.80	5.60
1994-1995	114	54	168	68.02	8.39	5.72
1995-1996	109	51	160	68.12	8.03	5.50
1996-1997	103	43	146	70.55	7.90	5.60
1997-1998	119	47	166	71.98	7.40	5.30
1998-1999	100	68	168	59.40	5.93	3.52
1999-2000	094	71	165	75.53	6.60	3.90
2000-2001	104	59	163	63.56	6.65	4.23
2001-2002	090	53	143	62.69	6.26	3.93
2002-2003	073	34	106	68.48	6.23	4.27
2003-2004	080	37	117	68.38	6.36	4.31
2004-2005	111	46	157	70.50	7.39	5.23
2005-2006	107	65	172	62.14	7.05	4.38
2006-2007	100	78	178	56.18	6.70	3.75
2007-2008	104	69	173	60.00	6.80	4.00
2008-2009	064	65	130	50.25	7.09	3.49
2009-2010	091	65	156	58.33	7.32	4.25
2010-2011	096	109	205	46.82	5.83	2.75
2011-2012	066	81	147	44.89	6.79	3.03
2012-2013	090	51	141	63.69	7.35	4.63
2013-2014	101	65	166	60.84	7.80	4.70
2014-2015	115	82	197	58.05	8.05	5.10
2015-2016	132	107	239	55.44	8.43	4.13
2016-2017	105	90	195	53.73	8.39	4.52
2017-2018	99	110	209	47.36	8.23	4.21
2018-2019	112	102	214	52.30	7.4	3.9
2019-2020	118	105	220	52.12	6.7	3.5
2020-2021	86	111	197	43.65	6.6	3.0

9.18: Bull wise daughters born (only numbers) during the period Apr, 2020- Mar, 2021

Set No.	Centre	Bull No.	Daughters born	Daughters Calved	Daughters completing 1 st Lactation
18	LUVAS	1150	4	-	-
18	LUVAS	1208	5	-	-
18	LUVAS	1209	3	-	-
18	LUVAS	1219	1	-	-
18	GADVASU	2645	1	-	-
18	GADVASU	2676	2	-	-
18	GADVASU	2677	4	-	-
18	GADVASU	2689	4	-	-
18	CIRB	4905	2	-	-

18	CIRB	4995	10	-	-
18	CIRB	5147	2	-	-
18	NDRI	7094	2	-	-
18	NDRI	7147	9	-	-
18	NDRI	7227	4	-	-
18	NDRI	7263	1	-	-
6	NDRI	4506 P	1	-	-
11	CIRB	3591 P	3	-	-
12	HAU	183 P	1	-	-
12	GADVASU	2185 P	2	-	-
		Total	61	-	-
Other unknown bulls (from purchase of pregnant buffaloes)					

9.19 Bull wise daughters completing 1ST lactation during the Period April 2020 to March 2021

Bull No.	Daughter No.	Date of birth	Date of calving	AFC (months)	Lact. Length (days)	TLMY (kg)	SLMY (kg)
851	6732	11.05.13	08.02.19	69.06	426	2684	2276
4059	6764	07.08.13	27.12.18	64.75	610	4113	2873
4100	7096	18.04.15	14.06.19	49.95	342	2614	2541
2412	7112	09.07.15	17.10.19	51.36	285	1974	1974
4100	7130	30.07.15	06.10.19	50.31	432	2028	1689
N.K.	7193	30.10.15	27.08.19	45.97	302	2098	2098
N.K.	7204	08.06.13	06.10.19	76.03	228	1885	1885
N.K.	7211	03.11.15	31.07.19	44.95	348	2254	2169
N.K.	7213	03.11.15	02.07.19	44.00	316	2122	2122
4354	7231	15.01.16	17.09.19	44.13	286	1892	1892
E.T.	7250	21.03.16	02.10.19	42.45	389	2145	1930
6290	7265	03.06.16	20.09.19	39.63	390	2058	1922
2429	7278	24.07.16	08.09.19	37.55	488	2185	1524
N.K.	7660	27.04.16	16.08.19	39.69	330	1839	1792
N.K.	7713	17.05.16	19.09.19	40.15	262	1546	1546
5258	7244	23.02.2016	14.04.2020	49.75	340	2610	2430
1875	7275	07.07.2016	23.08.2019	37.59	575	3256	2234

Out of 17 bulls used, daughters of 02 bulls had given SLMY greater than 2700 kg in NDRI herd

9.20 Breeding bulls Selected for current set during the period Apr, 2020- Mar, 2021

Sr. No.	Bull No.	Date of Birth	Dam No.	Sire No.	Dam's best SLMY
NDRI					
1	7483	15-09-2017	6379	6345	2880
2	7492	09-10-2017	1027	6906	2799
3	7596	07-05-2018	3267	5988	3215
4	7604	18-06-2018	7010	6477	3158

9.20.1 PT Bulls for nominated mating during the period Apr, 2020 to Mar, 2021

Bull No.	Set No.	Centre	Dams' Best yield	Sire Index	Breeding Value	Superiority over BV (%)
2357	14	GADVASU	3559	I	2487	+ 2.78
6044	14	NDRI	3567	II	2479	+ 2.43
4196	14	CIRB	3304	III	2474	+ 2.27

9.20.2 List of breeding bulls as on 31.3.2021

Sr. No	Bull No.	DOB	Sire No.	Dam No.	Dam's best SLMY	Semen doses available
1.	6136	25.09.09	2148	5517	4341/305	8628
2.	6379	17.10.11	4915	402	3505/305	2429
3.	6405	26.01.12	N.K.	486	2743/305	4434
4.	6409	09.02.11	N.K.	490	4090/305	7355
5.	6646	07.02.13	N.K.	6627	3533/305	4302
6.	6753	13.07.13	858	470	3389/305	2172
7.	6822	13.12.13	2422	490	4090/305	824
8.	6942	23.08.14	4439	6627	3533/305	5226
9.	7010	27.12.14	4100	415	3088/305	5749
10.	7094	08.04.15	N.K.	6625	3349/305	4560
11.	7147	14.08.15	N.K.	6631	3018/305	5974
12.	7227	01.04.16	6044	5851	3099/305	1550
13.	7263	28.05.16	6290	6625	3465/305	890
14.	7277	22.07.16	2459	6236	3259/305	4428
15.	7450	14.05.17	6409	6116	3570/305	750
16.	7465	08.08.17	6646	6852	3343/305	-
17.	7477	05.09.17	6646	6255	2921/305	-
18.	7492	09.10.17	1027	6906	2799/305	760
19.	7511	17.11.17	2133	470	3389/305	100
20.	7542	27.12.17	2133	5620	3104/305	60
21.	7545	29.12.17	4705	6843	3050/305	-
22.	7568	24.02.18	2501	7351	3010/219	200
23.	7584	30.03.18	6253	6147	3600/305	-
24.	7586	08.04.18	2501	6946	3091/305	-
25.	7590	17.04.18	3591	6122	3448/305	-
26.	7596	07.05.18	3267	5988	3215/305	170
27.	7604	18.06.18	7010	6477	3158/305	910
28.	7619	03.08.18	2565	6499	3171/305	510
29.	7630	05.09.18	51	6852	3343/305	750
30.	7638	22.09.18	4687	6795	3076/305	-
31.	7649	15.10.18	2558	6735	3203/305	-
32.	7710	18.11.18	2558	7352	3015/305	-
33.	7768	04.02.19	2607	6922	2862/305	-
34.	7784	17.03.19	6942	6722	3234/305	-
35.	7810	15.04.19	6942	6848	3057/305	-
36.	7816	06.06.19	2565	5895	2974/305	-
37.	7833	13.08.19	2565	6799	3171/305	-
38.	7837	18.08.19	3267	6348	3043/305	-
39.	7853	29.08.19	3267	6122	3448/305	-
40.	7895	23.10.19	2558	6795	3076/305	-
41.	7911	27.11.19	7094	6478	2798/305	-
42.	7973	15.03.20	183	6477	3158/305	-

9.21 Target achieved during the year during the period

Trait	Target	(2017-18)	(2018-19)	(2019-20)	(2020-21)
Av. Age at first calving (months)	40	43.40 (44)	44.39 (41)	44.52 (37)	45.10 (26)
Av. Service period (days)	130	138 (49)	139 (77)	134 (60)	140.3 (39)
Calf mortality (0-3 months)	≤ 3 %	7.8	18.99	11.49	4.07
Wet average (kg)	≥8.5 kg	8.23	7.4	6.7	6.60
Herd average (kg)	≥5.5 kg	4.21	3.9	3.5	3.00

Activity carried out during the period

The NDRI center is involved for genetic improvement of Murrah Buffalo breed along with other centers under Network Project on Buffalo Improvement

i) Technical Programme :

The breeding programme in the Murrah herd was followed for test mating of 18th and 19th set of bulls. Ten bull from 18th set and four bulls from 19th set were used till March 2021. Semen was received/collected from 15 bulls of 18th set and three proven bulls also (bull no. 2357, 4196 and 6044). The dam's best lactation 305 day milk yield of bulls of NDRI under 18th set had ranged from 3018 to 3465 Kg. The dam's best lactation 305 day milk yield of 4 bulls of NDRI under 19th set had ranged from 3124 to 3513 kg

ii) Targets and Achievements

The herd strength of breedable buffaloes was 252 in 2020-21. Average age at first calving of buffaloes was 45.1 months. The average service period of buffaloes has been estimated as 140.3 days. The overall female conception rate in the herd was 42.77% for the buffaloes inseminated during Jan-Dec, 2020. The overall mortality during the year was only 29.36%. The wet and herd average were 6.6 and 3.0 kg, respectively. The average Milk Fat, SNF Total Solid, Protein and Lactose were estimated as 6.64 ± 0.14 , 8.52 ± 0.04 , 14.89, 3.14 and 4.35%, respectively.

Selection of bulls

Total 04 elite Murrah male calves were reserved during the period (2020-21) on the basis of Expected Predicted Difference and dam's best 305 day or less lactation milk yield, breed characteristics and physical conformity for selection of young male calves for future breeding. Finally, one young bull with their dam's best 305 days lactation milk yield of ranged from 2684 kg in first lactation to 3158 kg was reserved. On the basis of 14th set evaluation out of three top ranking bulls, the Bull no. 6044 from NDRI ranked second and was declared as proven bull and selected for nominated mating from 1st July 2020 to 31st December 2021.

Progeny Test Evaluation – Set-wise

The information on 305 days milk yield of daughters completing first lactation during 2020-21 were collected and compiled for genetic evaluation of Murrah bulls.

Technologies developed / Success story(s)

Supply of Quality germplasm

The NDRI Centre has produced a total 51305 doses of frozen semen, out of which 13920 doses from four bulls of 18th set and 1910 doses from one bull of 19th set during the period. The centre has supplied 5400 doses of frozen semen to other centers and field units, out of which 3515 doses were supplied to Field unit of NDRI Karnal. In addition, doses of semen were supplied from ABRC for research purpose in the institute, though sale to farmers and other dairy development organizations during the period.

The germplasm of genetically superior progeny tested proven bulls are being used on elite cows in organized herds for production of high-pedigreed bulls for further multiplication and production of superior germplasm and establishment of elite herds. Superior semen of proven and high-pedigreed bulls of NDRI center is being used by various dairy development agencies and dairy farmers for bringing genetic improvement of Murrah buffaloes.

Bulls for elite mating

The breeding programme in the herd was followed for nominated mating using semen of four proven Murrah Bulls. About 08 Murrah buffaloes were identified as elite animals. The average best lactation milk yield of elite Murrah buffaloes was 2831 Kg which was 22.35% higher than the herd average. The best lactation milk yield of elite Murrah buffaloes ranged between 2541 kg to 3462 kg in 305 days. Sixty one daughters and 49 male calves were born in the herd of which five female and three male were born to elite dams and proven sires. Total 213417.5 kg milk was produced by average 110 milch animals during the year.

Gaps/ Constraints, if any

The center has faced the impact of the constraint of high mortality in Murrah happened during 2019-20. The number of elite females has been dropped.

Future programme

The efforts will continue to further reduce the calf mortality, improving the reproduction and production performance of buffaloes for achieving the targets specified in the project.

Project Co-ordinator's observations on centre performance

Financial Statement for the year 2020-21

(Rs in Lakhs)

Sanctioned as per R E 2020-21		Released ICAR Share as per R E	Expenditure as per AUC		Closing Balance
Total	ICAR Share		ICAR Share	State Share	
23.00	19.00+4.00*	23.00	21.72440	0.00	(+ 1.27560)

* Released ICAR Share for SCSP

Herd Performance

Herd strength was 425 out of which 225 were breedable buffaloes (>2year). During the period 110 calving took place consisting of 49 males, 61 females, 6 still births and 4 abortions. The calf mortality (0-3 months) was 4.06 % higher than the target ≤ 3 %, but lower than the previous year 11.49 percent. Female conception improved from 37.09 percent to 42.77 percent. During the report period 6890 semen doses were produced and 5400 frozen semen doses were consumed /distributed at farm and field.

Average lactation milk production performance increased from 2256 kg (106) to 2390 kg (90); 305 days or less days average milk yield increased from 2184 kg (106) to 2199 kg (90), Lactation length was 347 days (90). Age at first calving increased from 44.52 months (37) to 45.10 months (26), Average service period increased from 134 days (60) to 140 days (39), Average dry period improved from 163 days (60) to 127 days (39) and average calving Interval 444 days (60) to 440 days (39). The centre wet average and herd average decreased from 2019-20 to 2020-21 from 6.7 kg to 6.6 kg and 3.5 kg to 3.0 kg respectively. During the report period 43.65 percent animals were in milk as compared to 2019-20 as 52.12 percent.

Accomplishment and Targets Achieved:

Sr. No.	Trait	Target	Achieved 2016-17	Achieved 2017-18	Achieved 2018-19	Achieved 2019-20	Achieved 2020-21
1	Av. AFC (Months)	40.0 months	43.21 (29)	43.40 (44)	44.39 (41)	44.52 (37)	45.10 (26)
2	Av. service period (Days)	130 days	132.20 (54)	138.2 (49)	139 (77)	133.5 (60)	140.3 (39)
3	Calf mortality (0-3 months)	≤ 3 %	13.55 %	15.72 %	18.99	11.49	4.07
4	Wet average (Kg)	≥ 8.50 kg	8.39 kg	8.23 kg	7.4 kg	6.7 kg	6.60
5	Herd average (Kg)	≥ 5.50 kg	4.52 kg	4.21 kg	3.9 kg	3.5 kg	3.00

Recommendations:

- Emphasis given to lactating and dry buffalo management for improvement in milk production traits.
- Efforts should be made to freeze 10000 frozen semen doses within first year for the bulls selected for test mating.
- Conception rate is comparatively low and required concerted efforts for the improvement.
- Calf mortality is high and required proper care and management of calves.

ICAR- INDIAN VETERINARY RESEARCH INSTITUTE, IZATNAGAR
Report Period: 2020-21

1. **Name of centre** : I.C.A.R.-I.V.R.I., Izatnagar
2. **Project Code** : OXX00185
3. **Project Title** : Network Project on Buffalo Improvement
Subproject : Performance recording and improvement of Murrah buffalo
4. **Date of Start** : 01.07.1993
5. **Objectives** :
 - i. To establish elite herd of 100 Murrah for the production of genetically superior young bulls.
 - ii. To evaluate sires through institutional / associated herd progeny testing scheme
 - iii. To produce, test, propagate and conserve high genetic merit male germplasm.
6. **Technical Programme :**
 - a) Establishment and maintenance of an elite herd of Murrah buffalo breed with a herd strength of 100 breedable females
 - b) Selection and testing of minimum 15 bulls of Murrah breed in every 18 / 24 months cycle.
 - c) Production of minimum 10,000 (Murrah) frozen semen doses from each test bull.
 - d) Maintain a minimum number of 8000 (Murrah) and 2000 (other breeds) frozen semen doses until the particular SET gets evaluated.
 - e) Evaluation and ranking of bulls on the basis of their progeny performance (first lactation) for selection of top 20-25% as proven bulls from each set.
 - f) Application of proven bull's semen on elite buffaloes for the production of future sires and replacement heifers.
 - g) Minimum weekly recording of milk yield of individual daughters/ buffaloes at institutional herd with wet average, herd average, percent in milk, lactation length, dry period, TLMY, SLMY (305 days or less, up to minimum of 240 days & 1500 kg in Murrah) and Peak yield, milk yield per day of herd life (total milk produced from date of birth till completion of 4th or more lactation).
 - h) Monthly testing of milk constituents (Fat%, SNF% and Protein%) and Somatic Cell Count, wherever feasible, at institutional herds.
 - i) Recording of reproductive traits viz., AFC, Service period, Days open, Calving interval, Number of services per conception, Conception rate and Calving abnormalities.
 - j) Health management including udder health, vaccination, de-worming, disease screening, mortality and periodic body weight records

7. Staff associated with the project:

Discipline	Name of Scientist / Staff	Status PI/Co-PI/ Associated)
AGB	Dr. A.K.S. Tomar, Pr. Scientist	Principal Investigator
	Dr. G.K. Gaur, Pr. Scientist	Project Associate
ARGO	Dr. S. K. Ghosh, Pr. Scientist	Project Associate
	Dr. M.K. Patra, Scientist	Project Associate (w.e.f. 2017-18)
ANFT	Dr. Narayan Dutt, Pr. Scientist	Project Associate
LPM	Dr. Triveni Dutt, JD (Acad.)/PS	Project Associate
	Dr. H.O. Pandey, Sci. (LPM)	Project Associate (w.e.f. 2017-18)
Health / Others	Dr. (Er.) Mukesh Singh, Pr. Scientist (FMP)	Project Associate
	Dr Geeta Chauhan, Pr. Scientist, LPT Div.	Project Associate
	Dr. S.K. Dixit, Pr. Scientist (Medicine)	Project Associate (w.e.f. 2018-19)
	Scientist - Division of Surgery (Rotational arrangement)	Project Associate
	Dr. Om Singh, Sr. Scientist (Agronomy)	Project Associate
No. of staff		
Administrative staff		None
Technical staff		None
Contractual staff (RA / SRF / YP-I, YP-II)		One (up to 31st March, 2021)

8. Financial Statement: Head wise budget allocation and utilization; revenue receipts

Financial Year	Head wise Budget allocated (Lakh Rs.)			Utilization (Lakh Rs.)			Revenue Generated (Lakh Rs.)	Remarks/ Details
	Recurring contingency	Non-recurring (Equipment)	Total	Recurring contingency	Non-recurring (Equipment)	Total		
2020-21	19.00*	4.00*	23.00	17.78569	2.42500	20.21069	59.32400	Through sale of 148310 kg milk
							-	Sale of 33 buffaloes
Grand Total	19.00*	4.00	23.00	17.78569	2.42500	20.21069	59.32400	-

* Rs. 1.00 lakh (Equipment) + Rs. 3.00 lakhs (recurring contingency) included for SCSP expenditure

9.1 Herd Strength (2020-21)

Sr. No.	Category	Addition			Disposal				CB
		OB	B / P	T	D	T	S	E	CB
Female									
1.	Below 3 months	-	27	-	-	25*	-	-	2
2.	3-12 months	28	-	25*	-	28*	-	-	25
3.	1-2 years	30	-	28*	-	29*	1	-	28
	Above 2 years	32	-	29*	-	25*	1	-	35
4.	Buffaloes in Milk	66	-	25*	1	9*	6	-	75
5.	Buffaloes Dry P /NP	32	-	9*	5	-	5	-	31
	Sub Total	188	27	116*	6	116*	13	-	196
Males									
1.	Below 3 months	1	50	-	-	47*	-	-	4
2.	3-12 months	32	-	47*	1	31*	2	-	45
3.	1-2 years	11	-	31*	-	6*	15	-	21
	Above 2 years	2	-	6*	-	3*	3	-	2
4.	Breeding bulls	8	-	3*	-	-	-	-	11
5.	Bullocks / Teasers / others	1	-	-	-	-	-	-	1
	Sub Total	55	50	87*	1	87*	20	-	84
	Grand Total	243	77	203*	7	203*	33	-	280

OB = Opening Balance as on 1st April 20 D = Deaths S = Sale E = Experimental
B / P = Birth / Purchase T/* = Internal Transfer ** Purchased CB = Closing Balance as on 31st March

9.2 Calving statistics including abnormalities (2020-201)

Month	Male	Female	Still Birth	Abortion	Dystokia	ROP	Prolapse
April 20	2	1	2	3+1*	1	-	-
May	1	1					-
June	1	1					1
July	3	3	1	3	5	-	-
August	9	1					-
September	7	8					-
October	10	-	1	1+1*	2	1	-
November	5	4					-
December	8	6					-

January 21	2	2	-	2	1	-	-
February	1	-					-
March	1	-					-
Overall	50	27	4	11	9	1	1

*Unseen Abortions; Sex ratio (Male : Female)= 64.93 : 35.06; SB% = 5.19%; Abortion% = 14.28%

9.3. Disposal of Animals (2020-21)

Female		Primary cause of disposal							Total
Category	Surplus	Below farm production standard	Reprod. Problem	Weak & Old	Udder Health	Death	Experimental purposes		
Calves									
0 to 3 months	-	-	-	-	-	-	-	-	
3-12 months	-	-	-	-	-	-	-	-	
Heifers									
1-2 years	1	-	-	-	-	-	-	1	
> 2 years	-	-	1		-	-	-	1	
Buffaloes									
Milch	-	4	1	2	-	3	-	10	
Dry	-	3	1		-	3	-	7	
Sub Total	1	7	3	2	-	6	-	19	
Males		Primary cause of disposal							Total
Category	Surplus	Below farm production standard	Reprod. Problem	Weak & Old	Udder Health	Death	Experimental purposes		
Calves									
0 to 3 months		-	-	-	-	-	-	-	
3-12 months	2	-	-	-	-	1	-	3	
1 to 2 year	15	-	-	-	-	-	-	15	
>2 year	3	-	-	-	-	-	-	3	
Breeding bulls									
Bullock/Teaser/Others	-	-	-	-	-	-	-	-	
Sub Total	20	-	-	-	-	1	-	21	
Grand Total	21	7	3	2	-	7	-	40	

9.4. Mortality during the Period 1st April 2020 to 31st March, 2021

Sex	Female						Male					Overall Herd
	0-3 m	3-12 m	1-2 yr	> 2 yr	Milk + Dry	Overall Female	0-3 m	3-12 m	1-2 Yr	>2 yr	Overall Male	
No.	27	40	43	58	217	215	51	60	55	62	105	320
Died	-	-	-	-	6	6	-	1	-	-	1	7
%	-	-	-	-	2.79	2.79	-	1.67	-	-	0.95	2.19

% Mortality = 0.00%

9.5. Causes of Mortality (quarter wise) during the period (2020-21)

Particulars	1 st quarter	2 nd quarter	3 rd quarter	4 th quarter	Total
A. Respiratory System:					
Pneumonia/Broncho Pneumonia/Chronic Supp. Pneumonia	-	-	-	-	-
Hemorrhagic Enteritis /Gastroenteritis	-	-	-	-	-
B. Digestive System:					
Septicemia & Toxemia/ Enteritis leading to Septicemia, Acute Abomasitis & Septicemia , Fib. Pleuritis, Acute Peritonitis Septicemia due to Navel ill/Joint ill	-	-	1	-	1
C. Others					

Still birth / NSD/Bacterial infection/Premature birth	1	1	1	-	3
Splenic Rupture /acute Selenitis	-	-	-	1	1
P.M. report not available	-	1	-	-	1
Chronic supp Myositis & peritonitis	-	-	1	-	1
Abortion/bacterial infection	3	3	1	2	9
Protein Enteropathy or Nephropathy	1	-	-	-	1
Total	6	5	5	3	19

9.7 Prophylactic measures undertaken (2020-21)

Vaccination	No. of animals		Screening	No. of animals		No of animals treated for Parasitism etc.
	Available	Inoculated		Tested	Result	
F.M.D.	-	702	Faecal samples sent to Parasitology Div./CADRAD for endoparasitic examination	5	37 were found negative; 2 were found for specific growth one was found for Escherichia coli	Ectoparasites 348
H.S.	-	226				Endoparasites 454
Brucella	-	16	Blood sample	1	11 were found -ive; 3 - No growth	Cocciostat 313
			-Do-			2 were found +ive for Anaplasmosis

9.7. Female Conception Rate During the Period April 2020 to March 2021

AI No.→	1 st			2 nd			3 rd			4 th			5 th & above			Overall		
	AIs	C	CR%	AIs	C	CR%	AIs	C	CR%	AIs	C	CR%	AIs	C	CR%	AIs	C	CR%
Parity↓																		
Heifers	27	14	51.85	10	3	30.00	6	2	33.33	3	2	66.67	-	-	-	46	21	45.65
Adults	79	39	49.37	43	22	51.16	16	9	56.25	6	3	50.00	4	4	100.00	148	77	52.03
Overall	106	53	50.00	53	25	47.17	22	11	50.00	9	5	55.56	4	4	100.00	194	98	50.52

AIs = No. of animals inseminated; C = No. of animals conceived; CR % = Conception rate%

9.8 Quarter-wise conception rate (2020-21)

Quarter	No. of A I	Preg. animals	CR %
January – March (Previous year)	7	3	42.85
April - June	18	11	61.11
July - September	86	49	56.97
October- December	83	35	42.17
Overall	194	98	50.52

9.9. Bull wise conception rate (inseminated during April, 2020 to March 2021, 2020-21)

Sl. No	Bull No.	Set No.	Total No of AI	Total Conceived	CR %
1.	1150	18 th	9	5	55.56
2.	2357	PT (14 th set)	6	2	33.33
3.	2645	18 th	5	3	60.00
4.	2674	19 th	7	4	57.14
5.	2676	18 th	9	6	66.67
6.	2677	18 th	11	7	63.64
7.	2737	19 th	5	3	60.00
8.	2759	19 th	10	7	70.00
9.	4196	PT (14 th set)	8	1	12.50

10.	4905	18 th	12	7	58.33
11.	5147	18 th	8	4	50.00
12.	5181	19 th	10	5	50.00
13.	5232	19 th	9	2	22.22
14.	5246	19 th	12	5	41.67
15.	5310	19 th	11	7	63.64
16.	5320	19 th	16	6	37.5
17.	5374	19 th	8	5	62.50
18.	7094	18 th	12	8	66.67
19.	7147	18 th	7	2	28.57
20.	7227	18 th	10	7	70.00
21.	7263	18 th	9	2	22.22
Over all			194	98	50.52
No. of services per conception			1.98 (194/98)		

9.10 Bull Wise Semen Stock (April, 2020 to March, 2021, 2020-21)

Sl. No.	Set No.	Bull No	Opening balance (1 st April, 2020)	Semen Doses received	Doses used / Consumption	Balance (as on 31/03/2021)
1.	18 th	1150	48	-	48	-
2.	PT (14 th set)	2357	-	25	25	-
3.	18 th	2645	50	-	43	7
4.	19 th	2674	-	50	45	5
5.	18 th	2676	50	-	45	5
6.	18 th	2677	62	-	45	7
7.	19 th	2737	-	50	31	19
8.	19 th	2759	-	50	42	8
9.	PT (14 th set)	4196	-	25	25	-
10.	18 th	4905	56	-	56	-
11.	18 th	5147	50	-	50	-
12.	19 th	5181	-	50	41	9
13.	19 th	5232	-	50	50	-
14.	19 th	5246	-	50	50	-
15.	19 th	5310	-	50	50	-
16.	19 th	5320	-	50	48	2
17.	19 th	5374	-	50	39	11
18.	18 th	7094	50	-	50	-
19.	18 th	7147	50	-	50	-
20.	18 th	7227	50	-	50	-
21.	18 th	7263	50	-	43	7
Grand Total			516	500	926	80

9.11.1 Average body weight (kg) since inception

Year	Birth	3 m	6 m	12 m	18 m	24 m	At AFC
Female							
1997-98	24.84±0.59 (19)	92.50±1.77 (18)	123.75±0.71 (12)	229.29±2.09 (14)	254.50±0.26 (10)	366.25±0.50 (8)	-
2002-03	29.10±0.98 (09)	80.00±7.35 (04)	107.08±7.22 (12)	195.62±10.32 (16)	277.14±10.53 (07)	347.27±13.71 (11)	-
2003-04	31.44±0.98 (17)	54.50±2.26 (10)	98.43±6.43 (16)	190.00±12.32 (11)	297.69±10.38 (13)	342.81±10.38 (16)	-
2004-05	30.44±1.06 (34)	59.00±3.13 (15)	95.00±8.05 (10)	175.00±11.30 (06)	271.66±12.91 (12)	381.00±13.24 (10)	-
2005-06	30.75±0.83 (29)	57.66±1.99 (15)	85.71±10.09 (21)	173.42±9.82 (19)	280.38±12.42 (13)	355.45±11.81 (11)	-
2006-07	31.39±0.89 (28)	59.44±2.69 (18)	94.33±4.84 (15)	180.76±9.53 (13)	268.68±9.59 (19)	355.75±10.10 (20)	-
2007-08	30.30±0.92 (29)	66.50±1.79 (30)	107.86±4.83 (28)	179.04±6.33 (26)	245.67±8.75 (15)	313.64±7.99 (11)	475.38±21.28 (13)
2008-09	30.45±0.58 (33)	63.40±2.06 (25)	100.00±3.41 (23)	178.25±8.03 (20)	241.11±10.11 (27)	319.29±11.42 (21)	477.81±18.97 (16)
2009-10	30.59±0.75 (37)	77.11±2.32 (26)	123.80±6.20 (21)	186.31±9.09 (19)	263.69±11.76 (23)	343.75±14.64 (20)	509.00±18.49 (15)
2010-11	29.52±5.31 (34)	84.43±7.75 (16)	122.81±7.75 (16)	230.43±6.46 (23)	292.10±5.03 (38)	344.44±7.31 (18)	483.75±16.70 (20)
2011-12	32.09±0.96 (23)	58.18±2.94 (19)	114.69±4.97 (16)	223.06±9.42 (18)	311.25±7.65 (16)	377.90±6.53 (24)	498.44±16.72 (16)
2012-13	33.63±0.78 (24)	69.96±2.46 (24)	126.30±4.82 (23)	233.53±13.84 (17)	334.62±8.98 (13)	391.25±8.84 (16)	535.71±25.87 (07)
2013-14	32.83±1.13 (23)	65.41±2.79 (22)	121.96±4.38 (23)	253.04±10.54 (23)	330.45±8.49 (22)	409.69±10.64 (16)	539.58±23.83 (12)
2014-15	34.75±0.72 (29)	76.44±3.96 (27)	108.33±4.27 (15)	227.38±7.63 (21)	342.86±5.52 (21)	412.80±6.67 (25)	530.56±20.14 (18)
2015-16	30.69±1.30 (26)	63.11±2.13 (18)	96.14±2.94 (22)	205.54±7.78 (28)	311.46±11.05 (24)	411.50±8.44 (20)	505.56±27.33 (09)
2016-17	36.38±0.94 (29)	75.95±2.71 (22)	108.68±3.58 (19)	206.58±9.51 (19)	303.25±7.77 (20)	378.04±9.90 (28)	546.58±9.88 (19)
2017-18	33.46±0.99 (24)	76.42±1.80 (31)	111.55±2.94 (29)	200.00±5.43 (28)	295.23±10.43 (22)	378.89±10.57(18)	320.91±10.30 (23)
2018-19	33.71±0.66 (28)	72.46±2.79 (13)	118.20±2.58 (25)	215.00±6.42 (22)	303.97±5.18 (29)	392.14±6.58 (28)	647.06±14.97 (17)
2019-20	33.52±0.61 (29)	61.22±2.11 (32)	115.56±4.21 (27)	219.17±4.81 (30)	282.40±7.67 (25)	378.86±6.47 (22)	595.50±19.72 (20)
2020-21	34.04±0.95 (27)	81.96±2.94 (23)	120.33±2.93 (30)	181.61±5.11 (28)	273.15±5.95 (27)	340.69±7.15 (29)	565.43±14.92 (23)
Male				Adults			
2002-03	29.00±0.80 (5)	82.00±8.77 (5)	-	-	-	-	-
2003-04	31.89±0.84 (23)	62.50±2.53 (8)	99.06±6.43 (16)	203.33±23.60 (3)	355.00±21.61 (3)	390.00 (1)	-
2004-05	34.60±1.17 (28)	62.20±2.43 (25)	100.33±6.57 (15)	200.83±11.30 (6)	-	355.00 (1)	-
2005-06	32.64±0.77 (34)	58.23±1.87 (17)	107.61±10.09 (21)	199.61±11.87 (13)	280.38±12.42 (13)	383.00±17.52 (5)	-
2006-07	32.56±1.01 (22)	68.12±2.86 (16)	102.27±5.66 (11)	210.71±12.99 (7)	290.00±29.57 (02)	360.00 (1)	-
2007-08	30.71±0.85 (34)	68.97±1.57 (39)	116.54±4.09 (39)	214.67±8.33 (15)	314.00±15.15 (05)	390.00±11.86 (5)	-
2008-09	31.70±0.53 (40)	61.61±1.85 (31)	103.15±3.14 (27)	185.79±8.24 (19)	230.00±21.45 (06)	392.50±37.01 (2)	-
2009-10	30.70±0.83 (30)	70.00±2.65 (20)	101.47±6.89 (17)	189.16±8.09 (24)	275.31±14.11 (16)	319.00±29.28 (5)	-
2010-11	31.15±5.39 (33)	73.00±6.46 (23)	123.87±5.57 (31)	220.66±8.00 (15)	292.22±7.31 (18)	360.00±13.87 (5)	-
2011-12	33.42±0.83 (31)	69.23±2.61 (24)	132.77±4.68 (18)	230.00±14.13 (8)	305.00±21.63 (2)	-	-
2012-13	37.53±0.71 (29)	68.91±2.52 (23)	126.95±5.30 (19)	235.00±52.18 (8)	-	-	-
2013-14	33.91±0.93 (34)	76.55±2.35 (31)	128.33±4.28 (24)	241.50±15.98 (10)	290.00±23.01 (3)	-	-
2014-15	38.12±0.74 (34)	78.39±1.89 (23)	111.52±4.08 (23)	219.55±12.60 (11)	-	340.00±65.00 (2)	-
2015-16	33.70±0.99 (33)	71.73±2.16 (26)	104.48±3.75 (29)	248.33±11.33 (18)	383.33±44.10 (3)	-	-
2016-17	37.11±1.09 (28)	73.35±2.74 (23)	117.41±4.10 (27)	238.64±8.18 (11)	389.55±9.08 (11)	437.50±12.50 (2)	-
2017-18	32.05±1.70 (22)	79.30±2.70 (23)	113.10±4.33 (21)	191.32±8.14 (19)	291.00±9.71 (10)	367.50±17.50 (5)	-
2018-19	35.90±0.81 (31)	77.23±2.33 (13)	127.50±3.24 (26)	225.71±9.97 (7)	320.00 (2)	-	-
2019-20	34.71±0.82 (34)	66.16±2.40 (38)	111.91±3.15 (34)	201.17±5.91 (23)	298.00±9.70 (5)	-	-
2020-21	35.02±0.62 (50)	76.53±1.80 (47)	118.06±2.85 (36)	194.81±6.73 (27)	282.00±11.89 (5)	-	-

Overall Body Weight (in kg) at							
Year	At Birth	3 Months	6 Months	12 Months	18 Months	24 Months	At AFC
1992-93	26.30 (30)	60.78 (11)	120.30 (11)	201.43 (11)	265.31 (08)	350.41 (10)	-
1993-94	25.81±1.51 (16)	63.95±8.00 (19)	102.67±10.13 (15)	170.59±13.06 (17)	263.82±24.35 (17)	319.47±27.86 (09)	-
1994-95	25.97±0.71 (31)	51.52±2.39 (04)	77.12±1.39 (26)	148.82±3.66 (34)	217.00±7.88 (15)	284.05±7.32 (16)	-
1995-96	24.25±0.88 (08)	56.67±1.67 (03)	105.00± - (01)	165.00±5.00 (05)	180.33±6.14 (15)	286.25±4.31 (24)	-
1996-97	24.38 (16)	86.67 (03)	117.50 (04)	217.50 (02)	248.15 (04)	368.00 (04)	-
1997-98	24.84 (19)	92.50 (18)	123.75 (12)	224.29 (14)	254.50 (10)	366.25 (08)	-
1998-99	26.98 (20)	89.50 (21)	125.41 (13)	220.00 (06)	240.30 (07)	350.81 (08)	-
1999-00	23.60±0.36 (20)	43.60±1.37 (10)	80.46±4.74 (11)	153.33±7.91 (09)	245.00±14.72 (07)	310.67±9.33 (15)	-
2000-01	24.36±0.39 (33)	50.55±3.71 (11)	99.28±3.14 (14)	195.00±5.44 (10)	261.50±8.43 (10)	342.50±9.40 (08)	-
2001-02	26.73±1.03 (11)	59.37±2.85 (08)	59.37±4.08 (09)	183.63±9.06 (11)	284.23±12.70 (13)	359.44±10.69 (09)	-
2002-03	29.10±0.98 (09)	80.00±7.35 (04)	107.08±7.22 (12)	195.62±10.32 (16)	277.14±10.53 (07)	347.27±13.71 (11)	-
2003-04	31.66 (40)	58.50 (18)	98.75 (32)	196.66 (14)	326.34 (16)	366.40 (17)	-
2004-05	32.52 (62)	60.60 (40)	97.66 (25)	187.91 (12)	271.66 (12)	368.00 (11)	501.50± (10)
2005-06	31.77 (63)	57.96 (32)	96.66 (42)	186.51 (32)	300.19 (20)	369.22 (16)	600.50± (10)
2006-07	31.98±0.67 (50)	63.78±1.96 (34)	98.30±3.72 (26)	195.74±8.05 (20)	279.34±15.54 (21)	357.87±23.15 (21)	588.37±15.69 (52)
2007-08	30.53±0.62 (63)	67.74±1.19 (69)	112.19±3.17 (67)	196.85±5.23 (41)	279.83±8.75 (20)	351.82±7.15 (16)	617.89±14.28 (57)
2008-09	31.07±0.39 (73)	62.51±1.38 (56)	101.57±2.32 (50)	182.02±5.75 (39)	235.56±11.86 (33)	355.89±19.37 (23)	477.81±18.97 (16)
2009-10	30.64±0.56 (67)	73.55±1.76 (46)	112.64±4.64 (38)	187.74±6.08 (43)	269.50±9.18 (39)	331.37±16.36 (25)	509.00±18.49 (15)
2010-11	30.34±3.79 (67)	78.71±5.04 (39)	123.34±4.77 (46)	225.55±5.14 (38)	292.16±4.43 (56)	352.22±7.84 (23)	483.75±16.70 (20)
2011-12	32.75±0.63 (54)	63.40±1.95 (43)	123.73±3.41 (34)	226.53±7.84 (26)	308.13±7.21 (18)	377.90±6.53 (24)	498.44±16.72 (16)
2012-13	35.58±0.53 (53)	69.43±1.76 (47)	126.63±3.57 (42)	234.26±11.42 (25)	334.62±8.98 (13)	391.25±8.84 (16)	535.71±25.87 (7)
2013-14	33.37±0.72 (57)	70.98±1.79 (53)	125.15±3.06 (47)	247.27±8.80 (33)	330.45±7.97 (25)	409.69±10.64 (16)	539.58±23.83 (12)
2014-15	36.57±0.56 (63)	77.34±2.29 (50)	110.26±2.96 (38)	224.69±6.53 (32)	342.86±5.52 (21)	407.41±8.00 (27)	530.56±20.14 (18)
2015-16	32.37±0.81 (59)	68.20±1.66 (44)	100.88±2.53 (51)	222.28±7.13 (46)	319.44±11.50 (27)	411.50±8.44 (20)	505.56±27.33 (9)
2016-17	36.74±0.71 (57)	74.62±1.91 (45)	113.80±2.87 (46)	218.33±7.23 (30)	333.87±9.55 (31)	382.00±9.65 (30)	546.58±9.88 (19)
2017-18	32.78± 0.96 (46)	77.65± 1.54 (54)	112.20± 2.47 (50)	196.49± 4.60 (47)	293.91± 7.71 (32)	377.75± 9.60 (20)	527.35±17.99 (23)
2018-19	34.86±0.54 (59)	74.85±1.84 (26)	122.94±2.16 (51)	217.59±5.42 (29)	305.01±4.89 (31)	392.14±6.58 (28)	647.06±14.97 (17)
2019-20	34.16±0.52 (63)	63.90±1.64 (70)	113.52±2.55 (61)	211.36±3.90 (53)	285.00±6.63 (30)	378.86±6.47 (22)	595.50±19.72 (20)
2020-21	34.68±0.52 (77)	78.31±1.57 (70)	119.09±2.04 (66)	188.09±4.26 (55)	274.53±5.32 (32)	340.69±7.15 (29)	565.43±14.92 (23)

9.12 Average Production Performance of Buffaloes Completing their Lactation

Lact. No.	No. of obs.	TLMY (kg)	Lact. Length (days)	SLMY (kg)	Peak yield (kg)
1 st	13	2347.38±97.48	354.85±26.17	2107.19±98.73	9.74±0.47
2 nd	22	2484.46±92.16	357.14±15.27	2279.41±50.94	11.18±0.32
3 rd	5	2487.42±64.71	345.00±33.05	2343.44±84.01	11.46±1.52
4 th	10	2251.66±93.20	323.40±27.33	2181.96±97.45	10.01±0.48
5 th & above	7	2469.37±180.58	356.14±37.01	2244.86±90.44	10.84±0.41
Overall	57	2410.76±50.44	349.51±10.77	2224.41±37.11	10.63±0.24

* 319 kg milk is added in pail yields on account of milk suckled by calf

LL>=150 d & MY>=1500 (Based on DOD data)

9.12.1 Average production performance of Buffaloes since Inception of Network

Year	Lact. Length (days)	TLMY (Kg)*	SLMY (kg)*	Peak yield (kg)
1992-93	297.91±9.24 (34)	1502.60±57.03 (34)	1457.72±48.65 (34)	07.88±0.35 (26)
1993-94	276.32±8.46 (28)	1557.30±57.07 (28)	1537.17±49.53 (28)	09.05±0.33 (30)
1994-95	259.25±6.62 (32)	1546.66±51.03 (32)	1535.94±40.61 (32)	09.58±0.30 (35)
1995-96	323.15±7.65 (27)	1522.72±55.66 (27)	1456.50±51.77 (27)	07.40±0.39 (21)
1996-97	341.10±13.41 (20)	1738.33±94.52 (20)	1629.27±76.30 (20)	07.91±0.38 (23)
1997-98	320.35±19.41 (23)	1830.99±119.31 (23)	1714.57±95.93 (23)	08.34±0.39 (22)
1998-99	320.05±12.09 (22)	1980.32±97.68 (22)	1980.32±97.68 (22)	08.45±0.39 (21)
1999-00	309.94±11.65 (18)	2106.83±107.58 (18)	2025.83±98.47 (18)	09.78±0.35 (26)
2000-01	277.15±27.11 (20)	2011.15±169.51 (20)	1897.80±147.16 (20)	10.56±0.39 (22)
2001-02	317.42±9.75 (28)	2090.67±78.93 (28)	2101.89±75.21 (19)	10.12±0.36 (28)
2002-03	298.55±9.95 (05)	1999.43±88.39 (55)	2043.49±66.45 (55)	10.73±0.45 (55)
2003-04	306.51±14.68 (26)	2070.94±98.94 (26)	2103.31±118.1 (26)	10.99±0.68 (26)
2004-05	299.05±8.98 (31)	2182.47±92.90 (31)	2216.03±86.06 (31)	11.25±0.47 (31)
2005-06	307.66±9.70 (45)	2166.92±92.42 (45)	2217.55±89.44 (32)	09.96±0.62 (45)
2006-07	319.85±6.96 (43)	2338.20±89.28 (43)	2412.86±88.60 (27)	11.00±0.43 (43)
2007-08	296.51±3.93 (56)	2379.09±66.65 (56)	2525.47±109.09 (28)	11.89±0.33 (56)
2008-09	291.89±4.87 (43)	2257.76±49.49 (43)	2208.95±106.07 (16)	11.00±0.28 (43)
2009-10	298.50±6.77 (51)	2418.25±77.48 (51)	2570.48±91.81 (26)	11.82±0.35 (51)
2010-11	286.40±4.89 (56)	2157.78±64.94 (56)	2136.48±63.14 (56)	11.16±0.38(56)
2011-12	308.75±7.72 (49)	2208.41±70.08 (49)	2276.82±82.85 (27)	11.54±0.37(49)
2012-13	316.43±8.41(38)	2249.40±8.46 (38)	2242.31±108.05(20)	11.01±0.34(38)
2013-14	304.27±7.95 (47)	2113.36±56.07 (47)	2037.79±62.44 (47)	11.52±0.25 (47)
2014-15	288.81±8.02 (53)	2188.82±55.81 (53)	2135.85±51.77 (53)	10.89±0.31 (53)
2015-16	298.47±8.99 (51)	2382.24±74.18 (51)	2301.49±65.44 (51)	12.30±0.35 (51)
2016-17	305.09±8.04 (55)	2280.66±80.82 (55)	2194.19±72.83 (55)	10.96±0.34 (55)
2017-18	320.76±11.12 (50)	2178.88±82.43 (50)	2128.58±56.25 (45)	10.14±0.30 (50)
2018-19	344.43±15.43 (40)	2387.44±84.17 (40)	2204.67±68.49 (40)	10.54±0.28 (40)
2019-20	325.92±8.43 (63)	2404.94±65.15 (63)	2307.40±50.75 (60)	11.04±0.24(63)
2020-21	349.51±10.77 (57)	2410.76±50.44 (57)	2224.41±37.11 (57)	10.63±0.24 (57)

* 319 kg milk is added in pail yields on account of milk suckled by calf

9.12.2 Herd Life Production (up to 4th Lactation) during 2020-21

Period	LTMY (kg)	Productive Life (d)	Productive Days (d)	Unproductive Days (d)	MY/day of HFL (kg/d)	Herd Life (d)	MY/day of Productive Life (kg/d)
2017-18	12853.87	2599.74	1719.32	880.42	3.33	3874.26	5.14
2018-19	13721.90	2680.92	1805.25	875.67	3.50	3895.50	5.21
2019-20	13804.73	2707.04	1864.44	842.60	3.53	3904.96	5.28
2020-21	12408.70	2516.67	1715.00	801.58	3.30	3688.88	4.99

Note: HLF (Herd Life- Date of birth to date of completion of 4th or more lact. or date of disposal);

Productive Days (date of first calving to total days in milk), Unproductive days (total days when buffalo not

give milk from the date of first calving)

9.13 Average Milk Composition from April 2020 to March 2021

Month	N	Fat	SNF	Total Solid%
April, 2020-May, 2020	69	7.26	10.0	17.27
June, 2020-July, 2020	59	6.71	8.45	15.17
August, 2020-September, 2020	50	7.07	9.43	16.51
October, 2020-November, 2020	57	6.90	9.54	16.45
December, 2020-January, 2021	67	6.59	9.36	15.95
February, 2021-March, 2021	83	8.93	9.45	16.39
Overall	395	7.03	9.37	16.29

9.14 Reproductive Performance

Lactation / Parity	AFC (m)	N →	SP (days)	DP (days)	CI (days)
1	39.03±0.84 (23)	14	123.64±17.97	158.00±20.29	419.57±14.95
2	-	15	159.67±24.40	154.13±16.31	441.07±30.27
3	-	5	114.60±25.74	120.60±23.43	426.00±24.90
4	-	6	100.67±19.19	120.33±12.42	418.17±22.19
≥5	-	10	155.90±27.67	188.90±38.45	458.20±26.32
Overall	39.03±0.84 (23)	50	137.24±11.09	154.76±11.14	434.22±11.67

(Based on DOC data)

9.14.1 Reproduction Performance Since inception of Network.

Years	AFC (m)	Service Period (d)	Dry Period (d)	Calving Interval (d)
1992-93	33.61±1.72 (10)	119.67±33.72 (08)	129.86±10.63 (07)	403.63±21.77 (08)
1993-94	39.38±2.99 (07)	100.90±16.01 (10)	133.15±12.72 (13)	406.08±16.77 (12)
1994-95	38.27±1.70 (10)	77.33±05.56 (09)	129.10±09.72 (20)	377.00±08.00 (20)
1995-96	37.90±1.08 (14)	100.00±11.78 (06)	118.71±11.77 (07)	401.14±16.55 (07)
1996-97	42.08±3.38 (04)	125.14±11.23 (07)	146.00±38.31 (08)	424.00±23.55 (07)
1997-98	40.14±3.38 (06)	82.55±06.54 (11)	101.73±25.10 (11)	391.55±13.11 (11)
1998-99	43.42±2.28 (08)	152.50±25.80 (11)	12.58±08.87 (10)	437.83±15.33 (10)
1999-00	48.80±7.03 (06)	189.82±28.65 (16)	110.36±13.67 (11)	422.46±21.47 (11)
2000-01	42.37±2.81 (04)	164.94±22.66 (17)	126.66±10.74 (09)	410.78±13.05 (09)
2001-02	44.35±2.58 (11)	134.25±24.63 (12)	134.00±15.33 (12)	440.52±23.81 (12)
2002-03	41.20±2.90 (04)	404.60±96.25 (05)	310.77±54.92 (09)	585.50±69.01 (04)
2003-04	41.82±3.19 (08)	108.36±15.51 (19)	256.81±35.81 (29)	553.20±36.24 (29)
2004-05	42.55±1.75 (08)	149.71±15.59 (30)	212.75±29.94 (37)	480.71±28.12 (37)
2005-06	42.25±2.43 (10)	179.91±28.47 (54)	204.41±41.40 (38)	477.45±42.50 (37)
2006-07	41.87±2.26 (10)	139.01±15.40 (40)	171.09±21.44 (28)	452.42±21.30 (30)
2007-08	45.84±0.96 (28)	114.97±07.56 (62)	150.33±19.04 (43)	443.24±21.39 (43)
2008-09	39.73±1.79 (48)	152.44±11.71 (48)	167.02±10.70 (48)	451.51±10.57 (48)
2009-10	41.32±4.73 (15)	121.77±11.25 (59)	154.69±14.01 (63)	444.64±13.01 (63)
2010-11	39.59±1.16 (25)	175.27±16.26 (26)	183.24±21.07 (60)	449.08±15.74 (60)
2011-12	45.61±3.21 (20)	152.91±20.66 (29)	207.38±22.22 (39)	460.89±17.90 (39)
2012-13	39.69±2.79 (7)	213.49±26.37 (30)	232.93±21.36 (31)	479.29±22.88 (31)
2013-14	38.20±2.15 (18)	140.07±12.79 (39)	170.63±11.86 (39)	470.87±14.03 (39)
2014-15	37.64±1.33 (18)	123.84±10.72 (55)	162.27±16.31 (44)	439.48±15.97 (44)
2015-16	40.23±2.64 (9)	142.02±14.76 (51)	148.24±11.26 (49)	447.37±15.72 (49)
2016-17	38.99±1.15 (19)	145.85±9.53 (52)	171.45±13.54 (40)	457.65±15.02 (40)
2017-18	38.64±1.16 (14)	140.77±15.44 (35)	158.53±11.18 (40)	482.80±19.53 (35)
2018-19	38.62±1.05 (16)	169.22±15.96 (46)	181.47±13.70 (36)	495.83±18.93 (36)
2019-20	39.24±2.11 (20)	172.68±19.55 (47)	169.11±14.95 (47)	448.70±12.77 (47)
2020-21	39.03±0.84 (23)	137.24±11.09 (50)	154.76±11.14 (50)	434.22±11.67 (50)

9.15 Milk Production and Disposal (2020-21)

Month	Total milk produced (kg)	Disposal (Kg)		
		Milk sold	Calf feeding	Expt.
April, 2020	10775.0	The whole milk was given to DT Section (LPT) for disposal		
May, 2020	9616.0			
June, 2020	8626.0			
July, 2020	8171.0			
August, 2020	8365.0			
September, 2020	10311.0			
October, 2020	13124.0			
November, 2020	14026.0			
December, 2020	16950.0			
January, 2021	18201.0			
February, 2021	15455.0			
March, 2021	14690.0			
Total	148310.0			

9.16 Feed and fodder (Quintals) availability (2020-21)

Quarter	Type of fodder	Qty. produced at Farm	Qty.* Purchased	Actually fed (Qtls.)*	Balance
I	Green /Semi Dry	-	-	5206.7	-
	Dry	-	-	147.5	-
	Silage	-	-	-	-
	Concentrate	-	-	347.7	-
II	Green /Semi Dry	-	-	6143.6	-
	Dry	-	-	115.8	-
	Silage	-	-	-	-
	Concentrate	-	-	480.7	-
III	Green /Semi Dry	-	-	5529.8	-
	Dry	-	-	360.1	-
	Silage	-	-	-	-
	Concentrate	-	-	571.4	-
IV	Green /Semi Dry	-	-	6509.2	-
	Dry	-	-	474.0	-
	Silage	-	-	-	-
	Concentrate	-	-	564.5	-
Total	Green /Semi Dry	-	-	23389.3	-
	Dry	-	-	1097.4	-
	Silage	-	-	-	-
	Concentrate	-	-	1964.3	-

*Concentrate mixture supplied/purchased by F.T. Unit of Institute

Table 9.17 Milk performance during (April 2020- March 2021)

Month	Buffaloes in Milk	Dry buffaloes	Total	% in Milk	Wet Av. (kg)	Herd Av. (kg)
April, 2020	66.50	30.30	96.80	68.69	5.40	3.71
May, 2020	60.52	38.23	98.74	61.29	5.13	3.14
June, 2020	56.80	44.60	101.40	56.02	5.06	2.84
July, 2020	55.52	50.97	106.48	52.14	4.75	2.48
August, 2020	54.23	54.52	108.74	49.87	4.98	2.48
September, 2020	62.17	49.90	112.07	55.47	5.53	3.07

October, 2020	67.48	43.74	111.23	60.67	6.27	3.81
November, 2020	70.47	33.10	103.57	68.04	6.63	4.51
December, 2020	73.42	23.32	103.19	75.89	6.85	5.30
January, 2021	86.45	19.32	105.77	81.73	6.79	5.55
February, 2021	83.43	22.57	106.00	78.71	6.62	5.21
March, 2021	77.6	28.39	106.00	73.22	6.11	4.47
Overall	67.88	36.58	104.99	65.14	5.84	3.88

9.17.1 Milking performance since inception

Year	No. of Animal in Milk	No. of Animal Dry	Total Animal	% in Milk	Wet Ave. * (kg)	Herd Ave. * (kg)
1992-93	22.44	13.56	36	62.33	4.31	2.68
1993-94	38.15	25.85	64	59.60	4.62	2.75
1994-95	38.62	44.38	83	46.53	3.90	1.81
1995-96	29.17	41.83	71	41.08	3.63	1.49
1996-97	28.20	31.80	60	47.00	4.19	1.96
1997-98	26.67	23.33	50	53.34	4.84	2.58
1998-99	20.30	22.70	43	47.20	5.79	2.73
1999-00	22.64	11.36	31.70	71.41	4.77	4.17
2000-01	26.97	10.03	38.73	69.63	5.42	3.80
2001-02	32.61	19.17	51.78	59.80	5.82	3.64
2002-03	33.64	29.98	63.62	51.75	4.94	2.47
2003-04	36.82	54.79	91.61	39.67	5.94	2.46
2004-05	37.68	53.90	91.58	40.95	5.99	2.53
2005-06	45.64	53.22	98.87	46.16	6.14	3.07
2006-07	41.42	35.33	76.75	53.96	6.15	3.42
2007-08	62.03	33.16	93.23	66.53	5.98	4.05
2008-09	53.45	31.23	84.69	63.12	6.69	4.27
2009-10	45.28	41.66	86.94	52.08	6.68	3.34
2010-11	46.67	43.33	90.00	51.85	5.88	3.14
2011-12	40.68	31.56	72.27	57.44	5.82	3.39
2012-13	39.16	23.08	62.25	62.92	5.66	3.59
2013-14	44.94	22.84	67.78	65.97	5.85	3.91
2014-15	42.93	23.36	66.05	65.15	6.80	4.49
2015-16	43.61	21.88	65.47	66.49	6.48	4.33
2016-17	46.02	27.42	73.25	62.85	6.00	3.77
2017-18	50.51	27.73	78.34	64.52	5.77	3.72
2018-19	49.95	22.98	72.42	67.64	6.43	4.40
2019-20	62.99	34.96	98.15	63.96	5.95	3.81
2020-21	67.88	36.38	104.99	65.14	5.84	3.88

* based on pail yields

9.18 Bull wise daughters born (only numbers)

Bull No.	Set No.	Daughters born	Daughters Calved	Daughters completing 1 st Lactation
4909	480,531	-	-	-
183	482	-	-	-
2676	484,508,515	-	-	-
2645	488,503,528,535,537	-	-	-
5147	489,502,505,506	-	-	-
1209	494,511	-	-	-
2269	498	-	-	-
5174	512	-	-	-
1219	529	-	-	-
4995	539	-	-	-

9.19 Bull wise daughters completing 1st lactation

Sl. No.	Bull No.	Daughter number	Date of Birth	Date of Calving	AFC (days)	Lact. Length (d)	TLMY (kg)	SLMY (kg)	Remarks
1.	605	280/17	01.02.17	05.11.19	1007	258	1594.6	1594.6	-
2.	2269	88/13	08.10.13	30.06.19	2091	370	2682.0	2451.9	-
3.	2371	260/16	30.09.16	05.09.19	1070	243	1852.5	1852.5	-
4.	2412	185/15	26.08.15	12.09.19	1478	244	1900.4	1900.4	-
5.	2412	248/16	27.08.16	14.08.19	1082	436	2043.5	1586.3	Auctioned
6.	2429	183/15	13.08.15	06.06.19	1393	354	2373.9	2236.7	-
7.	2459	234/16	06.05.16	18.09.19	1230	327	2381.5	2328.0	-
8.	2459	256/16	19.09.16	09.05.20	1328	314	2734.0	2689.6	-
9.	4324	267/16	24.12.16	01.12.19	1072	473	2496.4	1631.1	-
10.	4328	263/16	13.11.16	13.10.19	1064	259	2137.1	2137.1	-
11.	4328	262/16	05.11.16	20.10.19	1079	258	1937.7	1937.7	-
12.	4403	258/16	26.09.16	24.08.19	1062	275	1751.0	1751.0	-
13.	4403	244/16	08.08.16	08.07.19	1064	434	2367.6	1952.1	-
14.	6139	231/16	20.02.16	30.08.19	1287	269	1773.3	1773.3	-
15.	6139	238/16	27.06.16	30.06.19	1098	362	2925.3	2679.8	-
16.	6290	246/16	11.08.16	28.07.19	1081	354	1719.6	1631.3	-
17.	6290	239/16	09.07.16	25.06.19	1081	539	2684.0	2010.0	-

9.20 Breeding bulls selected for current set (19th set – in waiting) : Nil

9.20.1 PT Bulls for nominated mating

Bull No.	Set No.	Centre	Dams' Best yield	Sire Index	Breeding Value	Superiority over BV (%)
2357	14	GADVASU	3559	I	2487	+ 2.78
6044	14	NDRI	3567	II	2479	+ 2.43
4196	14	CIRB	3304	III	2474	+ 2.27

9.20.2 List of Future breeding bulls (as on 31.03.2021)

Sr. No.	Bull No.	Date of birth	Dam No.	Sire No.	Dams best SLMY (kg) / Parity	Semen doses available	Expected predicted Difference (EPD)
1.	235/2016	24/05/2016	1012	4363	3270.0/II	-	-
2.	247/2016	14/08/2016	709	6139	3025.5/V	-	-
3.	255/2016	18/09/2016	720	2429	3267.5/VII	-	-
4.	297/2017	08/08/2017	869	4705	3406.7/V	-	-
5.	320/2017	18/11/2017	911	4889	2997.5/IV	-	-
6.	326/2017	02/12/2017	1088	2469	3242.6/II	-	-
7.	374/2018	18/09/2018	1012	4733	3270.0/II	-	-
8.	341/2018	05/07/2018	112/14	605	2585.1/I	-	-
9.	384/2018	09/10/2018	199/15	2594	2716.5/I	-	-
10.	394/2018	24/11/2018	214/15	M-53	2664.5/I	-	-
11.	456/2019	02/11/2019	Calf	720	3267.5/II	-	-

9.21 Target achieved during the year 2020-21

Trait	Target	Achieved (2018-19)	Achieved (2019-20)	Achieved (2020-21)
Av. Age at first calving (months)	40	38.62 ± 1.05 (16)	37.33 ± 1.56 (18)	39.03 ± 0.84 (23)
Av. Service period (days)	130	169.22 ± 15.96 (46)	128.40 ± 10.93 (43)	137.24 ± 11.09 (50)
Calf mortality (0-3 months)	≤ 3 %	4.10 %	6.58 %	0.00 %

Wet average (kg)	≥8.5 kg	6.43 kg	5.95 kg	5.84 kg
Herd average (kg)	≥5.5 kg	4.40* kg	3.81 kg	3.88 kg

* Based on pail yields

10. Salient Research Achievements:

- (a) **Herd Strength:** The opening balance (herd strength) of Murrah buffaloes as on 01/04/2020 was 243 (55 males and 188 females). Additions in the herd were due to birth of 27 female and 50 male calves (77 calves). Deletions from the herd were due to death of 7 animals (1 male and 6 females) and auction/sale of 33 buffaloes (20 males and 13 females). In all, 40 animals were deleted from the herd due to various reasons, whereas 77 animals were added due to new births. The new calvings showed a peak of 15 calvings during September, 2020. The male: female ratio of new calvings was 64.93 : 35.06. The closing balance of the buffalo herd as on 31/03/2021 was 280 buffaloes (196 females and 84 males, Table 9.1 and 9.2).

Out of total 33 animals culled/sold during the current year (Table 9.1 and 9.3), all buffaloes (20 males and 13 females) were sold/auctioned due to surplus/low production/reproductive ground/weak and old (Table 9.3).

- (b) **Mortality (Detailed):** The overall mortality percent during the current year was 2.19%. The overall female and male group mortality percents were 2.79 and 0.95%, respectively (Table 9.4). A total of 7 deaths were recorded in IVRI buffalo herd during the current year (1 male and 6 females). The major causes of mortality are presented in Table 9.5.
- (c) **Prophylaxis:** The prophylaxis measures taken in the Murrah Buffaloes have been presented in Table 9.6.
- (d) **Reproductive Performance:** The overall conception rate was 50.52% (Table 9.7). The respective figures in heifer and adult groups were 45.65 and 52.03%, respectively. The overall calving abnormalities were 25 (4 still birth, 9 abortions and 2 unseen abortions, 9 ROP and 1 prolapse, Table 9.2). The quarter wise and bull wise conception rates are presented in Table 9.8 and 9.9. Bull wise semen stock position during the report period is presented in Table 9.10.

The means for age at first calving, service period, dry period and calving interval were 39.03±0.84 months, 137.24±11.09 days, 154.76±11.14 days and 434.22±11.67 days, respectively (Table 9.14 and 9.14.1).

Bull wise daughters born, bull wise daughters completing first lactation, breeding bulls selected for current set, PT bulls for nominated matings and list of future breeding bulls as on 31/03/2021 are presented in Table 9.18 to 9.20.2, respectively.

- (e) **Growth performance:** The means for overall live body weights at birth, 3, 6, 12, 18 and 24 months of age were 34.68±0.52, 78.31±1.57, 119.09±2.04, 188.09±4.26, 274.53±5.315 and 340.69±7.15 kg, respectively. The respective values for females and males were 34.04±0.95, 81.96±2.94, 120.33±2.93, 181.61±5.11, 273.15±5.95 & 340.69±7.15 and 35.02±0.62, 76.53±1.80, 118.06±2.85, 194.81±6.73, 282.00±11.89 kg (24 months – not available), respectively. The weight at first calving during the current year was 565.43±14.92 kg (Table 9.11.1).
- (f) **Milk Production Performance:** Buffaloes produced **148310.0** kg milk during the period under report (Table 9.15). Means for overall wet and herd averages were 5.84 and 3.88 kg, respectively (Table 9.17 and 9.17.1). On an average, 65.14% of the total adult females were in the milk during this period (Table 9.17).

The means for total lactation milk yield, average lactation length, standard lactation milk yield and peak yield were 2410.76±50.44 kg, 349.51±10.77 days, 2224.41±37.11 kg and 10.63±0.24 kg, respectively (Table 9.12 and Table 9.12.1). The values for LTMY, productive life, productive days, unproductive days, MY/day of HFL, herd life and MY/day of productive life were 12408.70 kg, 2516.67 days, 1715.00 days, 801.58 days, 3.30 kg/d, 3688.88 days and 4.99 kg/day, respectively (Table 9.12.2).

The means for fat, SNF and total solids % were 7.03, 9.37 and 16.29%, respectively (based on 395 samples during April, 2020-March, 2021, Table 9.13).

The analysis for lactational traits was done for animals expressing total lactation milk yield ≥ 1500 kg and LL≥150.

- (g) **Feeds and Fodder Availability:** The feeds and fodder supplied to the buffaloes of the project are presented in Table 9.16.
- (h) **Milk Production Performance:** Buffaloes produced 137602.0 kg milk during the period under report (Table 9.15). Means for overall wet and herd averages were 5.95 and 3.81 kg, respectively (Table 9.17 and 9.17.1). On an average, 62.99% of the total adult females were in the milk during this period (Table 9.17).

The means for total lactation milk yield, average lactation length, standard lactation milk yield and peak yield were 2404.94±65.15 kg, 325.92±8.43days, 2307.40±50.75 kg and 11.04±0.24 kg, respectively (Table 9.12 and Table 9.12.1). The values for LTMY, productive life, productive days, unproductive days, MY/day of HFL, herd life and MY/day of productive life were 13804.73 kg, 2707.04 days, 1864.44 days, 842.60 days, 3.53 kg/d, 3904.96 days and 5.28 kg/day, respectively (Table 9.12.2).

The means for fat, SNF and total solids % were 7.35, 9.92 and 17.28%, respectively (based on 364 samples during April, 2019-March, 2020, Table 9.13).

The analysis for lactational traits was done for animals expressing total lactation milk yield ≥ 1500 kg or LL≥210.

- (g) **Feeds and Fodder Availability:** The feeds and fodder supplied to the buffaloes of the project are presented in Table 9.16.

11. Publications/Presentations:

List of Publications:

(i) **Papers in research journals (national/international):**

1. Cheryl D. Miranda, A. K. S. Tomar, Gyanendra Singh, Hari Om Pandey, Pratik R. Wankhede and Arun Somagond. (2020). Ante-partum Body Condition Score and Non-genetic Factors Influencing the Post-partum Fertility in Murrah Buffaloes. *Int. J. Curr. Microbiol. App. Sci.*, 9(11): 1152-1158. (doi: <https://doi.org/10.20546/ijcmas.2020.911.134>)
2. Sushobhit Kr. Singh, S. Mehrotra, Pradeep Chandra, M. K. Patra, Brijesh Kumar, Harendra Kumar, A. K. S. Tomar and Gyanendra Singh. 2020. Effect of Pre- Ovulatory Follicle Size on Pregnancy Rate in Murrah Buffaloes. *Int. J. Curr. Microbiol. App. Sci.*, 9(08): 2968-2972. doi: <https://doi.org/10.20546/ijcmas.2020.908.333>

- (ii) **Technical/popular articles:** -Nil-

(iii) **Technical bulletins/books:**

1. Tomar, A.K.S. and Pandey, Hari Om (2021). भैंसों में स्वच्छ दुग्ध उत्पादन हेतु वैज्ञानिकीय प्रबंधन / Bulletin/Folder published by Network Project on Buffalo Improvement, ICAR-IVRI Izatnagar Unit, LPM Section, ICAR-IVRI Izatnagar, pp. 1-4, Folder/Bulletin 01/2021.
2. Tomar, A.K.S. and Pandey, Hari Om (2021). पड़डे एवं पडियों का वैज्ञानिकीय रख-रखाव एवं प्रबंधन / Bulletin/Folder published by Network Project on Buffalo Improvement, ICAR-IVRI Izatnagar Unit, LPM Section, ICAR-IVRI Izatnagar, pp. 1-4, Folder/Bulletin 02/2021.
3. Singh, Omvir, Pandey, Hari Om and Tomar, A.K.S. (2021). वैज्ञानिकीय भैंस पालन में आँकड़ों का अभिलेखन एवं महत्व / Bulletin/Folder published by Network Project on Buffalo Improvement, ICAR-IVRI Izatnagar Unit, LPM Section, ICAR-IVRI Izatnagar, pp. 1-4, Folder/Bulletin 03/2021.

(iv) **Scientific/Teaching reviews:** -Nil-

(v) **Presentations In Conferences/Symposia/Seminars/Other Fora:**

1. Attended 18th Annual Review Meet of NPBI held on 19th March, 2021 (Online mode) and presented annual progress report for 2019-20.
2. Attended virtual mini-symposium jointly organized by ISBD and ICAR-CIRB on 08/10/2020 on Recent Developments in Buffalo Development.

(vi) **Contributions made in compilation/documentation:**

- Tomar, A.K.S., Gaur, G.K., Dutt, Triveni, Dutta, Narayan, Dixit, S.K., Chauhan, Geeta, Ghosh, S.K., Singh, Om, Singh, Mukesh, Patra, M.K., Kochewad, S.K. and Pandey, H.O. (2020). *Annual Reports (2019-20) of Network Project on Buffalo Improvement (ICAR-IVRI Izatnagar Unit)* w.e.f. 01/04/2019 to 31/03/2020, published by LPM, IVRI Izatnagar.
- Tomar, A.K.S., Gaur, G.K., Dutt, Triveni, Dutta, Narayan, Dixit, S.K., Chauhan, Geeta, Ghosh, S.K., Singh, Om, Singh, Mukesh, Patra, M.K., Kochewad, S.K. and Pandey, H.O. (2020). *Annual Reports (2019-20)/RPP II of Genetic Improvement, conservation and multiplication of Tharparkar native cattle* w.e.f. 01/04/2019 to 31/03/2020, published by LPM, IVRI Izatnagar.
- Gaur, G.K., Tomar, A.K.S., Dutt, Triveni, Dutta, Narayan, Dixit, S.K., Chauhan, Geeta, Ghosh, S.K., Singh, Om, Singh, Mukesh, Patra, M.K., Kochewad, S.K. and Pandey, H.O. (2020). *Annual Reports (2018-19 & 2019-20)/RPP II of Multiplication and evaluation of synthetic crossbred cattle strain – Vrindavani* w.e.f. 01/04/2019 to 31/03/2020, published by LPM, IVRI Izatnagar.
- Any report as desired by PC Cell (Buffalo) of Network project on Buffalo Improvement.

(vii) **Any other (please specify):**

(a) **Traing Programme Organized:**

As Coordinator, organized 3 days Training programme (SCSP) on “स्वच्छ दुग्ध उत्पादन हेतु भैंसों का वैज्ञानिकीय प्रबंधन” w.e.f. 24-26 March, 2021 under aegis of NPBI, LPM Section and KVK, ICAR-IVRI Izatnagar (UP).

(b) **Invited Lectures**

- Tomar, A.K.S. (2020). Selection and procurement of best animals (e-lecture). Live Entrepreneurship development programme on “Dairy Farming and Milk Processing” held during 22-29/06/2020 (delivered on 22/06/2020), organized by Agri Business Incubation Center (ABI), ICAR-IVRI Izatnagar (around 50 participants).

- Tomar, A.K.S. (2020). Dairy Herd Dynamics & Criteria of Culling for Maximization of Profits. Webinar (e-lecture under NAHEP-Online Guest Speaker), Bihar Animal Sciences University, Bihar Veterinary College Campus, Patna – 800 014 as on 04/07/2020 (Around 50 participants).
- Tomar, A.K.S. (2020). बकरियो को क्रय करते समय ध्यान रखने योग्य बातें | Online KVK Training Programme on Goat Farming (w.e.f.7-12 September, 2020- delivered on 08/09/2020) organized by KVK, ICAR-IVRI Izatnagar (around 25 participants).
- Tomar, A.K.S. (2020). Selection and procurement of best animals (e-lecture). Live Entrepreneurship development programme on “Dairy Farming and Milk Processing” organized by Agri Business Incubation Center (ABI), ICAR-IVRI Izatnagar w.e.f. 14-22/09/2020 (delivered on 14/09/2020), around 35 participants.
- Tomar, A.K.S. (2020). उन्नत पशुपालन व देखभाल - वैज्ञानिक सुझाव (e-lecture). Training Programme on Dairy Farming (Dugdh Utpaadan) Vyavsaaay organized by KVK-ICAR IVRI Izatnagar w.e.f. 23-26th September, 2020 (delivered on 23/09/2020), around 25 participants.
- Tomar, A.K.S. (2020). उन्नत पशुपालन व देखभाल - वैज्ञानिक सुझाव (e-lecture). Training Programme on Commercial Dairy Farming-II organized by KVK-ICAR IVRI Izatnagar w.e.f. 16-19th December, 2020 (delivered on 16/12/2020), around 25 participants.
- Tomar, A.K.S. (2021). बकरियो को क्रय करते समय ध्यान रखने योग्य बातें (e-lecture). Online KVK Training Programme on Goat Farming (w.e.f. 4-7th January, 2021 -delivered on 06/01/2021) organized by KVK, ICAR-IVRI Izatnagar (around 25 participants).
- Tomar, A.K.S. (2021). भैंसों से अधिकतम उत्पादन हेतु नस्ल सुधार कार्यक्रम | 3 days Training Programme (SCSP) on “स्वच्छ दुग्ध उत्पादन हेतु भैंसों का वैज्ञानिकीय प्रबंधन” w.e.f. 24-26th March, 2021 organized under Network Project on Buffalo Improvement, LPM Section and KVK, ICAR-IVRI Izatnagar (UP), delivered on 24/03/2021 (around 30 participants).
- One WhatsApp group named “Mera Gaon Mera Gaurav” was created/administered and information useful for farmers was shared.

12. **Expected Socio-economic impact in the tract:**

Surplus Murrah buffaloes along with breeding males have been sold in the public auction to the local dairy farmers. It will not only improve the milk and meat production in the field in the form of Murrah/graded Murrah progenies but will also uplift the socioeconomic status of the dairy farmers of northern India.

13. **Constraints (if any):** Paucity of project staff

14. **Focus of the work in the coming year:**

- a. To increase the number of elite buffaloes in the herd.
- b. To carry out the envisaged technical programme for fulfillment of laid down objectives.
- c. To distribute superior germ-plasm to the buffalo farmers in field.
- d. To establish a high yielding nucleus herd of Murrah buffaloes at IVRI Izatnagar.

Project Co-ordinator's observations on centre performance

Financial Statement for the year 2019-20

(Rs in Lakhs)

Sanctioned as per R E 2019-20		Released ICAR Share as per R E	Expenditure as per AUC		Balance
Total	ICAR Share		ICAR Share	State Share	
23.00*	19.00+4.00*	23.00*	20.21069	0.00	(+) 2.78931

* Rs. 3.00 Lakhs (Recurring contingency) included for SCSP

Herd Performance:

Herd strength at the centre was 280 animals including 141 breedable buffaloes (>2 year). During the report period 77 calving were reported and calf mortality (0-3 months) was 0.00 %. Conception rate was 50.52 % lower than the last year 53.98 %.

Body weights at 24 months was 340.69±7.15 (29) lower than the previous year 378.86±6.47 kg (22) in females. Average lactation milk yield increased from 2405 kg (63) to 2410 kg and 305 days or less day milk yield decreased from 2307 kg (60) to 2224.41 kg (57). Reproductive performance of the centre improved over the years. AFC at the centre was 39.03 months (23) under the target. Service period, Dry period and Calving Interval during the year were 137.24 (50), 154.76 (50), 434.22 (50) as compare to previous year 172.68 days (47), 169.11 days (47) and 448.70 days (47) respectively. Wet and herd averages are reported as 5.84 kg and 3.88 kg respectively. 65.14 percent animal are in milk as compare to previous year 63.96 percent.

Accomplishment and Targets Achieved:

Trait	Target	Achieved (2018-19)	Achieved (2019-20)	Achieved (2020-21)
Av. Age at first calving (months)	40	38.62 ±1.05 (16)	37.33 ± 1.56 (18)	39.03± 0.84 (23)
Av. Service period (days)	130	169.22±15.96 (46)	128.40±10.93 (43)	137.24±11.09 (50)
Calf mortality (0-3 months)	≤ 3 %	4.10 %	6.58 %	0.00 %
Wet average (kg)	≥8.5 kg	6.43 kg	5.95 kg	5.84 kg
Herd average (kg)	≥5.5 kg	4.40* kg	3.81 kg	3.88 kg

* Based on pail yields

Recommendations:

- Needs emphasis to improve production traits and service period.

NETWORK PROJECT ON MURRAH BUFFALO IMPROVEMENT LUVAS UNIT, HISAR

1. **Name of Centre:** Buffalo Research Centre
Department of Livestock Production Management
LUVAS, Hisar
2. **Project Code** 5508 C(b) LPM-3 ICAR
3. **Project Title** Network Project on Murrah Buffalo Improvement
4. **Date of start:** 1993

5. Objectives: To establish elite herd of 50 to 100 Murrah (at each center) for the production of genetically superior young bulls. To evaluate sires through institutional / associated herd/field progeny testing. To produce, test, propagate and conserve high genetic merit male germplasm

6. Technical Program: Establishment and maintenance of an elite herd of buffalo breed with a herd strength of 500 and 300 breedable females (Murrah). Selection and testing of minimum 15 bulls of Murrah / 4-6 bulls for other breeds in every 18 / 24 months cycle. Production of minimum 10,000 (Murrah) and 3000 to 5000 (Other breeds) frozen semen doses from each test bull. Maintain a minimum number of 8000 (Murrah) and 2000 (other breeds) frozen semen doses until the particular SET gets evaluated. Evaluation and ranking of bulls on the basis of their progeny performance (first lactation) for selection of top 20-25% as proven bulls from each set. Application of proven bull's semen on elite buffaloes for the production of future sires and replacement heifers. Minimum weekly recording of milk yield of individual daughters/ buffaloes at institutional herd / monthly recording in field units over complete lactation(s) with wet average, herd average, percent in milk, lactation length, dry period, TLMY, SLMY (305 days or less, up to minimum of 240 days (All breeds) / 1500 kg in Murrah) and Peak yield, Milk yield per day of herd life (total milk produced from date of birth till completion of 4th or more lactation). Monthly testing of milk constituents (Fat%, SNF% and Protein%) and Somatic Cell Count, wherever feasible, at institutional herds. Recording of reproductive traits viz., AFC, Service period, Days open, Calving interval, Number of services per conception, Conception rate and Calving abnormalities. Health management including udder health, vaccination, de-worming, disease screening, mortality and periodic body weight records.

8. Financial Statement: Head wise budget allocation and utilization; revenue receipts

SOE	Allotment	Expenditure	Balance
M&S	6000000.00	5999687.00	313.00
OC	-	-	-
M&E	400000.00	399631.00	369.00
TA	32000.00	NIL	32000.00
M&S (SCSP)#	500000.00	223200.00	Temporary advance drawn for the Rs. 276800.00
M&E (SCSP)#	100000.00	NIL	Temporary advance drawn for the Rs. 100000.00
Electrical	-	-	-
Works	-	-	-
Total	7032000.00	6622518.00	32682.00

One training for SC beneficiaries carried out and one is being planned after lockdown.

6. Staff position: (Present and revised)

Discipline	Name of Scientist / Staff	Status PI/Co-PI/ Associated)
LPM	Dr. Subhasish. Sahu Dr. Dipin Chander Yadav	PI Co-PI
AGB	Dr. S S Dhaka	Associated
ARGO	Gynaecology department (as and when required)	Associated
Health	TVCC (as and when required)	Associated

7. Herd performance

As stated below in table 9.1 to 9.21.

9.1 Herd Strength During the Period 4/2020 to 3/2021

Category		Addition			Disposal			
S. N.		OB	B	T	D	T+E	S	CB
Female								
1.	Calves 0 – 3 months	3	43+2P		1	-35	3	9
2.	Calves >3 – 12 months	37		+35	1	-39	3	29
3.	Heifers 1 – 2 years > 2 years	31		+39	-	-31	1	38
		79		+31	-	-27	8	75
4.	Buffaloes in Milk	76	2P	+27	2	-2	14	87
5.	Buffaloes Dry P /NP	27		+2	3	-	4	22
	Sub Total	253	43+4P	-	7	-	33	260
Male								
1.	Calves 0 – 3 months	7	53		1	-50	4	5
2.	Calves >3 – 12 months	35		+50	1	-43	0	41
3.	Male above 1 – 2 years > 2 years	38		+42	-	-36	9	35
		36		+36	-	-7	36	29
4.	Breeding bulls	-		+7		-1	6	0
5.	Bullocks /Teaser/Other	2		+1	1	-	-	2
	Sub Total	118	53	-	3	-1	55	112
	Grand Total	371	96+4P	-	10	-1	88	372

OB = Opening Balance

D = Death

S= Sale

E= Experimental

T = Transfer

CB = Closing Balance

B= Birth

9.2 Calving Statistics During the Period 4/2020 to 3/2021

Month	Male		Female		Dystokia		Prolepses		Still Birth		Abortion		Overall	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
April, 20	0		1		-		-		-		-		-	
May	5		1		-		-		-		2		2	
June	2		2		-		-		-		-		-	
July	7		8		-		-		1		-		1	
August	10		7		-		-		1		-		1	
September	6		3+2P		-		-		-		-		-	
October	5		5		-		-		-		2		2	
November	8		4		-		-		-		-		-	
December	5		2		-		-		-		-		-	
January,21	3		5		-		-		-		-		-	
February	1		2		-		-		-		-		-	
March	1		3		-		-		-		-		-	
Overall	53		43+2P		-		-		2		4		6	

Sex ratio Male: Female (49.45 :50.55), SB% = 1.09 %, Abortion % = 3.3%

9.3 Disposal of Animals During the Period 4/2020 to 3/2021

Female		Primary cause of disposal						
Category	Surplus	Below farm production standard	Reprod. Problem	Weak & Old	Udder Health	Death	Experimental purposes	Total
Calves								
0 to 3 months	3	-	-	-	-	1	-	4
3-12 months	3	-	-	-	-	1	-	4
Heifers								
1-2 years	-	1	-	-	-	-	-	1
> 2 years	-	5	3	-	-	-	-	8
Buffaloes								
Milch	-	-	-	1	5	2	-	8
Dry	2	-	1	1	8	3	-	15
Sub Total	8	6	4	2	13	7	-	40
Males		Primary cause of disposal						
Calves								
0 to 3 months	4	-	-	-	-	1	-	5
3-12 months	-	-	-	-	-	1	1	2
1 to 2 year	9	-	-	-	-	-	-	9
. >2 year	36	-	-	-	-	-	-	36
Breeding bulls	6	-	-	-	-	-	-	6
Bullock+Teaser +Others	-	-	-	-	-	1	-	1
Sub Total	55	-	-	-	-	3	1	59
Grand Total	63	6	4	2	13	10	1	99

9.4 Month-wise Mortality During the Period 4/2020 to 3/2021

Female							Male					Overall Herd
Month	0-3 Month	3-12 Month	1-2 Yrs.	Above 2 Yrs.	Milk + Dry	Overall Female	0-3 Month	3-12 Month	1-2 Yrs.	>2 yrs.	Overall Male	
No. Died	1	1	-	-	5	7	1	1	-	1	3	10
%												

% calf mortality= 1.81 % (5/110)

9.5 Causes of Mortality (quarter-wise) During the Period 4/2020 to 3/2021

Particulars	1 st quarter	2 nd quarter	3 rd quarter	4 th quarter
A. Respiratory System :				
1. Enteritis	-	-	-	-
2. Pneumonities	1	-	-	-
3. Broncho-Pneumonia	-	-	-	-
4. Peritonitis	-	-	-	-
B. Digestive System :				
1. Enteritis	-	-	-	-
2. Septicaemia & Toxaemia	-	-	1	-
3. Peritonitis	-	-	-	-
4. Gastroenteritis	-	-	-	-
C. Circulatory				
D. Others				
1. Miscellaneous	3	-	1	4
Total	4	-	2	4

9.6 Prophylactic Measures Taken During the Period 4/2020 to 3/2021

Disease	Vaccination Date / No. of animals	No. of animals Tested / Positive		Dates and No. of animals treated for Parasitism
FMD	Whole herd (twice a year)	-	-	All calves upto the age of 1 year at regular interval
HS	Whole herd (twice a year)	-	-	
BQ	-	-	-	
Brucellosis	Calf-hood vaccination (Regular interval)	-	-	
JD*	Screening done	-	-	
TB*	Screening done	Herd	13	
IBR	-	-	-	
Mastitis	Milch herd (Once a year)	-	-	

9.7 Female conception rate during 4/2019 to 3/2020

AI No.→	1 st			2 nd			3 rd			4 th & above			Over all		
Parity↓	AIs	C	CR %	AIs	C	CR %	AIs	C	CR%	AIs	C	CR %	AIs	C	CR %
Heifers	40	16	40	17	6	30.29	9	3	33.33	5	1	20	71	26	36.61
Adults	99	52	52.52	45	21	46.66	19	5	26.3	27	5	18.5	190	83	43.68
Overall	139	68	48.92	62	27	43.54	28	8	28.57	32	6	18.75	261	109	41.7

AIs = No. of animals inseminated C = No. of animals conceived CR % = Conception rate%

9.8 Quarter-wise conception rate (1.1.2020 to 31.12.20)

Quarter	No. of A I	Preg. animals	CR %
January – March Previous year	59	30	50.84
April - June	46	20	43.47
July - September	67	30	44.77
October- December	89	29	32.58
Overall	261	109	41.76

9.9 Bull-wise Conception Rate During the Period 4/2020 to 3/2021

S.No.	Bull No.	SET No.	Total No. of AIs.	Total Conceived	CR%
1	*2185	12 Set	6	2	33.33
2	*2269	13 Set	35	14	40
3	*2357	14 Set	15	5	33.33
4	*4196	14 Set	4	1	25
5	*6044	14 Set	12	4	33.33
6	2676	18 Set	11	7	63.63
7	2677	18 Set	1	1	100
8	2645	18 Set	16	9	56.25
9	1208	18 Set	24	10	41.66
10	7263	18 Set	31	14	45.16
11	7227	18 Set	6	4	66.66
12	7094	18 Set	18	7	38.88
13	1219	18 Set	2	1	50
14	1219	18 Set	2	1	50
15	7147	18 Set	3	2	66.66
16	5232	19 Set	34	13	38.23
17	5181	19 Set	29	9	31
18	5246	19 Set	12	5	41.66
Overall			261	109	41.76

No. of services per conception 2.3:1

9.10 Bull-wise Semen Stock During the Period 4/2020 to 3/2021

Bull No.	Set no.	Opening balance	Semen produced /Received	Consumption for AI/ Supplied	Balance
2269	13 Set	44	50	94	-
7147	13 Set	35	-	35	-
1208	18 Set	74	100	174	-
7094	18 Set	50	50	100	-
7263	18 Set	100	100	200	-
7227	18 Set	14	-	14	-
1219	18 Set	12	-	12	-
1209	18 Set	12	-	12	-
1150	18 Set	24	-	24	-
4196	14 Set	-	100	65	35
2357	14 Set	-	50	22	28
6044	14 Set	-	50	38	12
5232	19 Set	-	200	170	30
5181	19 Set	-	150	120	30
5246	19 Set	-	50	17	33

9.11 Body Weights since Inception of Network Project.

Year	Birth (n)	3 Months (n)	6 Months (n)	12 Months (n)	18 Months (n)	24 Months (n)	At AFC (n)
Female							
1994-95	34.0	62.8	97.1	150.7	203.2	262.5	470.03
1995-96	36.48	51.20	77.89	106.75	138.79	191.28	448.08
1996-97	35.26	53.7	90.5	118.65	146.59	206.49	423.18
1997-98	36.65	55.7	94.25	123.75	148.42	217.1	439.53
1998-99	36.87	55.94	94.4	112.31	149.94	217.1	439.53
1999-00	35.43	57.11	102.1	139.27	163.66	241.97	417.74
2000-01	39.49(71)	59.52(40)	104.76(37)	134.0(32)	164.69(31)	237.38(30)	494.59(27)
2001-02	37.6 (56)	50.85(41)	84.69 (32)	167.9(27)	238.6 (35)	300.9(35)	470.1 (11)
2002-03	37.3 (87)	74.8 (88)	105.9 (77)	177.0(49)	259.6 (40)	-	457.4 (40)
2003-04	37.2 (87)	74.8 (88)	105.9 (77)	177.0(49)	259.6 (40)	345.1 (36)	457.4 (40)
2004-05	36.7 (85)	74.8 (85)	105.4 (75)	183.7(68)	260.6 (48)	341.0 (39)	459.2 (26)
2005-06	35.8 (81)	64.3 (53)	89.9(23)	140.1(25)	190.6 (20)	295.6 (16)	463.8 (12)
2006-07	36.8 (87)	71.2 (73)	103.2 (61)	141.5(41)	181.9 (29)	262.5 (38)	467.4 (21)
2007-08	36.6 (85)	66.2(78)	105.8(63)	201.6(50)	249.0 (36)	302.7 (34)	463.2 (24)
2008-09	36.3 (65)	66.4 (37)	94.5 (43)	146.7(26)	184.2 (87)	246.6 (57)	459.4(267)
2009-10	36.6 (71)	70.8 (70)	105.0(52)	154.4(43)	199.8 (49)	244.2 (38)	502.5 (24)
2010-11	35.8 (75)	72.3 (75)	108.0(52)	166.4(62)	209.3 (50)	287.9 (46)	522.9 (33)
2011-12	35.0 (71)	68.5 (63)	101.6(49)	175.6(40)	269.6 (46)	311.6 (34)	512.6 (23)
2012-13	36.4 (86)	68.2 (64)	105.1(51)	189.2(38)	278.4 (46)	302.8 (31)	528.7 (39)
2013-14	36.1 (83)	76.2 (41)	122.7(13)	185.5(43)	280.5 (30)	326 (19)	521.4 (32)
2014-15	37.2 (75)	63.8 (60)	84.9 (57)	174.5(25)	247.6 (26)	325.9 (25)	511 (17)
2015-16	35.7 (96)	54.4 (60)	92.3 (30)	189.7(30)	249.5 (30)	300 (30)	485.8 (27)
2016-17	36.2 (57)	65.6 (55)	98.7 (27)	174 (22)	250.6 (15)	302.0 (3)	447.5 (36)
2017-18	34.6±0.18 (48)	57.0±0.79 (44)	89.0±1.6 (38)	154.3±2.8 (44)	207.3±6.3 (26)	300.1±12.3 (4)	461.4±7.3 (27)
2018-19	34.4±0.4 (42)	52.7±0.5 (100)	84.2±1.2 (82)	149.6±3.0 (49)	223.5±4.4 (24)	291.0±10.9 (5)	462±5.4 (21)
2019-20	35.0±0.2 (46)	52.9±1.0 (41)	83.7±1.7 (33)	146.6±2.4 (36)	198.7±9.7 (15)	317.8±19.3 (12)	460.1±5.8 (24)
2020-21	35.0±0.4 (43)	50.9±0.9 (38)	90.4±1.3 (28)	143.9±3.1 (32)	198.6±8.5 (19)	258.3±2.6 (12)	411.6±7.1 (22)

Male							
2016-17	36.4 (59)	60.7 (50)	90.3 (28)	170.9 (17)	282 (6)	-	-
2017-18	35.3±0.16 (29)	58.9±1.01 (32)	87.6±1.7 (44)	153.7±2.8 (46)	219.9±6.8 (14)	318.7±5.8 (3)	-
2018-19	35.1±0.3 (44)	56.7±0.6 (68)	87.1±1.3 (58)	156±2.7 (32)	218.2±3.8 (14)	285±0 (1)	-
2019-20	35.4±0.2 (45)	55.9±1.1 (34)	83.2±2.0 (30)	136.3±4.8 (7)	247.6±2.6 (8)	310.4±7.4 (5)	
2020-21	36.4±0.3 (45)	58.6±0.8 (33)	95.5±1.1 (29)	163.3±3.7 (12)	203.1±2.6 (11)	272.0±2.3 (10)	-

9.12 Average Production Performance During the Period 4/2020 to 3/2021

Lact. No.	No. of obs.	Av. Lact. Yield (kg)	Av. Lact. Length (days)	305-day Milk Yield (kg)	Av. Peak yield
1 st	19	3057.0	333.5	2808.9	11.7
2 nd	16	3135.7	326.2	2969.6	13.7
3 rd	12	2950.1	299.8	2913.8	13.9
4 th	6	3173.0	323.5	2998.7	14.5
5 th & above	12	3493.4	319.9	3301.7	15.0
Overall	65	3147.9±76.3	322.0±5.4	2976.3±52.4	13.5±0.3

Figures in parenthesis indicate number of observations

9.12 Average Production Performance since Inception of Network Project.

Year	Av. Lactation Yield in kg (N)	Av. Lactation Length in days (N)	Av. 305 or less day Milk Yield in kg (N)	Av. Peak yield (N)
1995-96	2033.0(70)	285.0(70)	1987.5(70)	10.8(70)
1996-97	1896.5(75)	269.4(75)	1880.8(75)	10.0(75)
1997-98	2150.3(83)	297.2(83)	2103.7(83)	10.9(83)
1998-99	1815.0(51)	302.6(51)	1964.7(51)	10.2(51)
1999-00	1798.1(64)	311.5(64)	1688.7(64)	10.0(64)
2000-01	2226.4(42)	305.0(42)	2183.1(42)	11.0(34)
2001-02	2205.4(50)	307.2(50)	2119.4(50)	11.0(50)
2002-03	2659.0(46)	329.7(46)	2522.3(46)	12.7(46)
2003-04	2115.5(75)	293.6(75)	2061.9(75)	11.5(75)
2004-05	2215.8(61)	311.13(61)	2134.4(61)	11.3(61)
2005-06	2346.9 (77)	307.8 (77)	2251.9 (77)	11.2 (89)
2006-07	2407.9 (75)	325.2 (75)	2261.4 (75)	11.4 (75)
2007-08	2199.2(80)	286.0(80)	2129.6(80)	11.2(80)
2008-09	2124.8(76)	295.1(76)	2040.6(76)	10.5(76)
2009-10	1885.5(84)	288.2(84)	1857.6(84)	9.97(84)
2010-11	2158.8(66)	309.7(66)	2041.8(66)	9.9(66)
2011-12	2544.4 (54)	332.4 (54)	2377.7(54)	11.1 (54)
2012-13	3010.3 (55)	319.3 (55)	2879.8 (55)	13.5 (55)
2013-14	2966.7 (65)	318.3(65)	2808.3(65)	13.3(65)
2014-15	2653.4 (62)	300.2 (62)	2584.4 (62)	12.9 (62)
2015-16	2664.9±63.71 (78)	304.5±6.5 (78)	2576.8±56.9 (78)	13.0±1.8 (78)
2016-17	3138.4±76.27 (60)	328.0±7.48(60)	2967.0±64.1 (60)	13.8±3.25 (60)
2017-18	3373.4±94.83(69)	354±8.52 (69)	3050±72.7 (69)	14.2±2.93 (69)
2018-19	3193.6±91.4 (66)	313.9±6.1 (66)	3067.3±84.1 (66)	15.1±0.3 (66)
2019-20	3107.0±54.2 (60)	301.4±3.0 (60)	3090.4±54.1 (60)	14.6±0.3 (60)
2020-21	3147.9±76.3(65)	322.0±5.4 (65)	2976.3±52.4(65)	13.5±0.3(65)

Figures in parenthesis indicate number of observations.

9.12.2 Herd Life Production (up to 4th Lactation) during 2020-21

Sr. No.	Traits	2019-20		2020-21	
		No.	Average	No.	Average
1.	Herd Life (days)	16	3464	18	3326
2.	Productive Days	16	1604	18	1523.5
3.	Unproductive days	16	507	18	511.2
4.	Productive Life (days)	16	2110	18	2034.7
5.	Life time milk Yield (kg)	16	16560	18	15715.2
6.	Milk yield / day HLF (kg)	16	4.8	18	4.7
7.	Milk yield / day PLF (kg)	16	8.0	18	7.7
8.	Milk Yield / day productive days	16	10.4	18	10.3

Note: HLF (Herd Life- Date of birth to date of completion of 4th or more lact. Or date of disposal)

Productive Days (date of first calving to total days in milk), Unproductive days (total days when buffalo not give milk from the date of first calving)

9.13 Average Milk Fat Component During the Period 4/2020 to 3/2021

Month	Animal in milk (N)	Av. Fat (%)	SNF	Protein	Lactose
April, 2020	73	7.0	-	-	-
May	66	7.3	-	-	-
June	59	7.3	-	-	-
July	57	7.2	-	-	-
August	66	6.9	-	-	-
September	69	6.6	-	-	-
October	68	6.5	-	-	-
November	80	6.5	-	-	-
December	75	6.6	-	-	-
January, 21	82	6.8	-	-	-
February	85	6.7	-	-	-
March	89	6.7	-	-	-
Overall	72.4	6.8	-	-	-

9.14 Reproduction Performance During the Period 4/2020 to 3/2021

Traits	Lactation No.					Overall Mean ± SE (N)
	1 Mean ± SE (N)	2 Mean ± SE (N)	3 Mean ± SE (N)	4 Mean ± SE (N)	5 & above Mean ± SE (N)	
Average Age at Calving (Months)	43.1±0.8 (27)	-	-	-	-	43.1±0.8 (27)
Average Service Period (Days)	-	150.5±21.1 (15)	145.3±18.6 (17)	104.9±15.6 (16)	111.6±17.1 (19)	127.3±9.2 (67)
Open Days	-					
Average Dry Period (Days)	-	145.3±19.6 (15)	147.3±13.9 (17)	109.8±12.9 (16)	114.2±12.5 (19)	128.5±7.5 (67)
Average Calving Interval (Days)	-	465.1±22.3 (15)	457.2±18.0 (17)	411.5±15.0 (16)	419.3±16.8 (19)	437.3±9.2 (67)

9.14.1 Reproduction Performance since Inception of Network Project.

Year	AFC (DAYS\ months)	Average Service Period (days)	Average Dry Period (days)	Average Calving Interval (days)
1993-94	1570.2	107.5	-	-
1994-95	1560.6	163.1	132.7	459.5
1995-96	1575.8(26)	135.0(54)	161.0(36)	456.0(40)
1996-97	1438.2(44)	107.0(63)	109.7(31)	408.5(76)
1997-98	1480.4(28)	107.7(55)	143.1(55)	389.2(55)
1998-99	1439.5(22)	108.7(47)	156.0(38)	417.2(46)
1999-00	1502.0(15)	148.3(49)	148.6(49)	459.0(49)
2000-01	1540.0(17)	146.0(25)	137.0(25)	479.6(25)
2001-02	1400.1(14)	147.0(31)	128.0(31)	457.0(31)
2002-03	47.01 months (27)	165.3(47)	156.4(47)	472.1(47)
2003-04	40.4(40)	87.6(42)	115.9(42)	396.4(42)
2004-05	40.0(26)	95.8(52)	128.0(52)	402.2(52)
2005-06	41.0 (31)	147.8 (128)	156.2(26)	454.8(128)
2006-07	41.8 (15)	165.2 (60)	162.6 (64)	472.5(60)
2007-08	44.4 (30)	164.9(57)	147.1(57)	467.2(57)
2008-09	48.4 (54)	139.1(54)	146.0(54)	444.0(54)
2009-10	45.7 (27)	156.86(68)	163.6(68)	459.3(68)
2010-11	45.8(33)	155.38(38)	160.3(38)	461.8(38)
2011-12	46.0 (23)	154.0 (47)	147.8 (47)	462.8 (47)
2012-13	46 (39)	112.1 (36)	100.8 (36)	411 (36)
2013-14	43.6 (33)	118.0(39)	119.8 (39)	423 (39)
2014-15	45.9 (17)	116.8 (52)	135.6 (52)	425 (52)
2015-16	41.7±1.28 (27)	127.5±10.2(58)	126.1±6.6 (58)	434.2±10.48(58)
2016-17	42.0±7.08 (34)	129±9.6 (43)	120±8.85 (43)	434.6±10.07 (43)
2017-18	42.2±0.87 (27)	135.43±12.51 (46)	113.29±5.98 (46)	444.59±12.41 (46)
2018-19	42.5±0.83 (21)	144.9±10.7 (60)	111.4±7.0 (60)	454.1±11.1 (60)
2019-20	43.5±0.49 (22)	122.6±7.5 (64)	111.7±6.0 (64)	430.5±7.9 (64)
2020-21	43.1±0.8 (27)	127.3±9.2(67)	128.5±7.5 (67)	437.3±9.2(67)

Figures in parenthesis indicate number of observations

9.15 Milk Production and Disposal During the Period 4/2020 to 3/2021

Month	Total milk produced (kg)	Disposal		
		Liquid Milk	Calf feeding	Expt.
April, 20	20370	18570	1800	-
May	16701	15361	1340	-
June	14917	13397	1520	-
July	15285	13121	2164	-
August	19186	15930	3256	-
September	22813	18643	4170	-
October	24693	20163	4530	-
November	24633	19825	4808	-
December	24826	20304	4522	-
January, 21	26104	21366	4738	-
February	23531	20023	3508	-
March	24872	21672	3200	-
Total	257931	218375	39556	-

9.16 Feed & Fodder (Qtls.) During the Period 4/2020 to 3/2021

Month	Type of fodder/feed	Qty. produced at Farm (qtl.)	Qty. Purchased	Actually fed	Balance
Total	Green	26107.5	-	26107.5	-
	Silage	-	-	-	-
	Dry	3189	-	3189	-
	Concentrate	2975.2	-	2975.2	-

9.17 Milking Performance During the Period 4/2020 to 3/2021

Month	No. of Animal in Milk	No. of Animal dry	Total Animal	% in Milk	Wet Av. (kg)	Herd Av. (kg)
April, 20	73	31	104	70.1	9.0	6.3
May	66	41	107	61.6	8.4	5.2
June	59	46	105	56.1	8.6	4.8
July	57	49	106	53.7	8.4	4.5
August	66	48	114	57.8	9.2	5.3
September	69	50	119	57.9	11.0	6.4
October	68	51	119	57.1	11.0	6.3
November	80	24	104	76.9	10.3	8.0
December	75	31	106	70.7	10.6	7.6
January, 21	82	26	108	75.9	10.1	7.8
February	85	24	109	77.9	9.7	7.6
March	89	20	109	81.6	9.0	7.4
Overall	73	36	109	67	9.6	6.3

9.17.1 Milking Performance since Inception of Network Project.

Month	No. of animals (in milk)	No. of animals (Dry)	Total animals	Animals in milk (%)	Wet Average (kg)	Herd Average (kg)
1993-94	42	43	85	49.0	6.3	3.8
1994-95	49	39	88	55.7	7.2	3.4
1995-96	53	39	92	57.1	7.3	4.0
1996-97	76	46	122	62.4	7.0	4.3
1997-98	68	36	104	65.4	6.5	3.7
1998-99	71	27	98	70.0	6.2	4.2
1999-00	60	23	83	72.5	5.2	3.8
2000-01	55	17	72	75.8	6.7	5.1
2001-02	48	22	70	68.6	7.5	5.2
2002-03	47	25	72	65.3	7.5	5.0
2003-04	68	29	97	70.0	7.3	5.1
2004-05	68	36	104	65.4	7.7	5.0
2005-06	63	32	95	66.5	7.7	5.2
2006-07	65	31	96	68.0	7.8	5.3
2007-08	66	34	100	66.0	7.6	5.1
2008-09	62	33	95	66.0	7.1	4.7
2009-10	69	41	110	62.7	6.8	4.3
2010-11	64	30	94	68.1	7.3	5.0
2011-12	58	24	82	71.55	8.5	6.1
2012-13	58	30	88	65.1	10.0	6.6
2013-14	61.0	35.0	96.5	64.1	9.4	6.0
2014-15	64	36	100	64.3	8.7	5.6
2015-16	72	42	114	63	9.9	6.2
2016-17	80	41	121	66.1	9.7	6.6
2017-18	81	28	109	74.3	10.3	7.6
2018-19	76	29	104	73.2	11.0	8.0
2019-20	78	26	104	75.1	10.4	7.7
2020-21	73	36	109	67	9.6	6.3

9.18 Bull-wise Daughters Performance (1st lactation) During the Period 4/2020 to 3/2021

Bull No.	Set No	Total No. of daughters born	No. of daughters reaching A.F.C.	No. of daughters completing 1 st Lactation
1150		3	-	2
183		1	-	
4905		2	-	1
4995		6	-	
2185		4	-	1
7227		1	-	1
1219		2	-	-
2234		3	-	-
1209		1	-	-
2677		2	-	-
2269		5	-	-
2676		4	-	-
2645		3	-	-
1208		3	-	-
7263		3	-	-
2459		-	5	-
4438		-	1	-
4705		-	2	-
UK		-	1	-
1693		-	2	-
2429		-	1	-
4363		-	1	-
6646		-	1	-
2417		-	1	-
4403		-	3	-
4592		-	2	-
4354		-	1	-
6379		-	1	-
1053		-	1	-
6290		-	2	-
2045		-	2	-
M-53		-	-	4
2607		-	-	1
B-1.330		-	-	2
2558		-	-	2
DARA		-	-	1
1148		-	-	2
4837		-	-	1
4715		-	-	1
TOTAL		43+2(New Purchase)	27	19

9.19 Bull-wise Daughters Completing 1st Lactation During the Period 4/2020 to 3/2021

Bull No.	Daughter No.	Date of birth	Date of calving	AFC (months)	Lact. Length (days)	TLMY (kg)	SLMY (kg)
M-53	1210	20.10.15	19.4.19	42	368	3121	2758
M-53	1178	31.8.15	24.5.19	47.7	340	3114	2880
M-53	1144	26.3.15	24.5.19	50	332	2610	2480
2607	1239	14.2.16	25.5.19	39	332	2809	2667

B 1330	1207	12.10.15	6.6.19	43.8	399	3439	2831
2558	1187	16.9.15	8.6.19	44.7	318	2940	2888
B 1330	1214	5.11.15	14.6.19	43.5	439	4992	3160
2558	1223	7.1.16	28.6.19	41.6	410	3962	3357
DARA	1221	4.12.15	20.8.19	43.5	366	3360	3001
M-53	1195	28.9.15	5.10.19	48.2	298	2552	2552
1148	1245	25.5.16	13.10.19	40.6	341	3169	2964
4837	1225	8.12.15	22.10.19	46.4	303	3007	3007
4715	1229	30.12.15	10.11.19	46	287	2802	2802
1148	1222	5.12.15	20.11.19	46.5	300	2651	2651
4905	1233	7.1.16	3.12.19	46.9	286	2694	2694
2185	1252	20.6.16	29.1.20	43	296	2876	2876
1150	1248	13.6.16	9.2.20	44	311	2792	2767
1150	1285	14.9.16	5.5.20	43.7	327	2843	2766
7227	1286	19.9.16	9.2.20	43.7	283	2269	2269

9.20 List of Breeding bulls Selected for current set (19th)

Sr. No.	Bull No.	Date of Birth	Dam No.	Sire No.	Dam's best lact.305 or days less yield (kg)
1	1315	18.11.16	708	2045	3824

9.20.1 PT bulls used during the year form 14th set

Sr. No.	Bull No.	Date of Birth	Dam No.	Sire No.	Dams best SLMY (kg)
1	2357	24-07-2010	P2488	1933	3559
2	6044	15-01-2009	430	4371 PT	3567
3	4196	10-05-2010	3586	1153 PT	3304

9.21 Targets Achieved During the Year 2020-21

Sr. No.	Trait	Target Fixed	Achieved (2018-19)	Achieved (2019-20)	Achieved (2020-21)
1	Av. Age at first Ist. Calving (months)	40.0	42.5	43.5	43.1
2	Av. Service Period. (days)	130	144.9	123.9	127.3
3	Calf Mortality (0-3 months)	≤ 3 %	5.5	4.72	1.85
4	Wet Average (kg)	≥ 8.5 kg	11.0 Kg	10.4	9.6
5	Herd Average (kg)	≥ 5.5 kg	8.0 Kg	7.7	6.3

10. Salient Research Achievements (example):

The LUVAS Murrah Centre has been making steady progress in meeting out the objectives of the Network Project which are reflected in the Annual Progress Report. Some of the salient findings are as:

- i) Overall Wet average and Herd average were 9.6 kg and 6.3 kg, respectively.
- ii) Overall 305d lactation milk yield and total lactation milk were reported 2976 kg and 3147 kg, respectively.
- iii) Age at 1st calving during the period was observed 43.1 months.
- iv) During 1st April, 2020 to 31st March 2021, calf mortality (0-3 months) was 1.8 %.

11. Publications

12. Socioeconomic impact / Success stories:

- Propagated superior Murrah bulls to Village Gram Panchayats and progressive farmers.
- Exposure visit of farmers by Director of Extension Education, LUVAS and other agencies at regular interval.
- Training to SC beneficiaries under SCSP scheme (One completed and one proposed).

13. Constraints if any

- Availability of less labour due to corona guidelines.
- Since letting down of milk is done by conventional suckling practice, accurate milk estimation is limited.
- Financial assistance may be provided to improve the existing facilities in the buffalo farm such as:
 - ✓ Improving the Micro Climate of Milking Parlour
 - ✓ Input to adopt TMR feeding
 - ✓ Early diagnosis of subclinical mastitis through somatic cell counter.

14. Focus of work in the coming year: Improving the performance of herd and as per the guidelines of Network Project on Buffalo (Murrah) improvement.

Summary Report 2020-21

a. Research Evaluation Performa

1.	Name of the Centre and year of initiation: Buffalo Research Centre, Department of Livestock Production Management, Lala Lajpat Rai University of Vety. & Animal Sciences, Hisar		
2	Name of Project Incharge: Dr. Subhasish Sahu		
3	Activity assigned and targets fixed for each activity during the period:		
	Trait	Target	Achieved
	Av. Age at first calving (months)	40	43.1
	Av. Service period (days)	130	127.3
	Calf mortality (0-3 months)	≤ 3 %	1.85
	Wet average (kg)	≥8.5 kg	9.6
	Herd average (kg)	≥5.5 kg	6.3
4	Activity carried out during the period: Recording and maintenance of data, report preparation, milk recording, all farm activities like vaccination, deworming, treatment, A.I, feeding, reproduction and calving management etc.		
5	Selection of Bulls set wise: 1 bull selected for 19 th set.		
6	Progeny test evaluation-set wise: one bull from 12 th set (183)		
7	Technologies developed: validation at field level/commercialized/patent/success story (s)- Training to SC beneficiaries under SCSP scheme.		
8	Bulls for elite mating: 3 (2357, 6044 and 4196)		
9	Feeding/Reproduction/Management studies, if any- One feeding study and other housing management study were completed. One behavioural experiment is in progress since Feb., 2021.		
10	Gaps/constraints/shortfalls/excess and reasons thereof, if any <ul style="list-style-type: none"> • Availability of less labour due to corona guidelines. • Since letting down of milk is done by conventional suckling practice, accurate milk estimation is limited. • Financial assistance may be provided to improve the existing facilities in the buffalo farm such as: <ul style="list-style-type: none"> ✓ Improving the Micro Climate of Milking Parlour ✓ Input to adopt TMR feeding ✓ Early diagnosis of subclinical mastitis through somatic cell counter. 		
11	Further programme identifying the activities, timeline and targets for each of the activity- Improving the performance of herd and as per the guidelines of Network Project on Buffalo (Murrah) improvement.		
b. Financial/Administrative Evaluation performa			
1.	No. of sanction posts and designation: Nil		
2	No. of post filled: Nil		
3	No. of posts vacant (vacant since when): Nil		
4	Funds released during the year: Rs. 7032000 (Inclusive of 6,00,000/- under SCSP)		
5	Previous balance: Rs. 219051		
6	Funds utilized: Rs. 6622518 (Inclusive of proposed 376800/- utilization under SCSP)		
7	Closing balance: Rs. 32682 (Inclusive of expected expenditure under SCSP)		

Project Co-ordinator's observations on centre performance

Financial Statement for the year 2020-21 (Rs in Lakhs)

Sanctioned as per R E 2020 -21		Released ICAR Share as per R E	Intrest from bank	Detail as per AUC 2020-21	
				Expenditure (ICAR Share)	Balance (ICAR Share)
Total	ICAR Share				
70.32	54.24*	54.24*	94.340	53.99488	(+) 1.18852

* Includes 6.00 lakhs for SCSP

Herd Performance

Herd strength at the centre was 372 heads with 184 breedable buffaloes (>2 year). 96 calves were added due to birth. During the period of report calf mortality (0-3 months) was 1.85 % and conception rate was 41.76 % lower than 44.18 % of 2019-20.

Average lactation yield increased from 3107 kg (60) to 3148 kg (65), 305 or less day average milk yield decreased from 3090.4 kg (60) to 2976.3 kg (65) and lactation length 322 days (65). The reproduction parameters viz age at first calving, Dry Period, Service period and Calving Interval were during the period 43.1 months (27), 127.3 days (67), 128.5 days (67) and 437.3 days (67) as previous year 43.5 months (22), 122.6 days (64), 111.7 days (64) and 436.5 days (64) respectively. Wet and herd averages were 9.6 kg and 6.3 kg lower as compare to 10.4 kg and 7.7 kg respectively of 2019-20. During the period 67.0 percent animals were in milk as 75.1 percent in 2019-20

Accomplishment and Targets Achieved:

S. N.	Trait	Target	2017-18	2018-19	2019-20	2020-21
1	Av. AFC (Months)	40.0	42.2±0.87 (27)	42.5±0.83 (21)	43.5 (22)	43.1 (27)
2	Av. service period (Days)	130 days	135.4±7.28 (46)	144.9±10.7 (60)	122.6 (64)	127 (67)
3	Calf mortality (0-3 months)	≤ 3 %	3.16 %	5.50 %	4.72 %	1.85 %
4	Wet average (Kg)	≥ 8.50 kg	10.3 kg	11.0 Kg	10.4 kg	9.6 kg
5	Herd average (Kg)	≥ 5.50 kg	7.6 kg	8.0 Kg	7.7 kg	6.3 kg

Recommendations:

- Production performance of the herd is significantly improved and need to be maintained.

ICAR RESEARCH COMPLEX FOR EASTERN REGION, PATNA (BIHAR)

Report Period 2020-21

1. **Name of centre** : ICAR Research Complex Eastern Region Patna
2. **Project Code**
3. **Project Title** : Network Project on Murrah Buffaloes
4. **Date of Start** : July 2014 (Re-inducted)
5. **Objectives** :
Performance recording and improvement of Murrah buffaloes and evaluate sires through institutional / associated herd/field progeny testing, produce, test, propagate and conserve high genetic merit male germplasm
6. **Technical Programme :**
 - Establishment and maintenance of an elite herd of buffalo breed with a herd strength of 500 and 300 breedable females (Murrah) .
 - Selection and testing of minimum 15 bulls of Murrah / 4-6 bulls for other breeds in every 18 / 24 months cycle.
 - Production of minimum 10,000 (Murrah) and 3000 to 5000 (Other breeds) frozen semen doses from each test bull.
 - Maintain a minimum number of 8000 (Murrah) and 2000 (other breeds) frozen semen doses until the particular SET gets evaluated.
 - Evaluation and ranking of bulls on the basis of their progeny performance (first lactation) for selection of top 20-25% as proven bulls from each set.
 - Application of proven bull's semen on elite buffaloes for the production of future sires and replacement heifers.
 - Minimum weekly recording of milk yield of individual daughters/ buffaloes at institutional herd / monthly recording in field units over complete lactation(s) with wet average, herd average, percent in milk, lactation length, dry period, TLMY, SLMY (305 days or less, up to minimum of 240 days (All breeds) / 1500 kg in Murrah) and Peak yield, Milk yield per day of herd life (total milk produced from date of birth till completion of 4th or more lactation). New Table
 - Monthly testing of milk constituents (Fat%, SNF% and Protein%) and Somatic Cell Count, wherever feasible, at institutional herds.
 - Recording of reproductive traits viz., AFC, Service period, Days open, Calving interval, Number of services per conception, Conception rate and Calving abnormalities.
 - Health management including udder health, vaccination, de-worming, disease screening, mortality and periodic body weight records

7. Staff associated with the project:

Discipline	Name of Scientist / Staff	Status PI/Co-PI/ Associated)
AGB	Dr PC Chandran, Sr. Sci.	Principal Investigator
ANFT	Dr Amitava Dey, PS	Co- Principal Investigator
Veterinary Medicine	Dr Pankaj Kumar, Sr. Sci.	Co- Principal Investigator
LPM	Dr Reena Kamal, Sci.	Co- Principal Investigator
ARGO	Dr Chandra Sekar Azad, Asst. Professor	Co- Principal Investigator
Vety. Surgery	Dr RK Tiwari, Asst. Prof.	Co- Principal Investigator
Veterinary Pathology	Dr Pradeep Kr. Ray, Sci.	Associated
Technical staff	One - Technician	

8. Financial Statement : Head wise budget allocation and utilization; revenue receipts

Fund utilization in Network Project for 2020-21 (Amount in Lakhs)											
Heads	Capital						Salary	General			
	Works	Equip.	Library	Livestock	Furniture	Others		TA	HRD	Contingency	Others
Fund released	0.00	4.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	21.00	26.00
Fund utilized	0.00	2.23	0.00	0.00	0.00	1.00	0.00	0.00	0.00	22.15	-0.62

9.1 Herd Strength during the Period 1st April 2020 to 31st March, 2021

Sr. No.	Category	Addition			Disposal				CB	
		OB	B / P	T	D	T	S	E	CB	
Female										
1.	Below 3 months	1	12	-	-	12	-	-	-	1
2.	3-12 months	9	-	12	2	9	-	-	-	10
3.	1-2 years	5	-	9	2	5	-	-	-	7
	Above 2 years	8	-	5	-	4	-	-	-	9
4.	Buffaloes in Milk	33	-	13	2	21	2	-	-	21
5.	Buffaloes Dry P /NP	25	-	21	-	9	8	-	-	29
	Sub Total	81	12	60	6	60	10	-	-	77
Males										
1.	Below 3 months	3	8	-	-	9	-	-	-	2
2.	3-12 months	13	-	9	-	13	-	-	-	9
3.	1-2 years	5	-	13	-	5	12	-	-	1
	Above 2 years	-	-	4	-	-	-	-	-	4
4.	Breeding bulls	-	-	-	-	-	-	-	-	0
5.	Bullocks / Teasers	1	-	1	-	-	1	-	-	1
	Sub Total	22	8	27	-	27	13	0	-	17
	Grand Total	103	20	87	6	87	30	0	-	94

OB = Opening Balance as on 1st April D = Deaths S = Sale E = Experimental
 B / P = Birth / Purchase T = Transfer CB = Closing Balance as on 31st March

9.2 Calving Statistics including abnormalities

Month	Male	Female	Still Birth	Abortion	Dystokia	ROP	Prolapse	Overall
April, 2020	-	-						-
May	-	-						-
June	-	-						-
July	-	1						1
August	-	-						-
September	-	1						1
October	4	6						10
November	1	1						2
December	1	2						3
January, 2021	1	1						2
February	-	-						-
March	1	-						1
Overall	8	12						20

Sex ratio Male : Female (2: 3) Abortion % = Nil

9.3. Disposal of Animals during the Period 1st April 20 to 31st March 21

Female		Primary cause of disposal							
Category	Surplus	Below farm production standard	Reprod. Problem	Weak & Old	Udder Health	Death	Experimental purposes	Total	
Calves 0 to 3 months 3-12 months						- 2		- 2	
Heifers 1-2 years > 2 years						2 -		2 -	
Buffaloes Milch Dry			1 5			2 -		3 5	
Sub Total			6			6		12	
Males		Primary cause of disposal							
Calves 0 to 3 months 3-12 months									
1 to 2 year									
>2 year									
Breeding bulls									
Bullock+Teaser +Others									
Sub Total									
Grand Total			6			6		12	

9.4. Mortality during the Period 1st April 2020 to 31st March, 2021

	Female						Male					Overall Herd
	0-3 Month	3-12 Month	1-2 Yrs.	Above 2 Yrs.	Milk + Dry	Overall Female	0-3 Month	3-12 Month	1-2 Yrs.	>2 yrs.	Overall Male	
No.	01	11	13	02	50	77	02	06	07	02	17	94
Died	00	02	02	00	02	06	00	00	00	00	00	06
%	0	18.2	15.4	0	4.0	7.79	0	00	00	0	00	6.38

9.5. Causes of Mortality (quarter wise) during the period April 2020 to March 2021

Particulars	1st quarter (April-June)	2nd quarter (July-Sept)	3rd quarter (Oct-Dec.)	4th quarter (Jan.-March)	Total
Enteritis			1		1
Pneumonitis			1	1	2
Septicaemia/ Toxaemia					-
Peritonitis					-
JD/TB					-
Milk Fever / metabolic disorders					-
TRP / TP					-
Parasitism				1	1
Accidental death			1		1
Peri-parturient disorders					-
Misc. (Snake bite)			1		1
Total	0	0	04	02	06

9.6 Prophylactic Measures undertaken

Disease	Vaccination Date / No. of animals	No. of animals Tested / Positive		Dates and No. of animals treated for Parasitism
FMD	15.06.2020 & 12.01.2021 (Total 91 Buffaloes)	-	-	Calves are dewormed once in two months; And the adult animals are dewormed once in 6 months
HS		-	-	
BQ		-	-	
Brucellosis		-	-	
JD	-	-		
TB	-	-		
IBR	-	-	-	

9.7. Female Conception Rate during the Period January to December 2020

AI No. →	1 st			2 ND			3 RD			4 TH & above			Over all		
Parity ↓	AIs	C	CR %	AIs	C	CR %	AIs	C	CR%	AIs	C	CR %	AIs	C	CR %
Heifers	04	2	50.0	03	02	66.67	2	1	50.0	0	0	0	09	05	55.5
Adults	13	08	61.5	16	08	50.0	13	07	53.8	5	2	40.0	47	25	53.2
Overall	17	10	58.8	19	10	52.4	15	08	53.3	5	2	40.0	56	30	53.6

AIs = No. of animals inseminated C = No. of animals conceived CR % = Conception rate%

9.8 Quarter-wise conception rate

Quarter	No. of A I	Preg. animals	CR %
January – March Previous year	11	6	54.5
April – June	8	3	37.5
July – September	13	7	53.8
October- December	24	14	58.3
Overall	56	30	53.57

9.9. Bull-wise Conception Rate During the period January to December, 2020

Sr. No.	Bull No.	SET No.	Total Number of AI	Total Conceived	CR%
1	1209	XVIII	11	5	45.5
2	2645	XVIII	13	7	53.8
3	4905	XVIII	11	7	63.6
4	4995	XVIII	12	6	50.0
5	1150	XVIII	9	5	55.57
Overall			56	30	53.04
No. of services per conception					2.26

9.10 Bull Wise Semen Stock

Sr.No	Set No	Bull No	Doses produced / received	Doses used /disseminated			Balance
				Supply	Sold	Exp.	
1.	XIX	1315	40	0			40
2.	XIX	2674	40	1			39
3	XIX	2737	40	0			40
4	XIX	2759	40	2			38
5	XIX	5181	40	0			40
6	XIX	5232	40	2			38
7	XIX	5246	40	0			40
8	XIX	5310	40	1			39
9	XIX	5320	40	0			40
10	XIX	5333	40	1			39
11	XIX	5374	40	1			39
Grand Total			440	8			432

9.11.1 Average Body weight (kg) since inception.... (Indicate number of animals in parenthesis)

Body weight was not taken as the balance is under repairing.

9.12 Average Production Performance of Buffaloes Completing their Lactation

Lact. No.	No. of obs.	TLMY (kg)	Lact. Length (days)	SLMY (kg)	Peak yield (kg)
1 st	3	1582.90±46.05	317.50±16.94	1332.50±13.47	7.30±1.22
2 nd	6	2245.28±101.63	364.80±35.94	1914.94±119.85	9.48±0.63
3 rd	12	2261.15±177.34	376.64±39.68	1862.15±99.28	9.91±0.75
4 th	3	2285.50±354.77	362.50±6.12	1992.50±218.41	9.40±1.14
5 th & above	7	2095.90±143.85	354.67±23.37	1817.22±155.48	11.38±0.96
Overall	31	2166.04±89.10	386.31±18.19	1824.42±63.04	9.93±0.43

9.12.1 Average production performance of Buffaloes Since Inception of Network

Year	Lact. Length (days)	TLMY (kg)	SLMY (kg)	Peak yield (kg)
2014-15	421.21±8.56 (13)	2176.98±89.23 (13)	1827.22±46.22 (13)	9.72±0.32 (13)
2015-16	329.04±6.35 (18)	2018.9±60.35 (18)	1865.6±36.75 (18)	9.06±0.28 (18)
2016-17	351.80±10.65 (19)	1932.25±18.12 (19)	1736.04±21.48 (19)	9.27±0.28 (19)
2017-18	405.42±35.15 (12)	2404.76±203.77 (12)	1996.65±122.6 (12)	12.34±0.48 (12)
2018-19	370.27±23.5 (16)	2356.17±147.22 (16)	1984.85±135.23 (16)	13.08±0.38 (16)
2019-20	329.38±12.15 (20)	2127.44±18.50 (20)	2088.45±19.16 (20)	12.75±2.11 (20)
2020-21	336.31±18.19 (31)	2166.04±89.10 (31)	1824.42±63.04 (31)	9.93±0.43 (31)

9.13 Average Milk Composition from April 2020 to March 2021 :

(Milk analyser has been purchased at present. Hence data will be given for next year onwards)

9.14: Reproductive Performance

Lactation / Parity	AFC (Months) (N)	N →	SP (Days)	Days Open	DP (Days)	CI (Days)
1	48.34±5.26	3	-	-	92.15±17.21	-
2		6	100.56±12.22	126.42±13.44	102.17±18.21	466.97±38.22
3		12	97.12±8.92	127.34±9.56	94.15±15.44	470.80±40.51
4		3	108.24±14.34	140.16±14.88	98.77±16.67	461.25±15.43
5 th and above		7	113.26±11.18	135.08±12.02	111.60±18.16	466.26±29.88
Over all	48.34±5.26	31	103.08±10.85	130.45±11.47	99.90±12.62	467.82±23.74

9.14.1 Reproduction Performance Since inception of Network.

Years	AFC (Months)	Service Period (days)	Days Open	Dry Period (days)	Calving Interval (days)
2014-15		146.3±8.98 (9)	-	124.9±5.91 (9)	569.4±14.54 (9)
2015-16		139.86±4.76 (12)	-	94.17±1.70 (12)	424.90±1.42 (12)
2016-17		183.1±6.25 (14)	-	122.2±3.13 (14)	481.2±6.56 (12)
2017-18		195.3±8.21 (12)	-	110.4±6.58 (12)	515.2±7.12
2018-19		157.22±9.28 (18)	-	92.25±10.47 (18)	463.12±22.17 (18)
2019-20		130.92±12.55 (20)	-	91.97±13.22 (20)	425.91±40.62 (20)
2020-21	48.34±5.26(3)	103.08±10.85 (31)	130.45±11.47(31)	99.90±12.62 (31)	467.82±23.74 (31)

9.15 Milk Production and Disposal

Month	Total milk produced (kg)	Disposal (Kg)		
		Milk sold	Calf feeding	Expt.
April 2020	3213	2557	656	-
May	3565	2851	714	-
June	3665	2929	736	-
July	3205	2547	658	-
August	3020	2388	632	-

September	2381	1846	535	-
October	2759	2167	592	-
November	3605	2879	726	-
December	4126	3311	815	-
January 2021	4455	3581	874	-
February	4030	3227	803	-
March	4341	3487	854	-
Total	42365	33770	8595	-

9.16 Feed and fodder (Quintals) availability

Months	Green fodder produced at Farm	Green fodder Purchased	Total
April 2020	323.8	-	323.8
May	383.5	-	383.5
June	542.0	-	542.0
July	597.0	-	597.0
August	627.9	-	627.9
September	617.5	-	617.5
October	560.2	-	560.2
November	409.2	-	409.2
December	529.7	-	529.7
January 2021	552.6	-	552.6
February	545.0	-	545.0
March	451.1	-	451.1
Total Green	6139.4	-	6139.4
Silage	-	-	-
Dry	1200	450	1650
Concentrate	-	1274	1274

9.17: Milk performance during April 20 to March 21

Month	Buffaloes in Milk	Dry buffaloes	Total	% in Milk	Wet Av. (kg)	Herd Av. (kg)
April 20	33	13	46	71.74	3.25	2.33
May	32	14	46	69.57	3.71	2.58
June	29	17	46	63.04	4.21	2.66
July	29	17	46	63.04	3.68	2.32
August	28	18	46	60.87	3.60	2.19
September	24	22	46	52.17	3.31	1.73
October	25	21	46	54.35	3.68	2.00
November	29	18	47	61.70	4.14	2.56
December	28	19	47	59.57	4.91	2.93
January	26	21	47	55.32	5.71	3.16
February	24	23	47	51.06	5.60	2.86
March	20	27	47	42.55	7.24	3.08
overall	27.25	19.17	46.41	58.75	4.42	2.58

9.17.1 Milking performance since inception

Year	No. of Animals in Milk	No. of Animals dry	Total Animals	% in Milk	Wet Av. (kg)	Herd Av. (kg)
2014-15	8.17	10.83	19	42.98	3.98	1.71
2015-16	13.5	11.0	61	51.83	7.45	3.91
2016-17	19.1	9.4	68.1	66.1	6.39	4.51
2017-18	16.92	8.42	77.8	68.37	4.30	2.93
2018-19	14.75	10.67	25.33	58.01	4.85	3.08
2019-20	27.42	16.5	43.92	52.12	5.12	3.25
2020-21	27.25	19.17	46.41	58.75	4.42	2.58

9.18: Bull wise daughters born (only numbers)

Bull No.	Set No.	Daughters born	Daughters Calved	Daughters completing 1 st Lactation
B-851	XIII	2	2	1
4324	XIV	3	2	-
4328	XIV	1	1	1
4354	XIV	2	1	-
4363	XIV	1	-	-
4438	XIV	3	2	1
2565	XV	2		
2594	XV	2		
2607	XV	3		
4733	XV	3		
M51	XV	2		
4905	XVIII	2		
1150	XVIII	4		
1209	XVIII	2		
1219	XVIII	2		

9.19 Bull wise daughters completing 1st lactation

Bull No.	Daughter No.	Date of birth	Date of calving	AFC (months)	Lact. Length (days)	TLMY (kg)	SLMY (kg)
B-851	47	20.03.2015	07.01.2020	55	368	2045	1745
4438	78	10.05.2016	07.07.2019	33	399	1527	1316
4328	81	09.07.2016	26.10.2020	51	340	1639	1350

9.20 Breeding bulls Selected for current set : Nil
 9.20.1 PT Bulls for nominated mating : Nil
 9.20.2 List of Future breeding bulls : Nil

9.21 Target achieved during the year 202-21

Trait	Target	2018-19	2019-20	2020-21
Av. Age at first calving (months)	40	-	-	48.34±5.26 (3)
Av. Service period (days)	130	157±9.28 (18)	131±12.55 (20)	130±11.47 (31)
Calf mortality (0-3 months)	≤ 3 %	45.45%	2.77%	0.0
Wet average (kg)	≥8.5 kg	4.85	5.12	4.42
Herd average (kg)	≥5.5 kg	3.08	3.25	2.58

10. Salient Research Achievements: Investigation was carried out to determine expression profile of novel chemokine genes CCL 8 (C-C motif chemokine 8) and CXCL10 (C-X-C motif chemokine 10) during peri- implantation period in whole blood of artificially inseminated dairy buffaloes. Significant increase in transcriptional abundance of CCL8 gene was observed throughout the peri-implantation period in pregnant buffaloes with the value of 0.014 ± 0.001 at day 12 post AI to 0.062 ± 0.002 at day 21 respectively ($P < 0.05$). Expression level of CCL8 gene remained unchanged ($P > 0.05$) throughout the peri-implantation period in case of non-pregnant animals.

Expression of CXCL10 in pregnant buffaloes showed significantly greater expression ($P < 0.05$) on day 12 post AI to day 21 than control (non-pregnant) group. The expression showed significant increase ($P < 0.05$) post day 12 to day 21 of AI with the values of 0.040 ± 0.001 and 0.12 ± 0.02 respectively. Difference in the expression level at day 15 and 18 was non-significant on ($P > 0.05$) with the values of 0.067 ± 0.025 and 0.094 ± 0.027 respectively.

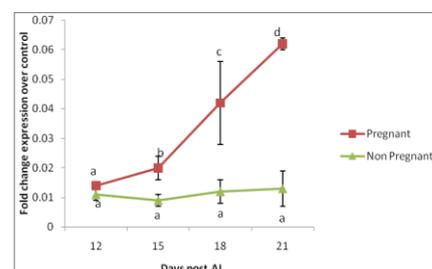


Fig. Transcriptional abundance of CCL8 gene in pregnant and non-pregnant samples on different days post AI

The expression level of CXCL10 gene remained unchanged ($P>0.05$) throughout the peri-implantation period in case of non-pregnant animals.

Our findings suggest that increased response of chemokines CCL8 and CXCL10 is a pregnancy dependent event and therefore, expression profiling of chemokines CCL8 and CXCL10 during peri-implantation period in buffaloes can act as signature for pregnancy establishment.

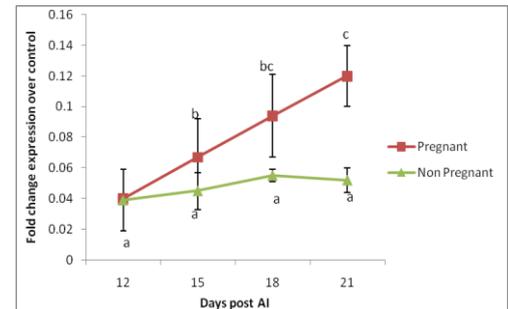


Fig. . Transcriptional abundance of CXCL10 gene in pregnant and non-pregnant samples on different days post AI

11. Publications

Kumari, R., Kumar, R., Dayal, S., **Chandran, P.C.**, Kumar, S., Ray, P.K., Kamal, R.K. and Dey, A. (2021). Development of qPCR assay for estimation of transcriptional abundance of chemokines during embryonic implantation in buffaloes. *Buffalo Bulletin*. **40**: 45-55.

Chandran, P.C., Dey, A., Barari, S.K. and Reena Kamal. Scenario and strategies for sustainable buffalo production in Eastern region of India. Submitted to *Buffalo Bulletin*.

12. Socioeconomic impact / Success stories:

Even during the Pandemic situation prevailing across the country, a total of 120 scheduled caste farmers were imparted training on importance of buffaloes in social upliftment of weaker sections of India, scientific rearing of buffaloes, husbandry practices to be followed for maximizing yield from buffaloes and major diseases affecting the buffaloes.

Apart from direct training, the farmer beneficiaries were also offered milk cans, milk buckets, litre measure, umbrellas, torch and tarpaulin sheets in order to improvise their husbandry practices and also to support them during adverse conditions.

13. Constraints if any

- More than 80% of animals in the herd are purchased animals. Hence, it may consume quite a lot of time to stabilize the herds and achieve best production performances.
- Shortage of space for accommodating the animals and also shortage of fodder plot area.
- Possibility of transfer of land from the institute to Patna airport may affect the existing fodder plots very badly.

14. Focus of work in the coming year

- To improve the performance of institute herds in terms of production and reproduction performances.
- To reach the farmers and collect the data to undertake impact analysis over socio-economic interventions.

Project Co-ordinator's observations on centre performance

Financial Statement for the year 2020-21 (Rs in Lakhs)

Sanctioned as per R E 2019-20		Released ICAR Share as per R E	Expenditure as per AUC		Balance (ICAR Share)
			ICAR Share	State Share	
Total	ICAR Share	26.00*	25.38241*	--	+ 0.61759

* Includes Rs. 4.00 lakhs for SCSP

Herd Performance

The herd strength of farm decreased from 103 to 94 head in 2020-21, comprising 59 breedable buffaloes. 20 calves added due to birth during the year. The calf mortality (0-3 months) was 0.00 percent. Conception rate improved from 47.89 % to 53.57 %.

Av. Lactation milk yield, Av. Lactation length and 305 or less day lactation milk yield were 2166.04 kg (31), 336.31 days (31) and 1824.42 kg (31) during the year as compare to previous year 2127.44 kg (20), 329.38 days (20) and 2088.45kg (20), respectively. The service period, dry period and calving interval were 130 days (31), 100 days (31) and 468 days (31) during the period and 131 days (20), 92 days (20) and 426 days (20), respectively in 2019-20. The wet average (4.42 kg) and herd average (2.58 kg) decreased as compared to previous year performance (5.12 and 3.25 kg, resp.).

A. Accomplishment and Targets Achieved:

Sr. No.	Trait	Target	2016-17	2017-18	2018-19	2019-20	2020-21
1	Av. AFC (Months)	40.0	--	--	--	--	48.34±5.26 (3)
2	Av. service period (Days)	130	183 (14)	195 (12)	157±9.28 (18)	131±12.55 (20)	103±10.85 (31)
3	Calf mortality (0-3 months)	≤ 3 %	0.00 %	50.0%	45.45%	2.77%	0.00%
4	Wet average (Kg)	≥ 8.50 kg	6.39	4.30	4.85	5.20	4.42
5	Herd average (Kg)	≥ 5.50 kg	4.51	2.93	3.08	3.25	2.58

Recommendations:

- Lactation milk yield and CR improved during the report under period, but still need improvement for management of lactating and dry buffaloes.
- Since last six years, not a single progeny was added in herd indicate very poor heifers and calf management at the centre.

ICAR-CIRB SUB CAMPUS, NABHA

1. **Name of the center** : Central Institute for Research on Buffaloes, Sub campus, Nabha
2. **Project Code** : 18-3/97 ASR-II Dated 29/03/2001
3. **Project title** : Network project on improvement of Nili Ravi buffaloes
4. **Date of Start** : 11/10/ 2001
5. **Objectives:** The objective of the project is to envisage and undertake progeny testing for improvement of Nili Ravi breed of buffaloes. Priority and emphasis will be on performance recording and improvement of the breed and on semen quality testing laboratory.
6. **Technical Programme:** As approved for the Network programme.
7. Staff position at CIRB sub-campus Nabha as on 31/03/2021: Redeployment
8. Herd Performance: Presented in table 9.1 to 9.21

9.1 Herd Strength during the Period 1st April 2020 to 31st March, 2021

Sr. No.	Category	Addition				Disposal				CB
		OB	B/P	P	T	D	T	S	Sold to Farmer	CB
Female										
1.	Below 3 months	14	80	-		12	74	02	-	06
2.	3-12 months	59	-	-	142	09	134	-	-	58
3.	1-2 years	58	-	-	66	04	58	02	-	60
	Above 2 years	93	-	-	173	-	155	08	-	103
4.	Buffaloes in Milk	125	-	-	150	02	122	27	-	124
5.	Buffaloes Dry P /NP	39	-	-	122	01	110	31	-	19
	Sub Total	388	80	-	653	28	653	70	-	370
Males										
1.	Below 3 months	12	66	-		03	62	-	-	13
2.	3-12 months	56	-	-	130	05	125	10	-	46
3.	1-2 years	38	-	-	57	01	24	50	01	19
	Above 2 years	31	-	-	51		27	23	02	30
4.	Breeding bulls	08	-	-	-	-	-	-	03	05
5.	Bullocks/Teasers / others	01	-	-	-	-	-	-	-	01
	Sub Total	146	66	-	238	09	238	83	06	114
	Grand Total	534	146	-	891	37	891	153	06	484

OB = Opening Balance as on 1st April D = Deaths S = Sale E = Experimental
 B / P = Birth / Purchase T = Transfer CB = Closing Balance as on 31st March

9.2 Calving Statistics including abnormalities

Month	Male	Female	Still Birth	Abortion	Dystokia	ROP	Prolapse	Overall
April 20	02	02	-	-	-	-	-	04
May	-	02	-	01	-	-	-	02
June	02	-	-	-	-	-	-	02
July	09	06	01	-	-	-	-	15
August	11	16	-	01	-	-	-	27
September	12	21	-	-	-	-	-	33
October	07	10	-	-	-	-	-	17
November	05	06	01	-	-	-	-	11
December	4	9	-	-	-	-	-	13
January 2021	5	3	2	-	-	-	-	08
February	4	2	-	-	-	-	-	06
March	5	3	-	-	-	-	-	08
Overall	66	80	04	02	-	-	-	146

Sex ratio Male : Female (1 : 1.21) SB% = 2.67

9.3. Disposal of Animals during the Period 1st April 20 to 31st March 21

Female		Primary cause of disposal						
Category	Surplus	Below farm production standard	Reprod. Problem	Weak & Old	Udder Health	Death	Exp. purposes	Total
Calves								
0 to 3 months	02	-	-	-	-	12	-	14
3-12 months	-	-	-	-	-	09	-	09
Heifers								
1-2 years	02	-	-	-	-	04	-	06
> 2 years	01	-	07	-	-	-	-	08
Buffaloes								
Milch/ Dry	04	23	07	05	19	03	-	61
Sub Total	09	23	14	05	19	28		98
Males		Primary cause of disposal						
Calves								
0 to 3 months	-					03		03
3-12 months	10					05		15
1 to 2 year	50+1					01		52
. >2 year	23+2	-				-		25
Breeding bulls	03							03
Bullock+Teaser+Others								-
Sub Total	83+6	-				09		98
Grand Total	98	23	14	05	19	37		196

9.4. Mortality during the Period 1st April 20 to 31st March, 2021

	Female						Male					Overall Herd
	0-3 Month	3-12 Month	1-2 Yrs.	Above 2 Yrs.	Milk + Dry	Overall Female	0-3 Month	3-12 Month	1 -2 Yrs.	>2 yrs.	Overall Male	
No.	94	201	124	266	143	468	78	186	95	84	212	680
Died	12	09	04	-	03	28	03	05	01	-	09	37
%	12.7%	4.5%	3.2%	-	2.1%	5.9%	3.8%	2.7%	1.0%	-	4.2%	5.4%

9.5. Causes of Mortality (quarter wise) during the period April 20 to March 21

Particulars	1 st quarter	2 nd quarter	3 rd quarter	4 th quarter
A. Respiratory System				
1. Broncho-pneumonia		01	01	03
2. Acute Resp. failure			01	03
3. Pheumo-Enteritis				
B. Digestive system				
1. Enteritis			03	03
2. Gastritis		02		
3. Impaction	01		01	
4. Peritonitis		01		
5. Hepatitis		02	01	
6. Tympanitis			01	01
C. Cardio-vascular System		01		
D. Urogenital System				
1. Pyelonephritis			02	
E. Others				
1. Premature birth				
2. Accident		01		01
3. Miscellaneous & Others		03	03	01
Total	01	11	13	12

9.7 Prophylactic Measures undertaken 2020-2021

Vaccination	No. of animals		Screening	No. of animals		No. of animals treated for Parasitism
	Available	Inoculated		Tested	Results	
FMD	610	610	TB *	245	-ve-	330
HS	610	610	JD*	245	-ve-	
BQ	-	-	Brucellosis**	190	-ve-	
RP	-	-	Mastitis***	190	40+ve-	
Brucellosis	60	60	TB *	245	-ve-	

* Based on Intradermal Tuberculin PPD/Johnin PPD

** Based on RBPT/SAT

***Based on CMT

9.7. Female Conception Rate During the Period January to December 2020

AI No.→	1st			2nd			3rd			4th & above			Over all		
	AI	C	CR %	AI	C	CR%	AI	C	CR%	AI	C	CR %	AI	C	CR %
Heifers	52	20	38.46	34	17	50.00	12	04	33.33	19	06	31.58	117	47	40.17
Adults	147	71	48.29	73	39	53.42	29	10	34.48	31	12	38.71	280	132	47.14
Overall	199	91	61.90	107	56	52.33	41	14	45.16	50	18	36.00	397	179	45.08

9.8 Month wise conception rate during the period January to December 2020

Month.	Total AI			Total Conceived			CR%		
Jan, 20	48			15			31.25		
Feb	41			14			34.15		
Mar	38			20			52.63		
Apr	29			16			55.17		
May	13			07			53.85		
June	20			09			45.00		
July	07			04			57.14		
Aug	19			06			31.58		
Sep	27			08			29.63		
Oct	63			37			58.73		
Nov	48			17			35.42		
Dec, 20	44			26			5.09		
TOTAL	397			179			45.08		

9.8.1: Quarter-wise conception rate

Quarter	No. of AI	Pregnant animals	CR %
January – March (Previous year)	127	49	38.58
April - June	62	32	51.61
July - September	53	18	33.96
October- December	155	80	51.61
Overall	397	179	45.08

9.9. Bull-wise Conception Rate During the period January to December, 20

Sr. No.	Bull No.	SET No.	Total Number of AI	Total Conceived	CR%
1	543	8th	66	22	33.33
2	487	8th	7	3	42.85
3	501	8th	60	28	46.66
4	511	8th	17	8	47.05
5	516	8th	39	13	33.33
6	435	8th	75	40	53.33

7	507	8th	36	15	41.66
8	480	8th	22	10	45.45
9	411	1st	1	1	100.00
10	473	1st	1	-	-
11	535	2nd	1	1	100.00
12	674	3rd	11	6	54.54
13	702	3rd	13	5	38.46
14	905	4th	2	1	50.00
15	312	7th	2	-	-
16	551	9th	8	4	50.00
17	556	9th	7	4	57.14
18	579	9th	10	4	40.00
19	705	9th	11	9	81.00
20	674	9th	8	5	62.5.0
Total			397	179	45.08
No. of services per conception					2.15

9.8 Bull Wise Semen Stock

Sr. No	Set No.	Bull No.	O.B.	Doses produced / received	Doses used /disseminated			Balance
					For AI/testing	Sold	Exp.	
1	411	1st	548		3			545
2	455		110			110		0
3	464		640			38		602
4	473		642					642
5	479		619					619
6	523	2nd	769					769
7	524		1358					1358
8	525		543					543
9	535		828		5			823
10	562		894					894
11	576		340			340		0
12	577		1346		200			1146
13	579		706			706		0
14	596	3rd	1326		200	326		800
15	674		1231			25		1219
16	702		925		2			923
17	716		1350		200			1150
18	719		1196		200			996
19	771		566					566
20	791		1066					1066
21	802		1196		250			946
22	806	4th	1500					1500
23	878		2000					2000
24	881		1376		200	222		954
25	891		1261			169		1092
26	900		1496		200			1296
27	902		1500			44		1456
28	905		1484		37			1447
29	916		1513		30			1483
30	930		1496					1496
31	941		1430		200			1230
32	991	5th	2304		200			2104

33	3		520				520	
34	25		2235		200		2035	
35	27		3151				3151	
36	63		3700		200		3500	
37	113		1935		50	30	1855	
38	168	6th	538				538	
39	181		919				919	
40	214		124				124	
41	245		2827				2827	
42	252		538				538	
43	254		2096				2096	
44	298	7th	1974				1974	
45	308		667				667	
46	312		686		6		680	
47	336		212				212	
48	342		3000		200		2800	
49	352		2630			381	2249	
50	359		2575		200	16	2359	
51	422	8th	230			230	0	
52	435		397	1009	228		1178	
53	480		1575	80	96	28	1531	
54	487		8535	1915	256	245	9949	
55	501		579	1432	91		1920	
56	507		2584	1368	138	15	3799	
57	511		199	1027	34		1192	
58	516		1200	1659	54		2805	
59	543		1384	3397	316	50	4415	
60	551	9th	0	2283	65	50	2168	
61	556		399	2301	66		2634	
62	561		0	252		30	222	
63	565		30	103			133	
64	579		147	679	117	10	699	
65	674		72	836	103		792	
66	705		0	549	103	35	411	
Total			83217	18890	4450	3100	--	94557

9.11.1 Average Body weight (kg) since inception (Indicate number of animals in parenthesis)

Year	Birth	3 Months	6 Months	12 Months	18 Months	24 Months	At AFC (Adults)
Female							
2019-20	35±0.51 (73)	60±2.77 (18)	94±2.97 (28)	178±5.22 (30)	233±3.47 (32)	286±9.34 (24)	559±5.30 (197)
2020-21							
Male							Adults
201920	38±0.58 (68)	72±3.13 (30)	105±4.23 (25)	188±6.56 (22)	254±8.22 (21)	296±14.42 (9)	476±22.41 (37)
2020-21							

9.12 Average Production Performance of Buffaloes Completing their Lactation

Lact. No.	No. of obs.	Av. Lactation Yield(kg)	Av. Lactation length (days)	305-days yield (kg)	Av. Peak Yield (kg)
1st	30	2433±125.75	315±9.53	2323±110.73	12.27±0.56
2nd	33	2727±117.10	294±7.26	2680±110.30	14.06±0.48
3rd	13	2658±148.80	290±10.03	2638±154.44	14.12±0.89
4th	13	2957±203.61	313±16.53	2869±185.29	15.11±0.69
5th & above	25	2633±110.30	290±8.33	2638±117.49	14.36±0.43
Overall	114	2647±61.23	300±4.39	2594±58.69	13.78±0.27

9.12.1 Average production performance of Buffaloes Since Inception of Network

Year	Lact. Length (days)	TLMY (kg)	SLMY (kg)	Peak yield (kg)
1991-92	373 (68)	2017 (68)	1813 (68)	
1992-93	309 (105)	1974 (105)	1921 (105)	
1993-94	328 (70)	1776 (70)	1744 (70)	
1994-95	350 (77)	2043 (77)	1944 (77)	
1995-96	354 (70)	2049 (70)	1894 (70)	
1996-97	392 (81)	2092 (81)	1807 (81)	
1997-98	354 (67)	2126 (67)	2056 (67)	
1998-99	341 (97)	2153 (97)	2056 (97)	
1999-00	337 (99)	1968 (99)	1874 (99)	
2000-01	305 (89)	1890 (89)	1812 (89)	
2001-02	296 (86)	1926 (86)	1885 (86)	10.00(86)
2002-03	293 (105)	2007 (105)	1941 (105)	10.49(105)
2003-04	307 (93)	1968 (93)	1895 (93)	10.49(93)
2004-05	315 (116)	1974 (116)	1848 (116)	8.00(116)
2005-06	306 (102)	2190 (102)	2090 (102)	10.0(102)
2006-07	304 (118)	1921 (118)	1795 (118)	9.0(118)
2007-08	302 (122)	1787 (122)	1629 (122)	9.10(122)
2008-09	289 (108)	2036 (108)	1929 (108)	9.94(108)
2009-10	302 (146)	1927 (146)	1822 (146)	9.40(146)
2010-11	292 (115)	2042 (115)	1972 (115)	10.54(115)
2011-12	279 (88)	2045 (88)	1998 (88)	10.60(88)
2012-13	264 (123)	2048 (123)	2017 (123)	11.14(123)
2013-14	285(109)	2297(109)	2241(109)	12.20(109)
2014-15	303(115)	2464(115)	2384(115)	12.38(115)
2015-16	305(110)	2564(110)	2471(110)	12.4(110)
2016-17	298(136)	2452(136)	2377(136)	12.3(136)
2017-18	282± 4.80 (110)	2363± 60.83 (110)	2321± 55.25 (110)	12.7± 0.28 (110)
2018-19	311± 5.18 (111)	2797± 63.94 (111)	2679± 52.63 (111)	13.7± 0.29 (111)
2019-20	304±4.68 (105)	2688±63.44 (105)	2597±54.68 (105)	13.38±0.26 (105)
2020-21	300±4.39 (114)	2647±61.43 (114)	2594±58.69 (114)	13.78±0.27 (114)

9.12.2 Herd Life Production (up to 4th Lactation) during 2020-21

No. of Buffaloes	HLF (days)	PLF (days)	MY/HLF	MY/PL	PD (days)	UPD (Days)
40	3348	2152	4.28	6.73	1519	612

HLF (Herd Life) = Date of birth to date of completion of 4th or more lactation or date of disposal

Production life = Date of first calving to date of completion of 4th or more lactation

Productive days = Total days in milk completion of 4th or more lactation;

Unproductive days = Production life – Productive days; **MY/HLF** = Milk yield per days of herd life

MY/PL = Milk yield days of production life

9.13 Average Milk Composition from April 2020 to March 2021

Month	N	% Fat	Solid not fat	Protein	Lactose	Total Solides
April 20	124	7.41	10.13	5.27	-	22.81
May	122	7.65	10.17	5.1	-	22.92
June	102	7.75	10.14	5.07	-	22.96
July	95	7.6	11.1	5.04	-	23.74
August	101	7.35	10.07	5.0	-	22.42
September	121	7.14	10.03	5.0	-	22.17
October	114	7.0	9.9	5.0	-	21.90
November	114	6.7	9.7	4.8	-	21.20
December	122	6.7	9.1	4.2	-	20.50
January 2021	121	6.7	9.9	4.6	-	21.20
February	119	6.8	7.9	5.0	-	19.70
March	122	6.9	10.00	4.9	-	21.80
Overall	115	7.1	10.05	4.9	-	22.11

9.14: Reproductive Performance

Lactation / Parity	AFC (Months) (N)	N →	Service period (Days)	Dry period (Days)	Calving interval (Days)
1	44.66±0.56 (39)				
2		36	193±15.53	177±11.10	501±12.76
3		29	93±5.87	120±8.36	399±5.90
4		09	112±24.02	132±22.22	422±24.60
5 th and above		32	117±10.44	131±8.42	425±10.86
Over all		106	136±7.1	144±5.85	444±7.25

9.14.1 Reproduction Performance Since inception of Network.

Years	AFC (days)	AFC (Months)	Service Period (days)	Dry Period (days)	Calving Interval (days)
1988-89	1273±44 (27)	41.88	205±14.0 (69)	211 (76)	518±16.0 (72)
1989-90	1301±35 (16)	42.80	186±29.0 (58)	177 (58)	511±36.0 (58)
1990-91	1297±40 (20)	42.66	276±22.0 (56)	197 (56)	517±25.0 (56)
1991-92	1411±24 (39)	37.53	312±24.0 (58)	243 (58)	622±25.0 (58)
1992-93	1438±37 (28)	47.30	207±17.0 (68)	180 (67)	490±16.0 (67)
1993-94	1356±39 (28)	44.60	211±22.0(58)	176 (58)	513±22.0 (58)
1994-95	1476±31 (29)	48.55	232±21.0 (63)	207 (63)	527±19.0 (63)
1995-96	1529±48 (24)	50.29	243±20.0 (52)	199 (52)	539±19.0 (52)
1996-97	1371±30 (31)	45.10	260±14.0 (69)	176 (89)	561±15.0 (69)
1997-98	1262±23 (32)	41.51	246±51.0 (60)	183 (60)	550±53.0 (59)
1998-99	1230±35 (26)	40.46	170±29.0 (89)	150 (89)	481±30.0 (89)
1999-00	1197±16 (22)	39.38	134±09.0 (91)	134 (91)	467±10.0 (91)
2000-01	1213±14 (45)	39.90	143±10.0 (80)	131 (80)	443±11.0 (80)
2001-02	1266±18 (31)	41.64	137±09.0 (83)	133 (83)	445±09.0 (83)
2002-03	1277±19 (58)	42.00	132±08.0 (90)	132 (90)	440±08.0 (90)
2003-04	1266±17 (59)	41.64	138±09.0 (78)	136 (78)	443±09.0 (78)
2004-05	1306±28 (39)	42.96	155±10.1(89)	146 (89)	463±10.2 (89)
2005-06	1294±27 (58)	42.57	167±10.9 (72)	157 (72)	474±10.6 (72)
2006-07	1214±29 (57)	39.93	165±14.7 (58)	160 (58)	478±14.3 (58)
2007-08	1241±22 (43)	40.82	165±11.2 (74)	150 (74)	458±11.1(74)
2008-09	1206±18 (69)	39.67	172±11.8 (70)	172 (70)	489±16.3 (70)
2009-10	1249±24 (52)	41.09	170±14.0 (76)	163 (76)	478±14.1 (76)
2010-11	1250±19 (47)	41.12	191±13.7 (71)	170 (71)	500±13.7 (71)
2011-12	1207±18 (43)	39.70	136±20.2 (48)	150 (48)	464±23.0 (48)
2012-13	1205±18 (52)	39.64	126±10.8 (75)	151 (75)	436±10.9 (75)
2013-14	1210±25(42)	39.80	127±10.6(67)	159(67)	447±8.53(97)
2014-15	1213±20(36)	39.90	112±7.89(88)	138(88)	420±8.09(88)
2015-16	1217±19(56)	40.03	145.3±9.20(88)	150(88)	453.3±9.20(88)
2016-17	1260±19(28)	41.45	140.4±7.00(118)	147(118)	448±7.07(118)

2017-18	1248±17 (49)	41.05±0.56	135±8.46 (95)	157± 5.56 (95)	444±8.44 (95)
2018-19	1235±19 (55)	40.61±0.63	129±8.55 ((77)	148± 5.93 (77)	438±8.54 (77)
2019-20	1270±13.93(42)	41.78±0.78	157±7.27 (94)	157±15.27(94)	466±7.29 (94)
2020-21	1357±16.34 (39)	44.66±0.54	136±7.1 (106)	144±5.85 (106)	444±7.25 (106)

9.15 Milk Production and Disposal

Month	Total milk produced (kg)	Disposal (Kg)		
		Milk sold	Calf feeding	Expt.
April 20	27505.3	25315.0	1385.08	4.0
May	24365.6	23003.5	648.42	4.0
June	19904.3	18501.0	820.06	3.5
July	16083.9	15062.0	549.44	4.0
August	19195.0	16343.0	2289.92	3.0
September	26390.20	21011.0	4606.55	4.0
October	31794.1	24092.0	6772.56	3.5
November	32701.4	25784.0	5959.93	5.0
December	36685.4	27676.5	5996.15	2.5
January 21	36880.3	29463.0	6339.61	3.5
February	32442.3	26113.5	5380.37	3.5
March	33771.4	27708.0	5076.27	3.5
Total	335719.1	284072.50	41824.37	44.0

9.16 Feed and fodder (Quintals) availability

Month	Green fodder yield (qtls)		Dry fodder (qtls)		Surplus Green Fodder sale (qtls)	Silage (qtls)
	Green Fodder	Turnip	Grazing Wt. (approx.)	Straw		
April-20	3954		520		584	302
May	2741		170	3294.5	604	-
June	2942		70		1882	-
July	3432		340		1431	-
August	3648		1200		779	-
September	4134		1003		963	-
October	2259		550		749	-
November	2187		Nil		87	-
December	4389.5		Nil		822.5	-
January-21	4760		Nil		243	-
February	4170		Nil		456	-
March	4673		Nil		NIL	-
Total	43289.5		3853	3294.5	8600.5	302

9.16 Feed and Fodder purchased and offered to animals during the year 2020-21

Quarter	Type of Fodder	OB	Produced at CIRB	Qty. Purchased	Actually Fed.	Balance
I	Green	-	9637.0	-	9637.0	-
	Dry	41	3294.5	-	382	2953.5
	Silage	-	302	-	302	-
	Concentrate	-	-	-	1469.12	-
II	Green	-	11214.0	-	11214.0	-
	Dry	2953.5	-	-	672.0	22581.5
	Silage	-	-	-	-	-
	Concentrate	-	-	-	1522.69	-
III	Green	-	8835.5	-	8835.5	-
	Dry	2281.5	-	-	1891.0	390.5

	Silage Concentrate		-	-	-	1348.7
IV	Green	-	13603	-	13603.0	-
	Dry	390.5	-	-	390.5	-
	Silage	-	-	-	-	-
	Concentrate	-	-	-	1297.9	-
Total	Green	-	43289.5	-	43289.5	-
	Dry	-	3335.5	-	3335.5	-
	Silage	-	-	-	302	-
	Concentrate	-	-	-	5638.41	-

9.17: Milk performance during April 2020 to March 2021

Month	Buffaloes in Milk	Dry buffaloes	Total	% in Milk	Wet Av. (kg)	Herd Av. (kg)
April 20	106	35	141	75	8.54	6.41
May	101	42	143	71	7.56	5.40
June	84	59	143	59	7.82	4.59
July	74	71	145	51	6.91	3.55
Aug	75	73	150	50	8.26	4.16
Sep	88	60	148	60	9.80	5.90
Oct	103	42	145	71	9.83	7.02
Nov	113	36	149	76	9.60	7.29
Dec	115	38	153	75	9.73	7.26
Jan 21	114	27	141	81	10.39	8.39
February	119	21	140	85	9.77	8.28
March	122	19	141	87	8.90	7.71
overall	101	44	145	70	9.03	6.38

9.17.1 Milking performance since inception

Year	No. of Animals in Milk	No. of Animals dry	Total Animals	% in Milk	Wet Av. (kg)	Herd Av. (kg)
1992-93	98	53	151	64	5.86	3.42
1993-94	81	58	139	58	5.75	3.39
1994-95	92	44	136	67	6.01	4.18
995-96	86	35	121	71	5.61	3.99
1996-97	81	52	133	61	5.71	3.49
1997-98	113	40	153	74	6.03	4.45
1998-99	104	42	146	72	6.13	4.26
1999-00	85	39	124	68	6.01	4.23
200001	96	33	129	74	6.31	4.69
2001-02	86	38	124	69	6.85	4.82
2002-03	106	38	144	73	6.56	4.83
2003-04	106	37	143	74	6.35	4.70
2004-05	100	47	147	67	6.86	4.65
2005-06	114	46	160	71	6.85	4.84
2006-07	119	48	167	71	6.20	4.40
2007-08	102	54	156	65	6.73	4.46
2008-09	122	44	166	73	6.91	5.03
2009-10	110	58	168	65	7.00	4.66
2010-11	98	43	141	70	7.11	4.93
2011-12	84	40	124	68	7.74	5.30
2012-13	90	49	139	65	8.26	5.34
2013-14	94	52	146	64	8.25	5.32
2014-15	99	41	140	71	8.48	5.98

2015-16	110	41	151	72	8.51	6.22
2016-17	102	53	155	65	7.96	5.23
2017-18	97	45	142	68	8.52	5.84
2018-19	109	38	147	74	8.82	6.54
2019-20	104	50	154	68	9.18	6.25
2020-21	101	44	145	70	9.03	6.38

9.18: Bull wise daughters born (only numbers)

Bull No.	Set No.	Daughters born	Daughters Calved	Daughters completing 1 st Lactation durin 2020-21
473	1 st	01		
535	2 nd	02		
702	3 rd	02		
674	3 rd	03		
916	4 th	03		
905	4 th	03		
435	8 th	02		
480	8 th	11		
487	8 th	09		
501	8 th	09		
507	8 th	04		
511	8 th	14		
516	8 th	07		
543	8 th	09		
168	6 th		12	05
181	6 th		2	05
251	6 th		-	04
252	6 th		12	07
245	6 th		2	02
254	6 th		7	09
308	7 th		2	-
312	7 th		2	-
336	7 th		1	-
Total		80	40	32

9.19 Bull wise daughters completing 1st lactation

Sr.No.	Bull No.	Daughter No.	Date of birth	Date of calving	AFC (months)	Lact. Length (days)	TLMY (kg)	SLMY (kg)
1.	168	595*	31-05-16	11-09-19	39.41	226	738	738
2		596	03-06-16	11-07-19	37.27	288	2590	2590
3		606	19-08-16	26-11-19	39.28	269	1723	1723
4		610	02-09-16	11-02-20	41.35	262	2142	2142
5		651*	22-02-17	23-09-20	43.06	184	836	836
6	181	563	19-11-15	27-05-19	42.27	368	2435	2187
7		589	19-04-16	11-05-19	36.74	384	2464	2250
8		581	22-02-16	06-09-19	42.50	301	1953	1953
9		593	03-05-16	28-08-19	39.87	408	3103	2559
10		608	30-08-16	16-10-19	37.57	359	2892	2606
11	245	647	01-02-17	23-03-20	37.73	248	1214	1214
12		604	15-08-16	21-04-20	44.24	290	2963	2963
13	251	553	05-10-15	13-06-19	44.31	337	2086	1967
14		557	26-10-15	13-04-19	41.94	412	3724	3158
15		575	04-01-16	18-02-20	49.54	297	2489	2489
16		579	13-02-16	24-02-20	48.42	291	2476	2476
17	252	569	12-12-15	29-08-19	44.61	288	3222	3222
18		600	08-08-16	24-02-20	42.60	235	1829	1829
19		591	23-04-16	19-11-19	42.93	360	3036	2539

20		599	02-08-16	11-03-20	43.32	295	2337	2337
21		631	09-12-16	08-01-21	40.10	272	1535	1535
22		605	19-08-16	11-02-20	41.81	374	3976	3631
23		613	06-09-16	17-04-20	43.39	336	2759	2678
24	254	561	16-11-15	29-07-19	44.44	291	3345	2345
25		570	25-12-15	19-06-19	41.84	352	3029	2828
26		582	29-02-16	30-09-19	43.06	305	2951	2951
27		624	10-10-16	22-11-19	37.43	280	2065	2065
28		562	16-11-15	19-08-19	45.13	382	1760	1601
29		598	29-07-16	24-10-19	38.88	393	2790	2405
30		601	08-08-16	20-03-20	43.42	245	1745	1745
31		597	12-07-16	26-10-19	39.51	405	2503	2150
32		611	03-09-16	30-06-20	45.92	248	1561	1561

*Not added in any calculation as their performance are not upto mark.

9.20 Breeding bulls Selected for current set (8th set)

Sr. No.	Bull No.	Date of Birth	Dam No.	Sire No.	Dam's best SLMY
1	435	16-10-2013	230	03	3018
2	480	21-06-2014	134	63	4050
3	487	18-08-2014	21	113	3115
4	501	09-10-2014	116	113	3516
5	507	26-10-2014	287	991	4268
6	511	29-11-2014	300	27	3796
7	516	17-12-2014	81	113	3746
8	543	24-06-2015	900	25	3777

9.20.1 PT Bulls for nominated mating

Bull No.	Set No.	Centre	Dams' Best yield	Sire Index	Breeding Value	% Superiority
411	1 st	CIRB Nabha	2352	2315.49		25.07
473	1 st	CIRB Nabha	2324	1961.74		10.01
523	2 nd	CIRB Nabha	2390	2058.79		11.24
535	2 rd	CIRB Nabha	3208	2061.91		10.85
674	3 rd	CIRB Nabha	3350	2388.91		9.39
702	3 rd	CIRB Nabha	3421	2376.83		8.88
905	4 th	CIRB Nabha	3639	2561.40		15.29
916	4 th	CIRB Nabha	2961	2424.74		9.99

9.20.2 List of Future breeding bulls

Sr. No.	Bull No.	Date of Birth	Dam No.	Sire No.	Dams best SLMY (kg) / Parity	Semen doses available	Expected predicted Difference (EPD)
1	551	22-07-2015	940	63	3317/5 th	-	-
2	556	10-08-2015	366	R-1	3277/2 nd	-	-
3	561	25-08-2015	367	25	3888/3 rd	-	-
4	565	02-09-2015	134	63	4050/3 rd	-	-
5	579	26-10-2015	827	245	3199/6 th	-	-
6	593	22-12-2015	81	168	3746/5 th	-	-
7	674	19-01-2017	68	252	3161/6 th	-	-
8	705	10-07-2017	115	473	3146/4 th	-	-
9	710	25-07-2017	398	252	3395/2 nd	-	-

9.21 Target achieved during the years

Trait	Target	Achieved (year)				
		2016-17	2017-18	2018-19	2019-20	2020-21
Av. Age at first calving (months)	40	41.45	41.05	40.61	41.78	44.66
Av. Service period (days)	130	140.4	104	92	157	136
Calf mortality (0-3 months)	≤ 5 %	9.46	5.06	5.23		
Revised from 2019-20 (17 th ARM)	≤ 3 %				4.57	8.72
Wet average (kg)	≥8.5 kg	7.96	8.52	8.82	9.18	9.03
Herd average (kg)	≥5.5 kg	5.23	5.84	6.54	6.25	6.38

10. Salient Research Achievements:

8 Sets of bulls completed test mating. Progeny testing was completed up to 4th Set. A total of 146 (80 female & 66 male) calves of high genetic merit were born during this period. Test mating (368 inseminations) were carried out during this period resulting in 165 pregnancies. Nominated mating (29 inseminations) using progeny tested bulls of first 4 sets were also carried out resulting in 14 pregnancies. The overall conception rate during this period was 45.08%. During this period, 32 daughters of 06 bulls under progeny testing programme completed 1st lactation. The wet average (9.03 kg), herd average (6.38 Kg), 305 days lactation milk yield (2594 kg), total lactation milk yield (2647 kg), peak yield (13.78 kg, highest ever) and lactation length (300 days) were achieved in Nili-Ravi herd. The reproductive traits viz., service period (136 days), calving interval (444 days), dry period (144 days) were achieved during the year 2020-21. Herd Life Production (up to 4th or more Lactation completed) of 40 buffaloes was estimated. The average productive days were 1519 and average milk yield per day of herd life was 4.28 litres. A total of 18,890 semen doses were produced at the Sub Campus or procured from semen station Nabha. Out of which, 4450 doses were used at CIRB Nabha, GADVASU Ludhiana and NBAGR Karnal for insemination/testing and 3100 doses were sold to field inseminators. Overall motility of 5.4% and calf motility of 12.7% was recorded during this period. Milk production of 335719.1 kg was recorded during this year, and 284072.5 kg (Highest ever) was sold. Total 153 animals were sold through public auction and 06 bulls were sold to farmers, universities and various developmental agencies on book value.

11. Publications : Paper in research journals:

- Jan, M.H., Kumar, H., Kumar, S., Sharma, R.K., Gupta, A. Mehrara, K.L., 2020. Effect of progesterone administration during growing phase of first dominant follicle on follicular wave pattern in buffalo heifers. *Tropical Animal Health and Production*, 52: 1395-1402.
- MH Jan, H Kumar, S Kumar, WA Malla, RK Sharma. 2021. Comparative biochemical profiles, utero-ovarian function, and fertility of the postpartum buffalo with and without subclinical endometritis. *Tropical Animal Health production*, 53(1): 73.
- MH Jan, S Kumar, A Gupta, KL Mehrara, R Mehta. 2020. Seasonal patterns of reproduction and production in Nili-Ravi buffaloes. *Indian Journal of Animal Sciences*, 90(7):

Presentation in workshops/ seminars/ Symposia/ conferences:

12. Teaching/Training/Conducting programmes/Workshops/Seminars

Teaching/Training/Conducting programmes/Workshops/seminars	Venue	Participants	Date
Training on "Scientific Buffalo Husbandry Practices" under SCSP	CIRB, Sub-Campus, Nabha	Farmers (30)	08-15 March, 2021

15. Constraints if any : No

- Difficulty in introduction of germplasm from outside herd through purchase of animals.
- Deficiency of suitable infrastructure for collection and processing of semen as per MSP guidelines
- Activity monitoring system and automation of data recording is needed.
- Timely allocation of budget to the Sub-Campus so that activities, works, purchases, etc can be planned meticulously.

14. Focus of work in the coming year

- Exploration of methods (hormonal, managerial) to increase conception rate in buffaloes.
- Improvement of production and reproduction performance indicators through breeding, nutritional, hormonal and managerial interventions.
- Testing of bulls of IXth set for progeny testing programme.

Project Co-ordinator's observations on centre performance

Financial Statement for the year 2020-21 (Rs in Lakhs)

Sanctioned as per R E 2020-21		Released ICAR Share as per R E	Expenditure as per AUC		Balance ICAR Share
Total	ICAR Share		ICAR Share	State Share	
42.95*	42.95*	42.95*	42.90254	0.00	0.04746

* Includes Rs. 4.00 lakhs for SCSP

Herd Performance

Herd strength was 484 out of which 246 were breedable buffaloes (>2year). During the period 146 calving took place consisting of 66 males, 80 females, 4 still births and 2 abortions. The calf mortality (0-3 months) was 8.72 % higher than the target ≤ 3 % and previous year 4.55 percent. Conception rate was 45.08 % decreased from last year (46.52 %). 18890 semen doses produced during 2020-21 and the centre has used for AI/Exp./sold 7550 frozen semen doses to developmental agencies and farmers.

Average lactation milk yield (kg) and 305 or less day lactation milk yield was 2647 kg (114) and 2594 kg (114) respectively decreased from last year 2688 (105) kg and 2597 (105) kg respectively. Average lactation length reported 300 days (114). Reproductive performance viz. Age at first calving, Service Period, Dry Period and Calving Interval were 44.66 (39) months, 136 (106) days, 144 (106) days and 444 (106) days, respectively. The wet averages decreased from 9.18 kg to 9.03 kg and herd average increased from 6.25 kg to 6.38 kg with 70.00 % animals in milk.

Accomplishment and Targets Achieved:

Sr. No.	Traits	Target	2016-17	2017-18	2018-19	2019-20	2020-21
1	Av. AFC (Months)	40.0	41.45 (28)	41.05 (49)	40.61 (55)	41.78 (42)	44.66 (39)
2	Av. service period (Days)	130	140 (118)	136 (95)	129 (77)	157 (94)	136 (106)
3	Calf mortality (0-3 months) Revised 2019-20 (17 th ARM)	≤ 5 % ≤ 3 %	9.46 %	5.06 %	5.23%	4.55%	8.72 %
4	Wet average (Kg)	≥ 8.50 kg	7.96 kg	8.52 kg	8.82	9.18	9.03
5	Herd average (Kg)	≥ 5.50 kg	5.23 kg	5.84 kg	6.54	6.25	6.38

Recommendations:

- Efforts should be made to improve C R %.
- Need to increase the production of frozen semen doses.

JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH (GUJARAT)

1. **Name of center** : Cattle Breeding Farm, Junagadh Agricultural University, Junagadh.
 2. **Project Code** : 18-3 / 97-ASR - II dt. 29 / 03 / 2001
 3. **Project Title** : Network Project on Buffalo Improvement (Jaffarabadi)
 4. **Date of Start** : 01/ 04 / 2001
 5. **Objectives** :

To establish elite herd of 60 - 70 Jaffarabadi for the production of genetically superior young bulls. To evaluate sires through institutional / associated herd/field progeny testing and to produce, test, propagate and conserve high genetic merit male germplasm

6. **Technical Programme :**

- Establishment and maintenance of an elite herd of buffalo breed with a herd strength of 50 and 70 breedable females.
- Selection and testing of minimum 4-6 bulls for other breeds in every 18 / 24 months cycle.
- Production of minimum 3000 to 5000 frozen semen doses from each test bull.
- Maintain a minimum number of 2000 frozen semen doses until the particular SET gets evaluated.
- Evaluation and ranking of bulls on the basis of their progeny performance (first lactation) for selection of top 20-25% as proven bulls from each set.
- Application of proven bull's semen on elite buffaloes for the production of future sires and replacement heifers.
- Minimum weekly recording of milk yield of individual daughters/ buffaloes at institutional herd / monthly recording in field units over complete lactation(s) with wet average, herd average, percent in milk, lactation length, dry period, TLMY, SLMY (305 days or less, up to minimum of 240 days (All breeds) / 1500 kg in Murrah) and Peak yield, Milk yield per day of herd life (total milk produced from date of birth till completion of 4th or more lactation). New Table
- Monthly testing of milk constituents (Fat%, SNF% and Protein%) and Somatic Cell Count, wherever feasible, at institutional herds.
- Recording of reproductive traits viz., AFC, Service period, Days open, Calving interval, Number of services per conception, Conception rate and Calving abnormalities.
- Health management including udder health, vaccination, de-worming, disease screening, mortality and periodic body weight records

7. **Staff associated with the project:**

Discipline	Name of Scientist / Staff	Status PI/Co-PI/ Associated)
Asst. Rec. Sci.	R.B. Makavana	Associated

8. **Financial Statement** : Head wise budget allocation and utilization; revenue receipts

Financial Statement: Budget Head: 2305/03 Year: 2020-21 (ICAR Share Rs. In lakhs)

Item / Head	Remittance	Expenditure	Balance
A. Recurring			
Pay & Allowances	13.00	9.65215	3.34785
TA	0.24	0.01975	0.22025
Contingency	39.00	38.99994	0.00006
SCSP Rec..	5.00	4.94196	0.05804
Sub Total	57.24	53.6138	3.6262
B. Non-recurring			
Equipments	3.00	2.04256	0.95744
SCSP Equipment	1.00	0.83780	0.01622
Sub Total	4.00	2.88036	0.97366
Total (A+B)	61.24	56.49416	4.74584

9.1 Herd Strength during the Period 1st April 2020 to 31st March, 2021

Sr. No.	Category	Addition			Disposal				CB
		OB	B / P	T	D	T	S	E	CB
Female									
1.	Below 3 months	7	35		5	27			10
2.	3-12 months	25		27	1	32			19
3.	1-2 years	31		32		27			36
	Above 2 years	88		27	2	11	10		92
4.	Buffaloes in Milk	80		61	3	69	8		61
5.	Buffaloes Dry P /NP	45		69	3	50	10		51
	Sub Total	276	35	216	14	216	28	0	269
Males									
1.	Below 3 months	4	26		3	16			11
2.	3-12 months	32		16		36			12
3.	1-2 years	20		36	2	8	12		34
	Above 2 years	1		8			6		3
4.	Breeding bulls	17					2		15
5.	Bullocks / Teasers / others	1			1				0
	Sub Total	75	26	60	6	60	20	0	75
	Grand Total	351	61	276	20	276	48	0	344

OB = Opening Balance as on 1st April D = Deaths S = Sale E = Experimental
 B / P = Birth / Purchase T = Transfer CB = Closing Balance as on 31st March

9.2 Calving Statistics including abnormalities

Month	Male	Female	Still Birth	Abortion	Dystokia	ROP	Prolapse	Overall
April 2020	0	1		1				2
May	0	0		0				0
June	0	2		0				2
July	4	1		0				5
August	0	1		0				1
September	1	2		0				3
October	1	3		0				4
November	6	11		1				18
December	1	2		0				3
January 21	7	6		0				13
February	5	4		1				10
March	1	2		0				3
Overall	26	35		3				64

Sex ratio Male : Female (42.62 : 57.37) SB% = 0.00 Abortion % = 4.70

9.3. Disposal of Animals during the Period 1st April 20 to 31st March 2021

Female Category	Primary cause of disposal							Total
	Surplus	Below farm prod. standard	Reprod. Problem	Weak & Old	Udder Health	Death	Experimental purposes	
Calves								
0 to 3 months						5		5
3-12 months						1		1
Heifers								
1-2 years								
> 2 years	10					2		12
Buffaloes								
Milch	8					3		11
Dry	10					3		13
Sub Total	28					14		42

Males	Primary cause of disposal											
Calves 0 to 3 months 3-12 months							3					3
1 to 2 year	12							2				14
. >2 year	8											8
Breeding bulls												
Bullock+Teaser+ Others												
Sub Total	20							6				26
Grand Total	48							20				68

9.4. Mortality during the Period 1st April 2020 to 31st March, 2021

Month		Female						Male					Overall Herd
		0-3 Month	3-12 Month	1-2 Yrs.	Above 2 Yrs.	Milk + Dry	Overall Female	0-3 Month	3-12 Month	1 -2 Yrs.	>2 yrs.	Overall Male	
April	No.	4	32	27	85	116	264	0	39	19	22	80	344
	Died	0	0				0	0	0			0	0
	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
May	No.	3	32	28	85	114	262	0	38	20	22	80	342
	Died	0	0			2	2	0	0			0	2
	%	0.0	0.0	0.0	0.0	1.8	0.8	0.0	0.0	0.0	0.0	0.0	0.6
June	No.	3	33	29	84	115	264	0	36	22	22	80	344
	Died	0	0				0	0	0			0	0
	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
July	No.	2	33	30	80	119	264	4	32	26	22	84	348
	Died	0	0		1		1	0	0			0	1
	%	0.0	0.0	0.0	1.3	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.3
Aug.	No.	3	26	33	85	119	266	4	22	34	23	83	349
	Died	0	0				0	0	0			0	0
	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sep.	No.	4	25	32	86	119	266	5	20	34	24	83	349
	Died	0	0				0	0	0		1	1	1
	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	1.2	0.3
Oct.	No.	6	19	35	90	119	269	2	14	39	29	84	353
	Died	0	0				0	0	0			0	0
	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nov.	No.	15	16	37	87	123	278	7	11	29	17	64	342
	Died	0	1				1	0	0	1		1	2
	%	0.0	6.3	0.0	0.0	0.0	0.4	0.0	0.0	3.4	0.0	1.6	0.6
Dec.	No.	13	14	38	89	121	275	7	9	31	18	65	340
	Died	1	0			2	3	0	0	1		1	4
	%	7.7	0.0	0.0	0.0	1.7	1.1	0.0	0.0	3.2	0.0	1.5	1.2
Jan.	No.	18	10	39	93	119	279	12	6	35	18	71	350
	Died	2	0			1	3	2	0			2	5
	%	11.1	0.0	0.0	0.0	0.8	1.1	16.7	0.0	0.0	0.0	2.8	1.4
Feb.	No.	11	19	35	96	119	280	12	11	34	18	75	355
	Died	1	0		1	1	3	0	0			0	3
	%	9.1	0.0	0.0	1.0	0.8	1.1	0.0	0.0	0.0	0.0	0.0	0.8
March	No.	10	19	36	92	112	269	11	12	34	18	75	344
	Died	1	0				1	1	0			1	2
	%	10.0	0.0	0.0	0.0	0.0	0.4	9.1	0.0	0.0	0.0	1.3	0.6
Overall Av.	No.	40	23	33	88	118	302	29	21	30	21	101	403
	Died	5	1	0	2	6	14	3	0	2	1	6	20
	%	12.5	4.3	0.0	2.3	5.1	4.6	10.3	0.0	6.7	4.7	6.0	5.0

9.5. Causes of Mortality (quarter wise) during the period April 2020 to March 2021

Particulars	1 st quarter (April-June)	2 nd quarter (July-Sept)	3 rd quarter (Oct-Dec.)	4 th quarter (Jan.-March)	Total
Enteritis			1	2	3
Pneumonities		1	1	3	5
Septicemia / Toxaemia					
Peritonitis					

JD/TB					
Milk Fever / metabolic diseases					
TRP / TP					
Parasitism			1		1
Accidental death	2			2	4
Peri-parturient disorders					
Miscellaneous		1	2		3
Old Age Senility			2	2	4
Total	2	2	7	9	20

9.6 Prophylactic Measures undertaken

Disease	Vaccination Date / No. of animals	No. of animals Tested / Positive		Dates and No. of animals treated for Parasitism	
FMD	Jan. 2021/ 321			Deworming in April-20 July -20 311 Animals Oct.-20 Jan-21	
HS	June 2021/ 328				
BQ	June 2021/ 328				
Brucellosis	July 2021/ 39				
JD		328	0		
TB		328	0		
IBR					
Mastitis					

9.9 Female Conception Rate During the Period January to December 2020

AI No. →	1st			2ND			3RD			4th & above			Over all		
Parity ↓	AIs	C	CR %	AIs	C	CR %	AIs	C	CR%	AIs	C	CR%	AIs	C	CR %
Heifers	14	8	57.14	8	2	25.00	0	0	0.00	0	0	0.00	22	10	45.45
Adults	42	16	38.10	30	11	36.67	18	7	38.89	9	4	44.44	99	38	38.38
Overall	56	24	42.90	38	13	34.20	18	7	38.90	9	4	44.40	121	48	39.67

AIs = No. of animals inseminated C = No. of animals conceived CR % = Conception rate%

9.8 Quarter-wise conception rate

Quarter	No. of A I	Preg. animals	CR %
January – March (Previous year)	48	21	43.75
April - June	17	4	23.53
July - September	21	8	38.10
October- December	35	15	42.86
Overall	121	48	39.67

9.9. Bull-wise Conception Rate During the period 2020-21

Sr. No.	Bull No.	SET No.	Total Number of AI	Total Conceived	CR%
1	Alok	III	16	7	43.8
2	Chaman	III	13	4	30.8
3	Girish	III	16	6	37.5
4	Madhav	III	15	5	33.3
5	Raghu	III	14	5	35.7
6	Badal	IV	5	2	40.0
7	Hamir	IV	6	2	33.3
8	Janak	IV	6	3	50.0
9	Kamlesh	IV	7	3	42.9
10	Mayur	IV	7	4	57.1
11	Nayak	IV	8	4	50.0
12	Sango	IV	8	3	37.5
Over all			121	48	39.7

No. of services per conception:

9.10 Bull Wise Semen Stock 2020-21

Sr.No	Set No	Bull No	O.B.	Doses produced / received	Doses used /disseminated				Balance
					Supply		Sold	Exp.	
					field	farm			
1	I	Nagraj	3259	0	0	0	0	3259	
2	I	Bhagro	6845	0	0	0	0	6845	
3	I	Laxman	3417	0	0	0	0	3417	
4	II	Haresh	1790	0	0	0	0	1790	
5	II	Moti	7728	0	0	0	0	7728	
6	II	Raja	5785	0	0	0	0	5785	
7	II	Sunder	3014	0	0	0	0	3014	
8	II	Dhinglo	7191	0	0	0	0	7191	
9	II	Bholenath	1839	0	0	0	0	1839	
10	III	Nayan	6537	0	0	0	20	6517	
11	III	Madhav	6689	0	0	0	0	6689	
12	III	Abhijeet	5916	0	0	0	0	5916	
13	III	Alok	7695	1695	0	0	20	9370	
14	III	Ronak	5140	0	0	0	0	5140	
15	III	Girish	4556	0	0	0	0	4556	
16	III	Raghu	4747	0	0	0	0	4747	
17	III	Babar	9275	0	0	0	0	9275	
18	III	Chaman	6680	4935	0	0	1720	9895	
19	IV	Badal	6785	205	0	30	0	6960	
20	IV	Kamlesh	765	90	0	30	0	825	
21	IV	Mayur	2260	65	960	15	70	1280	
22	IV	Balo	7020	4075	1240	0	30	9825	
23	IV	Janak	2975	1725	0	25	8	4667	
24	IV	Hamir	2285	2905	0	30	30	5130	
25	IV	Sango	1370	1250	550	30	100	1940	
26	IV	Nayak	670	1965	0	25	6	2604	
27	IV	Samrat	0	2430	0	0	0	2430	
Grand Total			122233	21340	2750	185	2004	0	138634

9.11 Average Body weight (kg) since inception.... (Indicate number of animals in parenthesis)

Year	Birth	3 Month	6 Month	12 Month	18 Month	24 Month	Heifer	Adult
Female								
2004-05	29.69	70.53	112.38	161.55	215.69	258.64		457.23
2005-06	32.01	69.40	106.28	155.30	216.57	260.35		458.40
2006-07	33.60	70.72	105.70	154.10	217.24	259.69		449.89
2007-08	32.23	71.70	110.80	169.85	229.80	288.40		566.78
2008-09	30.74	69.25	107.35	166.20	228.69	290.84		559.17
2009-10	29.61	68.20	105.40	164.80	230.70	294.51		555.17
2010-11	29.65	68.90	106.25	232.17	-	443.89		592.45
2011-12	33.60	82.00	142.00	237.40	308.70	444.50		586.00
2012-13	31.80	67.60	100.20	158.10	268.60	362.20		565.40
2013-14	32.40	73.40	122.4	172.1	266.90	314.33		---
2014-15	33.60	87.75	118.20	200.00	269.78	315.14		650.00
2015-16	33.12	87.75	117.45	197.66	269.80	316.17	396.50	649.70
2016-17	29.03	78.00	118.04	180.85	270.59	316.80	380.01	651.28
2017-18	34.85	95.18	115.08	180.08	272.05	388.10	419.50	640.30
2018-19	31.90	74.05	117.81	173.00	265.00	353.00	383.00	480.00
2019-20	32.54	75.92	123.39	177.63	271.12	367.40	384.72	504.10
2020-21	33.71	78.90	130.40	181.60	275.16	370.23	401.70	507.60

Male						Adults	
2004-05	31.90	71.24	109.54	164.12	225.14	272.80	--
2005-06	34.71	72.61	106.61	152.57	223.47	269.62	--
2006-07	33.98	71.72	107.05	156.70	222.29	265.23	--
2007-08	36.62	73.14	114.00	171.60	234.50	289.35	--
2008-09	32.51	70.10	110.58	169.30	236.72	295.32	--
2009-10	32.59	70.75	109.52	170.10	238.89	297.32	--
2010-11	29.97	69.93	139.00	285.40	360.00	412.33	--
2011-12	30.90	85.00	178.00	255.30	357.00	409.00	--
2012-13	33.00	79.80	120.90	158.60	289.40	375.80	--
2013-14	33.60	78.00	118.40	160.00	234.60	329.75	--
2014-15	33.47	86.00	108.90	171.50	232.83	331.90	--
2015-16	32.30	85.17	111.90	172.40	231.00	332.00	769.79
2016-17	30.09	78.20	114.00	180.06	223.72	273.72	684.25
2017-18	32.91	91.75	114.26	182.41	235.50	281.45	655.30
2018-19	32.20	76.05	119.05	183.71	272.00	372.00	605.00
2019-20	34.64	78.06	121.22	188.57	283.17	393.63	630.00
2020-21	34.86	79.10	132.90	191.70	286.41	389.64	626.81

9.12 Average Production Performance of Buffaloes Completing their Lactation

Lact. No.	No. of obs.	TLMY (kg)	Lact. Length (days)	SLMY (kg)	Peak yield (kg)
1 st	18	2972 ± 248.8	410.9 ± 21	2453.2 ± 154.8	13.8 ± 0.5
2 nd	18	2852.2 ± 160.8	339.4 ± 15.9	2634.8 ± 109.4	14.7 ± 0.6
3 rd	08	2489.6 ± 182.9	337.8 ± 23.3	2316.3 ± 133.4	15.1 ± 0.7
4 th	07	2747.9 ± 451.1	330.3 ± 19.5	2567.6 ± 361.2	14.5 ± 1.3
5 th & above	05	2496.9 ± 189.9	324.2 ± 24.9	2381.5 ± 205.1	14.0 ± 1.3
Overall	56	2794.2 ± 113.7	359.6 ± 10.5	2499.9 ± 78.7	14.4 ± 0.3

9.12.1 Average production performance of Buffaloes Since Inception of Network

Year	Lact. Length (days)	TLMY (kg)	SLMY (kg)	Peak yield (kg)
2001-02	303.29 (38)	1945.58 (38)	1813.72 (38)	12.77 (38)
2002-03	358.46 (39)	2028.18 (39)	1793.85 (39)	09.32 (39)
2003-04	406.00 (41)	2534.80 (41)	2069.10 (41)	11.30 (41)
2004-05	316.00 (36)	2122.40 (36)	2020.80 (36)	11.80 (36)
2005-06	311.00 (41)	1957.57 (41)	1771.96 (41)	10.34 (41)
2006-07	343.00 (38)	1953.42 (38)	1695.00 (38)	10.20 (38)
2007-08	338.00 (39)	2026.88 (39)	1807.05 (39)	10.53 (39)
2008-09	318.28 (29)	2009.28 (29)	1769.90 (29)	11.26 (29)
2009-10	382.72 (46)	1837.65 (46)	1779.61 (46)	11.43 (46)
2010-11	317.70 (44)	2134.70 (44)	2098.30 (44)	11.36 (44)
2011-12	332.20 (30)	2383.08 (30)	2083.92 (30)	12.23 (30)
2012-13	352.00 (39)	2007.00 (39)	1737.0 (39)	9.70 (39)
2013-14	305.2 (33)	1709.3 (33)	1629.2 (33)	10.30 (33)
2014-15	379.1(37)	2396.7 (37)	2095.7 (37)	11.8 (37)
2015-16	322.1 ± 12.3 (48)	2187.0 ± 86.9 (48)	2008.7 ± 72.0 (48)	13.1 ± 0.4 (48)
2016-17	323.2 ± 9.8(45)	2119.6 ± 102.7(45)	1985.4 ± 80.6(45)	12.8 ± 0.4(45)
2017-18	383.2 ± 12.1(47)	2242.8 ± 108.8(47)	1907.3 ± 89.3(47)	11.4 ± 0.4(47)
2018-19	317.3 ± 7.6(57)	2500.6 ± 99.2(57)	2359.8 ± 85.1(57)	14.7 ± 0.5(57)
2019-20	315.6 ± 14.4 (56)	2408.5 ± 105.7 (56)	2245.1 ± 76.3 (56)	14.3 ± 0.3 (56)
2020-21	359.6 ± 10.5(56)	2794.2 ± 113.7(56)	2499.9 ± 78.7(56)	14.4 ± 0.3(56)

9.12.2 Herd Life Production (up to 4th Lactation) during 2019-20

Animal No.	DOB	Date of completion of 4 th or more lact. or disposal	HLF (days) up to 4 th or more lactation or disposal (d)	LTMV (kg)	Productive Days	Unproductive Days	MY/day HLF
23/10	20/08/2010	07/03/2020	3487	9425.6	980	1167	2.7
19/08	08/09/2008	25/07/2020	4032	25167.2	2756	1276	6.2
07/05	31/05/2005	18/11/2018	3407	17597.6	2712	695	5.2
45/04	27/09/2004	04/01/2021	3790	15075.8	2088	1702	4.0
20/05	05/08/2005	08/01/2019	2711	11341.1	1654	1057	4.2
31/07	14/11/2007	21/11/2019	3012	11309.3	1883	1129	3.8
15/07	06/07/2007	03/10/2018	2238	11283.5	1294	944	5.0
42/08	07/10/2008	29/12/2020	3015	10594.6	1600	1415	3.5
45/08	14/10/2008	01/04/2021	3083	11924.3	1920	1163	3.9
08/08	17/07/2008	22/03/2021	3043	7831.1	1661	1382	2.6
39/08	03/10/2008	20/01/2019	2030	8874.1	996	1034	4.4
08/09	26/01/2009	28/07/2020	2538	5328.4	1123	1415	2.1
36/09	15/09/2009	18/11/2019	2276	13519.4	1640	636	5.9
55/08	15/12/2008	18/04/2018	1693	3679.8	754	939	2.2
22/10	20/08/2010	28/07/2020	2523	15814.9	1690	833	6.3
27/09	26/08/2009	15/12/2019	2292	14276.9	1707	585	6.2
49/09	03/10/2009	14/09/2020	2562	7941.2	1256	1306	3.1
28/10	09/09/2010	16/12/2019	2203	8106.5	1432	771	3.7
18/08	05/09/2008	12/12/2020	2515	4493.2	1091	1424	1.8
14/09	18/07/2009	23/06/2019	1889	9425.6	980	909	5.0
57/09	16/10/2009	17/11/2020	2320	17700.6	1689	631	7.6
18/09	26/07/2009	18/11/2019	1953	7336.9	1137	816	3.8
23/09	15/08/2009	30/12/2020	2328	10064.6	1428	900	4.3
33/09	10/09/2009	18/12/2018	1568	6657.6	1149	419	4.2
35/09	13/09/2009	01/02/2020	1496	2594.4	365	1131	1.7
50/10	20/10/2010	29/12/2020	1933	6626.6	1306	627	3.4
41/09	21/09/2009	01/12/2020	1776	5574.7	974	802	3.1
41/11	28/09/2011	28/03/2021	1850	4401.0	655	1195	2.4
46/11	28/10/2011	16/02/2021	1782	8809.8	1101	681	4.9
27/10	04/09/2010	15/09/2020	1741	6239.0	1009	732	3.6
36/08	01/10/2008	28/10/2020	1769	6698.2	1111	658	3.8
47/11	01/11/2011	29/12/2020	1570	9680.3	1222	348	6.2
21/11	10/08/2011	18/03/2021	1618	8798.2	1022	596	5.4

Note: HLF (Herd Life- Date of birth to date of completion of 4th or more lact. Or date of disposal)

Productive Days (date of first calving to total days in milk), **Unproductive days** (total days when buffalo not give milk from the date of first calving)

9.13 Average Milk Composition from April 2020 to March 2021

Month	N	Fat	SNF	Protein	Lactose	SCC
April 2020	78	7.65	10.70	4.65	6.17	--
May	73	8.02	10.78	4.12	5.35	--
June	70	7.90	12.11	4.20	5.95	--
July	60	8.03	10.75	4.15	5.50	--
August	53	8.00	11.02	4.25	6.30	--
September	47	8.39	11.21	3.95	5.70	--
October	45	8.08	11.35	4.45	6.28	--
November	58	7.85	10.98	4.35	6.75	--
December	50	7.92	10.97	3.98	6.00	--
January 2021	60	7.99	11.01	4.52	6.29	--

February	66	7.44	10.35	4.01	6.72	--
March	61	7.25	10.60	3.85	5.80	--
Overall	60.1	7.88	10.99	4.21	6.07	--

9.14: Reproductive Performance

Lactation / Parity	AFC (Months) (N)	N →	SP (Days)	DP (Days)	CI (Days)
1	47.81±0.86 (10)				
2		11	190.09±8.03	139.45±15.52	500.09±8.03
3		11	145.64±22.74	221.27±34.52	455.64±22.74
4		5	110.00±28.94	124.20±37.24	420.00±28.94
5 th & above		11	111.00±25.36	208.18±32.52	421.00±25.36
Over all	47.81±0.86 (10)	38	143.79±11.70	181.03±16.06	453.79±11.70

9.14.1 Reproduction Performance Since inception of Network.

Years	AFC (Months)	Service Period (days)	Dry Period (days)	Calving Interval (days)
2001-02	46.84 (13)	159.41 (33)	166.50 (33)	496.36 (33)
2002-03	47.02 (15)	155.12 (33)	179.66 (33)	465.79 (33)
2003-04	57.71 (3)	205.00 (23)	213.00 (23)	513.00 (23)
2004-05	59.44 (12)	225.00 (34)	195.00 (33)	539.00 (34)
2005-06	59.97 (16)	194.00 (45)	218.00 (45)	459.00 (45)
2006-07	55.57 (11)	188.00 (32)	267.00 (35)	499.00 (32)
2007-08	59.53 (07)	263.08 (24)	238.83 (24)	568.33 (24)
2008-09	59.52 (11)	302.69 (41)	249.62 (41)	543.67 (41)
2009-10	54.28 (20)	149.52 (45)	194.20 (45)	463.35 (45)
2010-11	52.66 (11)	127.40 (35)	168.70 (35)	436.80 (35)
2011-12	49.28 (06)	186.09 (23)	161.83 (23)	484.48 (23)
2012-13	49.31 (10)	174.00 (42)	464.58 (42)	217.16 (42)
2013-14	48.00 (24)	144.67 (33)	206.51 (43)	523.16 (43)
2014-15	46.60 (5)	140.43 (30)	176.53 (30)	450.43 (30)
2015-16	47.82 (11)	158.40 (42)	163.40 (42)	468.40 (42)
2016-17	49.80(12)	190.00(33)	184.70(33)	492.70(33)
2017-18	54.05(21)	149.85(48)	244.77(48)	530.94(48)
2018-19	49.90(22)	180.4 (35)	213.4 (35)	471.2 (35)
2019-20	46.1 ±1.4(24)	164.6 ±18.6 (43)	192.0 ±14.8 (43)	477.3 ±18.7 (43)
2020-21	47.81 (10)	143.79 (38)	181.03 (38)	453.79 (38)

9.15 Milk Production and Disposal

Month	Total milk produced (kg)	Disposal (Kg)		
		Milk sold	Calf feeding	Expt.
April-2020	15486.0	15473.0	13.0	
May	14286.5	14286.5	0.0	
June	12019.0	12007.0	12.0	
July	11015.0	10985.0	30.0	
August	8420.5	8414.5	6.0	
September	6731.0	6716.0	15.0	
October	6885.5	6863.5	22.0	
November	7454.5	7345.5	109.0	
December	10832.0	10805.0	27.0	
January-2021	12305.5	12233.5	72.0	
February	12998.5	12935.5	63.0	
March	14935.5	14918.5	17.0	
Total	1,33,369.5	1,32,983.5	386.0	

9.16.1 Feed and fodder (Quintals) availability 2020-21

Quarter	Items	Qty. Produced at Farm (kg)	Qty. Purchased (kg)	Actually fed (Quintals)	Balance (Kg)
I (April – June)	Green	5825	-	5825	-
	Dry	20	630	650	-
	Silage	-	-	-	-
	Concentrate	-	926	926	-
II (July – September)	Green	4010	-	4010	-
	Dry	1115	-	1115	-
	Silage	-	-	-	-
	Concentrate	-	1052	1052	-
III (October –December)	Green	5320	-	5320	-
	Dry	438	186	624	-
	Silage	-	-	-	-
	Concentrate	-	1020	1020	-
IV (January-March)	Green	5785	-	5785	-
	Dry	359	365	724	-
	Silage	-	-	-	-
	Concentrate	-	985	985	-
Total	Green	20940	-	20940	-
	Dry	1932	1181	3113	-
	Silage	-	-	-	-
	Concentrate	-	3983	3983	-

9.17: Milk performance during April 20 to March 21

Month	Buffaloes in Milk	Dry buffaloes	Total	% in Milk	Wet Av. (kg)	Herd Av. (kg)
April -2020	78	38	116	67.2	7.2	4.9
May	73	41	114	64.0	6.9	4.4
June	70	45	115	60.9	6.3	3.8
July	60	59	119	50.4	6.5	3.3
August	53	66	119	44.5	5.6	2.5
September	47	72	119	39.5	5.2	2.1
October	45	74	119	37.8	5.4	2.0
November	58	65	123	47.2	4.6	2.2
December	50	71	121	41.3	7.7	3.2
January-2021	60	59	119	50.4	7.2	3.6
February	66	53	119	55.5	7.7	4.3
March	61	51	112	54.5	8.7	4.7
Overall	60.1	57.8	117.9	51.1	6.6	3.4

9.17.1 Milking performance since inception

Year	No. of Animals in Milk	No. of Animals dry	Total Animals	% in Milk	Wet Av. (kg)	Herd Av. (kg)
2001-02	40.00	31.00	71.00	56.19	5.44	3.01
2002-03	32.00	34.00	66.00	48.89	7.19	3.55
2003-04	26.00	35.00	61.00	41.26	8.03	3.30
2004-05	32.00	34.83	66.89	44.65	7.91	3.96
2005-06	33.00	46.58	79.58	41.80	7.45	3.08
2006-07	34.00	44.92	78.92	42.27	7.31	3.11
2007-08	30.75	40.58	71.42	42.87	7.52	3.21
2008-09	25.25	43.12	69.41	39.05	6.81	2.44
2009-10	37.63	47.93	85.56	43.85	6.46	2.85
2010-11	35.14	33.92	69.06	50.32	7.27	3.62
2011-12	27.67	20.08	47.75	58.03	6.91	4.06
2012-13	34.00	51.33	85.33	39.78	6.73	2.67

2013-14	34.00	47.42	81.42	40.64	6.90	2.83
2014-15	33.00	48.75	81.75	40.22	7.38	3.01
2015-16	37.0	47.30	84.30	43.90	8.10	3.50
2016-17	42.0	55.0	97.0	43.65	7.4	3.2
2017-18	42.0	49.0	91.0	45.1	6.7	3.0
2018-19	65.10	43.50	108.60	60.40	5.80	3.60
2019-20	64.40	62.20	126.60	50.90	6.30	3.20
2020-21	60.10	57.80	117.90	51.10	6.60	3.40

9.18 Bull wise daughters born (only numbers)

Bull No.	Set No.	Daughters born	Daughters Calved	Daughters completing 1st Lactation
Gajanan				
Khemlo				
Bhagaro	I			
Raja	II			
Rana				
Nagraj	I			
Moti	II		2	3
Sundar	II			4
Ashok				
Laxman	I		1	3
Bholenath	II		1	2
Haresh	II		1	1
Dhingalo	II		2	4
Nayan	III		2	1
Madhav	III	8	2	
Ronak	III			
Alok	III	3		
Abhijit	III			
Raghu	III	6		
Chaman	III	12		
Girish	III	6		
Babar	III			
Total		35	11	18

9.19 Bull wise daughters completing 1ST lactation

Bull No.	Daug-hter No.	Date of birth	Date of calving	AFC (months)	Lact. Length (days)	TLMY (kg)	SLMY (kg)	Peak Yield
Bholenath	19/15	11.04.2015	26/07/2019	51.5	358	1862.1	1746.1	11.5
Dhingalo	25/16	06.04.2016	31/10/2019	42.9	291	1885.3	1885.3	13.1
Sundar	23/15	25.05.2015	09/08/2019	50.6	345	1987.8	1818.1	11.5
Haresh	17/15	02.04.2015	30/07/2019	52.0	480	2072.4	1711.6	11.2
Moti	23/16	03.04.2016	28/10/2019	42.9	331	2181.4	2131.3	10.7
Moti	48/15	30.10.2015	10/08/2019	45.4	365	2293.6	1828.6	12.4
Dhingalo	29/15	31.07.2015	01/09/2019	49.1	339	2323.3	2187.4	13.1
Sundar	19/16	18.03.2016	12/09/2019	41.9	349	2660.0	2509.2	14.7
Moti	20/16	22.03.2016	07/04/2020	48.6	359	2744.7	2506.1	12.8
Laxman	25/15	04.07.2015	25/08/2019	49.8	381	2772.3	2342.4	12.8
Nayan	55/15	14.11.2015	14/06/2019	43.0	322	2862.8	2789.1	15.8
Dhingalo	28/15	20.07.2015	10/06/2019	46.7	402	2933.2	2554.6	14.7
Sundar	11/16	15.02.2016	24/08/2019	42.3	526	2944.3	1912.7	11.8
Bholenath	13/16	22.02.2016	26/09/2019	43.2	458	3438.6	2731.9	14.7
Dhingalo	46/15	27.10.2015	21/07/2019	44.8	421	3846.2	3228.4	17.5
Laxman	21/13	29.08.2013	04/08/2019	71.3	563	4192.0	2726.4	15.0
Laxman	24/14	14.10.2014	26/12/2018	50.5	538	4924.1	3375.1	16.4

Sundar	01/14	04.01.2014	28/12/2018	59.8	568	5572.9	4173.5	18.5
Average				48.7	410.9	2972.0	2453.2	13.8
SE				1.7	21.0	248.8	154.8	0.5

9.20 Breeding bulls Selected for current set

Sr. No.	Set	Bull Name	Bull No	Date of Birth	Dam No.	Sire No.	Dam's best SLMY	Remarks
1	IV	Badal	3665	Purchased	--	--	>3000	
2	IV	Mayur	27/15	17/07/2015	Mina(AM 2/11)	Haresh	3181	
3	IV	Hamir	37/15	05/09/2015	Hedi(AM 4/11)	Bholenath	3616	
4	IV	Balo	43/15	29/09/2015	Babli(53/09)	Nayan	3201	
5	IV	Kamlesh	11081	Purchased	--	--	>3000	
6	IV	Janak	11084	Purchased	--	--	>3000	
7	IV	Sango	19100	Purchased	--	--	>3000	
8	IV	Samrat	11086	Purchased	--	--	>3000	
9	IV	Nayak	11087	Purchased	--	--	>3000	

9.20.1 PT Bulls for nominated mating

Bull No.	Set No.	Centre	Dams' Best yield (kg)	Sire Index	Breeding Value	% Superiority
Laxman	I	Junagadh	3738.0	2732.07	+9.05	
Moti	II	Junagadh	>3000	2730.36	+8.38	
Bhagaro	I	Junagadh	>3000	2672.21	+6.26	

9.20.2 List of breeding / young bulls as on 31-3-2021

Sr. No.	Name	Date of birth	Dam	Sire	Dams best lact.300days or less yield (kg)	Remarks
Set I						
1	Bhagro	Purchased	----	----	20 lit/d	CBF
2	Laxman	16-10-03	Laxmi	Subiraj	3738.0	CBF
3	Nagraj	18-12-02	Nagari	Rupnath	2957	CBF
Set II						
1	Haresh	08-02-04	Hitad	Hemalo	2884.0	2009-10
2	Moti	Purchased	--	--	>3000 litter	2010-11
3	Sunder	13-07-05	Sundari	Lailano	2732.0	2012-13
4	Raja	08-05-04	Ranjita	Subiraj	2948.0	2012-13
5	Dhingalo	Purchased	--	--	>3000 litter	2013-14
6	Bholenath	Purchased	--	--	>3000 litter	2013-14
Set III						
1	Nayan (07/10)	12-06-2010	Mira	Nagraj	4120.9 litter	
2	Abhijit (A1/10)	Purchased	Hedi		3184.2	
3	Madhav(37/10)	19-09-2010	Manisha	Nagraj	3895.8	
4	Alok	Purchased			>3500	
5	Ronak(09/11)	10-07-2011	Rita	Gajanan	3140.0	
6	Girish(11/13)	18-08-2013	Grishma	Dhingalo	3028.0	
7	Chaman	Purchased			>3500	
8	Raghu	Purchased			>3000	
9	Babar	Purchased			>3000	
Set IV						
1	Badal (3665)	Purchased	--	--	>3000	
2	Kamlesh (11081)	Purchased	--	--	>3000	
3	Mayur (27/15)	17/07/2015	Mina (AM 12/11)	Haresh	3181	
4	Balo (43/15)	29/09/2015	Babli (53/09)	Nayan	3201	
5	Janak (11084)	Purchased	--	--	>3000	
6	Hamir (37/15)	05/09/2015	Hedi (AM 04/11)	Bholenath	3616	
7	11086	Purchased	--	--	>3000	
8	11087	Purchased	--	--	>3000	
9	11088	Purchased	--	--	>3000	

9.21 Target achieved during the years

Trait	Target	(2017-18)	(2018-19)	(2019-20)	(2020-21)
Av. Age at first calving (months)	40	54.05	49.9	46.1	47.8
Av. Service period (days)	130	217.46	180.4	164.6	143.8
Calf mortality (0-3 months)	≤ 3 %	4.5	7.9	5.45	11.11
Wet average (kg)	≥8.5 kg	6.7	5.8	6.3	6.6
Herd average (kg)	≥5.5 kg	3.0	3.6	3.2	3.4

10. Salient Research Achievements (example):

11. Publications

- Savaliya, B.D., S.S. Parikh, R.B. Makwana, T.K. Patbandha, P.M. Gamit and Murthy, K.S. 2019. Effect of Microclimate Alteration on Temperature Humidity Index (THI), Milk Production and Milk Composition in Jaffrabadi Buffaloes during Summer. *Int.J.Curr.Microbiol.App.Sci.* **8(04)**: 1379-1385.
- Savaliya, B.D., Parikh, S.S., Makwana, R.B., Gamit, P.M. and Murthy, K.S. 2019. Effect of microclimate alteration on Temperature Humidity Index (THI), physiological parameters and reproductive performance in Jaffrabadi buffaloes during summer.
- Chaudhary, J. K., Solanki, G. B., Vijyeta, H. P., Gamit, P. M and Murthy K. S. (2019). Sexual Behaviour and its Relationship with Semen Quality Parameters in Jaffrabadi Breeding Bulls. The *Indian Journal of Veterinary Sciences & Biotechnology.* **15(1)**: 57-60.

12. Socioeconomic impact / Success stories:

13. Constraints if any

- Allocated funds are insufficient for the project implementation satisfactorily.
- Building / Buffalo sheds needs urgent renovations.
- Separate Milking Parlour for Buffaloes is required.
- Semen Freezing Laboratory needs renovation and extension to meet Minimum Standard.

16. Focus of work in the coming year

- Efforts will be concentrated on improving reproductive performance of Jaffrabadi herd.
- Semen Freezing Laboratory will be strengthened.

Performance of JAU, Junagadh (Field Units)

F 1. Herd Strength of Registered Females at Different Field Centres during 2020-2021

Sr No.	Centres/ Village	OB	Addition			Deduction		
			New Reg.	Birth	Purchase	Sold	Death	CB
1	Shedhaya	2057	69	8				2134
2	Pipali	3052	170	37				3259
3	Loej	13542	620	126				14288
4	Surva	3825	237	46				4108
5	Mand likpur	4598	231	66				4895
6	Hadmdiya	1126	83	29				1238
7	Khorasa	1171	116	21				1308
8	Odadar	2960	550	31				3541
9	Gondal	270	60	10				340
	Total	32601	2136	374	0	0	0	35111

F 2. Status of Breedable Females at Different Field Unit Centres during 2020-2021

Centres/ Village	Heifers > 3 years		Buffalo	
	Total	Pregnant	In Milk	Dry
Shedhaya	392			0
Pipali	233			56
Loej	1524			243
Surva	544			14
Movana	0			16
Mand likpur	477			53
Hadmdiya	76			13
Sherdi	0			11
Khorasa	85			0
Odadar	152			7
Total	3483			413

F 3. Monthly AI at Different Field Unit Centres during Period 4/2020 to 3/2021

Month	TOTAL									Total
	Shedhaya	Pipali	Hadmdiya	Loej	Surva	Mandlikpur	Odadar	Khorasa	Gondal	
April, 20	1	14	7	39	22	27	19	10	3	142
May	0	14	9	43	14	24	33	9	5	151
June	0	14	7	43	6	10	30	8	4	122
July	2	13	7	41	5	17	50	8	3	146
August	9	14	7	62	14	22	29	10	3	170
September	10	14	6	59	26	18	62	10	4	209
October	12	14	6	46	28	32	65	9	8	220
November	14	14	6	61	20	30	39	12	10	206
December	9	20	6	56	26	15	77	10	4	223
January, 21	8	14	6	60	24	15	72	9	6	214
February	4	13	8	59	31	11	42	11	5	184
March	3	12	8	51	21	10	32	10	5	152
TOTAL	72	170	83	620	237	231	550	116	60	2139

F 4. Bull-wise AI at Different Field Unit Centres during the Period 4/2020 to 3/2021

Months	Mayur	Sango	Hamir	Balo	Total
April, 20	0	0	39	103	142
May	0	0	0	151	151
June	0	0	0	122	122
July	0	0	0	146	146
August	0	0	0	170	170
September	20	0	0	189	209
October	75	0	0	145	220
November	168	0	0	38	206
December	193	0	0	30	223
January, 21	208	0	0	6	214
February	90	94	0	0	184
March	29	123	0	0	152
Total	783	217	39	1100	2139

F 5. Month wise Conception at Different Field Unit Centres during the Period 4/2020 to 3/2021

Month	Village / Centre									
	Shedhaya		Pipali		Hadmadiya		Loej		Surva	
	P	E	P	E	P	E	P	E	P	E
April, 20	5	2	7	7	4	4	37	38	16	16
May	2	2	7	7	4	5	34	35	11	11
June	2	0	8	5	5	4	29	32	8	7
July	0	1	8	7	3	4	18	21	10	12
August	0	0	6	8	5	4	21	22	8	6
September	0	0	6	8	4	3	16	27	3	3
October	2	0	7	6	4	3	18	23	4	1
November	5	4	7	7	4	3	25	37	5	9
December	5	5	6	8	3	3	25	34	13	13
January, 21	7	5	7	7	4	2	19	35	15	13
February	6	8	8	6	3	3	26	35	11	9
March	5	4	11	9	4	2	30	26	12	14
Total	39	31	88	85	47	40	298	365	116	114

Cont..

Month	Village / Centre									
	Mandlikpur		Odadar		Khorasa		Gondal		Total	
	P	E	P	E	P	E	P	E	P	E
April, 20	14	26	12	36	4	3	5	3	104	135
May	12	17	13	28	3	4	2	4	88	113
June	13	18	5	11	3	6	3	1	76	84
July	13	14	6	13	4	6	1	2	63	80
August	10	14	9	24	3	6	2	3	64	87
September	5	5	9	21	4	4	2	2	49	73
October	7	10	16	34	4	4	1	2	63	83
November	10	12	10	19	4	6	1	2	71	99
December	7	11	14	48	6	4	1	3	80	129
January,21	14	18	19	46	4	5	3	5	92	136
February	11	19	9	33	5	7	5	5	84	125
March	6	9	20	57	4	6	2	2	94	129
Total	122	173	142	370	48	61	28	34	928	1273

F 6. Month wise Calving at Different Field Unit Centres during the Period 4/2020 to 3/2021

Month	Village / Centre											
	Pipali		Hadmadiya		Loej		Surva		Mandlikpur		Odadar	
	M	F	M	F	M	F	M	F	M	F	M	F
April, 20	3	3	3	2	5	4	2	2	3	3	2	1
May	3	3	3	2	5	6	4	4	4	4	2	1
June	4	3	1	3	11	8	2	2	3	4	4	2
July	4	3	2	1	6	8	2	1	6	5	1	2
August	3	3	3	3	10	11	4	4	9	6	4	3
September	5	4	1	3	8	11	6	5	4	5	5	4
October	3	2	3	2	17	15	8	5	10	9	5	4
November	4	3	2	2	20	16	9	7	5	6	7	3
December	4	3	1	3	17	15	6	4	4	7	7	5
January 21	4	4	2	3	14	15	4	4	5	6	4	2
February	5	3	1	2	10	7	4	5	5	7	3	2
March	3	3	2	3	11	10	4	3	4	4	4	2
Total	45	37	24	29	134	126	55	46	62	66	48	31

Conti...

Month	Village / Centre						Total	
	Shedhaya		Khorasa		Gondal		M	F
	M	F	M	F	M	F		
April, 20	0	0	1	2	1	3	20	20
May	0	0	1	1	0	0	22	21
June	1	0	3	1	1	1	30	24
July	2	0	2	2	2	1	27	23
August	3	2	2	2	3	0	41	34
September	0	0	3	3	3	3	35	38
October	0	3	3	2	2	0	51	42
November	3	2	2	2	3	2	55	43
December	2	0	1	2	2	0	44	39
January,21	1	1	1	2	2	0	37	37
February	1	0	3	1	1	0	33	27
March	0	0	2	1	1	0	31	26
Total	13	8	24	21	21	10	426	374

M= Male

F= Female

F 7. Bull-wise Conception at Different Field Unit Centres during the Period 4/2020 to 3/2021

Month	Bull No						Total	
	Hamir		Balo		Mayur		E	P
	P	E	P	E	P	E		
April, 20	104	135	0	0	0	0	104	135
May	88	113	0	0	0	0	88	113
June	56	59	20	25	0	0	76	84
July	18	21	45	59	0	0	63	80
August	0	0	64	87	0	0	64	87
September	0	0	49	73	0	0	49	73
October	0	0	63	83	0	0	63	83
November	0	0	71	99	0	0	71	99
December	0	0	74	125	6	4	80	129
January, 21	0	0	52	93	40	43	92	136
February	0	0	20	18	64	107	84	125
March	0	0	14	16	80	113	94	129
Total	266	328	472	678	190	267	928	1273

F 8. Bull-wise Calving at Different Field Unit Centres during the Period 4/2020 to 3/2021

Month	Bull Name						Total	
	Balo		Hamir		Kamlesh			
	M	F	M	F	M	F	M	F
April, 20	0	0	0	0	20	20	20	20
May	0	0	3	2	19	19	22	21
June	0	0	18	15	12	9	30	24
July	0	0	19	16	8	7	27	23
August	0	0	41	34	0	0	41	34
September	0	0	35	38	0	0	35	38
October	0	0	51	42	0	0	51	42
November	0	0	55	43	0	0	55	43
December	0	0	44	39	0	0	44	39
January,21	10	8	27	29	0	0	37	37
February	22	19	11	8	0	0	33	27
March	30	26	1	0	0	0	31	26
Total	62	53	305	266	59	55	426	374

F 9. Bull-wise Live Female Progeny at Different Field Unit Centres (0-6 month) as on 3/2021

Centres	Hamir	Balo	Total
Shedhaya	6	0	6
Pipali	12	6	18
Hadmdiya	12	3	15
Loej	66	12	78
Surva	16	12	28
Mandlimpur	29	10	39
Odadar	12	6	18
Khorasa	6	4	10
Gonadal	2	0	2
Total	161	53	214

F 10. Bull-wise Live Female Progeny at Different Field Unit Centres (6-12 month) as on 3/2021

Centres	Hamir	Kamlesh	Total
Shedhaya	2	0	2
Pipali	13	6	19
Hadmdiya	12	2	14
Loej	37	11	48
Surva	9	9	18
Mandlimpur	11	16	27
Odadar	9	4	13
Khorasa	7	4	11
Gonadal	5	3	8
Total	105	55	160

F 11. Bull-wise Live Female Progeny at Different Field Unit Centres (1-3 years) as on 3/2021

Centres	Chaman	Raghu	Badal	Babar	Kamlesh	Alok	Total
Shedhaya	0	0	3	0	0	6	9
Pipali	12	10	21	10	10	10	73
Hadmdiya	7	8	16	5	5	4	45
Loej	0	63	38	45	22	25	193
Surva	33	0	19	0	12	12	76
Mandlikpur	11	23	25	18	12	9	98
Odadar	15	33	23	0	7	0	78
Khorasa	6	11	12	12	6	0	47
Gonadal	6	7	2	1	9	4	29
Total	90	155	159	91	83	70	648

F 12. Bull-wise Live Female Progeny at Different Field Unit Centres (> 3years) as on 3/2021

Centres	Bhagro	Laxman	Nagraj	Total
Set - I				
Shedhaya	59	152	86	297
Pipali	57	49	68	174
Loej	245	701	346	1292
Surva	135	130	102	367
Mand likpur	136	22	106	264
Hadmdiya	8	10	29	47
Khorasa	0	4	30	34
Odadar	0	0	0	0
Sub Total -I	640	1068	767	2475

Set - II	Haresh	Moti	Sundar	Raja	Dhingalo	Bholenath	Total
Shedhaya	17	18	17	10	13	20	95
Pipali	20	43	13	5	25	9	115
Loej	39	75	152	79	44	86	475
Movana	10	77	0	44	27	33	191
Surva	2	131	7	27	27	72	266
Mandlikpur	6	10	1	13	2	10	42
Sheradi	10	28	0	5	0	8	51
Hadmdiya	21	0	0	43	64	31	159
Sub Total- II	125	382	190	226	202	269	1394

Set - III	Ronak	Alok	Girish	Babar	Chaman	Raghu	Nayan	Madhav	Total
Pipali	0	7	13	9	4	9	14	12	68
Hadmdiya	0	8	8	2	2	0	13	2	35
Loej	0	19	29	28	0	4	30	15	125
Surva	12	5	4	7	3	3	0	6	40
Mandlimpur	0	4	11	5	4	5	13	2	44
Odadar	0	9	36	17	2	6	35	14	119
Khorasa	0	4	12	13	2	2	16	2	51
Gonadal	0	0	6	3	0	0	0	0	9
Total	12	56	119	84	17	29	121	53	491

F 13. Bull-wise AI, Conception, Calving and Daughters Retained Till Completion of Milk Recording during the Year

S.N.	CENTRE	VILLAGE	OWNER NAME	DAUGHTER TAG NO.	DATE OF BIRTH	SIRE NAME	SET	D.O.C	AFC	AV.M.P.	D.O.D.
1	Loej	Mankhetra	Vanaraj uka	4216	15/06/2009	Bhagaro	I	08/11/2014	64.8	8.2	15/08/2015
2	Loej	Rahij	Natha uka	13066	12/07/2009	Bhagaro	I	27/05/2013	46.5	8.9	08/05/2014
3	Loej	Atroli	Ram kara	7437	10/08/2010	Bhagaro	I	06/08/2015	59.9	6.6	30/06/2016
4	Loej	Nagichana	Bhaya parabat	13002	24/08/2010	Bhagaro	I	28/11/2014	51.2	10.0	30/06/2015
5	Loej	Gorej	Virabhan jina	249	14/09/2010	Bhagaro	I	08/08/2014	46.8	8.0	05/06/2015
6	Mandlikpur	Khadiya	Bhima kala	A087	29/11/2011	Bhagaro	I	17/08/2015	44.6	12.8	19/06/2016
7	Mandlikpur	Pratappur	Kamlesh bhanjibhai	1910	15/12/2011	Bhagaro	I	14/04/2016	52.0	7.7	14/02/2017
8	Mandlikpur	Choravadi	Dhiru devraj sorathiya	2383	05/03/2012	Bhagaro	I	13/05/2016	50.3	8.0	14/03/2017
9	Mandlikpur	Nagalpur	Haka chagan harkani	2394	29/03/2012	Bhagaro	I	12/08/2016	52.5	8.0	10/06/2018
10	Mandlikpur	Toraniya	Naran parbat tilva	9629	17/04/2012	Bhagaro	I	20/08/2016	52.1	6.5	14/07/2017
11	Mandlikpur	Anandpur	Khima vagman	A936	22/05/2012	Bhagaro	I	15/04/2016	46.8	9.5	15/02/2017
12	Mandlikpur	Virpur	Vitthal ranchod vora	1935	27/06/2012	Bhagaro	I	13/09/2016	50.6	11.9	15/07/2018
13	Mandlikpur	Choravadi	Arvind gordhan	1913	18/10/2012	Bhagaro	I	24/11/2016	49.2	11.4	24/09/2017
14	Mandlikpur	Bandhala	Bala nanji	10781	10/03/2010	Bhagaro	I	25/04/2015	61.5	11.6	01/04/2016
15	Mandlikpur	Etala	Bhagvan hardashbhai	A917	08/09/2010	Bhagaro	I	26/07/2015	58.6	6.1	23/06/2016
16	Mandlikpur	Anatha	Bhikha lakhabhai	12850	12/11/2010	Bhagaro	I	10/10/2015	58.9	9.1	11/09/2016
17	Mandlikpur	Chorvadi	Budhdhabhai vallabhabhai	953	30/07/2011	Bhagaro	I	27/10/2015	51.0	9.9	06/09/2016
18	Mandlikpur	Bilkha	Natunatha virani	10757	22/12/2010	Bhagaro	I	10/10/2015	57.6	9.1	18/09/2016
19	Mandlikpur	Torniya	Bhagvanji khimji	1931	27/01/2011	Bhagaro	I	26/06/2015	53.0	9.6	10/06/2016
20	Mandlikpur	Anadpur	Jaman uka dobariya	12861	25/02/2011	Bhagaro	I	15/10/2015	55.7	9.7	15/09/2016
21	Mandlikpur	Mevasa	Rasikbhai gordhanbhai	12829	15/04/2011	Bhagaro	I	05/11/2015	54.7	8.8	08/10/2016
22	Mandlikpur	Chorvadi	Govindbhai haribhai kotadiya	966	20/04/2011	Bhagaro	I	16/11/2016	67.0	8.4	16/10/2017
23	Mandlikpur	Itala	Jetha karsanbhai	12838	22/06/2011	Bhagaro	I	22/11/2015	53.1	10.1	10/10/2016
24	Mandlikpur	Naglpur	Harsukhbhai dayabhai	1970	20/07/2011	Bhagaro	I	15/08/2016	60.9	8.0	14/07/2017
25	Sherdi	Velava	Madhavji parbat viroja	10615	20/11/2011	Bhagaro	I	05/08/2015	44.5	11.0	12/07/2016
26	Sherdi	Manavadar	Gokar uka dedivadiya	10617	27/11/2011	Bhagaro	I	24/09/2015	45.9	9.3	04/09/2016
27	Sherdi	Sheradi	Kara karshan	10618	30/11/2011	Bhagaro	I	28/09/2015	46.0	9.9	03/09/2016
28	Sherdi	Vekri	Ajit velji karavadiya	10620	12/04/2011	Bhagaro	I	06/07/2015	50.8	9.7	12/07/2016
29	Sherdi	Buri	Ravji hira suraja	10623	12/10/2011	Bhagaro	I	13/09/2015	47.1	10.9	03/09/2016

30	Sherdi	Ronki	Kantilal mavaji	10626	16/12/2011	Bhagaro	I	11/08/2015	43.9	9.8	13/07/2016
31	Sherdi	Jilana	Pravin lalji mendapara	1591	26/12/2011	Bhagaro	I	12/10/2015	45.6	9.0	18/10/2016
32	Sherdi	Limbuda	Manshukh natha sureja	10640	15/01/2012	Bhagaro	I	12/12/2015	46.9	9.7	02/11/2016
33	Sherdi	Buri	Kana puna	10651	18/02/2012	Bhagaro	I	03/02/2016	47.5	9.3	03/02/2017
34	Sherdi	Sheradi	Jetha kana mori	10654	27/02/2012	Bhagaro	I	19/02/2016	47.8	10.1	28/01/2017
35	Sherdi	Ranki	Ravjidaya r.	10658	13/03/2012	Bhagaro	I	24/03/2016	48.4	8.7	19/03/2017
36	Harmadiya	Morvad	Govind bhai chandera	9696	26/08/2010	Bhagaro	I	10/09/2015	60.5	7.6	17/07/2016
37	Harmadiya	Alidar	Mayurbhai gohil	9686	10/12/2010	Bhagaro	I	02/07/2015	54.7	6.8	19/06/2016
38	Harmadiya	Alidar	Nirmutbhai bhagatbhai	9603	17/11/2011	Bhagaro	I	27/09/2015	46.4	7.8	12/07/2016
39	Harmadiya	Harmadiya	Bharatbhai khasiya	A582	10/12/2011	Bhagaro	I	03/08/2015	43.8	12.3	20/07/2016
40	Pipali	Echad	Meansibhai danabhai	9458	04/02/2010	Bhagaro	I	21/02/2015	60.6	9.4	15/12/2015
41	Pipali	Dudana	Kumarbhai rathod	9457	27/02/2010	Bhagaro	I	08/03/2015	60.3	8.6	26/12/2015
42	Pipali	Ronaj	Devsibhai ravliya	9456	18/04/2010	Bhagaro	I	28/03/2015	59.3	9.2	15/02/2016
43	Pipali	Arnej	Arjanbhai dhirubhai	9452	11/06/2010	Bhagaro	I	19/04/2015	58.3	9.2	30/01/2016
44	Pipali	Sonpara	Kanabhai dodiya	9451	18/07/2010	Bhagaro	I	03/05/2015	57.5	8.7	20/02/2016
45	Pipali	Rajpara	Mansinhbhai chavada	9453	06/05/2010	Bhagaro	I	10/04/2015	59.2	8.3	21/02/2016
46	Loej	Nagichana	Haradash parabat	366	05/10/2010	Laxman	I	24/08/2016	70.7	10.2	30/06/2017
47	Loej	Divasa	Mohan kumbha	4234	05/10/2010	Laxman	I	23/08/2015	58.6	9.3	29/03/2016
48	Loej	Nagichana	Haradash parabat	7264	27/10/2010	Laxman	I	14/02/2017	75.7	9.4	15/12/2017
49	Loej	Divasa	Mohan mula	7416	10/11/2010	Laxman	I	22/01/2017	74.5	8.9	30/11/2017
50	Loej	Rahij	Somat meraman	A-344	19/11/2010	Laxman	I	20/09/2016	70.1	9.5	28/07/2017
51	Loej	Kankasha	Devanand masari	375	13/11/2010	Laxman	I	07/08/2016	68.8	9.0	02/03/2017
52	Loej	Sangavada	Raju hira	5712	04/12/2010	Laxman	I	14/12/2016	72.4	9.8	18/10/2017
53	Loej	Rahij	Ram veja	351	07/12/2010	Laxman	I	16/11/2016	71.4	7.5	16/11/2016
54	Loej	Nagichana	Arajan vajasi	896	12/12/2010	Laxman	I	10/03/2017	75.0	9.2	09/02/2018
55	Loej	Rahij	Bhaya meraman	592	02/09/2011	Laxman	I	03/09/2017	72.1	9.4	23/07/2018
56	Loej	Loej	Kishor rana	4240	15/02/2011	Laxman	I	11/12/2015	57.9	8.8	16/07/2016
57	Loej	Menej	Khumansih parabatji	13108	03/03/2011	Laxman	I	28/10/2015	55.9	8.8	30/06/2016
58	Loej	Manakhetra	Subhash karashan	7232	30/08/2011	Laxman	I	17/10/2015	49.6	9.1	12/12/2016
59	Loej	Nagichana	Vajasi bhoja	1912	25/08/2011	Laxman	I	23/05/2017	69.0	9.7	09/06/2018
60	Loej	Bamanavada	Arajan natha	372	08/09/2011	Laxman	I	09/02/2017	65.1	9.9	06/02/2018
61	Loej	Manakhetra	Jagadish kachela	1753	13/09/2011	Laxman	I	17/01/2017	64.2	8.4	28/10/2017
62	Loej	Bamanavada	Govind kesur	394	11/10/2011	Laxman	I	29/07/2016	57.6	8.5	01/03/2017
63	Loej	Loej	Laxaman rana	5842	10/10/2011	Laxman	I	08/11/2015	49.0	8.6	15/08/2016
64	Loej	Loej	Naran somat	6697	22/10/2011	Laxman	I	28/05/2016	55.2	8.0	16/05/2017
65	Loej	Kankasha	Bachu oghad	7457	06/10/2011	Laxman	I	20/01/2017	63.6	10.0	29/12/2017
66	Loej	Nagichana	Vanu varajang	354	04/10/2011	Laxman	I	30/08/2016	58.9	8.9	30/04/2017
67	Loej	Nagichana	Ala kana	A-2384	15/10/2011	Laxman	I	02/09/2017	70.7	10.1	30/06/2018
68	Loej	Bamanavada	Mulu devarakhi	309	14/10/2011	Laxman	I	20/12/2015	50.2	9.4	15/06/2016
69	Loej	Kankasha	Bhupat karashan	398	20/11/2011	Laxman	I	31/07/2016	56.4	8.4	13/06/2017
70	Loej	Kankasha	Uka malade	2220	12/11/2011	Laxman	I	30/06/2016	55.6	7.2	15/02/2017
71	Loej	Rahij	Manda menasi	283	10/01/2013	Laxman	I	03/03/2017	49.7	8.8	08/01/2018
72	Loej	Nagichana	Arajan bhimasi	7273	13/01/2012	Laxman	I	16/04/2016	51.1	12.0	13/03/2017
73	Loej	Mangrol	Bhavesh karashan	5763	15/02/2012	Laxman	I	03/12/2017	69.6	9.1	12/12/2018
74	Loej	Zariyavada	Rana deva	1791	25/02/2012	Laxman	I	18/01/2017	58.8	7.9	29/10/2017
75	Loej	Loej	Vejanand devasi	1928	28/03/2012	Laxman	I	05/06/2017	62.3	11.3	23/06/2018
76	Loej	Kankasha	Govind karashan	5707	05/04/2012	Laxman	I	23/02/2017	58.7	8.5	31/12/2017
77	Loej	Nagichana	Haradash parabat	7425	22/04/2012	Laxman	I	03/10/2016	53.4	8.4	25/08/2017
78	Loej	Makatapur	Samat karamata	242	23/04/2012	Laxman	I	25/08/2016	52.1	8.5	25/06/2017
79	Loej	Kankasha	Arajan govind	392	14/05/2012	Laxman	I	20/11/2016	54.3	8.5	26/10/2017
80	Loej	Rahij	Naga vira	7446	11/05/2012	Laxman	I	30/04/2016	47.7	7.1	30/01/2017
81	Loej	Nagichana	Punja vira	326	15/05/2012	Laxman	I	14/10/2016	53.0	8.2	13/08/2017
82	Loej	Sangavada	Bachu deva	5767	22/05/2012	Laxman	I	13/11/2017	65.8	9.9	17/08/2018
83	Loej	Rahij	Devasi arasi	317	28/5/2012	Laxman	I	04/01/2017	55.3	7.3	29/10/2017
84	Loej	Bamanavada	Meraman kesur	389	19/06/2012	Laxman	I	09/07/2016	48.7	8.3	15/02/2017
85	Loej	Mankhetra	Ramasing bhama	5779	08/07/2012	Laxman	I	23/09/2017	62.6	10.2	03/09/2018
86	Loej	Kankasha	Jadav masari	2244	09/08/2012	Laxman	I	29/10/2016	50.7	7.4	29/08/2017
87	Loej	Rahij	Natha uka	897	02/09/2012	Laxman	I	13/02/2018	65.4	9.3	14/12/2018
88	Loej	Nagichana	Haja kaba	2278	16/09/2012	Laxman	I	23/06/2017	57.2	10.1	08/07/2018
89	Loej	Menej	Sanjay kanaji	295	08/10/2012	Laxman	I	28/09/2016	47.7	10.4	09/09/2017
90	Loej	Rahij	Arajan laxaman	2228	12/11/2012	Laxman	I	15/07/2016	44.1	8.6	14/02/2017
91	Loej	Kankasha	Saraman vajasi	3105	28/11/2012	Laxman	I	18/12/2016	48.7	9.8	15/07/2017
92	Loej	Nagichana	Hamir raja	289	16/09/2013	Laxman	I	09/11/2017	49.8	9.6	15/09/2018
93	Loej	Bamanavada	Arasi haja	285	20/09/2013	Laxman	I	10/03/2018	53.7	8.7	16/01/2019
94	Loej	Nagichana	Kara kana	383	28/09/2013	Laxman	I	03/01/2018	51.2	8.8	10/09/2018
95	Loej	Mankhetra	Karashan amara	3108	10/10/2013	Laxman	I	09/11/2017	49.0	9.3	15/09/2018
96	Loej	Mankhetra	Vijay punja	287	09/10/2013	Laxman	I	08/12/2017	50.0	9.2	07/10/2018
97	Mandlikpur	Nani monpari	Pravin deversy	10782	19/07/2012	Laxman	I	23/10/2016	51.2	9.8	25/08/2017
98	Mandlikpur	Bandhala	Dhiru ramani	2395	29/07/2012	Laxman	I	15/11/2016	51.6	9.6	16/09/2017
99	Mandlikpur	Choravadi	Dhiru satsiyta	A873	21/08/2012	Laxman	I	05/09/2016	48.5	9.8	15/07/2017
100	Mandlikpur	Nava pipliya	Jashsukh haribhai	2387	25/09/2012	Laxman	I	13/11/2016	49.6	10.2	15/09/2017
101	Mandlikpur	Bilkha	Dhrmendar aanad tilva	10729	01/10/2012	Laxman	I	26/01/2018	63.9	8.6	26/11/2018
102	Mandlikpur	Khadiya	Malde govind	2345	14/10/2012	Laxman	I	10/12/2016	49.9	8.3	12/10/2017
103	Surva	Mathasutiya	Vasing kana	A-12637	29/07/2012	Laxman	I	05/04/2016	44.3	8.5	05/02/2017
104	Surva	Khandheri	Denesh raja	3410	01/08/2012	Laxman	I	22/09/2017	61.7	8.7	20/07/2018
105	Surva	Khandheri	Dana arshi	4211	20/08/2012	Laxman	I	18/05/2017	56.9	10.6	18/03/2018
106	Surva	Ambias	Pravin padaliya	4282	28/08/2012	Laxman	I	25/06/2017	57.9	17.5	25/04/2018
107	Harmadiya	Aalidar	Kanabhai zala	1222	25/03/2012	Laxman	I	16/10/2015	42.7	7.9	10/07/2016
108	Pipali	Kaj	Karsam dodiya	11805	18/06/2012	Laxman	I	08/04/2016	45.7	7.9	28/01/2017
109	Pipali	Moradiya	Bhana badai	11806	09/06/2012	Laxman	I	10/08/2016	50.1	6.1	03/05/2017
110	Pipali	Morvad	Natubhai vala	11817	24/10/2012	Laxman	I	14/06/2016	43.7	8.2	09/03/2017
111	Movana	Chandigadh	Bhikha ven koli	344	27/11/2011	Laxman	I	10/08/2015	44.4	17.5	15/06/2016
112	Movana	Madharvada	Badhubhai vala	A196	12/01/2012	Laxman	I	13/10/2014	33.0	12.6	15/08/2015
113	Movana	Chandigadh	Bhikha vela	10109	16/04/2012	Laxman	I	26/04/2015	36.3	10.8	29/02/2016
114	Movana	Chandigadh	Pravin sidi	A343	22/04/2012	Laxman	I	12/04/2015	35.7	9.9	15/03/2016
115	Movana	Chandigadh	Ranmal ramde naya mer	A138	14/07/2012	Laxman	I	11/11/2015	39.9	10.5	10/09/2016
116	Movana	Mendrada	Mohan hirji kaneriya	A128	04/08/2012	Laxman	I	20/08/2016	48.6	9.7	10/06/2017
117	Movana	Keshod	Dhirubhai nana	A178	07/08/2012	Laxman	I	26/01/2016	41.7	8.3	30/11/2016
118	Movana	Fagari	Bijal lakhman makvana	A346	18/09/2012	Laxman	I	20/03/2016	42.0	9.6	20/01/2017
119	Movana	Agatray	Parabat mulubhai	A119	01/11/2012	Laxman	I	15/05/2016	42.4	10.7	15/03/2017
120	Movana	Keshod	Naga prabat	A117	24/11/2012	Laxman	I	14/07/2016	43.7	6.1	15/05/2017

121	Loej	Bamanavada	Naran kara	2588	22/09/2011	Laxman	I	18/10/2015	48.9	9.6	20/07/2016
122	Loej	Loej	Ram marakhi	263	31/10/2012	Laxman	I	02/08/2016	45.1	8.5	30/05/2017
123	Loej	Bamanavada	Ram devasi	4214	23/10/2012	Laxman	I	15/05/2017	54.7	9.2	15/03/2018
124	Harmadiya	Morvad	Govindbhai chandish	B2668	30/04/2012	Laxman	I	12/06/2018	73.4	8.3	02/01/2019
125	Loej	Sangavada	Vijaydas mohandas	665	25/09/2012	Laxman	I	09/12/2017	62.5	9.9	12/10/2018
126	Loej	Bamanavada	Lakha devarakhi	2250	19/02/2012	Laxman	I	18/06/2017	64.0	9.2	25/04/2018
127	Loej	Loej	Bhima arasi	1779	30/10/2012	Laxman	I	30/01/2017	51.1	8.8	30/11/2017
128	Loej	Bamanavada	Govind kesur	7295	08/10/2013	Laxman	I	30/09/2019	71.8	9.1	30/06/2020
129	Loej	Loej	Kara govind	1584	21/02/2011	Laxman	I	08/05/2016	62.6	9.3	10/03/2017
130	Loej	Mankhetra	Pithabhai mori	4213	10/08/2013	Nagraj	I	01/05/2017	44.7	9.0	27/02/2018
131	Loej	Nagichana	Ram naga	1784	17/08/2013	Nagraj	I	20/01/2017	41.2	8.6	20/12/2017
132	Loej	Mankhetra	Subhash keshar	5743	27/08/2013	Nagraj	I	03/02/2017	41.3	11.1	08/12/2017
133	Loej	Ateoli	Visa laxaman	7451	08/09/2013	Nagraj	I	25/12/2016	39.6	8.2	29/10/2017
134	Loej	Kankasha	Hamir raja	2298	30/10/2013	Nagraj	I	02/10/2016	35.1	9.2	19/08/2017
135	Loej	Rahij	Viram kesar	1781	20/11/2013	Nagraj	I	12/02/2017	38.8	9.3	15/12/2017
136	Loej	Nagichana	Bhaya parabat	246	24/11/2013	Nagraj	I	06/01/2018	49.4	10.6	17/10/2018
137	Loej	Sangavada	Vijay babu	5764	22/11/2013	Nagraj	I	08/12/2017	48.6	10.0	13/12/2018
138	Movana	Fagri	Bhana natha	A732	01/10/2013	Nagraj	I	18/08/2016	34.6	10.8	30/05/2017
139	Mandlikpur	Mandlikpur	Jivaraj gokal	B3318	02/01/2014	Nagraj	I	06/05/2018	52.1	7.7	07/03/2019
140	Harmadiya	Alidar	Parmar jagdish	B2938	27/03/2014	Nagraj	I	14/05/2018	49.6	7.0	23/03/2019
141	Surva	Gundarada	Natha uka	11470	28/11/2013	Nagraj	I	22/03/2017	39.8	8.9	22/01/2018
142	Loej	Divasa	Ramesh raja	312	09/01/2014	Nagraj	I	08/02/2018	49.0	8.5	15/12/2018
143	Loej	Kankasha	Bhikhan vala	251	25/01/2014	Nagraj	I	10/04/2018	50.5	8.5	10/04/2018
144	Loej	Loej	Ram karashan	254	05/01/2013	Nagraj	I	03/01/2018	60.0	9.3	30/10/2018
145	Loej	Menej	Khumansih parabatji	258	04/02/2014	Nagraj	I	12/03/2018	49.2	9.2	15/01/2019
146	Loej	Farangata	Naran vajari	4043	14/09/2013	Nagraj	I	27/05/2018	56.4	9.4	28/03/2019
147	Loej	Kankasha	Bhikhubha jalubha	6698	20/10/2013	Nagraj	I	03/04/2018	53.5	8.6	30/01/2019
148	Pipali	Harmadiya	Navjit dobariya	B0151	21/01/2014	Nagraj	I	16/07/2018	53.8	16.0	27/04/2019
149	Pipali	Mitiyaj	Bharat chohan	A2155	06/02/2014	Nagraj	I	08/04/2018	50.0	7.4	24/02/2019
150	Pipali	Eravad	Devasi kambliya	A2156	07/03/2014	Nagraj	I	05/09/2017	42.0	7.1	26/08/2018
151	Pipali	Lodhava	Gopal bhima	A2158	02/04/2014	Nagraj	I	05/08/2017	40.1	6.7	22/06/2018
152	Pipali	Pipli	Pravinbhai chohan	A2178	24/12/2013	Nagraj	I	07/12/2017	47.5	7.2	18/10/2018
153	Mandlikpur	Bandhala	Bhagvan ravji	10741	15/06/2014	Nagraj	I	12/08/2018	49.9	8.5	11/06/2019
154	Loej	Kankasha	Naga arjan	7212	19/04/2014	Nagraj	I	15/07/2018	50.9	9.3	15/05/2019
155	Harmadiya	Alidar	Gohil bhagavanbhai	B2662	05/12/2013	Nagraj	I	25/06/2018	54.7	5.9	13/05/2019
156	Loej	Nagichana	Ramesh veja	1800	18/12/2013	Nagraj	I	03/09/2018	56.5	10.2	30/06/2019
157	Loej	Chandavana	Deva govind	1930	11/04/2014	Nagraj	I	10/09/2018	53.0	9.6	16/07/2019
158	Loej	Mangrol	Musa mamad	234	23/03/2014	Nagraj	I	05/06/2018	50.5	10.1	07/04/2019
159	Loej	Loej	Araja naran	239	20/03/2014	Nagraj	I	03/09/2018	53.5	9.2	30/06/2019
160	Loej	Mankhetra	Rama dhana	2273	08/11/2013	Nagraj	I	11/10/2018	59.1	10.3	14/08/2019
161	Loej	Kankasha	Naga arajan	7484	26/02/2014	Nagraj	I	03/11/2018	56.3	8.9	30/08/2019
162	Loej	Menej	Ramasi nandaniya	2300	10/03/2014	Nagraj	I	13/11/2018	56.2	10.2	15/09/2019
163	Loej	Rahij	Parabat veja	203	22/10/2013	Nagraj	I	22/10/2017	48.0	8.9	31/08/2018
164	Loej	Madhavpur	Jiva mitha	233	08/02/2014	Nagraj	I	13/03/2018	49.1	10.4	17/01/2019
165	Loej	Loej	Devasi menasi	2321	22/07/2014	Nagraj	I	12/03/2019	55.7	9.8	14/01/2020
166	Loej	Kankasha	Rana sajan	2279	05/09/2013	Nagraj	I	22/03/2017	42.5	10.3	26/01/2018
167	Loej	Kankasha	Govind haradas	209	22/06/2014	Nagraj	I	10/08/2018	49.6	9.7	15/06/2019
168	Surva	Gundarada	Naran bera	13927	07/05/2014	Nagraj	I	15/08/2018	51.3	6.6	15/06/2019
169	Surva	Rampara	Ashokbhai	13933	10/06/2014	Nagraj	I	20/09/2018	51.4	9.6	20/07/2019
170	Loej	Shil	Dipak chana	7433	14/06/2014	Nagraj	I	05/09/2019	62.8	9.1	13/07/2020
171	Loej	Loej	Bhima arasi	284	09/01/2014	Nagraj	I	12/10/2019	69.1	10.7	14/08/2020
172	Loej	Sangavada	Kana uka	288	05/04/2014	Nagraj	I	17/10/2019	66.4	10.0	15/08/2020
173	Pipali	Kaj	Meru pasar	293	30/12/2013	Nagraj	I	04/07/2019	66.1	6.5	03/06/2020
174	Loej	Bamanavada	Arajan bhimasi	1705	15/10/2014	Bholenath	II	10/02/2018	39.9	11.8	15/12/2018
175	Pipali	Velava	Girish vala	151	07/07/2014	Bholenath	II	16/11/2017	40.4	7.2	22/09/2018
176	Pipali	Rakhej	Dipu parbat	164	13/08/2014	Bholenath	II	03/11/2017	38.7	6.3	20/08/2018
177	Pipali	Kanajdi	Kalu parmar	188	23/08/2014	Bholenath	II	13/10/2017	37.7	7.0	28/07/2018
178	Pipali	Kaj	Zala subhash	111	18/12/2014	Bholenath	II	27/01/2018	37.3	7.3	24/11/2018
179	Pipali	Panadar	Ram bhai	117	19/02/2015	Bholenath	II	16/12/2017	33.9	9.1	20/10/2018
180	Surva	Surva	Raju ganda	671	22/12/2014	Bholenath	II	15/06/2018	41.8	7.5	30/03/2019
181	Loej	Mankhetra	Kana khima	13320	09/12/2014	Bholenath	II	02/06/2018	41.8	9.0	15/03/2019
182	Pipali	Pipli	Gohil raghu	115/11992	28/01/2015	Bholenath	II	09/06/2018	40.4	7.8	06/04/2019
183	Pipali	Khera	Balvant kher	144	18/07/2014	Bholenath	II	05/05/2018	45.6	6.2	23/02/2019
184	Pipali	Sompara	Rashing mori	155	12/07/2014	Bholenath	II	04/03/2018	43.8	7.2	22/01/2019
185	Pipali	Velava	Vadhel arjan bhai	136	14/10/2014	Bholenath	II	12/04/2018	42.0	7.2	10/02/2019
186	Pipali	Thoradi	Ikabal bhai	190/A2154	23/11/2014	Bholenath	II	05/06/2018	42.4	7.0	28/03/2019
187	Mandlikpur	Bilakha	Jenti ramji	12603	04/12/2014	Bholenath	II	12/08/2018	44.3	9.1	11/06/2019
188	Pipali	Ronaj	Parshotam bhai	181	13/09/2014	Bholenath	II	03/09/2018	47.7	6.2	10/07/2019
189	Pipali	Dolasa	Bhart bhai	105	29/08/2014	Bholenath	II	06/08/2018	47.3	5.4	21/06/2019
190	Pipali	Advi	Dodiya kana bhai	199	14/12/2014	Bholenath	II	18/07/2018	43.1	7.7	20/06/2019
191	Harmadiya	Moravad	Chndera lkakhan bhai	2668	11/08/2014	Bholenath	II	12/06/2018	46.1	8.1	15/01/2019
192	Loej	Nagichana	Bharat bhimasi	5742	28/08/2014	Bholenath	II	12/09/2018	48.5	8.1	14/07/2019
193	Loej	Menej	Khumansih parabatji	594	30/10/2014	Bholenath	II	02/09/2018	46.1	9.4	30/06/2019
194	Loej	Shil	Govind hama	13175	12/11/2014	Bholenath	II	08/09/2018	45.9	7.8	13/07/2019
195	Mandlikpur	Nagalpur	Popat vagashiya	3874/A5616	29/12/2014	Bholenath	II	02/10/2018	45.1	8.0	03/08/2019
196	Loej	Atroli	Ram kara	231	02/10/2014	Bholenath	II	03/11/2018	49.1	10.4	30/08/2019
197	Loej	Kankasha	Govind marakhi		03/09/2014	Bholenath	II	08/12/2018	51.2	15.0	10/10/2019
198	Loej	Rahij	Arajan laxaman	266	29/10/2014	Bholenath	II	03/10/2018	47.2	9.6	16/08/2019
199	Loej	Loej	Kishor rana	2285	16/10/2014	Bholenath	II	03/11/2018	48.6	8.7	07/09/2019
200	Loej	Rahij	Parabat natha	2288	08/06/2015	Bholenath	II	31/12/2018	42.8	9.4	30/10/2019
201	Loej	Nagichana	Haradash parabat	7466	29/09/2014	Bholenath	II	10/12/2018	50.4	11.1	17/10/2019
202	Pipali	Velva	Natha bhai	192	18/01/2015	Bholenath	II	02/11/2018	45.5	7.5	31/08/2019
203	Loej	Kankasha	Laxaman devasi	7279	09/09/2014	Bholenath	II	25/11/2018	50.6	10.7	30/09/2019
204	Loej	Divasa	Jina ramasi	666	29/10/2014	Bholenath	II	22/02/2019	51.8	9.0	27/12/2019
205	Loej	Rahij	Rama marasi	662	28/10/2014	Bholenath	II	02/01/2019	50.2	9.7	30/10/2019
206	Loej	Mankhetra	Pitha barad	670	24/10/2014	Bholenath	II	23/12/2018	50.0	10.1	26/10/2019
207	Loej	Rahij	Ram devasi	667	22/10/2014	Bholenath	II	02/03/2019	52.3	10.0	30/12/2019
208	Loej	Atroli	Visa laxaman	2292	26/10/2014	Bholenath	II	31/01/2019	51.2	11.1	30/10/2019
209	Loej	Mankhetra	Karashan naran	13392	11/12/2014	Bholenath	II	03/01/2019	48.8	10.0	07/11/2019
210	Loej	Kankasha	Vajasi malade	13124	19/11/2014	Bholenath	II	20/12/2018	49.1	9.6	23/10/2019
211	Loej	Maktupur	Veja marakhi	13196	25/11/2014	Bholenath	II	10/02/2019	50.6	9.4	13/12/2019
212	Loej	Mankhetra	Bharat bhama	13106	30/11/2014	Bholenath	II	03/02/2019	50.2	9.7	07/12/2019

213	Loej	Bamanavada	Bhimasi rana	13384	26/12/2014	Bholenath	II	01/04/2019	51.2	9.1	30/01/2020
214	Loej	Sangavada	Bachu babu	13182	11/11/2014	Bholenath	II	08/11/2018	47.9	9.4	18/09/2019
215	Loej	Atroli	Malade kana	13149	09/11/2014	Bholenath	II	27/12/2018	49.6	9.0	30/10/2019
216	Loej	Bamanavada	Jetha laxaman	13146	20/11/2014	Bholenath	II	08/11/2018	47.6	9.2	08/09/2019
217	Loej	Karej	Malade daya	13336	01/12/2014	Bholenath	II	16/03/2019	51.5	9.5	18/12/2019
218	Loej	Loej	Laxaman devat	13343	11/12/2014	Bholenath	II	03/01/2019	48.8	9.1	30/10/2019
219	Loej	Nagichana	Govind haradash	13368	23/12/2014	Bholenath	II	10/04/2019	51.6	9.8	11/02/2020
220	Loej	Bamanavada	Laxaman dosa	13244	21/10/2014	Bholenath	II	23/11/2018	49.1	9.8	31/08/2019
221	Loej	Kankasha	Arajan tapu	13170	02/12/2014	Bholenath	II	30/12/2018	49.0	7.8	30/10/2019
222	Loej	Rahij	Devasi veja	13305	08/12/2014	Bholenath	II	10/02/2019	50.1	9.2	15/12/2019
223	Loej	Sangavada	Jenti daya	13130	25/11/2014	Bholenath	II	09/02/2019	50.5	9.6	16/12/2019
224	Loej	Mankhetra	Bhikhu merag	13173	19/11/2014	Bholenath	II	27/12/2019	61.3	9.3	30/12/2019
225	Loej	Kankasha	Naran vira	13185	20/11/2014	Bholenath	II	13/01/2019	49.8	9.2	15/11/2019
226	Loej	Zariyavada	Manda daya	13314	26/12/2014	Bholenath	II	16/11/2018	46.7	8.3	16/09/2019
227	Loej	Loej	Jagamal mulu	13326	08/01/2015	Bholenath	II	10/02/2019	49.1	9.0	10/12/2019
228	Loej	Shil	Ramu jina	13400	01/01/2015	Bholenath	II	06/01/2019	48.2	9.6	07/11/2019
229	Loej	Bamanavada	Hamir malade	13346	26/12/2014	Bholenath	II	06/05/2019	52.3	9.2	20/02/2020
230	Loej	Nagichana	Haradash parabat	13330	02/01/2015	Bholenath	II	08/01/2019	48.2	8.5	15/11/2019
231	Loej	Atroli	Deva ala	13307	08/01/2015	Bholenath	II	30/12/2018	47.7	9.2	30/10/2019
232	Loej	Nagichana	Arajan masari	13195/3166	29/10/2014	Bholenath	II	10/05/2019	54.4	10.2	17/03/2020
233	Loej	Kankasha	Arajan karashan	13324	18/12/2014	Bholenath	II	15/06/2019	53.9	8.5	15/04/2020
234	Loej	Virol	Laxaman babu	13344	03/12/2014	Bholenath	II	06/07/2019	55.1	8.4	11/05/2020
235	Loej	Kankasha	Masari kara	202	29/04/2015	Bholenath	II	13/07/2019	50.5	9.4	16/05/2020
236	Loej	Bamanavada	Karashan rajasi	13359	15/12/2014	Bholenath	II	07/08/2019	55.8	9.1	10/06/2020
237	Loej	Bamanavada	Marakhi mulu	694	08/09/2014	Bholenath	II	03/04/2019	54.8	9.2	06/02/2020
238	Loej	Mankhetra	Uka naran	13363	13/12/2014	Bholenath	II	10/07/2019	54.9	7.9	11/05/2020
239	Mandlikpur	Mandlikpur	Mansukh hirji umatiya	12672/9648	13/11/2014	Bholenath	II	19/07/2019	56.2	9.2	16/05/2020
240	Loej	Mankhetra	Jagadish kachela	2225	25/09/2014	Bholenath	II	12/10/2019	60.6	9.3	15/08/2020
241	Loej	Nagichana	Punja vira	204	07/05/2015	Bholenath	II	03/11/2019	54.0	9.5	05/10/2020
242	Loej	Bamanavada	Ram veja	2223	14/06/2015	Bholenath	II	10/08/2019	49.9	10.5	10/06/2020
243	Pipali	Advi	Parmar vaju	138	08/11/2014	Bholenath	II	29/10/2019	59.7	6.2	20/09/2020
244	Pipali	Sompara	Karshan bhai	121	24/12/2014	Bholenath	II	16/08/2019	55.8	6.5	20/07/2020
245	Pipali	Harmadiya	Bharat bhai	145	18/12/2014	Bholenath	II	07/09/2019	56.7	7.3	17/07/2020
246	Loej	Mankhetra	Uka jiva	655	25/03/2015	Bholenath	II	07/02/2020	58.5	10.3	05/12/2020
247	Loej	Rahij	Vakamat laxaman	262	20/12/2014	Bholenath	II	15/01/2020	60.9	10.1	15/11/2020
248	Loej	Nagichana	Bharat bhimasi	13352	16/12/2014	Bholenath	II	08/10/2019	57.8	10.6	10/08/2020
249	Loej	Shil	Yogesh menasi	677110	11/06/2015	Bholenath	II	08/05/2020	58.9	9.9	09/02/2021
250	Pipali	Kaj	Parmar arjan	9494	14/08/2015	Dhingalo	II	03/12/2017	27.7	8.3	20/09/2018
251	Pipali	Advi	Dodiya dinesh bhai	2986	08/05/2015	Dhingalo	II	10/07/2018	38.1	7.6	20/05/2019
252	Pipali	Advi	Parmar jeshing	2966/B0178	15/07/2015	Dhingalo	II	02/12/2018	40.6	6.6	28/09/2019
253	Pipali	Velva	Makvana manu bhai	2981	18/05/2015	Dhingalo	II	07/01/2019	43.7	5.5	02/11/2019
254	Mandlikpur	Bilkha	Dhanji bhai	3820	17/07/2015	Dhingalo	II	10/12/2019	52.8	8.0	08/10/2020
255	Loej	Bamanavada	Jagamal hamir	1585	25/07/2015	Dhingalo	II	08/01/2020	53.5	8.9	05/11/2020
256	Loej	Loej	Arajan marakhi	1589	14/07/2015	Dhingalo	II	09/11/2019	51.9	9.3	10/09/2020
257	Pipali	Harmadiya	Poshiya ramji bhai	2969	14/06/2015	Dhingalo	II	17/12/2019	54.1	5.9	13/11/2020
258	Pipali	Kodinar	Parmar bhavesh bhai	2984	31/05/2015	Dhingalo	II	07/11/2019	53.3	6.4	07/09/2020
259	Mandlikpur	Khadiya	Bharat bhikha bhai	1960	09/05/2015	Dhingalo	II	18/01/2020	56.4	7.1	16/11/2020
260	Odadar	Ratanapra	Raju bhai	4951	20/06/2015	Dhingalo	II	03/07/2019	48.5	6.7	14/06/2020
261	Loej	Manakhetra	Jagadish kachela	7445	20/12/2010	Haresh	II	08/05/2015	52.6	7.7	15/12/2015
262	Loej	Kankasha	Menasi kana	1751	21/12/2010	Haresh	II	27/01/2017	73.3	8.4	29/08/2017
263	Loej	Loej	Ram karashan	1755	16/12/2010	Haresh	II	28/01/2017	73.5	8.3	15/12/2017
264	Loej	Bamanavada	Arasi haja	1783	27/12/2010	Haresh	II	19/01/2017	72.8	8.3	29/11/2017
265	Loej	Rahij	Natha uka	13005	01/12/2011	Haresh	II	03/05/2016	53.1	8.8	30/11/2016
266	Loej	Manakhetra	Pithabhai mori	3103	22/03/2011	Haresh	II	24/12/2016	69.2	8.0	22/10/2017
267	Loej	Nagichana	Arajan masari	890	12/05/2011	Haresh	II	15/07/2017	74.2	9.2	15/05/2018
268	Loej	Chandavana	Masari dabhi	1916	21/5/2011	Haresh	II	03/07/2017	73.5	8.9	16/05/2018
269	Loej	Manakhetra	Bharat hamir	391	28/07/2011	Haresh	II	30/07/2016	60.1	9.0	02/03/2017
270	Loej	Rahij	Devasi oghad	13000	19/08/2011	Haresh	II	29/11/2014	39.4	11.1	16/05/2015
271	Loej	Kankasha	Vira laxaman	316	15/11/2011	Haresh	II	12/11/2016	60.0	9.7	14/06/2017
272	Loej	Rahij	Bhikhubha rupsing	2295	09/12/2012	Haresh	II	12/01/2016	37.1	9.3	15/08/2016
273	Pipali	Sonpara	Surabhai babu	11820	06/02/2011	Haresh	II	11/07/2016	65.2	6.8	03/05/2017
274	Pipali	Pipali	Bhikhabhai kubhabhai gohil	9416	26/11/2011	Haresh	II	07/11/2015	47.4	7.9	07/09/2016
275	Pipali	Devalpur	Manubhai mepabhai	9418	29/11/2011	Haresh	II	01/11/2015	47.1	8.5	05/09/2016
276	Pipali	Fafni	Bodhabhai pamak	9419	23/11/2011	Haresh	II	07/10/2015	46.5	8.2	20/08/2016
277	Pipali	Vitalpur	Valjibhai parsotambhai	9415	14/11/2011	Haresh	II	13/09/2015	46.0	7.8	23/08/2016
278	Pipali	Advi	Ramsinh meramanbhai mori	9420	08/11/2011	Haresh	II	07/09/2015	46.0	9.5	28/08/2016
279	Pipali	Velan	Solanki lakhaman	11839	30/12/2011	Haresh	II	04/03/2016	50.2	6.1	07/01/2017
280	Pipali	Fafni	Naja ramu	11801	16/01/2012	Haresh	II	19/03/2016	50.1	6.4	11/02/2017
281	Pipali	Aalidar	Ranbir bhagvan	11810	24/03/2012	Haresh	II	21/07/2016	51.9	7.5	03/05/2017
282	Movana	Badodar	Manu kana bheda	A171	25/11/2011	Haresh	II	21/08/2015	44.9	7.3	15/06/2016
283	Loej	Makatapur	Arajan deva	1976	28/03/2011	Haresh	II	19/06/2018	86.8	8.7	29/04/2019
284	Loej	Loej	Somat kara	327	25/11/2011	Haresh	II	08/10/2015	46.5	10.1	15/08/2016
285	Loej	Rahij	Karashan raja	1971	28/08/2011	Haresh	II	09/07/2018	82.4	9.8	15/05/2019
286	Loej	Bamanavada	Kara devanand	393	20/08/2011	Haresh	II	26/10/2018	86.3	10.1	11/09/2019
287	Loej	Loej	Vimal naran	1938	12/05/2011	Haresh	II	03/08/2018	86.8	8.8	10/06/2019
288	Loej	Kankasha	Naran jagamal	621	19/08/2015	Haresh	II	14/08/2019	47.9	9.1	16/06/2020
289	Loej	Rahij	Veja bhima	374	25/08/2012	Moti	II	02/08/2016	47.3	8.9	03/06/2017
290	Loej	Shapur	Bavan rana	883	16/08/2012	Moti	II	20/07/2017	59.1	10.7	31/05/2018
291	Loej	Loej	Bhima nathu	347	08/12/2012	Moti	II	11/09/2016	45.1	9.1	03/07/2017
292	Loej	Kankasha	Haradash govind	335	12/12/2012	Moti	II	08/12/2016	47.9	9.2	18/07/2017
293	Loej	Rahij	Ram kara	892	11/12/2012	Moti	II	22/07/2017	55.4	10.0	20/06/2018
294	Loej	Loej	Malade lumbha	7406	12/12/2012	Moti	II	12/12/2015	36.0	10.4	10/01/2017
295	Loej	Shil	Varajang karashan	2283	10/12/2012	Moti	II	08/04/2016	39.9	9.2	08/05/2017
296	Loej	Nagichana	Saraman arajan	2695	10/02/2013	Moti	II	05/08/2016	41.8	7.6	05/06/2017
297	Loej	Kankasha	Vira arasi	1929/3106	17/05/2013	Moti	II	10/12/2016	42.8	8.7	08/10/2017
298	Mandlikpur	Bilkha	Fula vira kumbhani	2392	12/01/2012	Moti	II	16/03/2016	50.1	10.5	15/02/2017
299	Mandlikpur	Bilkha	Natu natha virali	10724	25/01/2012	Moti	II	20/03/2016	49.8	8.9	19/01/2017
300	Mandlikpur	Anandpur	Kamlesh jaman	3341	25/11/2012	Moti	II	16/03/2017	51.7	9.9	16/01/2018
301	Mandlikpur	Hadmatiya	Parbat bhanu	10753	04/12/2012	Moti	II	22/03/2017	51.6	10.2	21/01/2018
302	Mandlikpur	Chorvadi	Aravind gordhan	2384	14/01/2013	Moti	II	11/03/2017	49.9	8.4	10/01/2018
303	Mandlikpur	Rameshvar	Bachu manji	1932	14/02/2013	Moti	II	25/03/2017	49.3	8.3	24/12/2017
304	Mandlikpur	Toraniya	Jaynti vala	B094	29/04/2013	Moti	II	21/10/2017	53.8	8.1	21/08/2018

305	Mandlikpur	Bilkha	Vithalbhai natha	7075	26/06/2013	Moti	II	10/07/2017	48.5	8.7	11/05/2018
306	Mandlikpur	Kariya	Dosa devsi	A099	28/06/2013	Moti	II	12/08/2017	49.5	9.6	12/06/2018
307	Mandlikpur	Prabhatpur	Kishor kachara suvagiya	10738	23/08/2013	Moti	II	21/11/2017	51.0	8.7	22/09/2018
308	Mandlikpur	Anandpur	Kamlesh jaman dobariya	A023	12/11/2013	Moti	II	13/01/2018	50.1	8.3	15/11/2018
309	Mandlikpur	Bhalgam	Lalit mansukh hirapara	10746	20/11/2013	Moti	II	10/11/2017	47.7	8.0	11/09/2018
310	Mandlikpur	Toraniya	Daya bhagvanji kumbhani	10743	28/11/2013	Moti	II	12/12/2017	48.5	9.1	12/10/2018
311	Mandlikpur	Khadiya	Karshan narayan kadoriya	10796	15/12/2013	Moti	II	03/04/2017	39.6	9.9	03/02/2018
312	Mandlikpur	Toraniya	Narayan gangdas	A095	20/12/2013	Moti	II	05/11/2017	46.6	9.1	06/09/2018
313	Surva	Gundarada	Bhikhabhai varu	12637	24/01/2012	Moti	II	10/04/2016	50.6	9.0	05/02/2017
314	Surva	Khandheri	Pitha kana	699	26/01/2012	Moti	II	09/01/2016	47.5	11.5	10/11/2016
315	Surva	Gundarada	Hera rana	3490	02/02/2012	Moti	II	17/06/2017	64.5	9.6	17/04/2018
316	Surva	Gundarada	Govind bhadarka	9831	20/02/2012	Moti	II	24/04/2016	50.1	8.2	15/03/2017
317	Surva	Khandheri	Pitha kana	9916	28/02/2012	Moti	II	15/02/2017	59.6	11.4	15/12/2017
318	Surva	Madhupur	Praful jesiya	12595	21/04/2012	Moti	II	21/04/2016	48.0	6.8	22/02/2017
319	Harmadiya	Aalidar	Ambhu bhai	2957	30/04/2013	Moti	II	30/04/2017	48.0	7.0	15/01/2019
320	Movana	Chandigadh	Bhikha lakha modha	A180	01/03/2012	Moti	II	11/04/2015	37.3	8.4	15/02/2016
321	Movana	Chitri	Jiva karshan sihar	A483	04/03/2012	Moti	II	15/09/2015	42.4	8.8	15/07/2016
322	Movana	Ghansari	Gopal ravji	10053	04/05/2013	Moti	II	04/08/2016	39.1	9.4	30/05/2017
323	Movana	Movana	Mansukh devaji	10854	01/07/2012	Moti	II	01/06/2016	47.0	8.1	28/03/2017
324	Pipali	Ronaj	Bhikha savliya	A2157	28/03/2013	Moti	II	03/01/2018	57.3	7.2	05/11/2018
325	Pipali	Dhamlej	Bhupat barad	A2174	08/03/2013	Moti	II	08/10/2017	55.1	7.2	22/08/2018
326	Pipali	Dhamlej	Ranjit chuhan	A2153	17/03/2013	Moti	II	09/11/2017	55.8	7.3	28/09/2018
327	Pipali	Fafni	Haribhai godhani	A2179	14/11/2013	Moti	II	10/10/2017	46.9	7.7	22/08/2018
328	Pipali	Dudana	Bhagvan rathod	9412	26/12/2012	Moti	II	03/05/2018	64.2	7.7	07/03/2019
329	Mandlikpur	Itala	Bhagvan hardas	B0921	23/06/2013	Moti	II	20/09/2018	63.0	5.5	21/07/2019
330	Harmadiya	Aalidar	Karshan veish	B2653	29/03/2013	Moti	II	29/08/2018	65.1	5.8	10/07/2019
331	Harmadiya	Aalidar	Bhikhu chauhan	B2957	02/07/2013	Moti	II	19/07/2018	60.6	6.6	23/02/2019
332	Harmadiya	Aalidar	Hameer rabari	2938	29/05/2013	Moti	II	14/05/2018	59.5	7.0	28/03/2019
333	Mandlikpur	Bilkha	Babu sanbhu vekariya	B5897	05/10/2013	Moti	II	04/11/2018	61.0	8.7	06/09/2019
334	Mandlikpur	Bilkha	Ramesh bhikha	B5505	13/08/2013	Moti	II	16/02/2019	66.2	7.6	17/12/2019
335	Loej	Kankasha	Vira arasi	1929	17/05/2013	Moti	II	02/11/2018	65.6	11.2	30/08/2019
336	Loej	Menej	Naran haradash	2294	28/01/2013	Moti	II	22/08/2018	66.8	8.9	30/06/2019
337	Loej	Atroli	Vajasi lila	652	11/12/2012	Moti	II	10/03/2020	87.0	9.8	10/01/2021
338	Pipali	Mitiyaj	Barad kishan	2924	07/10/2015	Raja	II	14/01/2018	27.3	6.7	20/11/2018
339	Loej	Loej	Ram meraman	6613	18/10/2015	Raja	II	02/06/2018	31.5	9.4	30/03/2019
340	Loej	Kankasha	Jadav masari	1759	12/10/2015	Raja	II	15/11/2018	37.2	9.3	15/09/2019
341	Loej	Rahij	Karashan raja	878	23/11/2015	Raja	II	19/12/2018	36.9	8.2	20/10/2019
342	Loej	Bamanavada	Bhimasi rana	695	13/09/2015	Raja	II	23/08/2019	47.3	8.6	23/06/2020
343	Mandlikpur	Bilkha	Narendra devji	2318	05/09/2015	Raja	II	19/08/2019	47.5	8.3	16/06/2020
344	Loej	Nagichana	Bharat bhimasi	293	23/11/2015	Raja	II	30/12/2019	49.2	10.9	30/10/2020
345	Loej	Shil	Mohan laxaman	268	05/09/2015	Raja	II	13/12/2019	51.3	10.8	30/09/2020
346	Odadar	Ratanpar	Hamir parbat	G1874	16/11/2015	Raja	II	18/09/2019	46.1	6.9	29/06/2020
347	Odadar	Ratanapra	Rama lila	3942	07/10/2015	Raja	II	08/01/2020	51.1	7.0	13/12/2020
348	Odadar	Chhaya	Babu hardas	3686	20/11/2015	Raja	II	24/12/2019	49.2	7.0	25/10/2020
349	Odadar	Balej	Hardas jadav	3658	23/10/2015	Raja	II	05/09/2019	46.5	6.9	20/07/2020
350	Loej	Rahij	Viram keshur	302	30/11/2015	Raja	II	27/02/2020	51.0	10.1	30/12/2020
351	Loej	Nagichana	Haja kara	599	24/09/2015	Raja	II	03/10/2020	51.4	9.6	05/11/2020
352	Loej	Kankasha	Menasi kana	5706	27/09/2015	Raja	II	07/12/2019	50.4	9.9	07/10/2020
353	Loej	Kankasha	Haradash govind	1551	11/10/2015	Raja	II	08/10/2019	47.9	9.8	10/08/2020
354	Loej	Bamanavada	Mulu devarakhi	1583	28/10/2015	Raja	II	09/08/2020	57.4	10.1	11/01/2021
355	Loej	Kankasha	Jadav masari	862	30/10/2015	Raja	II	28/12/2019	50.0	10.2	30/10/2020
356	Loej	Nagichana	Menasi lakha	368	18/10/2015	Raja	II	01/01/2020	50.5	9.2	01/11/2020
357	Loej	Kankasha	Saraman vajasi	1560	18/11/2015	Raja	II	07/03/2020	51.6	10.0	07/01/2021
358	Loej	Loej	Govind marakhi	341	21/11/2015	Raja	II	05/03/2020	51.5	9.9	06/01/2021
359	Loej	Mankhetra	Kachara narasing	241	21/02/2013	Sundar	II	08/03/2017	48.5	7.6	08/01/2018
360	Loej	Mankhetra	Jagadish bachu	248	30/03/2013	Sundar	II	07/09/2017	53.3	10.0	06/07/2018
361	Loej	Loej	Arajan malade	247	06/04/2013	Sundar	II	08/10/2017	54.1	9.1	15/08/2018
362	Loej	Rahij	Bhoja govind	319	09/04/2013	Sundar	II	03/01/2018	56.9	8.0	30/10/2018
363	Loej	Nagichana	Haradash parabat	4454	07/05/2013	Sundar	II	09/09/2016	40.1	9.6	08/08/2017
364	Loej	Mankhetra	Mansing arajan	286	11/05/2013	Sundar	II	03/12/2017	54.8	8.7	30/10/2018
365	Loej	Kankasha	Bhikha bhaya	2281	24/05/2013	Sundar	II	24/11/2017	54.1	9.5	30/11/2018
366	Loej	Kankasha	Arajan devasi	7453	03/06/2013	Sundar	II	12/10/2017	52.3	9.5	17/08/2018
367	Loej	Nagichana	Ram haja	5747	20/06/2013	Sundar	II	10/11/2016	40.7	8.5	08/10/2017
368	Pipali	Kaj	Ram bhai	187	05/06/2014	Sundar	II	07/09/2017	39.1	7.3	29/06/2018
369	Pipali	Dhamlej	Dina babu	112	21/06/2014	Sundar	II	03/01/2018	42.5	8.1	20/10/2018
370	Loej	Loej	Naran somat	267	11/02/2013	Sundar	II	10/05/2018	62.9	9.3	15/03/2019
371	Loej	Kankasha	Suda rama	1438	15/04/2013	Sundar	II	10/06/2018	61.9	8.4	10/04/2019
372	Loej	Rudalpur	Jayesh parabat	253	22/06/2013	Sundar	II	28/12/2017	54.2	8.6	30/10/2018
373	Loej	Bamanavada	Ram jiva	259	07/06/2013	Sundar	II	07/06/2017	48.0	9.0	31/12/2018
374	Loej	Kankasha	Bhaya devasi	591	25/06/2013	Sundar	II	03/07/2018	60.3	8.6	29/04/2019
375	Loej	Loej	Jetha vira	2219	02/07/2014	Sundar	II	20/07/2017	36.6	7.7	26/05/2018
376	Loej	Sangavada	Lala vira	13243	12/07/2014	Sundar	II	08/06/2018	46.9	9.0	10/03/2019
377	Loej	Divasa	Natha bhadaraka	5744	23/07/2013	Sundar	II	10/07/2018	59.6	8.9	16/05/2019
378	Loej	Loej	Raju malade	237	30/04/2014	Sundar	II	08/08/2018	51.3	9.5	06/06/2019
379	Loej	Madhavpur	Mohan savadas	235	10/05/2014	Sundar	II	17/07/2018	50.3	8.8	20/05/2019
380	Loej	Zariyavada	Hamidkha abibkha	232	22/05/2014	Sundar	II	06/08/2018	50.5	8.5	16/06/2019
381	Loej	Kankasha	Govind karashan	1924	20/02/2013	Sundar	II	03/11/2018	68.4	11.7	05/09/2019
382	Loej	Sangavada	Bachu laxaman	252	14/07/2014	Sundar	II	08/11/2018	51.9	8.8	16/09/2019
383	Loej	Bamanavada	Laxaman ala	205	10/07/2014	Sundar	II	20/11/2018	52.4	9.8	25/09/2019
384	Loej	Nagichana	Raja naga	602	02/06/2013	Sundar	II	29/09/2019	75.9	8.8	30/07/2020
385	Loej	Rahij	Kara oghad	658	22/07/2013	Sundar	II	11/01/2020	77.7	9.6	14/11/2020
386	Loej	Bamanavada	Arajan karashan	1709	18/02/2016	Madhav	III	20/07/2020	53.1	12.1	20/01/2021
387	Loej	Mankhetra	Bhikha naran	4280	27/02/2016	Madhav	III	10/03/2020	48.4	9.6	10/01/2021
388	Loej	Nagichana	Veja haradash	4202	05/03/2016	Madhav	III	08/03/2020	48.1	9.7	08/01/2021
389	Loej	Loej	Jetha vira	4277	20/03/2016	Madhav	III	05/05/2020	49.5	10.2	05/03/2021
390	Loej	Rahij	Jagamal mulu	4225	07/04/2016	Madhav	III	20/05/2020	49.4	9.5	17/03/2021
391	Loej	Kankasha	Mulu meraman	4279	24/03/2016	Madhav	III	03/04/2020	48.4	9.6	03/02/2021
392	Loej	Loej	Kana menasi	4272	25/03/2016	Madhav	III	01/05/2020	49.2	10.4	28/02/2021
393	Loej	Kankasha	Naran lakha	4208	01/03/2016	Madhav	III	05/04/2020	49.2	10.5	05/02/2021
394	Pipali	Pandar	Kamliya babu	2944	21/11/2015	Nayan	III	19/09/2017	22.0	7.6	03/07/2018
395	Mandlikpur	Khadiya	Pravin ram / dinesh vala	3318	09/11/2015	Nayan	III	14/09/2019	46.2	6.0	13/07/2020
396	Mandlikpur	Chorvadi	Jadav jina	3319	11/11/2015	Nayan	III	30/12/2019	49.6	7.8	29/10/2020

397	Loej	Rahij	Laxaman meraman	206	03/12/2015	Nayan	III	20/10/2019	46.6	8.8	25/08/2020
398	Loej	Mankhetra	Pitha mori	1581	19/12/2015	Nayan	III	03/08/2019	43.5	10.3	05/07/2020
399	Loej	Bamanavada	Natha ala	1590	26/12/2015	Nayan	III	08/09/2019	44.4	9.8	08/07/2020
400	Odadar	Odadar	Meraman ramde pra. Shala	3637 NEW TAG G0929	10/12/2015	Nayan	III	04/08/2019	43.8	7.2	30/06/2020
401	Loej	Nagichana	Laxaman ram	1555	28/12/2015	Nayan	III	08/02/2020	49.4	10.7	08/12/2020
402	Loej	Loej	Kishor rana	4235	11/12/2015	Nayan	III	02/02/2020	49.8	10.7	02/12/2020
403	Loej	Mankhetra	Pitha mori	310	22/12/2015	Nayan	III	05/01/2020	48.5	10.1	05/11/2020
404	Loej	Nagichana	Marakhi haradash	4266	29/12/2015	Nayan	III	06/02/2020	49.3	10.3	07/12/2020
405	Loej	Mankhetra	Sanjay raja	4269	15/01/2016	Nayan	III	20/11/2019	46.2	10.8	21/09/2020
406	Loej	Bamanavada	Ramade rajasi	301	20/12/2015	Nayan	III	30/01/2020	49.4	10.0	27/11/2020
407	Loej	Loej	Laxaman devat	653	25/12/2015	Nayan	III	10/04/2020	51.6	9.8	10/02/2021
408	Loej	Bamanavada	Govind pithiya	4242	22/02/2016	Nayan	III	10/04/2020	49.6	10.3	10/02/2021
409	Loej	Bamanavada	Govind rana	1552	03/01/2016	Nayan	III	19/03/2020	50.5	10.0	20/01/2021
410	Loej	Loej	Jeta naran	4265	31/12/2015	Nayan	III	08/11/2019	46.3	8.9	08/09/2020
411	Loej	Kankasha	Jadav masari	4261	19/01/2016	Nayan	III	03/04/2020	50.5	9.9	03/02/2021
412	Loej	Kankasha	Haradash govind	4246	22/01/2016	Nayan	III	01/03/2020	49.3	9.5	30/12/2020
413	Odadar	Odadar	Rama pola	4969	18/09/2016	Ronak	III	11/11/2020	49.8	7.6	10/08/2020
								AV.	52.1	9.0	

F 14. Bull-wise AI, Conception, Calving and Daughters Retained Till Completion of Milk Recording during the Year

Bull Name	Set No.	Total AI		Conception		Calving				Daughters Retained Up to				
		Pro.	Cur.year (20-21)	Pro.	Cur.year (20-21)	Total		Female		1 year	2 year	3 year	Calving	Complete Recording
						Pro.	Cur.year (20-21)	Pro.	Cur.year (20-21)					
Ranjeet	I	243		108(179)		72		34						
Rupesh	I	777		429(661)		251		116						
Ashok	I	2120		732(1217)		715		346						
Manek	I	741		376(558)		376		182						
Bhagro	I	4747		1902(3830)		1840		877				45		45
Gajanan 4/02	I	929		502(781)		486		245						
Nagraj	I	4016		1822(2452)		799		768				44		44
Laxman	I	5343		2735(4556)		2735		1349				84		84
A		18916	0	8606(14234)	0	7274		3917				173		173
Haresh	II	1245		660(1082)		437		211				28		28
Moti	II	2459		1041(2129)		1007		472				49		49
Sunder	II	719		377(702)		329		151				27		27
Raja	II	1443		724(1378)		594		277				21		21
Dhinglo	II	1089		552(1064)		552		259				11		11
Bholenath	II	2557		1235(1988)		843		404				76		76
B		9512	0	4589(8343)	0	3762		1774				212		212
Nayan (07/10)	III	1061		503(1000)		391		164				19		19
Abhijit (A1/10)	III	619		279(619)		254		98						
Madhav(37/10)	III	692		295(639)		239		105				8		8
Alok	III	1169		475(1162)		433		202		70		56		
Ronak(09/11)	III	1737		752(1736)		670		386				12		1
Girish	III	1601		612(1565)		464		210			7	119		
Babar	III	1520		609(1380)		431		187		9	99	84		
Raghu	III	1312		491(1163)		427		191			66	29		
Chaman	III	870		352(836)		263		110			18	17		
C		10581	0	4368(10100)		3572		1653		79	190	317	28	28
Badal	IV	963		408(1028)		376		159		146	13	0		
Kamlesh	IV	836		331(836)		190	114	83	55	83		0		
Hamir	IV	1342	39	327(772)	266(594)	0	571	0	266			0		
Balo	IV	43	1100	0(0)	472(1150)	0	115	0	53					
Mayur	IV		783		190(457)									
Sango	IV		217											
D		3184	2139	1066(2636)	928(2201)	566	800	242	374	229	13	0	0	
Gr.Total (A+B+C+D)		42193	2139	18629(35313)	928(2201)	15174	800	7586	374	308	203	317	413	413

F 15 Performance of FPT Programme since Inception

Duration	AI	Pregnancies	CR%	Calvings	Females Born	Daughters Recorded	Av. AFC (mth)	Av. Milk Yield (kg/day)	Daughters Available for Recording
2005-06	15					-	-	-	-
2006-07	966					-	-	-	-
2007-08	2169	1196(1907)	62.72	468	223	-	-	-	-
2008-09	2961	1141(2065)	55.25	944	455	-	-	-	-
2009-10	3070	1563(2676)	58.41	1429	694				
2010-11	3457	1613(2651)	60.84	1333	666				
2011-12	3738	1603(2918)	54.93	1538	729				
2012-13	4067	1776(3627)	48.97	1684	810				
2013-14	4121	1957(4021)	48.70	1688	801				
2014-15	4781	2150(4271)	50.34	1564	731	1	46.5	8.9	
2015-16	3375	1719(3691)	46.57	1892	867	15	50.2	9.3	
2016-17	2971	1228(3041)	40.38	1256	537	74	49.3	9.1	
2017-18	2462	1032(2436)	42.36	815	365	72	53.6	8.9	
2018-19	2013	840(1971)	42.62	803	347	89	51.6	8.7	
2019-20	1962	776(1894)	40.97	712	308	86	52.8	9.1	
2020-21	2139	928(1273)	43.38	800	374	76	52.1	9.0	
Overall	44267	19522(38442)	44.10	16926	7907	413	50.9	9.0	

AI, Conception, Calving and Daughters Retained (Set wise)

Set - I	Bull No.								
	Ranjit	Rupesh	Ashok	Manek	Bhagro	Gajanan	Nagraj	Laxman	Total
AI	243	777	2120	741	4747	929	4016	5343	18916
Pregnancies	108	429	732	376	1902	502	1822	2735	8606
Daughters Born	34	116	346	182	877	245	768	1349	3917
Daughters Calved					45	0	44	84	173

Set - II	Haresh	Moti	Sundar	Raja	Dhingalo	Bholenath	Total
AI	1245	2459	719	1443	1089	2557	9512
Pregnancies	660	1041	377	724	552	1235	4589
Daughters Born	211	472	151	277	259	404	1774
Daughters Calved	28	49	27	21	11	76	212

Set - III	Bull No.									
	Nayan	Abhijit	Madhav	Alok	Ronak	Girish	Babar	Raghu	Chaman	Total
AI	1061	619	692	1169	1737	1601	1520	1312	870	10581
Pregnancies	503	279	295	475	752	612	609	491	352	4368
Daughters Born	164	98	105	202	386	210	187	191	110	1653
Daughters Calved	19		8		1					28

Set - IV	Bull no.						
	Badal	Kamlesh	Hamir	Balo	Mayur	Sango	Total
AI	963	836	1381	1143	783	217	5323
Pregnancies	408	331	593	472	190	0	1994
Daughters Born	159	138	266	53	0	0	616
Daughters Calved							

Project Co-ordinator's observations on centre performance

Financial Statement for the year 2020-21 (Rs in Lakhs)

Allocation as per R E 2019 – 20		Released ICAR Share	Expenditure as per AUC		Closing Balance
Total	ICAR Share		ICAR Share	State Share	
79.65	55.24+6.00*(SCSP)	61.24	50.71440+ 5.77976 (SCSP)	16.90480	4.52562+0.22024 (SCSP)

Herd Performance

Herd strength was 344 out of which 204 were breedable buffaloes (>2year). During the period 61 calving took place consisting of 26 males, 35 females and 3 abortions. The calf mortality (0-3 months) was 11.11 % higher than the previous year 8.72 % and target of NPBI ≤ 3 %. Conception rate was 39.67 % decreased from last year (45.08 %). 21340 semen doses produced during 2020-21 and the centre has used for AI/Exp./sold/field 4939 frozen semen doses. 138634 frozen semen doses are available at the centre.

Production performances indicated by average lactation milk yield and 305 day or less day milk yield was 2794.2 kg (56) and 2499.9 kg (56) increased from last year 2408.5 kg (56) and 2245.1 kg (56) respectively. The reproductive traits viz. AFC, SP, DP and calving interval were 47.81 months (10), 144 days (38), 181 days (38) and 454 days (38) respectively. The wet and herd average increased from 6.30 kg and 3.20 kg to 6.60 kg and 3.40 kg respectively. 51.10 percent buffaloes were in milk during the report period.

Field Unit:

2139 AI's were performed utilization from the semen of 4 bulls of IV set in 9 centers/villages. Total 928 conceptions reported with conception rate of 43.38 %. 374 female progenies born and 76 daughters completed lactation in 2020-21.

Accomplishment and Targets Achieved:

S. N	Trait	Target	2016-17	2017-18	2018-19	2019-20	2020-21
1	Av. AFC (Months)	40.0	49.80 (12)	54.05 (21)	49.90 (22)	46.1 (24)	47.81 (10)
2	Av. service period (Days)	130 days	190 (33)	150 (48)	180 (35)	165 (43)	144 (38)
3	Calf mortality (0-3 months)	≤ 3 %	6.94 %	4.50 %	7.90 %	5.45 %	11.11 %
4	Wet average (Kg)	≥ 8.50 kg	7.4 kg	6.7 kg	5.8 kg	6.3 kg	6.6 kg
5	Herd average (Kg)	≥ 5.50 kg	3.2 kg	3.0 kg	3.6 kg	3.2 kg	3.4 kg

Recommendations:

1. Bulls under test mating should be used for a fixed duration only i.e 24 month cycle.
2. Field recording should be strengthened by engaging contract workers, through regular monitoring of field units.
3. Increase AI in FPT and the bulls should be used in equal proportion in the field.
4. Need to improve conception rate in main unit and FPT.

LIVESTOCK RESEARCH STATION, VALLABHNAGAR

Report Period: 2020-21

1. **Name of center** : Livestock Research Station, Vallabhnagar RAJVASU, Bikaner.
2. **Project Code** :
3. **Project Title** : Network Project on Buffalo Improvement
4. **Date of start** : 01-04-2001
5. **Objectives** : To establish elite herd of 50 Surti for the production of genetically superior young bulls. Evaluate sires through institutional/field progeny testing and to produce, test, propagate and conserve high genetic merit male germplasm

6. Technical Programme :

- Establishment and maintenance of an elite herd of Surti with herd strength of 120.
- Selection and testing of minimum 4-6 bulls in every 24 months cycle.
- Production of minimum 3000 frozen semen doses from each test bull.
- Maintain a minimum number of 2000 of frozen semen doses until the particular SET gets evaluated.
- Evaluation and ranking of bulls on the basis of their progeny performance (first lactation) for selection of top 20-25% as proven bulls from each set.
- Application of proven bull's semen on elite buffaloes for the production of future sires and replacement heifers.
- Minimum weekly recording of milk yield of individual daughters/ buffaloes at institutional herd / monthly recording in field units over complete lactation(s) with wet average, herd average, percent in milk, lactation length, dry period, TLMY, SLMY (305 days or less, up to minimum of 240 days) and peak yield, milk yield per day of herd life (total milk produced from date of birth till completion of 4th or more lactation).
- Monthly testing of milk constituents (Fat%, SNF% and Protein %) and Somatic Cell Count, wherever feasible, at institutional herds.
- Recording of reproductive traits viz., AFC, Service period, Days open, Calving interval, Number of services per conception, Conception rate and Calving abnormalities.
- Health management including udder health, vaccination, de-worming, disease screening, mortality and periodic body weight records

7. Financial Statement :Rs (in Lacs)

Head	Allocation for the year (ICAR + State)	ICAR share 75% of expenditure	State Share 25% of expenditure	Total Expenditure
A. Recurring				
1. Pay & Allow.	3,33,000.00	-	-	-
2. T.A.	32,000.00	3,458.00	1,153.00	4,611.00
3. Recurring cont.	52,00,000.00	38,53,519.00	12,84,506.00	51,38,025.00
4. Recurring cont (SCSP)	5,00,000.00	5,00,000.00	-	5,00,000.00
Total	60,65,000.00	43,56,977.00	12,85,659.00	56,42,636.00
A. Non-recurring Conti.				
1. Equipments	4,00,000.00	3,00,000.00	1,00,000.00	4,00,000.00
2. Works		-	-	
3. Livestock		-	-	

4. Equipment (SCSP)	1,00,000.00	1,00,000.00	-	1,00,000.00
Total	5,00,000.00	3,00,000.00	1,00,000.00	5,00,000.00
G. Total	65,65,000.00	47,56,977.00	13,85,659.00	61,42,636.00

Revenue generated: Total receipt generated during the year: Rs. 19,45,625/-

Staff associated with the project

Discipline	Name of Scientist / Staff	Status (PI/Co-PI/ Associated)
AGB	-	-
ARGO	Dr Mitesh Gaur	Project Incharge
ANFT	-	-
LPM	-	-
Health / Others	-	-
No. of staff		
Technical staff	-	
Contractual staff (RA / SRF / YP-I, YP-II)	One contractual clerk, Two contractual LSAs, one SRF	

Conservation Unit (Institutional herd): Enclosed Table 9.1 to 9.21.

9.1 Herd Strength during the Period 1st April 2020 to 31st March, 2021

Sr. No.	Category	Addition			Disposal				CB
		OB	B / P	T	D	T	S	E	
Female									
1.	Below 3 months	1	15	0	1	9	0	0	6
2.	3-12 months	5	2	9	1	5	0	0	10
3.	1-2 years	12	0	5	0	12	0	0	5
	Above 2 years	27	0	12	0	6	0	0	33
4.	Buffaloes in Milk	34	3	6	1	6			36
5.	Buffaloes Dry P /NP	5	4	6	0	0	0	0	15
	Sub Total	84	24	38	3	38	0	0	105
Males									
1.	Below 3 months	3	21	0	0	17	0	0	7
2.	3-12 months	11	0	17	0	14	0	0	14
3.	1-2 years	10	0	14	0	10	0	0	14
	Above 2 years	9	0	10	0	0	0	0	19
4.	Breeding bulls	7	0	0	1	0	0	0	6
5.	Bullocks / Teasers / others	2	0	0	0	0	0	0	2
	Sub Total	42	21	41	1	41	0	0	62
	Grand Total	126	45	79	4	79	0	0	167

OB = Opening Balance as on 1st April D = Deaths S = Sale E = Experimental
 B / P = Birth / Purchase T = Transfer CB = Closing Balance as on 31st March

9.2 Calving Statistics including abnormalities

Month	Male	Female	Still Birth	Abortion	Dystokia	ROP	Prolapse	Overall
April 20	0	0	0	0	-	-	-	0
May	0	0	0	0	-	-	-	0
June	0	0	0	0	-	-	-	0
July	0	0	0	0	-	-	-	0

August	1	1	0	0	-	-	-	2
September	3	4	0	0	-	-	-	7
October	6	1	0	0	-	-	-	7
November	4	3	0	0	-	-	-	7
December	4	4	0	0	-	-	-	8
January 20	1	2	0	0	-	-	-	3
February	0	0	0	0	-	-	-	0
March	0	0	0	0	-	-	-	0
Overall	19	15	0	0	0	0	0	34

Sex ratio Male : Female (1.27:1)

Abortion % = 0.00 %

9.3. Disposal of Animals during the Period 1st April 20 to 31st March 21

Female								
Category	Surplus	Below farm production standard	Reprod. Problem	Weak & Old	Udder Health	Death	Experimental purposes	Total
Calves								
0 to 3 months	0	0	0	0	0	1	0	1
3-12 months	0	0	0	0	0	1	0	1
Heifers								
1-2 years	0	0	0	0	0	0	0	0
> 2 years	0	0	0	0	0	0	0	0
Buffaloes								
Milch	0	0	0	0	0	1	0	1
Dry	0	0	0	0	0	0	0	0
Sub Total	0	0	0	0	0	3	0	3
Males								
Calves								
0 to 3 months	0	0	0	0	0	0	0	0
3-12 months	0	0	0	0	0	0	0	0
1 to 2 year	0	0	0	0	0	0	0	0
>2 year	0	0	0	0	0	0	0	0
Breeding bulls	0	0	0	0	0	1	0	1
Bullock+Teaser+Others	0	0	0	0	0	0	0	0
Sub Total	0	0	0	0	0	1	0	1
Grand Total	0	0	0	0	0	4	0	4

9.4. Mortality during the Period 1st April 2020 to 31st March, 2021

	Female						Male					Overall Herd
	0-3 m	3-12 m	1-2 Yrs.	Above 2 Yrs.	Milk + Dry	Overall Female	0-3 m	3-12 m	1 -2 Yrs.	>2 yrs.	Overall Male	
No.	16	16	17	39	62	150	24	28	24	19	95	245
Died	1	1	0	0	1	3	0	0	0	1	1	4
%	6.3	6.3	0.0	0.0	1.6	2.00	0.0	0.0	0.0	5.3	1.05	1.63

Overall Calf Mortality = (1/40)*100 = 2.5 %

Overall Mortality = (4/250)*100 = 1.6 %

9.5. Causes of Mortality (quarter wise) during the period April 20 to March 21

Particulars	1 st quarter (April-June)	2 nd quarter (July-Sept)	3 rd quarter (Oct-Dec.)	4 th quarter (Jan.-March)	Total
Enteritis	-	-	-	-	0
Pneumonitis	-	-	1	-	1
Septicemia / Toxemia	-	-	-	-	0
Peritonitis	-	-	-	-	0
JD/TB	-	-	-	1	1
Milk Fever/metabolic diseases	-	-	-	-	0
TRP / TP	-	-	-	-	0
Parasitism	-	-	-	-	0
Accidental death	-	-	-	-	0
Peri-parturient disorders	-	-	-	-	0
Miscellaneous	1	1	-	-	2
Total	1	1	1	1	4

9.6 Prophylactic Measures undertaken

Disease	Vaccination Date	No. of animals	No. of animals Tested / Positive		Month and no. of animals treated for Parasitism	
FMD	20-06-2020	109			April	12
					May	11
HS	20-06-2020	109			June	120
					July	14
BQ	20-06-2020	109			August	15
					September	24
Brucellosis		11			October	26
					November	23
JD			9	0	December	138
TB			9	0	January	33
IBR					February	15
Mastitis					March	28

9.7. Female Conception Rate During the Period January to December 2020

AI No.→	1 st			2 ND			3 RD			4 TH & above			Over all		
	AIs	C	CR %	AIs	C	CR %	AIs	C	CR%	AIs	C	CR %	AIs	C	CR %
Heifers	14	2	14.29	6	1	16.67	2	0	0.00	4	0	0.00	26	3	11.54
Adults	31	11	35.48	20	12	60.00	8	4	50.00	4	2	50.00	63	29	46.03
Overall	45	13	28.89	26	13	50.00	10	4	40.00	8	2	25.00	89	32	35.96

AIs = No. of animals inseminated C = No. of animals conceived CR % = Conception rate%

9.8 Quarter-wise conception rate

Quarter	No. of A I	Preg. animals	CR %
January – March	31	18	58.06
April - June	11	2	18.18
July - September	21	7	33.33
October- December	26	5	19.23
Overall	89	32	35.96

9.9. Bull-wise Conception Rate During the period January to December, 2020

Sr. No.	Bull No.	SET No.	Total Number of AI	Total Conceived	CR%
1.	1948	1	7	2	28.57
2.	1950	2	8	5	62.50
3.	1952	2	8	4	50.00
4.	1955	3	8	5	62.50
5.	1961	3	7	4	57.14
6.	1963	4	9	2	22.22
7.	1968	4	16	7	43.75
8.	4529	8	8	0	0.00
9.	4542	8	8	2	25.00
10.	4567	8	3	1	33.33
11.	4578	8	7	0	0.00
Over all			65	28	35.96
No. of services per conception					2.78

9.10 Bull Wise Semen Stock

Set No	Bull No	OB	Doses produced / received	Consumption for AI/supplied					Balance
				Inst herd	Field unit	NPBI centres	Sold	Total supply	
I	1948	219	0	14		-	-	14	205
I	1949	2	0			-	-	0	2
II	1950	285	0	16		-	-	16	269
II	1951	15	0			-	-	0	15
II	1952	199	0	16		-	-	16	183
II	1953	95	0			-	-	0	95
III	1955	515	0	16		-	-	16	499
III	1956	536	0			-	-	0	536
III	1957	876	0			-	-	0	876
III	1958	163	0			-	-	0	163
III	1959	0	0			-	-	0	0
III	1961	467	0	14		-	-	14	453
IV	1962	85	0			-	-	0	85
IV	1963	962	0	18		-	10	28	934
IV	1964	498	0			-	-	0	498
IV	1965	350	0			-	-	0	350
IV	1966	1102	0			-	10	10	1092
IV	1967	2375	0			-	-	0	2375
IV	1968	1636	0	32		-	-	32	1604
IV	1969	1630	0			-	-	0	1630
IV	1970	5	0			-	-	0	5
V	1971	1111	0			-	-	0	1111
V	1972	573	0			-	-	0	573
V	1973	1451	0			-	-	0	1451
V	1974	1137	0			-	-	0	1137
V	1975	741	0			-	-	0	741
V	1976	1346	0			-	-	0	1346
V	1977	1877	0			-	-	0	1877
V	1978	70	0			-	-	0	70
VI	4203	268	0			-	-	0	268

VI	4229	3627	0			-	-	0	3627
VI	4264	2281	0			-	-	0	2281
VI	4299	5693	0			-	-	0	5693
VI	4302	174	0			-	-	0	174
VI	4321	124	0			-	-	0	124
VI	4323	99	0			-	-	0	99
VI	25	248	0			-	-	0	248
VI	8	565	0			-	-	0	565
VII	4373	1746	0			-	-	0	1746
VII	4403	3073	0			-	10	10	3063
VII	4392	1996	0			-	-	0	1996
VII	4429	2406	0			-	15	15	2391
VII	4413	1164	0			-	-	0	1164
VII	4458	123	0			-	-	0	123
VIII	4464	1657	0		100	-	-	100	1557
VIII	4529	2779	0	16	640	-		656	2123
VIII	4542	1994	814	16	180	-	-	196	2612
VIII	4548	1610	0		80	-	-	80	1530
VIII	4567	1823	123	6	152	-	-	158	1788
VIII	4578	2632	0	14	135	-		149	2483
IX	4611	3134	1925			-	-	0	5059
IX	4612	1476	235			-	-	0	1711
IX	4633	4140	2779		415	-	-	415	6504
IX	4647	2293	740			-	-	0	3033
IX	4648	2887	2488		220	-	-	220	5155
Total		70333	9104	178	1922	0	45	2145	77292

9.11 Average Body weight (kg) since inception

Year	N	Birth	N	3 Months	N	6 Months	N	12 Months	N	18 Months	N	24 Months	N	At AFC
Female														
2001-02	14	26.86±1.04	9	62.44±3.88		-		-		-		-		-
2002-03	16	27.78±0.77	13	60.23±2.84	13	99.54±2.99	6	183.33±7.69	1	244.00±NE		-		-
2003-04	11	27.73±1.39	12	58.62±2.03	13	89.88±3.22	12	160.08±5.26	9	232.50±8.88	8	277.29±8.34		-
2004-05	20	27.82±0.75	18	60.85±1.90	26	89.07±3.60	24	165.37±3.06	16	237.75±5.93	8	299.12±9.43	9	405.33±8.08
2005-06	25	27.88±0.64	19	54.80±1.33	17	85.43±2.15	16	129.40±4.08	14	191.45±3.33	16	224.25±4.62	16	415.71±14.98
2006-07	25	28.52±0.54	24	55.00±0.77	24	76.10±1.50	16	119.55±1.61	13	166.14±1.93	14	217.13±3.21		426.57±7.68
2007-08	19	28.89±0.72	14	58.71±2.41	19	83.68±2.74	14	116.43±4.77	13	159.77±2.57	15	208.40±4.35	15	430.47±10.81
2008-09	18	28.56±0.37	15	59.80±1.85	13	84.77±3.62	14	120.64±6.25	12	162.58±4.15	14	210.21±4.17	12	435.83±6.41
2009-10	14	27.71±0.58	16	60.09±3.11	19	85.25±4.54	12	131.50±5.32	13	181.91±4.82	15	209.43±3.83	5	434.23±8.12
2010-11	12	27.54±0.76	12	59.84±3.45	9	72.91±3.96	10	109.09±4.58	11	163.19±5.09	13	205.43±4.16	4	427.67±9.15
2011-12	11	26.84±0.86	11	58.46±2.45	15	74.45±4.23	8	108.37±5.37	9	162.82±7.34	10	208.64±4.64	5	426.54±14.21
2012-13	12	26.80±0.82	16	59.45±2.47	22	75.95±4.25	10	110.40±5.32	8	165.50±7.30	10	212.65±4.75	4	429.50±14.40
2013-14	12	24.13±0.30	5	60.34±2.46	8	77.13±6.26	8	100.67±1.70	6	161.72±12.81	5	209.63±16.76	4	462.50±23.58
2014-15	16	21.66±0.64	11	49.41±2.33	8	64.13±3.44	4	106.5±13.92	2	214.00±4.71	5	239.25±7.27	12	440.75±15.24
2015-16	9	22.80±0.35	5	54.50±1.43	4	70.50±2.68	10	101.50±2.11	6	161.25±11.22	4	217.00±6.05	11	413.90±11.74
2016-17	15	25.20±0.31	6	59.67±1.66	3	73.00±1.89	6	104.67±2.04	8	177.50±8.23	8	214.00±3.58	32	426.47±7.90
2017-18	20	25.21±0.74	8	52.38±3.08	13	73.46±1.71	11	106.55±5.12	6	164.33±2.65	7	193.14±25.42	2	410.50±2.50
2018-19	18	24.43±0.50	11	55.45±1.55	10	70.10±3.37	9	109.56±2.72	15	153.67±3.87	8	197.25±7.64	-	-
2019-20	11	24.55±0.37	7	52.04±1.91	10	67.79±1.70	10	115.37±4.88	10	169.14±4.32	12	214.73±4.06	5	443.20±17.36
2020-21	15	23.45±0.33	12	55.29±1.46	7	71.71±2.84	5	119.50±4.82	7	170.36±4.83	11	202.32±3.20	-	-
Male														
2001-02	14	28.71±1.15	12	65.17±3.14	5	99.80±1.74		-		-		-		-
2002-03	11	30.18±3.57	7	63.43±5.66	8	100.38±2.34	8	164.60±3.04	4	239.75±14.92		-		-
2003-04	12	28.21±0.91	13	59.46±3.61	5	88.80±5.16	2	168.00±7.80	3	241.00±7.65	11	338.91±16.86	8	417.62±8.23
2004-05	23	27.76±0.76	17	58.39±1.70	22	90.96±1.87	14	165.33±9.56	6	239.50±7.50	9	335.31±14.21	7	479.25±75.65
2005-06	20	29.45±0.85	15	60.21±2.27	20	86.62±3.49	7	121.71±10.04	4	179.67±21.26	2	260.5±16.5	8	440.0±29.67
2006-07	13	29.85±0.80	14	55.54±1.20	14	83.73±2.10	11	116.40±0.82	9	169.13±10.09	5	214.40±15.86		440.0±29.67
2007-08	19	29.58±0.62	14	60.23±2.30	11	86.00±5.79	12	112.75±6.25	10	171.20±8.86	5	221.20±18.04	8	444.75±6.58
2008-09	18	29.33±0.45	17	61.47±1.80	12	89.42±2.64	12	118.50±5.27	12	176.36±3.90	7	225.71±6.57	8	441.38±11.54
2009-10	9	27.85±0.57	9	65.86±3.39	17	91.50±4.07	10	132.50±16.6	12	183.88±8.01	5	226.74±9.34	10	439.41±16.48
2010-11	19	28.03±0.54	19	76.71±3.17	17	69.92±3.36	25	109.70±14.86	23	166.28±6.54	21	214.49±10.91	12	436.37±17.69
2011-12	24	28.37±1.02	23	61.87±4.72	19	79.43±3.66	14	124.97±5.72	14	164.64±445	12	224.54±14.75	9	438.64±31.42
2012-13	26	28.55±1.05	28	62.80±4.75	31	80.35±3.65	22	125.45±5.25	10	170.5±4.50	8	225.75±14.80	8	445.74±31.38
2013-14	13	24.31±0.49	11	60.74±3.36	10	76.00±12.96	7	107.33±10.35	10	166.54±10.35	9	215.59±14.21	10	455.80±65.67
2014-15	19	22.38±0.65	10	52.3±2.28	8	67.81±4.70	5	153.5±14.24	2	184.00±2.83	5	224.5±10.76	10	452.60±28.64
2015-16	12	22.96±0.39	2	51.00±2.12	4	75.25±3.71	6	118.42±2.25	4	181.25±5.69	4	226.25±7.28	9	411.44±22.37
2016-17	12	25.08±0.47	4	62.50±1.03	3	91.33±5.46	5	126.40±1.51	8	202.13±5.31	5	227.60±5.14	6	446.33±20.43
2017-18	10	26.21±1.32	6	53.83±5.62	1	66.00±0.00	2	106.00±3.00	5	150.40±10.99	5	214.00±4.29	-	-
2018-19	14	24.81±0.74	10	56.60±1.65	15	70.33±1.62	4	105.00±4.95	4	158.50±4.41	2	207.50±1.50	-	-
2019-20	24	25.30±0.29	12	51.02±1.50	10	67.79±1.70	12	115.83±2.89	9	164.81±3.72	6	207.45±3.02	-	-
2020-21	16	24.31±0.24	18	53.83±1.29	4	71.75±2.69	14	119.04±2.78	7	169.07±6.86	11	205.00±4.40	-	-

ADULT Buffaloes: 447.52 ± 12.48 (23) Breeding Bulls: 472.19 ± 19.04 (7)

9.12 Average Production Performance of Buffaloes Completing their Lactation

Lact. No.	N	TLMY (kg)	Lact Length (days)	SLMY (kg)	Peak Yield (kg)
1 st	4	1370.10 ± 85.12	299.75 ± 15.87	1348.95 ± 81.51	8.48 ± 0.56
2 nd	6	1668.57 ± 128.19	342.50 ± 37.70	1582.02 ± 69.53	9.73 ± 0.33
3 rd	1	1794.6	356	1671.5	9.9
4 th	3	1867.87 ± 209.53	333.67 ± 49.45	1742.27 ± 165.17	11.07 ± 1.07
5 th & above	10	1630.19 ± 65.14	324.80 ± 22.17	1559.44 ± 53.92	9.40 ± 0.56
Overall	24	1633.00 ± 55.51	327.46 ± 14.12	1557.53 ± 41.34	9.56 ± 0.31

9.12.1 Average production performance of Buffaloes since Inception of Network

Year	N	Av. Lact. Yield (kg)	Av. Lact. Length (days)	305 day Milk Yield (kg)	Av. Peak yield
2001-02	16	1687.42 ± 110.73	315.00 ± 20.88	1606.00±95.38	9.08 ± 0.40
2002-03	28	1859.21 ± 70.84	304.68 ± 11.87	1792.70±62.60	10.23 ± 0.17
2003-04	34	1653.11 ± 42.43	278.10 ± 5.80	1645.78±41.11	10.59 ± 0.18
2004-05	36	1661.63 ± 49.10	299.10 ± 7.87	1633.26±39.73	11.13 ± 0.23
2005-06	34	1721.07 ± 72.95	292.32 ± 9.97	1667.20±62.32	11.32 ± 0.27
2006-07	41	1684.73 ± 52.55	293.03 ± 5.24	1661.06 ± 50.04	10.89 ± 0.31
2007-08	32	1726.25 ± 72.56	303.53 ± 8.26	1649.06 ± 45.70	11.17 ± 0.21
2008-09	35	1598.69 ± 51.34	337.62 ± 7.81	1491.37 ± 44.77	9.75 ± 0.24
2009-10	30	1600.89 ± 64.93	328.28 ± 16.09	1551.11 ± 49.56	9.69 ± 0.38
2010-11	16	1433.91 ± 72.22	319.00 ± 17.74	1348.87 ± 72.00	9.0 ± 0.28
2011-12	21	1428.65 ± 45.49	318.76 ± 9.91	1386.12±47.16	8.82 ± 0.22
2012-13	27	1432.7 ± 50.59	296.48 ± 9.01	1390.57±41.29	9.70 ± 0.21
2013-14	24	1526.74 ± 49.26	294.30 ± 9.79	1480.64±38.21	9.58 ± 0.18
2014-15	41	1493.40 ± 53.85	294.00 ± 7.69	1443.99±60.65	9.71 ± 0.25
2015-16	20	1623.90 ± 77.97	344.85 ± 15.06	1477.38 ± 58.40	8.78 ± 0.33
2016-17	23	1670.73 ± 80.06	309.96 ± 11.28	1582.82 ± 68.74	9.68 ± 0.29
2017-18	23	1617.70 ± 72.01	282.81 ± 11.02	1586.06 ± 72.01	9.75 ± 0.24
2018-19	22	1649.38 ± 85.81	313.32 ± 15.74	1565.95 ± 64.94	9.60 ± 0.29
2019-20	25	1604.18 ± 117.29	291.65 ± 17.89	1558.62 ± 103.17	9.49 ± 0.49
2020-21	24	1633.00 ± 55.51	327.46 ± 14.12	1557.53 ± 41.34	9.56 ± 0.31

9.12.2 Herd Life Production (up to 4th Lactation) during 2020-21

Ani. No.	DOB	Date of completion of 4th or more lact. or disposal	HLF (days) up to 4th or more lactation or disposal (d)	LTMV (kg)	Productive Days	Unproductive Days	MY/day HLF
4482	01-12-2008	11-09-2020	4302	11533.5	1823	724	2.68
4455	23-02-2008	24-01-2020	4353	10908	2112	981	2.51
4627	16-03-2013	15-05-2019	2251	5313.9	1121	1130	2.36
4405	03-12-2006	12-05-2020	4909	10771.9	2256	971	2.19
4501	02-08-2009	6-07-2020	3991	8406.1	3290.7	564	2.11
4625	24-12-2012	24-12-2020	2922	6147.8	1183	412	2.10
4537	22-08-2010	27-07-2020	3627	7585.5	1395	860	2.09
4549	26-09-2010	6-08-2020	3602	7473.9	1517	887	2.07
4434	29-08-2007	06-06-2020	4665	9640.6	2971.3	814	2.07
4520	16-07-2010	2-01-2021	3823	7862.8	1430	877	2.06
4430	15-08-2007	16-12-2020	4872	9893.8	1902	1028	2.03
4613	05-10-2012	23-04-2020	2757	5471.9	851	450	1.98
4466	28-08-2008	08-05-2020	4271	8264.7	1724	1112	1.94
4582	29-09-2011	17-05-2020	3153	5921.7	949	772	1.88
4528	05-08-2010	17-12-2019	3421	6012.3	1276	889	1.76
4494	10-04-2009	30-09-2020	4191	6999.7	2861.6	807	1.67

4557	25-12-2010	21-12-2020	3649	4842.6	1380	918	1.33
4513	25-09-2009	17-05-2020	3887	4926.7	1053	1055	1.27

Note: HLF (Herd Life- Date of birth to date of completion of 4th or more lact. or date of disposal)
Productive Days (date of first calving to total days in milk), Unproductive days (total days when buffalo not give milk from the date of first calving)

9.13 Average Milk Composition from April 2020 to March 2021

Month	N	Fat	SNF	Protein	Lactose	SCC
April 20	-	-	-	-	-	-
May	23	6.94	-	-	-	-
June	21	7.92	-	-	-	-
July	15	6.9	-	-	-	-
August	10	7.2	-	-	-	-
September	-	-	-	-	-	-
October	17	6.2	-	-	-	-
November	24	5.9	-	-	-	-
December	26	5.8	-	-	-	-
January 21	-	-	-	-	-	-
February	17	5.4	-	-	-	-
March	33	5.92	-	-	-	-
Overall		6.37	-	-	-	-

9.14: Reproductive Performance

Lactation / Parity	AFC (Months) (N)	SP (Days)	DP (Days)	CI (Days)
1	46.07 ± 4.10 (4)	172.67 ± 18.48 (6)		
2		101.25 ± 22.91 (6)	191.71 ± 19.34 (9)	463.43 ± 17.44 (9)
3		114.50 ± 30.50 (3)	133.50 ± 13.07 (5)	395.50 ± 24.44 (5)
4		174.00 ± 35.00 (3)	104.00 (1)	460.00 (1)
5 th & above		157.50 ± 16.36 (11)	143.73 ± 8.15 (13)	423.33 ± 9.90 (13)
Over all	46.07 ± 4.10 (4)	145.26 ± 11.13 (29)	154.83 ± 8.93 (28)	431.92 ± 9.90 (28)

9.14.1 Reproduction Performance Since inception of Network.

Years	AFC (Days/ Months)	AFC months	Service Period (days)	Dry Period (days)	Calving Interval (days)
2001-02	-	-	243.92 ± 42.12	250.08 ± 23.75	556.17 ± 24.96
2002-03	-	-	195.00 ± 22.93	204.45 ± 25.71	489.95 ± 24.01
2003-04	1517.34 ± 50.82	49.75	146.13 ± 14.32	177.35 ± 12.01	454.71 ± 14.45
2004-05	1370.64 ± 86.23	44.94	153.55 ± 11.10	179.37 ± 9.84	462.79 ± 11.33
2005-06	1366.23 ± 31.93	44.79	145.87 ± 18.50	171.83 ± 16.20	451.63 ± 18.03
2006-07	1367.69 ± 29.27	44.84	148.68 ± 13.13	163.32 ± 11.69	450.27 ± 14.29
2007-08	1431.62 ± 22.36	46.94	150.57 ± 13.02	162.03 ± 23.45	456.11 ± 11.48
2008-09	1565.62 ± 41.18	51.33	118.27 ± 16.96	172.88 ± 15.90	480.25 ± 16.10
2009-10	1489.18 ± 29.65	48.83	203.10 ± 22.39	169.57 ± 11.58	453.30 ± 16.06
2010-11	1391.67 ± 88.97(8)	45.63	108.68 ± 19.01(34)	193.57 ± 9.64(30)	503.24 ± 22.75(30)
2011-12	1461.00 ± 98.49(5)	47.90	97.11 ± 5.15(18)	141.19 ± 1.18(23)	425.90 ± 33.77(23)
2012-13	1448.00 ± 69.58(8)	47.47	108.6 ± 14.82(17)	164.08 ± 1.72(26)	441.73 ± 22.99(26)
2013-14	45.47 ± 2.62(8)	45.47	119.63 ± 1.84(25)	135.60 ± 7.83(16)	401.06 ± 11.50(16)
2014-15	47.01 ± 2.49(10)	47.01	162.28 ± 8.74(18)	177.2 ± 35.07(10)	445.9 ± 33.71(10)
2015-16	46.29(1)	46.29	169.29 ± 7.39(19)	192.47 ± 9.78(19)	483.74 ± 21.03(19)
2016-17	46.21 ± 1.11 (4)	46.21	141.07 ± 5.25(33)	222.75 ± 3.27(23)	482.63 ± 32.26(23)
2017-18	50.97 ± 6.08 (2)	50.97	82.94 ± 5.80 (30)	193.3 ± 13.47 (31)	456.44 ± 21.45 (31)
2018-19	42.41 ± 2.71 (7)	42.41	91.60 ± 4.64 (30)	181.62 ± 18.46 (26)	423.69 ± 16.31 (26)
2019-20	45.29 ± 4.66 (8)	45.29	109.77 ± 8.86 (27)	159.38 ± 15.81 (29)	417.43 ± 13.06 (31)
2020-21	46.07 ± 4.10 (4)	46.07	145.26 ± 11.13 (29)	154.83 ± 8.93 (28)	431.92 ± 9.90 (28)

9.15 Milk Production and Disposal

Month	Total milk produced (kg)	Disposal (Kg)		
		Milk sold	Calf feeding	Expt.
April 20	3457.90	3367.9	90	0
May	2473.1	2411.6	60	1.5
June	1607.2	1550.5	39	0.7
July	1374.2	1260.1	102	0.5
August	1854.5	1443	312	0.6
September	4304.8	2753	1369.5	1.5
October	4906.5	3528.7	1339.5	2
November	4556	3228.4	1270.5	2
December	5149.2	4168.2	906	0
January 21	5820.1	5153.3	663	0
February	4851.8	4414.3	435	2.5
March	4323.2	4075.7	246	1.5
Total	44678.50	37354.70	6832.50	12.80

9.16 Feed and fodder (Quintals) availability

Quarter	Type of fodder /feed	Qty produced at farm	Qty.	Actually fed	Balance (Qt)
			Purchased		
I (April - June)	Green	0	286.05	286.05	0.00
	Dry	0	2185.90	470.50	1715.40
	Silage	0	0.00	0.00	0.00
	Concentrate	0	588.00	251.00	337.00
II (July - September)	Green	0	526.34	526.34	0.00
	Dry	0	0.00	464.00	-464.00
	Silage	0	0.00	0.00	0.00
	Concentrate	0	8.15	239.89	-231.74
III (October - Dec.)	Green	0	158.55	158.55	0.00
	Dry	0	0.00	490.50	-490.50
	Silage	0	0.00	0.00	0.00
	Concentrate	0	7.73	428.20	-420.47
IV (January - March)	Green	0	500.80	500.80	0.00
	Dry	0	0.00	465.50	-465.50
	Silage	0	0.00	0.00	0.00
	Concentrate	0	429.50	215.20	214.30
TOTAL	Green	0	1471.74	1471.74	0.00
	Dry	0	2185.90	1890.50	295.40
	Silage	0	0.00	0.00	0.00
	Concentrate	0	1033.38	1134.29	-100.91

9.17: Milk performance during April 2020 to March 2021

Month	Buffaloes in milk	Buffaloes dry	Total	% in milk	Wt. Avg.(kg)	Herd Avg.(kg)
April 20	718	186	904	79.42	3.95	3.14
May	646	379	1025	63.02	3.86	2.43
June	527	538	1065	49.48	3.64	1.80
July	455	692	1147	39.67	3.64	1.44
August	318	830	1148	27.70	3.76	1.04
September	404	801	1205	33.53	3.74	1.26
October	595	689	1284	46.34	5.14	2.38
November	723	580	1303	55.49	5.56	3.09

December	931	444	1375	67.71	5.99	4.06
January 21	1021	374	1395	73.19	6.46	4.73
February	952	308	1260	75.56	6.42	4.85
March	1057	366	1423	74.28	5.64	4.19
Overall	8347	6187	14534	57.43	5.14	2.95

9.17.1 Milking performance since inception

Year	No. of Animal in Milk	No. of Animal dry	Total Animal	% in Milk	Wet Av. (kg)	Herd Av. (kg)
2001-02	4298	6652	10950	39.25	6.92	2.72
2002-03	7946	4190	12136	65.47	5.9	3.86
2003-04	10560	4946	15506	68.1	5.99	4.08
2004-05	8731	4717	13448	64.92	6.19	4.02
2005-06	12536	7623	20159	61.69	5.66	3.49
2006-07	12299	8306	20605	59.69	5.64	3.37
2007-08	10057	7717	17774	56.58	5.7	3.23
2008-09	8975	7124	16099	55.75	5.48	3.06
2009-10	10119	7668	17787	56.55	4.27	2.42.
2010-11	9072	6836	15908	58.39	4.48	2.73
2011-12	8501	5212	13713	63.29	4.66	3.02
2012-13	8281	4412	12693	65.24	5.15	3.36
2013-14	8181	4701	12882	63.51	5.11	3.25
2014-15	10214	4639	14853	68.77	4.69	3.22
2015-16	6422(21)	6986(16)	13408(39)	47.9	5.13	2.43
2016-17	7057(25)	5936(13)	12993(38)	54.31	5.22	2.83
2017-18	8138 (48)	4784 (42)	12922 (39)	62.98	5.55	3.43
2018-19	8771 (55)	5046 (33)	13817 (41)	63.48	5.38	3.42
2019-20	8750 (63)	5183	13933	62.80	5.11	3.21
2020-21	8347 (68)	6187 (29)	14534 (45)	57.43	5.14	2.95

9.18: Bull wise daughters born (only numbers)

Bull No.	Set No.	Daughters born	Daughters Calved	Daughters completing 1 st Lactation
1948	1	2	0	0
1950	2	0	0	2
1952	2	3	1	2
1955	3	0	0	0
1956	3	0	1	1
1957	3	0	0	1
1961	3	4	0	0
1963	4	0	0	0
1968	4	2	0	0
4203	6	0	1	0
4229	6	0	0	1
4299	6	0	0	0
4321	6	0	1	0
4403	7	0	0	1
4413	7	0	1	0
4464	8	0	1	0
4529	8	1	0	0
4542	8	1	0	0

4567	8	2	0	0
4578	8	0	0	0
Total		15	6	8

9.19 Bull wise daughters completing 1st lactation Farm (2020-21)

S. No.	Bull No.	Daughters number	Date of birth	Date of calving	AFC (months)	Lactation length day	TLMY (kg)	SLMY (kg)
1	1950	4697	21-08-2015	03-12-2019	51.311	291	1469.5	1469.5
2	1956	4698	25-08-2015	22-08-2019	47.803	319	1481.7	1460.1
3	4229	4676	11-08-2014	24-07-2019	59.279	259	1119.1	1119.1
4	4403	4678	06-09-2014	11-09-2019	60.033	330	1410.1	1347.1

9.20 Breeding bulls Selected for current set (X Set)

Sr. No.	Bull No.	Date of Birth	Dam No.	Sire No.	Dam's best SLMY
1	4712	31-10-2015	4446	1950	2091.6
2	4728	09-09-2016	4430	1948	1742.6
3	4764	06-10-2017	4613	1955	1628.0
4	4765	11-10-2017	4520	1963	2061.4
5	4768	25-10-2017	4405	1955	1856.5
6	4772	23-11-2017	4482	1950	2070.8

9.20.1 PT Bulls for nominated mating

Bull No.	Set No.	Centre	Dams' Best yield	Sire Index	Breeding Value	% Superiority
1963	4	Livestock Research Station, Vallabh Nagar	2534.0	1	1486.29	16.20
1968	4		2395.0	2	1301.86	3.78
1976	5		2252.0	2	1468.63	8.88
1977	5		1950.0	1	1538.38	10.05

9.20.2 List of Future breeding bulls (proposed for X Set and XI Set)

Sr. No.	Bull No.	Date of Birth	Dam No.	Sire No.	Dams best SLMY (kg) / Parity	Semen doses available	Exp. predicted Difference (EPD)
1	4777	25-07-2018	4659	4578	1627.2/I	25.84	54.57
2	4778	28-07-2018	4600	4548	1667.0/I	46.95	48.69
3	4791	05-09-2018	4672	4567	1538.6/II	37.27	12.46
4	4807	13-06-2019	4405	1955	1856.5/V	74.87	27.94
5	4809	06-08-2019	4599	1952	1822.7/I	57.96	71.70
6	4825	16-09-2019	4632	1963	1685.2/I	39.99	23.83
7	4827	24-09-2019	4466	1968	1404.6/III	111.30	12.14
8	4829	14-10-2019	4537	1955	1853.4/II	50.94	35.43
9	4839	22-12-2019	4520	1963	2061.4/IV	104.88	27.94
10	4840	27-12-2019	4659	1952	1627.2/II	25.84	
11	4850	28-09-2020	4466	1968	1404.6/III	111.30	
12	4851	01-10-2020	4613	1955	1628.0/III	23.98	
13	4852	05-10-2020	4405	1955	1853.5/V	74.87	
14	4863	26-11-2020	4600	1950	1667.0/I	46.95	
15	4868	21-12-2020	4537	1955	1853.4/II	50.94	

9.21 Target achieved during the year

Trait	Target	2018-19	2019-20	2020-21
Av. Age at first calving (months)	40	42.41	45.29	46.07
Av. Service period (days)	130	133.85	109.77	145.26
Calf mortality (0-3 months)	≤ 3 %	26.47 %	31.58	2.5 %
Wet average (kg)	≥8.5 kg	5.38	5.11	5.14
Herd average (kg)	≥5.5 kg	3.42	3.21	2.95

10. Salient Research Achievements:

Five Set of bulls **completely** evaluated with 7424 doses of Proven Surti Bulls. Test mating from VIII set completed. Test mating of IX set underway. Training of bulls for X set started.

11. Publications:

12. Socioeconomic impact / Success stories:

The supply of high pedigreed test bulls as well as semen of test bulls and progeny tested bulls has helped in improving the scenario of Dairy Farming in the region. Farmers of the region are showing interest towards buffalo rearing for milk production as evident from positive growth rate of buffaloes in comparison to cattle in addition; Buffalo contributed more than 90% of total income from livestock, indicating importance of buffalo in socio economy of farmers in the region

13. Constraints if any :For strengthening of field testing programme:

- Recurring contingency is short to meet out the increased cost of feed and fodder, labour, medicine and liquid nitrogen.
- Training programmes may be organized for the buffalo keepers with the provision of sufficient fund for the same.
- Provision for 6 posts of inseminators on fixed wages of Rs. 8000 pm. (Rs.5.76 Lacs/year)
- Atleast Rs 6.0 lacs for incentives to the registered farmers in terms of vaccination, deworming, mineral mixture supply and organizing treatment camps and events.
- Provision of 2 motorcycles for efficient supervision of field unit centers costing Rs. 2.0 lacs

14. Focus of work in the coming year

Field unit

- Strengthen progeny testing programme in the field.
- Identify elite buffaloes in farmers herd for nominated mating.
- Treatment camps and animal competition will be organised at all the field centres to get better cooperation of farmers.
- Procure male calves born from nominated mating at farmers herd.
- Survey of socio economic parameters of registered farmers will be under taken seasonally.
- Increasing the foot-print of the project by opening new centers.

Institutional herd

- Preserve required number of doses of **X set** of bulls.
- To preserve doses of XI set of bulls
- Efforts will be made to further increase reproductive and productive efficiency of herd.
- Conduct studies

Field Unit, Surti (RAJUVAS)

F 1. Herd Strength of Registered Females at Field Unit Centers during 4/2020 to 3/2021

Center	Opening balance	Addition			Deduction			Closing balance
		Birth	Purchased	New Reg.	Sold	Death	Reg. Cancelled	
Menar	507	55	11	35	7	23	0	578
Rundera	449	52	15	21	5	15	0	517
Navania	617	74	22	42	9	24	0	722
Tarawat	347	41	9	5	2	17	0	383
Dhamania	610	68	15	37	6	29	0	695
Total	2530	290	72	140	29	108	0	2895

F 2. Status of Breedable Females at Different Field Unit Centers during 4/2020 to 3/21

Center	Heifers >3 years		Buffalo Non Pregnant		Buffalo Pregnant	
	Total	Pregnant	In milk	Dry	In milk	Dry
Menar	86	9	135	19	6	74
Rundera	93	25	110	14	15	91
Navania	77	24	105	7	29	51
Tarawat	34	15	92	9	19	56
Dhamania	101	51	164	5	44	124
Total	391	124	606	54	113	396

F 3. Monthly AI (Center-wise) at Different Field Unit Centers during 4/2020 to 3/2021

Month	Centre					Total
	Menar	Rundera	Navania	Tarawat	Dhamania	
Apr-20	5	20	4	4	0	33
May	5	16	3	3	4	31
June	23	26	19	4	10	82
July	28	52	9	11	14	114
August	32	64	34	17	51	198
September	52	72	52	20	48	244
October	35	75	34	31	45	220
November	28	63	25	20	38	174
December	14	53	57	8	32	164
January-21	28	46	38	23	36	171
February	24	36	38	6	23	127
March	25	38	33	4	20	120
Total	299	561	346	151	321	1678

F 4. Bull-wise AI at Different Field Unit Centers during the Period 4/2020 to 3/2021

Month	Bull No.								Total
	4464	4529	4542	4548	4567	4578	4633	4648	
April-20	0	4	5	0	0	24	0	0	33
May	4	0	5	3	0	19	0	0	31
June	10	0	3	19	20	30	0	0	82
July	14	33	0	0	7	60	0	0	114
August	38	128	15	0	17	0	0	0	198

September	30	172	6	0	17	19	0	0	244
October	0	75	80	0	59	6	0	0	220
November	0	15	38	0	47	63	11	0	174
December	0	8	0	0	14	0	142	0	164
January-21	0	23	0	0	25	0	117	6	171
February	0	6	0	0	0	0	67	54	127
March	0	12	0	0	0	38	0	70	120
Total	96	476	152	22	206	259	337	130	1678

F 5. Month-wise Conception at Field Unit Centres during 2020

Month	Centre					Total
	Menar	Rundera	Navania	Tarawat	Dhamania	
January-20	3	15	6	3	4	31
February	6	8	9	1	0	24
March	4	10	5	1	3	23
April	2	6	1	2	0	11
May	0	4	1	1	1	7
June	5	10	3	1	3	22
July	6	22	0	4	3	35
August	7	24	6	5	15	57
September	13	28	15	6	16	78
October	9	15	8	8	15	55
November	6	19	10	6	19	60
December	4	21	13	2	13	53
Total	65	182	77	40	92	456

F 6. Month-wise Calving at Different Field Unit Centres during the Period 4/2020 to 3/2021

Month	Centre										Total	
	Menar		Rundera		Navania		Tarawat		Dhamania		M	F
	M	F	M	F	M	F	M	F	M	F		
April-20	1	1	3	2	1	0	1	1	2	1	8	5
May	1	4	9	7	3	0	2	1	2	1	17	13
June	3	2	8	6	2	2	2	2	5	4	20	16
July	3	3	11	9	8	5	3	3	8	5	33	25
August	1	4	10	8	13	11	5	2	11	5	40	30
September	3	4	4	5	12	3	4	3	15	7	38	22
October	4	2	10	8	9	4	2	1	3	2	28	17
November	1	1	8	5	1	4	2	1	2	2	14	13
December	3	3	6	7	5	3	1	0	0	0	15	13
January-21	2	2	4	6	1	2	1	0	1	2	9	12
February	0	1	2	3	1	0	2	1	1	0	6	5
March	0	0	3	3	0	1	0	1	1	1	4	6
Total	22	27	78	69	56	35	25	16	51	30	232	177

F 7. Bull-wise Conception at Different Field Unit Centres during 2020

Month	Bull No.							Total
	4464	4497	4529	4542	4548	4567	4578	
January-20	2	8	1	0	0	20	0	31
February	0	9	6	0	0	9	0	24
March	3	5	4	0	0	11	0	23
April	0	1	2	0	0	8	0	11
May	1	0	0	1	0	5	0	7
June	3	0	1	3	4	11	0	22
July	3	5	0	0	1	26	0	35
August	10	39	3	0	5	0	0	57
September	0	66	2	0	6	4	0	78
October	0	17	22	0	13	3	0	55
November	0	19	19	0	13	4	5	60
December	0	2	0	0	4	21	26	53
Total	22	171	60	4	46	122	31	456

F 8. Bull-wise Calving at Different Field Unit Centres during the period 4/2020 to 3/2021

Month	Bull No.												Total	
	4464		4529		4542		4548		4567		4578		M	F
	M	F	M	F	M	F	M	F	M	F			M	F
April-20	3	1	0	0	0	0	0	0	0	0	5	4	8	5
May	12	8	0	0	0	0	0	0	2	1	3	4	17	13
June	6	6	1	0	0	0	0	0	5	4	8	6	20	16
July	8	5	22	18	0	0	0	0	3	2	0	0	33	25
August	2	3	21	13	0	0	0	0	0	0	17	14	40	30
September	0	0	19	12	0	0	0	0	0	0	19	10	38	22
October	0	0	3	2	0	0	0	0	0	0	25	15	28	17
November	0	0	2	2	0	0	0	0	0	0	12	11	14	13
December	0	0	5	3	3	3	0	0	0	0	7	7	15	13
Jan.,2021	1	2	1	2	2	2	0	0	0	0	5	6	9	12
February	1	0	1	0	0	1	0	0	0	0	4	4	6	5
March	1	1	0	0	0	0	0	1	0	0	3	4	4	6
Total	34	26	75	52	5	6	0	1	10	7	108	85	232	177

F 9. Bull-wise Live Female Progeny at Different Field Unit Centres (0-6M) as on 3/2021

Centre	Bull No.					Total
	4464	4529	4542	4548	4578	
Menar	0	0	5	0	3	8
Rundera	0	0	0	0	23	23
Navania	0	5	0	1	8	14
Tarawat	0	0	0	0	5	5
Dhamania	3	4	0	0		7
Total	3	9	5	1	39	57

F 10. Bull-wise Live Female Progeny at Different Field Unit Centres (6-12M) as on 3/2021

Center	Bull No.					Total
	4429	4464	4529	4567	4578	
Menar	0	4	3	0	12	19
Rundera	28	7	0	0	2	37
Navania	0	10	0	0	11	21
Tarawat	0	2	3	0	4	9
Dhamania	0	1	13	7	0	21
Total	28	24	19	7	29	107

F 11. Bull-wise Live Female Progeny at Different Field Unit Centres (1-3 yrs) as on 3/2021

Center	Bull No.							Total
	4458	4464	4529	4542	4548	4567	4578	
Menar	0	3	2	7	11	15	6	44
Rundera	0	13	4	23	12	21	13	86
Navania	0	0	0	14	24	18	0	56
Tarawat	1	0	1	3	12	8	0	25
Dhamania	0	2	8	15	15	21	7	68
Total	1	18	15	62	74	83	26	279

F 12. Bull-wise Live Female Progeny at Different Field Unit Centres (>3 yrs) as on 3/2021

Centre	Bull No.															Total
	4264	4299	4373	4392	4403	4413	4429	4458	4464	4497	4529	4542	4548	4567	4578	
Menar	0	1	3	1	0	1	5	2	5	1	3	5	0	5	2	34
Rundera	1	1	3	6	0	7	4	3	3	1	9	2	1	2	3	46
Navania	0	0	0	0	3	2	0	6	2	1	8	0	1	8	1	32
Tarawat	0	0	0	1	0	0	0	3	2	0	1	0	1	5	3	16
Dhamania	0	1	3	0	2	0	8	6	0	4	14	0	3	3	5	49
Total	1	3	9	8	5	10	17	20	12	7	35	7	6	23	14	177

F 12.1. Center and Age-wise Live female Progeny as on 3/2021

Center	Age				Total
	0-6M	6-12M	1-3yr	>3yr	
Menar	8	19	44	34	105
Rundera	23	37	86	46	192
Navania	14	21	56	32	123
Tarawat	5	9	25	16	55
Dhamania	7	21	68	49	145
Total	57	107	279	177	620

F 13. Bull-wise Daughters Calved at Different Field Unit Centers during 2020-21

Bull No.	Center					Total
	Menar	Rundera	Navania	Tarawat	Dhamania	
4203	0	0	0	0	0	0
4229	0	1	0	0	0	1
4264	0	2	1	0	0	3
4299	0	0	1	0	0	1
4302	0	0	0	0	0	0
4373	1	1	0	1	4	7
4392	1	0	0	0	1	2
4403	1	0	0	1	2	4
4413	1	7	1	2	0	11
4429	2	0	3	0	5	10
4497	1	0	1	1	0	3

4458	1	0	2	0	1	4
4529	0	0	0	1	0	1
4567	0	0	2	0	0	2
Total	8	11	11	6	13	49

F 14. Bull-wise Daughters Recorded at Different Field Unit Centres during 2020-21

Bull No	Daughters recorded					Total
	Menar	Rundera	Navania	Tarawat	Dhamania	
4203			1	2	-	3
4229	1			1	-	2
4392		1	1	2	-	4
4264			1		-	1
4403	2		1		2	5
4373	1				-	1
4429		2	1		2	5
4294	2			1		3
4497		1	2	1		4
4413	3	2				5
4473		1				1
Total	9	7	7	7	4	34

F 15. Bull wise AI, Conception, Calving and Daughters Retained till completion of milk recording during the year

Bull No. / Set No.	Total AI	Conception	Calving		Daughters retained up to				
			Total	Female	1 year	2 year	3 years	Calving	recording
1948/I	43	20	18	6	0	0	0	1	1
1949/I	0	0	0	0	0	0	0	2	2
1950/II	2	0	0	0	0	0	0	2	2
1951/II	87	20	17	10	0	0	0	1	1
1952/II	58	18	18	8	0	0	0	0	0
1953/II	50	12	8	1	0	0	0	1	1
1954/II	65	13	11	4	0	0	0	1	1
1955/III	499	105	84	38	0	0	0	18	17
1956/III	523	128	86	35	0	0	0	18	16
1957/III	952	183	157	60	0	0	0	20	17
1958/III	572	135	108	46	0	0	0	16	15
1959/III	573	141	112	58	0	0	0	19	17
1960/III	15	4	1	0	0	0	0	0	0
1961/III	705	187	143	60	0	0	0	22	20
1962/III	88	13	9	5	0	0	0	2	2
1963/IV	842	222	168	70	0	0	0	14	13
1964/IV	489	144	118	54	0	0	0	15	14
1965/IV	578	152	120	49	0	0	0	10	9
1966/IV	373	80	72	36	0	0	0	14	12
1967/IV	423	112	77	33	0	0	0	10	9
1968/IV	752	222	178	79	0	0	0	15	14
1969/IV	950	270	221	86	0	0	0	15	14
1970/IV	130	34	24	12	0	0	0	3	3
1971/V	336	93	77	31	25	20	15	10	7
1972/V	363	117	90	37	35	28	18	12	9
1973/V	388	122	108	43	37	33	28	10	9
1974/V	877	296	230	94	68	60	53	25	22
1975/V	954	298	236	106	86	76	75	18	13
1976/V	1322	401	329	135	114	92	75	16	9
1977/V	1490	469	379	157	121	103	88	24	17
1978/V	1821	634	507	222	187	160	127	35	20
4203/VI	935	322	247	101	85	78	46	18	17
4229/VI	1776	571	418	180	164	139	120	27	26

4264/VI	1579	514	396	174	149	125	116	29	23
4299/VI	1477	466	343	153	127	105	84	25	19
4302/VI	543	176	129	57	49	46	35	6	6
4321/VI	226	67	49	22	18	16	12	2	2
4323/VI	359	95	89	38	32	28	19	3	3
4373/VII	587	195	149	60	42	22	16	11	5
4392/VII	623	189	148	58	39	31	25	6	6
4403/VII	1130	362	267	92	65	44	37	22	18
4413/VII	869	289	227	91	75	45	34	15	5
4429/VII	640	197	148	66	54	44	35	18	9
4458/VII	574	170	134	51	40	17	9	4	0
4497/VII	451	126	88	33	25	12	3	5	4
4464/VIII	871	253	170	76	24	16	2	0	0
4529/VIII	1816	564	324	131	45	0	0	1	0
4542/VIII	927	272	201	88	8	0	0	0	0
4548/VIII	1021	330	272	120	12	0	0	0	0
4567/VIII	1537	467	353	154	32	0	0	2	0
4578/VIII	1604	487	339	149	24	0	0	0	0
4633/IX	337	31	0	0				0	0
4648/IX	130	0	0	0				0	0
TOTAL	36332	10788	8197	3469	1782	1340	1072	563	449

Performance of FPT Programme since Inception

Duration	AI	Pregnancies	CR%	Calvings	Females Born	Daughters Recorded	Av. AFC (months)	Av. Milk Yield (kg/day)	Daughters Due for Recording
2001-02	2256	477	21.14	393	165	53	67.62	4.15	-
2002-03	1850	472	25.51	362	159	49	58.73	3.86	-
2003-04	1980	471	23.79	352	167	51	66.73	4.29	-
2004-05	1861	551	29.61	445	186	29	62.95	3.95	-
2005-06	1717	536	31.22	446	170	33	56.31	4.16	-
2006-07	1637	506	30.91	411	162	38	58.76	4.42	-
2007-08	1811	542	29.93	420	184	22	53.18	5.09	-
2008-09	1804	604	33.48	502	218	15	61.87	4.76	-
2009-10	1975	671	33.97	529	224	18	53.01	4.49	-
2010-11	2038	681	33.42	458	203	18	57.12	5.24	-
2011-12	2023	520	25.7	475	226	20	61.1875	5.41	-
2012-13	1897	583	30.73	497	198	20	52.4185	5.47	6
2013-14	1591	555	34.88	410	158	23	53.747	4.96	22
2014-15	1534	455	29.66	409	156	14	48.0486	4.79	50
2015-16	1986	556	27.99	345	145	8	41.59	5.04	71
2016-17	1979	622	31.35	467	179	0	-	-	107
2017-18	1478	506	34.23	453	188	0	-	-	127
2018-19	1719	485	28.21	397	173	0	-	-	170
2019-20	1538	539	35.05	409	183	0	-	-	6
2020-21	1678	456	27.17	409	177	0	-	-	-
Overall	36,352	10,788	29.68	8,589	3,621	411	-	-	559

AI, Conception, Calvings and Daughters Retained (Set wise) 1st set

Particular	Bull No		
	1948	1949	Total
AI	43	2	45
Pregnancies	20	2	22
Daughters Born	6	2	8
Daughters Calved	1	2	3
Complete Recording	1	2	3
Daughters Available	-	-	-

AI, Conception, Calvings and Daughters Retained (Set wise) 2nd set

Particular	Bull No					
	1950	1951	1952	1953	1954	Total
AI	2	87	58	50	65	262
Pregnancies	2	20	18	12	13	65
Daughters Born	2	10	8	1	4	25
Daughters Calved	2	1	0	1	1	5
Complete Recording	2	1	0	1	1	5
Daughters Available	-	-	-	-	-	-

AI, Conception, Calvings and Daughters Retained – 3rd Set

Particular	Bull No								
	1955	1956	1957	1958	1959	1960	1961	1962	Total
AI	499	523	952	572	573	15	705	88	3927
Pregnancies	105	128	183	135	141	4	187	13	896
Daughters Born	38	35	60	46	58	0	60	5	302
Daughters Calved	18	18	20	16	19	-	22	2	115
Complete Recording	17	16	17	15	17	-	20	2	104
Daughters Available	-	-	-	-	-	-	-	-	-

AI, Conception, Calvings and Daughters Retained 4th Set

Particular	Bull No								
	1963	1964	1965	1966	1967	1968	1969	1970	Total
AI	842	489	578	373	423	752	950	130	4537
Pregnancies	222	144	152	80	112	222	270	34	1236
Daughters Born	70	54	49	36	33	79	86	12	419
Daughters Calved	14	15	10	14	10	15	15	3	96
Complete Recording	13	14	9	12	9	14	14	3	88
Daughters Available	-	-	-	-	-	-	-	-	-

AI, Conception, Calvings and Daughters Retained –5th Set

Particular	Bull No								
	1971	1972	1973	1974	1975	1976	1977	1978	Total
AI	336	363	388	877	954	1322	1490	1821	7551
Pregnancies	93	117	122	296	298	401	469	634	2430
Daughters Born	31	37	43	94	106	135	157	222	825
Daughters Calved	10	12	10	25	18	16	24	35	150
Complete Recording	7	9	9	22	13	9	17	20	106
Daughters Available	-	-	-	-	-	-	-	-	-

AI, Conception, Calvings and Daughters Retained –6th Set

Particular	Bull No							Total
	4203	4229	4264	4299	4302	4321	4323	
AI	935	1776	1579	1477	543	226	359	6895
Pregnancies	322	571	514	466	176	67	95	2211
Daughters Born	101	180	174	153	57	22	38	725
Daughters Calved	18	26	26	24	6	2	3	105
Complete Recording	17	26	23	19	6	2	3	96
Daughters Available	0	0 (1)	1 (3)	3 (1)	0	0	0	4 (5)

AI, Conception, Calvings and Daughters Retained –7th Set

Particular	Bull No							Total
	4373	4392	4403	4413	4429	4458	4497	
AI	587	623	1130	869	640	574	451	4874
Pregnancies	195	189	362	289	197	170	126	1528
Daughters Born	60	58	92	91	66	51	33	451
Daughters Calved	13	7	22	17	20	4	7	90
Complete Recording	5	6	18	5	9	-	4	47
Daughters Available	9 (7)	8 (2)	5 (4)	10 (11)	45 (10)	21 (4)	7 (3)	105 (41)

AI, Conception, Calvings and Daughters Retained –8th Set

Particulars	Bull No.						Total
	4464	4529	4542	4548	4567	4578	
AI	871	1816	927	1021	1537	1604	7776
Pregnancies	253	564	272	330	467	487	2373
Daughters Born	76	131	88	120	154	149	718
Daughters Calved	-	1	-	-	2	-	3
Complete Recording	-	-	-	-	-	-	0
Daughters Available	57	78 (1)	74	81	113 (2)	108	320 (3)

AI, Conception, Calvings and Daughters Retained –9th Set

Particulars	Bull No.						Total
	4611	4612	4617	4633	4647	4648	
AI	-	-	-	337	--	130	467
Pregnancies	-	-	-	31	--	-	31
Daughters Born	-	-	-	-	--	-	0
Daughters Calved	-	-	-	-	--	-	0
Complete Recording	-	-	-	-	-	-	0
Daughters Available	-	-	-	-	-	-	0

Set wise AI, Conception and daughters retained

Set No.	No. of Bulls	AI	Preg	Calving		Daughters Retained						
				Total	F	Up to 1Year	Up to 2 Year	Up to 3 Year	Daughters Recorded	Av. AFC (month)	Av. Milk Yield (kg/day)	Daughters to be Recorded
1	2	45	22	18	8	3	3	3	3	58.96/3	5.53	-
2	5	262	65	54	25	5	5	5	5	58.49/5	4.29	-
3	8	3927	896	700	302	115	115	115	104	34.48/104	4.01	-
4	8	4537	1236	978	419	96	96	96	88	61.89/88	4.12	0
5	8	7551	2430	1956	825	673	572	479	106	57.65/106	4.59	-
6	7	6895	2211	1671	725	624	537	432	89	58.05/91	5.35	4 (5)
7	7	4874	1528	1161	451	340	215	159	23	48.8/60	5.17	105 (41)
8	6	7776	2373	1659	718	145	16	2	0	0	0	320 (3)
9	6	467	31	-	-	-	-	-	-	-	-	-

Project Co-ordinator's observations on centre performance

Financial Statement for the year 2020-21 (Rs in Lakhs)

Allocation as per R E 2020 – 21		Released ICAR Share	Expenditure as AUC		Closing Balance (ICAR Share)
Total	ICAR Share		ICAR Share	State Share	
65.65	44.74+6.0* (SCSP)	44.74+6.00* (SCSP)	47.56977	13.85659	(+ 3.17023

Herd Performance

Herd strength was 167 out of which 84 were breedable buffaloes (>2year). During the period 34 calving took place consisting of 19 males, 17 females. The calf mortality (0-3 months) was 2.50 % within the target of NPBI \leq 3 %. Conception rate was 35.96 % decreased from last year 39.67 %. During the report period 9104 semen doses were produced, 2145 doses were used in NPBI/Field/sold to farmers and 77292 frozen semen doses is available in stock.

Production performances indicated by average lactation milk yield during the year was 1633.00 kg (24) increased from 1604.18 kg (25), 305 day or less day milk yield 1557.53 kg (24) decreased from 1558.62 kg (25). Lactation length was 327 days (24). The reproductive traits viz. AFC, SP, DP and calving interval were 46.07 months (4), 145 days (29), 155 days (28) and 432 days (28) respectively. The wet and herd average 5.14 kg and 2.95 kg during the year as compared to last year 5.11 kg and 3.21kg respectively. 57.43 percent buffaloes were in milk during the report period.

Field Unit:

1678 AI's were performed utilization from the semen of 8 bulls (6 from VIII & 2 from IX set) in 5 centers/villages. Total 456 conceptions reported with conception rate of 27.17 %. 177 female progenies born and 32 daughters completed lactation in 2020-21.

Accomplishment and Targets Achieved:

S. N.	Trait	Target	2016-17	2017-18	2018-19	2019-20	2020-21
1	Av. AFC (Months)	40.0	46.21 (4)	50.97 (2)	42.41 (7)	45.29 (8)	46.07
2	Av. service period (Days)	130 days	141 (33)	131 (23)	91.6 (30)	107.77 (27)	145.26
3	Calf mortality (0-3 months)	\leq 3 %	29.03 %	24.32%	26.47 %	31.58 %	2.5 %
4	Wet average (Kg)	\geq 6.5 kg	5.22	5.55	5.38	5.11	5.14
5	Herd average (Kg)	\geq 4.0 kg	2.83	3.43	3.42	3.21	2.95

Recommendations:

- Concerted efforts should be made to improve milk production traits of buffaloes. Since last many years milk production traits and herd size / lactating animals not improved significantly.
- CR rate at main unit and FPT is very poor, intensive efforts need to improve conception rate.
- Needs to increased production of frozen semen doses and A I in field.
- Ensure field recording of daughters by tagging and engaging need based contract workers.

ICAR-INDIAN GRASSLAND AND FODDER RESEARCH INSTITUTE, JHANSI

1. **Name of Centre** : IGFRI, Jhansi
2. **Project Code** : 17810170002
3. **Project Title** : Performance recording and improvement of Bhadawari Buffaloes
4. **Date of Start** : 1.04.2001
5. **Objectives** :
 - To establish elite herd of 50 Bhadawari for the production of genetically superior young bulls.
 - To evaluate sires through institutional / associated herd/field progeny testing
 - To produce, test, propagate and conserve high genetic merit male germplasm

6. **Technical Programme :**

- Establishment and maintenance of an elite herd of buffalo breed with a herd strength of 100 and 50 breedable females.
- Selection and testing of minimum 4-6 breeding bulls in every 24 months cycle.
- Production of minimum 3000 to 5000 (Other breeds) frozen semen doses from each test bull.
- Maintain a minimum number of 2000 (Bhadwari) frozen semen doses until the particular SET gets evaluated.
- Evaluation and ranking of bulls on the basis of their progeny performance (first lactation) for selection of top 20-25% as proven bulls from each set.
- Application of proven bull's semen on elite buffaloes for the production of future sires and replacement heifers.
- Minimum weekly recording of milk yield of individual daughters/ buffaloes at institutional herd / monthly recording in field units over complete lactation(s) with wet average, herd average, percent in milk, lactation length, dry period, TLMY, SLMY (305 days or less, up to minimum of 240 days (All breeds) / 1500 kg in Murrah) and Peak yield, Milk yield per day of herd life (total milk produced from date of birth till completion of 4th or more lactation). New Table
- Monthly testing of milk constituents (Fat%, SNF% and Protein%) and Somatic Cell Count, wherever feasible, at institutional herds.
- Recording of reproductive traits viz., AFC, Service period, Days open, Calving interval, Number of services per conception, Conception rate and Calving abnormalities.
- Health management including udder health, vaccination, de-worming, disease screening, mortality and periodic body weight records

7. **Staff associated with the project:**

Discipline	Name of Scientist / Staff	Status PI/Co-PI/ Associated)
AGB	Dr. B P Kushwaha	PI
ARGO		
ANFT	Dr. Sultan Singh	Co-PI
LPM	Dr. S B Maity	Co-PI (Upto October 2020)
LPM	Dr. Deepak Upadhyay	CP-PI (Since November 2018)
Health / Others		
No. of staff		
Technical staff		
Contractual staff (RA / SRF / YP-I, YP-II)	1 (SRF)	

8. Financial Statement : Head wise budget allocation and utilization; revenue receipts

Expenditure head	Budget allotted	Expenditure incurred during financial year 2020-21	Balance
A) Recurring			
General	42.00	41.45082	0.54918
SCSP	3.00	2.49900	0.50100
Sub Total	45.00	43.94982	1.05018
B) Non-recurring			
Equipment	2.50	0.00	2.50
Works	0.00	0.00	0.00
Sub Total	2.50	0.00	2.50
Grand Total	47.50	43.94982 (Rupees Forty Three Lakhs Ninety Four Thousand Nine Hundred Eighty Two only.)	3.55018

Revenue generation during 2020-21

S.No.	Item	Revenue generated (Rs.)
1	Animal sale	01.67500
2	Milk Sale	11.59472
3	Frozen semen sale	00.10000
	Total	13.36972

9.1 Herd Strength during the Period 1st April 2020 to 31st March, 2021

Sr. No.	Category	Addition			Disposal				CB
		OB	B / P	T	D	T	S	E	CB
	Female								
1.	Below 3 months	4	9	-	-	13	-	-	-
2.	3-12 months	5	-	13	1	9	1	-	7
3.	1-2 years	9	-	9	-	9	-	-	9
	Above 2 years	16	-	9	-	15	-	-	10
4.	Buffaloes in Milk	14	-	15	-	5	1		23
5.	Buffaloes Dry P /NP	18	-	5	-	-	1		22
	Sub Total	66	9	52	1	52	3		71
	Males								
1.	Below 3 months	2	10		1	10	-	-	1
2.	3-12 months	3	-	10	-	3	4	-	6
3.	1-2 years	5	-	3	-	5	1	-	2
	Above 2 years	1	-	5	-	-	4	-	2
4.	Breeding bulls	4	-	-	-	-	-	-	4
5.	Bullocks / Teasers / others	2	-	-	-	-	-	-	2
	Sub Total	17	10	18	1	18	9	-	17
	Grand Total	83	19	70	2	70	12	-	88

OB = Opening Balance as on 1st April D = Deaths S = Sale E = Experimental
 B / P = Birth / Purchase T = Transfer CB = Closing Balance as on 31st March

9.2 Calving Statistics including abnormalities during 1st April 20 to 31st March 21

Month	Male	Female	Still Birth	Abortion	Dystokia	ROP	Prolapse	Overall
April 20								
May								
June				1				1
July	1	1						2
August	2	1						3
September	1	3						4
October	3	1		1				5
November		1						1
December	2	2						4
January 21								
February	1							1
March								
Overall	10	9		2				21

Sex ratio Male : Female (53:47) SB% = 0.00 Abortion % = 9.52

9.3. Disposal of Animals during the Period 1st April 20 to 31st March 21

Female								
Category	Surplus	Below farm production standard	Reprod. Problem	Weak & Old	Udder Health	Death	Experimental purposes	Total
Calves 0 to 3 months	1**							1
3-12 months						1		1
Heifers 1-2 years								
> 2 years								
Buffaloes Milch		1						1
Dry				1				1
Sub Total	1	1		1		1		4
Males								
Calves 0 to 3 months						1		1
3-12 months							2	2
1 to 2 year	2						1	3
>2 year	3						1	4
Breeding bulls								
Bullock+Teaser+Others								
Sub Total	5					1	4	10
Grand Total	6	1		1		2	4	14

*Bull calf sold for semen freezing, ** calf on foot

9.4. Mortality during the Period 1st April 2020 to 31st March, 2021

Female							Male					Overall Herd
	0-3 Month	3-12 Month	1-2 Yrs.	Above 2 Yrs.	Milk + Dry	Overall Female	0-3 Month	3-12 Month	1 -2 Yrs.	>2 yrs.	Overall Male	
No.	13	18					12					102
Died	0	1					1					2
%	0.0	5.5					8.3					1.9

Calf mortality (0-3 months) 4.00%

9.5. Causes of Mortality (quarter wise) during the period April 20 to March 21

Particulars	1 st quarter (April-June)	2 nd quarter (July-Sept)	3 rd quarter (Oct-Dec.)	4 th quarter (Jan.-March)	Total
Enteritis				1	1
Pneumonities			1		1
Septicemia / Toxaemia					
Peritonitis	NIL				
JD/TB					
Milk Fever/ metabolic diseases					
TRP / TP					
Accidental death					
Miscellaneous					
Total			1	1	2

483.75 Prophylactic Measures undertaken

Disease	Vaccination Date / No. of animals	No. of animals Tested / Positive		Dates and No. of animals treated for Parasitism
FMD	June 2020 : 83 animals			APR - 48 MAY- 13 JUN - JUL- AUG- 04 SEP- 30 OCT- 16 NOV- 06 DEC- 14 JAN- 66 FEB - 15 MAR- 17
HS	June 2020 : 83 animals			
BQ	June 2020 : 83 animals			
Brucellosis		10	-	
JD		10	-	
TB		10	-	
IBR		10	3	
Mastitis				

9.7. Female Conception Rate During the Period January to December 2021

AI No.→	1 st			2 ND			3 RD			4 TH & above			Over all		
	AIs	C	CR %	AIs	C	CR %	AIs	C	CR%	AIs	C	CR %	AIs	C	CR %
Heifers	15	8	53.3	5	3	60							20	11	55
Adults	18	10	55.5	7	4	57.1							25	14	56
Overall	33	18	54.5	12	7	58.3							45	25	55.5

AIs = No. of animals inseminated C = No. of animals conceived CR % = Conception rate%

9.8. Quarter-wise conception rate

Quarter	No. of AI	Preg. animals	CR %
January – March Previous year	12	7	58.3
April - June	2	1	50.0
July - September	12	7	58.3
October- December	19	10	52.6
Overall	45	25	55.5

9.9. Bull-wise Conception Rate During the period January to December, 2020

Sr. No.	Bull No.	Total Number of AI	Total Conceived	CR%
1.	B331	6	3	50.0
2.	B333	5	2	40.0
3.	B354	26	16	61.5
4.	B366	8	4	50.0
Overall		45	25	55.5

9.10 Bull Wise Semen Stock as on 31.03.2021

Sr.No	Bull No	O.B.	Doses produced / received	Doses used /disseminated			Balance
				Supply	Sold	Exp.	
1.	B46	264					264
2.	B76	215					215
3.	B78	179					179
4	B79	337					337
5	B84	141					141
6	B87	368					368
7	B138	364					364
8	B122	292					292
9	B143	400					400
10	B147	30					30
11	B150	169					169
12	B167	275					275
13	B170	254					254
14	B182	339					339
15	B184	291					291
16	B228	1397					1397
17	B240	1072					1072
18	B244	1105					1105
19	B331	9657		206			9451
20	B333	2782		5			2777
21	B354	2297	1466	626	100		3037
22	B366	4336	533	8	285		4576
23	B393	576	1188		225		1539
24	B428	240	1949	600	390		1199
Grand Total		27380	5136	1445	1000		30071

9.11.1 Average Body weight (kg) since inception (Indicate number of animals in parenthesis)

Year	Birth	3 Months	6 Months	12 Months	18 Months	24 Months	At AFC (n)
Females							
2003-04	24.8 (7)	46.4(12)	67.5(9)	118.8(11)	163.8(8)		
2004-05	24.1(13)	46.1(12)	64.8(5)	106.7(7)	173.40(15)		
2005-06	27.3(13)	44.3(10)	63.2(8)	110.8(12)	183.3(11)	225.1	
2006-07	26.3(11)	44.4(5)	65.0(7)	107.2(8)	166.5(11)	210.4(12)	420 (6)
2007-08	24.7(13)	40.5(16)	62.0(13)	104.1(11)	167.2(5)	230.8(7)	346 (7)
2008-09	26.5(10)	40.9(10)	62.7(11)	108.7(17)	168.2(13)	232.1(14)	327 (6)
2009-10	26.8(18)	41.5(19)	64.8(16)	115.1(16)	169.3(19)	228.0(20)	363 (10)
2010-11	24.5(18)	40.8(13)	60.4(15)	104.8(16)	154.8(13)	206.2(9)	334 (6)
2011-12	26.0(2)	42.6(6)	57.9(11)	108.3(11)	156.9(10)	196.0(10)	336 (7)
2012-13	24.8(9)	43.5(6)	58.0(3)	112.4(2)	160.0	201.4(8)	335 (2)
2013-14	25.4(11)	43.7(7)	67.4(7)	106.8(5)	161.2(4)	192.5(2)	387 (6)
2014-15	24.5(12)	48.7(12)	66.8(11)	105.6(11)	155.8(11)	211.4(6)	356 (15)
2015-16	25.6(15)	51.8 (11)	79.2(9)	110.5(11)	143.7(8)	205.5(10)	373 (3)
2016-17	24.7 (7)	53.5 (5)	74.6 (6)	116.9 (10)	164.0 (11)	202 (10)	335 (3)
2017-18	23.6 (11)	52.0 (9)	80.0 (7)	114.5 (7)	170.0 (6)	223 (6)	352 (6)
2018-19	22.06 (12)	51.6 (12)	78.0 (15)	130.4 (10)	180.0 (10)	230 (7)	360 (12)
2019-20	24.8 (10)	56.0 (9)	95.3 (8)	137.1 (9)	183.7 (10)	252.4 (10)	354 (3)
2020-21	27.6 (9)	64.4 (13)	95.1(12)	143.1 (9)	203.2 (6)	265.5 (9)	395.7 (8)
Males							Adults
2003-04	26.9(16)	49.2(14)	74.8(10)	133.2(10)			431(5)
2004-05	24.6(12)	47.0(11)	68.4(7)	115.7(11)			501(4)

2005-06	27.9(25)	46.9(20)	68.6(16)	123.5(10)	203.6(10)	258.0	445(9)
2006-07	27.3(18)	45.0(17)	70.4(17)	115.5(17)	179.7(16)	234.3(10)	460(9)
2007-08	27.7(20)	42.5(20)	67.9(21)	114.1(19)	178.2(14)	234.5(12)	413(15)
2008-09	27.3(10)	43.0(10)	67.8(11)	114.3(18)	180.0(15)	242.5(6)	420(15)
2009-10	27.3(20)	44.2(22)	68.3(19)	116.0(12)	175.0(10)	236.0(11)	423(9)
2010-11	26.2(9)	41.9(11)	65.0(12)	112.7(11)	160.4(5)	224.5(4)	416(10)
2011-12	27.4(5)	42.7(6)	60.6(8)	112.0(3)	165.0(1)	-	425(5)
2012-13	25.9(13)	43.6(14)	60.5(10)	116.0(4)	175.0	235.0(3)	457(3)
2013-14	25.8(13)	45.2(9)	70.8(10)	108.3(10)	157.3(6)	195.0(3)	446(2)
2014-15	26.3(18)	50.5(14)	63.6(13)	105.1(6)	158.7(4)	261.0(2)	436(4)
2015-16	26.8(12)	46.1(9)	71.6(6)	122(8)	155.5(8)	230(8)	470(4)
2016-17	26.6(15)	56.6(9)	73.9(17)	114.7(6)	186.4(3)	221(3)	459(6)
2017-18	23.8(10)	54.0 (9)	81.0 (9)	117.0 (6)	182.0 (2)	258.0 (2)	492 (4)
2018-19	24.3 (10)	53.1 (10)	82.3 (11)	134.0 (4)	198.0 (5)	250.0 (2)	184 (5)
2019-20	25.7 (7)	59.6 (5)	94.8 (7)	139.6 (5)	198.2 (5)	-	476 (6)
2020-21	26.4 (10)	63.7 (10)	99.2 (8)	143.5 (4)	218.5 (4)	249.8 (4)	474 (4)

9.12 Average Production Performance of Buffaloes Completing their Lactation

Lact. No.	No. of obs.	TLMY (kg)	Lact. Length (days)	SLMY (kg)	Peak yield (kg)
1 st	1	1818.3	463	1426	7.9
2 nd	4	1744.1	342	1606.9	7.9
3 rd	1	1596.9	280	1596.9	9.0
4 th	1	1960.4	380	1708.8	8.5
5 th & above	3	1661.1	351	1473.8	7.9
Overall	10	1733.5	354	1558.1	8.1

9.12.1 Average production performance of Buffaloes Since Inception of Network

Year	Lactation Length (days)	TLMY (kg)	SLMY (kg)	Peak yield(kg)
2003-04	296 (24)	1067.95	1029.41	6.6
2004-05	245 (29)	997.96	958.96	6.7
2005-06	236.53 (17)	891.81	891.81	6.30
2006-07	304.49 (35)	1294.65	1159.22	6.83
2007-08	279.29 (24)	1201.33	1188.92	6.61
2008-09	344 (31)	1561.11	1433.48	7.41
2009-10	294.7 (26)	1331.47	1286.50	7.5
2010-11	311.0 (34)	1381.44	1310.00	7.22
2011-12	293.76 (13)	1276.65	1214.78	6.19
2012-13	334 (8)	1587.76	1494.9	8.19
2013-14	294.5 (21)	1416.3	1385.9	7.50
2014-15	367 (21)	1638.8	1478.3	7.33
2015-16	330 (25)	1406.64	1321.8	7.36
2016-17	299 (26)	1430.3	1368.2	8.35
2017-18	316.5 (19)	1478.4	1402.5	7.69
2018-19	332 (17)	1373.9	1224.4	6.70
2019-20	357 (18)	1466.88	1285.57	6.73
2020-21	354 (10)	1733.5	1558.1	8.10

*Within parenthesis are number of observations

9.12.2 Herd Life Production (up to 4th Lactation) during 2020-21

Animal No.	DOB	Date of completion of 4 th or more lact. or disposal	HLF (days) up to 4 th or more lactation or disposal (d)	LTMV (kg)	Productive Days	Unproductive Days	MY/day HLF
B195	31.10.06	15.12.20	5159	8511.2	1969	3190	1.64
B248	15.07.08	17.01.20	4203	6550.2	1395	2808	1.56
B258	20.09.08	30.04.19	3874	6754.6	1468	2406	1.74
B287	14.10.09	26.09.20	4000	8226.3	1901	2099	2.05
B293	17.12.09	13.01.20	3686	8550.2	1814	1872	2.32
B295	17.12.09	21.06.20	3839	8535.3	1735	2104	2.22
B308	22.08.10	22.09.20	3684	7009.9	1566	2118	1.90

Note: HLF (Herd Life- Date of birth to date of completion of 4th or more lact. Or date of disposal)

Productive Days (date of first calving to total days in milk), Unproductive days (total days when buffalo not give milk from the date of first calving)

9.13 Average Milk Composition from April 2020 to March 2021

Month	N	Fat	SNF	Protein	Lactose
April 2020	37	7.34	9.61	3.47	5.23
May	37	8.07	9.64	3.50	5.14
June	26	8.66	9.57	3.52	5.29
July	39	8.95	9.87	3.55	5.38
August	43	8.77	9.66	3.51	5.27
September	37	8.48	9.74	3.51	5.26
October	41	8.21	9.70	3.53	5.28
November	67	8.33	9.87	3.58	5.37
December	50	8.03	9.95	3.61	5.41
January 2021	50	8.14	9.78	3.54	5.31
February	35	8.61	9.33	3.40	5.10
Overall	462	8.31	9.73	3.53	5.29

9.14: Reproductive Performance

Lactation / Parity	AFC (Months) (N)	N →	SP (Days)	Days Open	DP (Days)	CI (Days)
1	52.23±2.26	8				
2		6	258.25±55.1	288.25±65.3	231.5±43.7	592.5±83.4
3		3	76.80±2.8	76.80±2.8	107.5±12.5	374±4.0
4		1	81	81	106	386
5 th and above		2	183±117.3	220.5±110.8	160.5±70.7	497±134.4
Over all		12	181.3±40.7	203.0±46.0	174.2±28.9	499.7±52.5

*Service Period (days)= Date of 1st AI – Date of last calving

*Days Open (days) = Date of A I when animal conceived – date of last calving

9.14.1 Reproduction Performance Since inception of Network.

Years	AFC (Months)	Service Period (days)	Days Open (days)	Dry Period (days)	Calving Interval (days)
2003-04	-	137.90 (16)		220.25 (16)	444.5 (16)
2004-05	-	230.33 (24)		269.29 (24)	535.8 (24)
2005-06	-	156.25 (28)		218.46 (28)	463.57 (28)
2006-07	44.60 (5)	166.33 (21)		203.29 (21)	467.33 (21)
2007-08	43.20 (7)	226.73 (26)		216.13 (26)	530.80 (26)
2008-09	51.20 (6)	148.60 (15)		206.8 (15)	499.6 (15)
2009-10	53.22 (10)	167.84 (24)		202.75 (24)	525.79 (24)
2010-11	49.11 (7)	160.00 (20)		222.75 (20)	516.95 (20)

2011-12	49.00 (2)	179.28 (13)		187.92 (13)	497.20 (13)
2012-13	51.32 (12)	153.75 (8)		202.62 (8)	513.25 (8)
2013-14	50.13 (6)	174.90 (11)		214.2 (11)	520.10 (11)
2014-15	53.97 (15)	182.3 (15)		216.4 (15)	534.0 (15)
2015-16	47.25 (5)		212.3 (24)	192.08 (24)	523(24)
2016-17	50.6 (4)		176.2 (18)	163.6 (18)	478.3 (18)
2017-18	46.26±0.7 (7)	172.6±31.5 (15)	190.5±31.8 (15)	177.3±24.3 (14)	493.3±31.7 (15)
2018-19	47.28±1.6 (13)	180.6±38.9 (9)	181.7±39.3 (9)	173.1±30.4 (9)	486.8±42.7 (9)
2019-20	48.23±2.9 (3)	172.3±38.4 (11)	189.1±39.0 (11)	171.8±24.3 (11)	490.5±40.4 (11)
2020-21	52.23±2.26 (8)	181.3±407 (12)	203.0±46.0 (12)	174.2±28.9 (12)	499.7±52.5 (12)

9.15 Milk Production and Disposal

Month	Total milk produced (kg)	Disposal (Kg)		
		Milk sold	Calf feeding	Expt.
April 20	2224.6	1745.6	479.0	
May	2140.5	1681.7	458.8	
June	2063.7	1697.5	366.2	
July	2194.8	1738.4	456.4	
August	2055.9	1727.1	328.8	
September	2596.6	2060.7	535.9	
October	3044.6	2447.3	597.3	
November	3427.2	2727.3	699.9	
December	3947.3	3111.5	835.8	
January 21	4162.8	3456.0	706.8	
February	3990.8	3249.8	741.0	
March	4088.6	3344.4	744.2	
Total	35937.4	28987.3	6950.1	

Note: Mention sale price of milk (range during the year): Rs. 40 per kg

9.16 Feed and fodder (Quintals) availability April 2020 to March 2021

Quarter		Qty. Produced at Farm (Qt.)	Qty. Purchased (Qt.)	Actually fed (Qt)	Balance (Qt.)
I (April – June)	Green	385		385	
	Dry	71	107*	178	
	Silage	140		140	
	Concentrate		18.1*	130	
II (July – September)	Green	550		550	
	Dry	168		168	
	Silage	20		20	
	Concentrate			125	
III (October – December)	Green	315		315	
	Dry	235		235	
	Silage			0	
	Concentrate		480	115	128.1
IV (January-March)	Green	1055		1055	
	Dry		215	55	
	Silage			0	
	Concentrate			115	13.1
Total	Green	2305		2305	
	Dry	474	215	636	160
	Silage	160		160	
	Concentrate		480	485	13.1

*Balance from previous year

9.17: Milk performance during April 20 to March 21

Month	Buffaloes in milk	Dry buffaloes	Total	% in Milk	Wet Av. (kg)	Herd Av. (kg)
April, 20	14	18	32	43.75	5.30	2.32
May	14	19	33	42.40	4.93	2.09
June	14	19	33	42.40	5.10	2.08
July	15	18	33	45.45	4.72	2.15
August	17	16	33	51.51	4.73	2.01
September	21	12	33	63.63	4.27	2.62
October	24	10	34	70.60	4.74	2.88
November	23	13	36	63.88	4.95	3.17
December	27	10	37	72.97	5.09	3.44
January, 21	26	9	35	74.28	5.36	3.83
February	25	11	36	69.44	5.82	3.95
March	23	14	37	62.16	5.73	3.56
Overall	20.25	14.08	34.33	58.53	5.06	2.84

9.17.1 Milking performance since inception

Year	No. of Animal in Milk	No. Of Animal dry	Total Animal	% in Milk	Wet Av. (kg)	Herd Av. (kg)
2002-03	19	23	42	46.03	3.30	1.35
2003-04	18	22	40	44.74	3.44	1.35
2004-05	23	16	38	59.44	3.75	1.97
2005-06	22	20	42	51.43	3.74	1.80
2006-07	27	20	47	57.67	3.56	1.86
2007-08	27	19	46	58.69	4.67	2.57
2008-09	29	18	47	62.9	4.35	2.49
2009-10	27	23	50	54.5	4.64	2.37
2010-11	27	21	48	56.90	3.95	2.02
2011-12	12.5	20.92	33.41	37.41	4.65	1.58
2012-13	14	19.75	34	41.17	4.57	1.75
2013-14	21	19	40	52.50	4.72	2.24
2014-15	28	16	44	63.6	4.22	2.50
2015-16	27.58	15	42.58	64.77	4.49	2.64
2016-17	22.5	10.16	32.7	70.85	4.62	2.97
2017-18	17.83	10.33	28.16	64.02	4.16	2.39
2018-19	20.8	9.08	29.9	70.07	3.67	2.34
2019-20	15.8	14.5	30.3	52.42	4.44	2.10
2020-21	20.25	14.08	34.33	58.53	5.06	2.84

9.18: Bull wise daughters born (only numbers)

Bull No.	Set No.	Daughters born	Daughters Calved	Daughters completing 1 st Lactation
*		22	16	16
B1		7	7	7
B44		13	9	9
B45		4	4	4
B46		10	8	8
B76		4	3	3
B78	1	5	5	5
B79	1	7	4	4
B84	1	12	8	6
B87	1	7	4	4
B89	1	5	1	1

B138	1	16	6	6
B143	2	2	1	1
B147	2	2		
B170	2	7	6	5
B182	2	3	1	1
B184	2	8	4	4
B228	3	5	5	3
B240	3	19	13	10
B244	3	15	11	5
B331	3	21		
B333	3	8		
B354	3	14		
B366	3	3		

9.19 Bull wise daughters completing 1ST lactation

Bull No.	Daughter No.	Date of birth	Date of calving	AFC (months)	Lact. Length (days)	TLMY (kg)	SLMY (kg)
B244	B419	26/8/15	17/11/19	51.46	463	1818.3	1426.0

9.20 Breeding bulls Selected for current set

Sr. No.	Bull No.	Date of Birth	Dam No.	Sire No.	Dam's best SLMY
1	B-354	02/02/2013	107	170	1932
2	B-366	25/09/2013	193	244	2235
3	B-393	18/09/2014	88	244	2000
4	B-452	24/09/2016	88	240	2000
5	B-481	03/02/2018	195	331	1927
6	B-452	24/09/2016	88	240	2000

9.22 Target achieved during the years

Trait	Target	Achieved			
		2017-18	2018-19	2019-20	2020-21
Av. Age at 1 st calving (months)	40	46.2	47.28	48.23	52.23
Av. Service period (days)	90	172.6	180.6	189	181.3
Calf mortality (0-3 months)	≤ 3 %	4.1	4.16	0.0	4.00
Wet average (kg)	≥5 kg	4.16	3.67	4.44	5.06
Herd average (kg)	≥3 kg	2.39	2.34	2.10	2.84

Conservation in the breeding Tract

a) Germ Plasm Dissemination (during 2020-21)

- 4 males calves were sold to semen freezing centre Datia (MPI&PDB, Bhopal).
- 5 males and 3 females were sold to farmers through auction

b) Artificial Insemination in field (2020-21)

AI performed	1487
Buffalo sold before Pd	52
Died	4
Buffalo pregnant	800
Conception rate (%)	53.80
Abortion	15
Pregnant buffalo sold	115
Calvings recorded	500 (246 Males+ 254 Females)

Artificial Insemination in field (2020-21)

Month	No. of AI
APR 20	44
MAY	30
JUN	24
JUL	41
AUG	87
SEP	121
OCT	202
NOV	207
DEC	217
JAN 21	275
FEB	162
MAR	77
TOTAL	1487

10. Salient Research Achievements:

- Average lactation milk yield, 305 days or less milk yield and wet average and herd average were recorded as 1733.5 kg, 1558.1 kg, 5.06 kg and 2.84 kg, respectively.
- Average age at first calving, average service period and conception rate were 52.23 months, 181 days and 55.55 percent, respectively.
- Only one calf (0-3 months) died during the year.
- In the field 500 calvings were recorded from the AI done during the year 2019-20. Conception rate in the field was recorded as 53.80 percent.
- Artificial insemination in the Bhadawari breeding tract was continued during the year 2020-21. A total of 1487 artificial inseminations were performed.

11. Publications

Research papers in journals

- Sultan singh, B P Kushwaha, U Y Anele, A K Misra, S K Nag and A Singh, 2020 Gas and methane production vis-a vis loss of energy as methane from in vitro fermentation of dry and green forages in sheep and goat inocula. Indian Journal of Animal Science, 90(4):636-642
- Anele U Y, S Singh, B P Kushwaha, P K Gupta and S Bhattacharya 2020. Chemical composition, in vitro dry matter digestibility, gas production and methane emission of maintenance, growth and production diets/ration of buffaloes. Journal of Animal Science, 98(4):408

- B. P. Kushwaha, Deepak Upadhyay, Sulthan Singh, S. B. Maity, K. K. Singh and A. K. Misra (2020). Fatty and acid composition of Murrah Buffalo Milk Fat. Under publication in Buffalo bulletin.
- Maity S. B, Kushwaha B P, Sultan Singh, Anil Kumar, S K Nag, S K Das, A K Rai and A K Dixit (2021). Milk Fatty acid profile of Indian dairy cows reared under organic and inorganic feeding management. Accepted for publication in Indian Journal of Animal Science.

Presentation in Conference/symposium/seminars/other for a etc.

- B P Kushwaha, Sultan Singh, Deepak Upadhyay and A K Misra (2021). Conservation of Bhadawari buffalo in India. 10th Asian Buffalo Congress 2021 (ABC 2021), 3-5 June 2021, Kathmandu, Nepal. Paper accepted for oral presentation.

Book Chapter:

- Bhainso ki vividh naslen by B P Kushwaha in: Kishan ki Aajivika evam aai ka Uttam Sadhan: Unnat Bhains Palan (2020) Editor: Hema tripathi, Vishal Mudgal, Sajjan Singh and V B Dixit. Book is under publication.

12. Socioeconomic impact/ success stories: Activities of the project is creating awareness among the farmers about the Bhadawari buffaloes and farmers are coming forward to purchase Bhadawari animals for rearing purpose during auction. It is a means of livelihood to the resource poor and remotely located farmers.

13. Constraints if any: Nil

14. Focus of work in the coming year: Breed activities shall be continued through semen freezing and artificial insemination in the Bhadawari breeding tract. Efforts will be made to disseminate Bhadawari germplasm through sale of frozen semen/breeding bulls to various agencies for their use in the field. Demonstration, radiotalk and kishan gosthies shall be organized to motivate farmers for rearing of Bhadawari buffaloes.

Project Co-ordinator's observations on centre performance

Financial Statement for the year 2020-21 (Rs in Lakhs)

Sanctioned as per R E 2020-21 Total ICAR Share		Released ICAR Share as per R E	Expenditure as per AUC		Closing balance
			ICAR Share	State Share	
47.50	47.50 *	47.50	43.94982	0.00	3.55018

* Includes 3.00 lakhs for SCSP

Herd Performance

The Herd strength was 88 head, which comprises of 55 breeding buffaloes (>2.0 years), 19 calving took place during the period out of which 10 were male and 9 were female. 0-3-month calf mortality was 4.00 % and conception rate was 55.55 percent. 5136 doses of frozen semen were produced and 2445 doses were used/ supplied for AI purpose in the field and 30071 frozen semen doses were in the stock.

Average lactation yield increased from 1466.88 kg (18) to 1733.5 kg (10), lactation length 357 days (18) to 354 days (10) and 305 or less day milk yield was from 1285.57 kg (18) to 1558.5 kg (10) during the report period. Age at first calving, average service period, average dry period and average calving interval was 52.23 month (8), 181.3 days (12), 174.2 days (12) and 499.7 days (12) respectively. 58.53 % animals were in the milk with wet average 5.06 kg and herd average 2.84 kg improved from 4.44 kg and 2.10 kg in last year. A total 1487 A I's were performed in field, 500 calving recorded from the AI's of 2019-20 and conception rate recorded in the field was 53.80 percent.

Accomplishment and Targets Achieved:

Sr. No.	Trait	Target	Achieved 2016-17	Achieved 2017-18	Achieved 2018-19	Achieved 2019-20	Achieved 2020-21
1	Av. AFC (Months)	40.0	50.6 (4)	46.26 (7)	47.28 (13)	48.23 (3)	52.23 (8)
2	Av. service period (Days)	140	176.2 (18)	173 (15)	181 (22)	172 (11)	181.3 (12)
3	Calf mortality (0-3 months)	≤ 3 %	3.7 %	4.00 %	4.16	0.0	4.00
4	Wet average (Kg)	≥ 5.0 kg	4.62 kg	4.16 kg	3.67	4.44	5.06
5	Herd average (Kg)	≥ 3.0 kg	2.97 kg	2.39 kg	2.34	2.10	2.84

Recommendations:

- Field AI program to be continued.
- Efforts should be made to improve the production and reproduction performance of the herd.

NETWORK PROJECT ON BUFFALO IMPROVEMENT (NILI RAVI, GADVASU)

1. **Name of centre** : GADVASU, Ludhiana
2. **Project Code** : AS-12/7/2017-AI-I
3. **Project Title** : Network Project on Buffalo Improvement
Sub-project : Performance recording and improvement of Nili Ravi buffalo
4. **Date of Start** : 17 November, 2017
5. **Name of PI** : Dr. Simarjeet Kaur

6. **Objectives** :
 - I. To establish elite herd of 50 to 100 Nili Ravi (at each center) for the production of genetically superior young bulls.
 - II. To evaluate sires through institutional / associated herd/ field progeny testing
 - III. To produce, test, propagate and conserve high genetic merit male germplasm
7. **Technical Programme:**
 - Establishment and maintenance of an elite herd of buffalo breed with a herd strength of 300 and 200 breed able females.
 - Selection and testing of minimum 8-10 bulls for other breeds in every 24 months cycle.
 - Production of minimum 3000 to 5000 frozen semen doses from each test bull.
 - Maintain a minimum number of 2000 frozen semen doses until the particular SET gets evaluated.
 - Evaluation and ranking of bulls on the basis of their progeny performance (first lactation) for selection of top 20-25% as proven bulls from each set.
 - Application of proven bull's semen on elite buffaloes for the production of future sires and replacement heifers.
 - Minimum weekly recording of milk yield of individual daughters/ buffaloes at institutional herd over complete lactation (s) with wet average, herd average, percent in milk, lactation length, dry period, TLMY, and Peak yield.
 - Monthly testing of milk constituents (Fat%, SNF% and Protein %) and Somatic Cell Count, wherever feasible, at institutional herds.
 - Recording of reproductive traits viz., AFC, Service period, Calving interval, Number of services per conception, Conception rate and Calving abnormalities.
 - Health management including udder health, vaccination, de-worming, disease screening, mortality and periodic body weight records

8. Financial Statement: Head wise budget allocation

Account Head	Budget Allotted	Expenses made	Balance
Recurring Contingencies	30,00,000	30,00,000	0.00
TA/POL	32,000	32,000.00	0.00
Non-Recurring Contingencies			
Livestock	0	0	0.00
Furniture	4,00,000	4,00,000	0.00
Total	34,32,000	34,32,000	0.00

ICAR Share 75% = Rs 25,74,000/-

State Share 25% = Rs.8,58,000/-.

9.1 Herd Strength during the Period 1st April 2020 to 31st March, 2021

Sr. No.	Category	Addition			Disposal				CB
		OB	B / P	T	D	T	S	E	CB
Female									
1.	Below 3 months	5	25		2		0		2
2.	3-12 months	15	-		-		0		22
3.	1-2 years	20	-		-		1		17
	Above 2 years	30	-		2		4		33
4.	Buffaloes in Milk	41	-		0		18		38
5.	Buffaloes Dry P /NP	27	-		1		16		7
	Sub Total	138	25		5		39		119
Males									
1.	Below 3 months	9	26/0		3		1		4
2.	3-12 months	6	-		2		15		9
3.	1-2 years	1	-		0		13		2
	Above 2 years	-	-		0		2		1
4.	Breeding bulls	2	-/6		0		-		6
5.	Bullocks / Teasers / others	-			0		-		-
	Sub Total	18	26/6		5		31		22
	Grand Total	156	51/6		10		66		141

OB = Opening Balance as on 1st April
B / P = Birth / Purchase T = Transfer

D = Deaths S = Sale E = Experimental
CB = Closing Balance as on 31st March

9.2 Calving Statistics including abnormalities

Month	Male	Female	Still Birth	Abortion	Dystokia	ROP	Prolapse	Overall
April 20	1	3	0	0	0	0	0	4
May	1	1	0	0	0	0	0	2
June	3	5	0	1	0	0	0	9
July	1	1	0	1	0	0	0	3
August	4	4	0	0	0	0	0	8
September	4	3	0	0	0	0	0	7
October	2	3	0	0	0	0	0	5
November	2	2	0	0	0	0	0	4
December	3	0	0	1	0	0	0	4
January 21	1	1	0	0	0	0	0	2
February	1	0	0	1	0	0	0	2
March	3	2	0	2	0	0	0	5
Overall	26	25	0	6	0	0	0	57

Sex ratio Male: Female 1:0.96

SB% = 0.00%

Abortion = 10.53%

9.3. Disposal of Animals during the Period 1st April 20 to 31st March 21

Female Category	Primary cause of disposal							Total
	Surplus	Below farm production standard	Reprod. Problem	Weak & Old	Udder Health	Death	Experimental purposes	
Calves 0 to 3 months	-	-	-	-	-	2	-	2
3-12 months	-	-	-	-	-	-	-	-
Heifers 1-2 years	-	-	1	-	-	-	-	1
> 2 years	-	-	3	1	-	2	-	6
Buffaloes Milch	-	14	1	2	1	-	-	18
Dry	-	11	1	2	2	1	-	17
Sub Total	0	25	6	5	3	5	0	44

Males									
Calves	0 to 3 months	1	-	-	-	-	3	-	4
	3-12 months	7	-	-	-	-	2	8	17
	1 to 2 year	13	-	-	-	-	-	-	13
	>2 year	2	-	-	-	-	-	-	2
	Breeding bulls	-	-	-	-	-	-	-	0
	Bullock+Teaser+Others	-	-	-	-	-	-	-	0
	Sub Total	23	-	-	-	-	5	8	36
	Grand Total	23	25	6	5	3	10	8	80

9.4. Mortality during the Period 1st April 2020 to 31st March, 2021

	Female						Male					Overall Herd
	0-3 Month	3-12 Month	1-2 Yrs.	Above 2 Yrs.	Milk + Dry	Overall Female	0-3 Month	3-12 Month	1-2 Yrs.	>2 yrs.	Overall Male	
No. Died	30	0	0	2	1	5	35	2	0	0	5	10
%	6.66	0	0	6.06	2.22	4.20	8.57	22.2	0	0	8.62	4.83

Calf mortality (0 to 3 months) 7.69%

9.5. Causes of Mortality (quarter wise) during the period April 20 to March 2021

Particulars	1 st quarter (April-June)	2 nd quarter (July-Sept)	3 rd quarter (Oct-Dec.)	4 th quarter (Jan.-March)	Total
Enteritis	1	-	-	-	1
Pneumo Enteritis	-	1	1	-	2
Broncho-Pneumonia	-	-	-	1	1
Septicemia / Toxaemia	-	-	-	-	-
Peritonitis	-	-	-	-	-
JD/TB	-	-	-	1	1
Milk Fever / metabolic diseases	-	-	-	-	-
TRP / TP	-	-	-	-	-
Parasitism	-	-	-	-	-
Accidental death	-	-	-	-	-
Peri-parturient disorders	-	-	-	-	-
Miscellaneous	3	1	1	-	5
Total	4	2	2	2	10

1.6 Prophylactic Measures undertaken

Disease	Vaccination No. of animals	No. of animals		Dates and No. of animals treated for Parasitism
		Tested	Positive	
FMD	419(Thrice a year)			No clinical case of parasitic infestation was observed during the year. All the animals were dewormed as per normal schedule
HS	587(Thrice a year)			
BQ	144			
Brucellosis	20			
JD	-			
TB	-			
IBR	-			

9.7. Female Conception Rate during the Period January 2020 to December 2021

AI →	1 st			2 ND			3 RD			4 TH & above			Over all		
Parity ↓	AIs	C	CR %	AIs	C	CR %	AIs	C	CR%	AIs	C	CR %	AIs	C	CR %
Heifers	18	6	33.3	13	1	7.6	9	1	11.1	6	3	50.	46	11	23.9
Adults	48	19	39.6	28	18	64.3	14	5	35.7	17	10	58.8	107	52	48.6
Overall	66	25	37.8	41	19	46.3	23	6	26.0	23	13	56.2	153	63	41.17%

AIs = No. of animals inseminated; C = No. of animals conceived; CR % = Conception rate %

9.8 Quarter-wise conception rate:

Quarter	No. of A I	Preg. animals	CR %
January – March	37	15	40.5
April - June	33	16	44.4
July - September	32	11	34.3
October- December	51	21	41.1
Overall	153	63	41.17%

9.9. Bull-wise Conception Rate During the period January to December, 2020

Sr. No.	Bull No.	Total Number of AI	Total Conceived	CR%
1.	113	11	4	36.4
2.	298	7	4	57.1
3.	352	6	4	66.7
4.	359	34	15	44.1
5.	480	8	3	37.5
6.	487	8	3	37.5
7.	501	10	5	50.0
8.	507	4	2	50.0
9	516	13	3	23.1
10	702	19	5	26.3
11	905	15	7	46.7
12	916	11	5	45.5
13	2591	1	0	0.0
14	NAAG2	6	3	50.0
Total		153	63	41.17

9.10 Bull Wise Semen Stock: -

Sr. No	Bull No	O.B.	Doses produced/r received	Doses used /disseminated			Total Supply	Balance
				Dairy Farm	Sold	Exp.		
1.	113		50	30	-	-	30	20
2.	298	8	-	8	-	-	8	-
3	359	26		26	-	-	26	-
4	702	16		16	-	-	16	-
5	2563	1785	10850	20	6019	-	6039	6596
6	2591	2618	10550	30	9441		9471	3697
7	480	-	90	36	-	-	36	54
8	487	-	150	10	-	-	10	140
9	501	-	50	20	-	-	20	30
10	507	10	5517	10	2662	-	2672	2855
11	516	-	50	-	-	-	-	50
12	543	-	50	-	-	-	-	50
13	905	-	80	40	-	-	40	40
14	916	-	80	-	-	-	-	80
Total		4463	27517	246	18122		18368	13612

9.11.1 Average Body weight (kg) (Indicate number of animals in parenthesis)

Year	Birth	3 Months	6 Months	12 Months	18 Months	24 Months	WFC
Female							
2017-18	36.3(25)	57 (17)	92 (15)	168 (16)	310 (24)	385 (21)	595 (18)
2018-19	34.12(23)	67.38 (11)	110.63 (11)	193.22 (18)	313.25 (9)	406 (14)	605.62(16)
2019-20	32.34 (25)	63.37 (20)	104.99 (17)	181.17 (16)	309.96 (16)	397.81 (22)	561.64(16)
2020-21	31.80 (25)	61.80 (18)	110.3 (16)	169.0 (14)	298.4 (19)	370 (27)	549.54(12)
Male							
Adults							
2017-18	34.7 (26)	70 (19)	110(15)	190 (8)	330 (4)	480 (2)	
2018-19	34.87 (29)	70.06 (12)	110 (7)	231(5)	354.2 (5)	490 (4)	
2019-20	34.13 (24)	69.45 (12)	113.81 (9)	235.24 (5)	350.0	540.09 (2)	
2020-21	34.07 (26)	72.0 (11)	120.4 (6)	210.6 (8)	335.8 (5)	590.4 (5)	

9.12 Average Production Performance of Buffaloes Completing their Lactation

Lact. No.	No. of obs.	TLMY (kg)	SLMY (kg)	Lact. Length (days)	Peak yield (kg)
1 st	11	2481.8±52.8	270.9±12.5	2464.0±53.6	12.0±0.26
2 nd	6	2710.4±178.9	305.7±24.4	2632.2±194.8	13.8±1.49
3 rd	5	2522.1±154.8	265.4±20.0	2496.4±144.3	15.6±1.46
4 th	5	2380.2±98.5	275.4±12.9	2347.2±98.56	12.6±0.53
5 th & above	2	2462.0±257.35	311.5±47.7	2311.4±150.9	14.3±0.49
Overall	29	2511.5±59.7	280.7±9.2	2473.0±58.0	13.4±0.48

9.12.1 Average production performance of Buffaloes since Inception of Network

Year	N	Lact. Length (days)	TLMY (kg)	SLMY (kg)	Peak yield (kg)
2017-18	36	278	2248.77	2187.60	12.36
2018-19	39	300	2543	2458	13.54
2019-20	44	302	2549	2478	13.71
2020-21	29	281	2511	2473	13.4

9.12.2 Average production performance of Buffaloes (elite) since Inception of Network

Year	No. of Animals	Av. 305-day Yield (Kg)	Av. Lactation Length (days)	Average Complete Lactation Yield (kg)	Average Peak Yield (kg)
2017-18	3	2810	355	2941	16.03
2018-19	6	3206	342	3452	17.57
2019-20	11	2907	348	3090	14.91
2020-21	6	2900	291	2922	15.6

9.13 Average Milk Composition from April 2020 to March 2021

Month	N	Fat	SNF	Protein	Lactose
April 20	37	8.34	9.69	3.41	5.26
May	32	7.68	9.79	3.56	5.37
June	39	8.13	9.6	3.59	5.61
July	40	7.89	9.9	3.61	5.54
August	40	7.96	9.58	3.29	5.46
September	39	7.49	9.87	3.53	5.69
October	43	8.36	9.69	3.7	5.6
November	33	7.81	9.76	3.23	5.57
December	35	8.03	9.56	3.48	5.76
January 21	35	7.97	9.79	3.39	5.41
February	33	8.04	9.82	3.47	5.7
March	40	7.9	9.7	3.66	5.3
Overall	37	7.97	9.73	3.49	5.52

9.14: Reproductive Performance

Lactation / Parity	N	AFC (Months)	SP (Days)	DP (Days)	CI (Days)
1	12	40.3±2.2	-	-	-
2	22	-	128.8±23.8	186.2±19.2	435.1±16.86
3	8	-	106.5±23.5	211.3±67.0	422.8±17.6
4	4	-	60.0±5.1	125.0±13.9	374.8±12.6
5 th and above	11	-	91.4±21.1	179.7±18.9	394.9±22.94
Overall	57	-	109.6±10.9	183.6±5.9	417.9±3.8

9.14.1 Reproduction Performance Since inception of Network.

Years	AFC (Months)	Service Period (days)	Dry Period (days)	Calving Interval (days)
2017-18	42.43 (18)	180.15 (34)	215.09 (34)	486.82 (34)
2018-19	40.27±1.80 (15)	168.02 ± 30.10 (40)	238.37 ± 33.20 (40)	475.57 ± 30.31 (40)
2019-20	40.9±1.21 (18)	150.4±11.8 (53)	217±20.29 (53)	452.31±12.79 (53)
2020-21	40.3±2.2 (12)	109.6±10.9 (45)	183.6±5.9 (45)	417.9±3.8 (45)

9.15. Month-wise milk production and disposal during the period 4/2020 to 3/2021

Month	Production	Disposal			
	Total milk produced (kg)	Liquid milk (kg)	Calf feeding (kg)	Experimental purposes (kg)	Milk lost in handling (kg)
April 2020	8180.5	6734	1416.7	0	29.8
May	7356.6	6035	1294.2	0	27.4
June	7494	6167	1298.2	0	28.8
July	8606.7	7242	1339.5	0	25.2
August	8642.5	7254	1356.9	0	31.6
September	8458	6694	1736.5	0	27.5
October	9172.3	7232	1912.7	0	27.6
November	8945.9	7172	1745.7	0	28.2
December	8576.3	7273	1276	0	27.3
January 2021	8903.9	8008	869.5	0	26.4
February	7762	7036	702	0	24
March	8487.7	7565	901	0	21.7
Total	100586.4	84412.0	15848.7	-	325.5

9.16 Feed and Fodder (Quintals) availability April 2020 – March 2021)

Quarter	Feed/fodder	Quantity produced at farm	Quantity purchased	Actually fed to Nilli-Ravi buffaloes
I (April – June)	Green	11147.70		1960.64
	Dry		2794.2	405.00
	Silage	1880.75		802.00
	Concentrate			935.75
II (July – September)	Green	13511.80		3132.57
	Dry		1051.55	300.00
	Silage	1627.75		395.00
	Concentrate			996.75
III (October – December)	Green	8002.49		1962.32
	Dry			296.00
	Silage			439.24
	Concentrate			939.75
IV	Green	13646.94		2484.68
	Dry		2171.3	268.00

(January-March)	Silage	3640.72		14.21
	Concentrate			907.75
Total	Green	46308.93		9540.21
	Dry		6017.05	1269.00
	Silage	7149.22		1650.45
	Concentrate			3780.00

9.17: Milk performance during April 20 to March 2021

Month	Buffaloes in Milk	Dry buffaloes	Total	% in Milk	Wet Av. (kg)	Herd Av. (kg)
April 2020	37	32	69	53.62	7.37	3.95
May	32	37	69	46.38	7.42	3.44
June	39	29	68	57.35	6.41	3.67
July	40	28	68	58.82	6.95	4.08
August	40	19	59	67.80	7.20	4.88
September	39	20	59	66.10	7.23	4.78
October	43	16	59	72.88	6.88	5.01
November	33	14	47	70.21	9.04	6.34
December	35	13	48	72.92	7.90	5.76
January 2021	35	14	49	71.43	8.21	5.86
February	33	12	45	73.33	8.40	6.16
March	40	7	47	85.11	6.84	5.83
Overall	37	20	57	66.33	7.49	4.98

9.17.1 Milking performance since inception

Year	No. of Animals in Milk	No. of Animals dry	Total Animals	% in Milk	Wet Av. (kg)	Herd Av. (kg)
2017-18	35	27.50	62.08	55.50	7.85	4.2
2018-19	33	32	65	50.69	7.97	4.12
2019-20	34	31	65	52.15	7.99	4.06
2020-21	37	20	57	66.33	7.49	4.98

9.18: Bull wise daughters born (only numbers)

Bull No.	Daughters born	Daughters Calved	Daughters completing 1 st Lactation
NR352	1	-	-
7094	1	-	-
NAAG-2	2	-	-
NK	1	-	-
NR298	2	-	-
NR352	2	-	-
NR359	2	-	-
NR507	6	-	-
NR702	4	-	-
PUR*	1	-	-
OVERALL	22	-	-

9.19 Bull wise daughters completing 1st lactation

Bull No.	Daughter No.	Date of birth	Date of calving	AFC (months)	Lact. Length (days)	TLMY (kg)	SLMY (kg)
19022	2922	05-04-15	26-11-2019	55.6	370	2515.3	2342
19022	2930	05-06-15	26-10-2019	52.6	225	2449	2449
NR991	2952	04-01-16	19-07-2019	42.4	318	2613.8	2591.2
NR991	2964	06-03-16	28-08-2019	41.6	239	2236	2236
2459	2998	16-03-16	12-08-2019	40.8	239	2311	2311

NR991	3004	12-04-16	27-10-2019	42.4	270	2353	2353
NR991	3016	29-07-16	05-01-2020	41.1	295	2897	2897
NR2463	3022	13-09-16	12-12-2019	38.9	223	2401	2401
NR2463	3024	28-09-16	19-08-2019	34.6	267	2556	2556
NK	3062	29-07-16	08-12-2019	40.2	271	2602	2602
NK	3242	22-09-16	19-07-2019	33.8	263	2366	2366

9.20 Breeding bulls Selected for current set

Sr. No	Bull No.	Date of Birth	Dam No.	Sire No.	Dam's best SLMY
1	435	16-10-2013	230	03	3018
2	480	21-06-2014	134	63	4050
3	487	18-08-2014	21	113	3115
4	501	09-10-2014	116	113	3516
5	507	26-10-2014	287	991	4268
6	511	29-11-2014	300	27	3796
7	516	17-12-2014	81	113	3746
8	543	24-06-2015	900	25	3777

9.20.1 PT Bulls for nominated mating

Bull No	Set No	Centre	Dams' best Yield	Sire Index	% Superiority
905	4 th	CIRB Nabha	3639	2561.40	15.29
916	4 th	CIRB Nabha	2961	2424.74	9.99

9.21 Target achieved during the year :

Trait	Target	2017-18	2018-19	2019-20	2020-21
Av. Age at first calving (months)	40	42.4	40.3 (15)	40.9 (18)	40.3 (12)
Av. Service period (days)	130	180	168 (40)	150.4(53)	109 (45)
Calf mortality (0-3 months)	≤ 3 %	13.0 %	15.87%	9.37%	7.69 %
Wet average (kg)	≥8.5 kg	7.85	7.97	7.99	7.49
Herd average (kg)	≥5.5 kg	4.2	4.12	4.06	4.98

10. Salient Research Achievements:

A considerable progress has been made in achieving the targets of reduction in AFC and the service period. Also, the calf mortality dropped to meet the set targets.

11. Publications: -

12. Constraints if any: Very limited availability of true to breed quality animals of this breed for addition to the herd

13. Focus of work in the coming year: To enhance the herd strength of elite animals, apply effective disease control, improve production, reproduction and produce superior germplasm.

Project Co-ordinator's observations on centre performance

Financial Statement for the year 2020-21 (Rs in Lakhs)

Sanctioned as per R E 2020-21		Released ICAR Share as per R E	Expenditure as per AUC		Closing balance
Total	ICAR Share		ICAR Share	State Share	
34.32	25.74	25.74	25.74	8.58	Nil

Herd Performance

The herd strength of Nili-Ravi was 141, included 78 breedable buffaloes (> 2 years). Total 51 calves (26 male and 25 female) 6 abortions during 2020-21. The calf mortality (0-3 months) was 7.69 percent higher than the target of NPBI \leq 3.0% and last year 9.38 percent. Conception rate reported 41.17 percent was lower than the previous year 47.89 percent. During the report period 27517 frozen semen doses produced/received and 18368 doses disseminated by use in herd/sold to farmers closing balance was 13612 frozen semen doses. Mean for lactation milk yield, lactation length and 305 or less day lactation milk yield was 2511kg (29), 3281 days and 2477 kg (29) during the period as compared to last year 2549 kg (44), 300 days and 2478 kg (44), respectively. The reproductive traits viz: age at first calving, service period, dry period and calving interval was 40.3 months (12), 110 days (45), 184 days (45) and 418 days (45) against last year 40.9 months (18), 150 days (35), 217 days (35) and 452 days (35), respectively. The wet average and herd average reported during the year 7.49 kg and 4.98 kg as compared to previous year 7.99 kg and 4.06 kg, respectively.

Accomplishment and Targets Achieved

Sr. No.	Trait	Target	2017-18	2018-19	2019-20	2020-21
1	Av. AFC (Months)	40.0	42.43 (18)	40.3 (15)	40.9 (18)	40.3 (12)
2	Av. service period (Days)	130 days	180 (31)	168 (40)	150 (35)	110 (45)
3	Calf mortality (0-3 months)	\leq 3 %	13.11 %	15.87%	9.37%	7.69 %
4	Wet average (Kg)	\geq 8.50 kg	7.85 kg	7.97	7.99	7.49
5	Herd average (Kg)	\geq 5.50 kg	4.20 kg	4.12	4.06	4.98

Recommendations:

- Bulls for test and nominated mating should be used as per the technical programme. The list of future breeding bulls indicates the SLMY lower than the target.
- Calf mortality is higher than the target and emphasis should be given to improve calf management and health care to reduce calf mortality.

NETWORK PROJECT ON BUFFALO IMPROVEMENT (FIELD UNITS)

Participating Units : 1. CIRB, Hisar
2. GADVASU, Ludhiana
3. NDRI, Karnal

Date of start : 2001

INTRODUCTION:

Murrah is most important breed among milch buffaloes which draws maximum demand of its germplasm in the country. But the problem of non-availability of genetically superior and progeny tested bulls is acute to meet everincreasing demand for improvement of the country buffaloes. It is, therefore, essential to develop superior germplasm and test them efficiently on large organized herds as well as the ones available with the farmers. Progeny testing under institutional and field conditions besides providing superior bulls for use in developmental programme, helps in developing elite breeding herds. Buffalo herds available with various research institutions and those managed by the state/central government developmental agencies are too small in size to independently implement a worthwhile progeny testing programme for even a moderately accurate evaluation of bulls. It is more desirable to evaluate the bulls on the basis of their progeny performance raised in different environments at various associated organized as well as at the farmers herds.

OBJECTIVES:

To strengthen the on going sire evaluation programme of associated herd progeny testing by including field performance recording of the daughters of test bulls.

FIELD UNIT: CIRB HISAR

Name of the Institute : Central Institute for Research on Buffaloes, Hisar
Title of the project : Progeny testing of bulls under field conditions (FPT)
Principal Investigator : Dr A Bharadwaj, Principal Scientist

Technical programme: The use of semen of test bulls under Network Project on Buffalo Improvement on buffaloes in ten adopted villages of CIRB Hisar is to be undertaken. This has to be followed by pregnancy diagnosis, calving records, tagging and follow up of progenies till the completion of first lactation for milk records on the basis of monthly test day recording. Data on different aspects to be recorded as per specified format.

Report of the Project (April 2020– March 2021): Under field progeny testing program (FPT) semen of test bulls is used for artificial insemination in the field, followed by pregnancy diagnosis, calving records and follow up of progenies till the completion of first lactation for milk records on the basis of monthly test day recording. During the period from April 2020 to March 2021, 3480 artificial inseminations were performed using test bulls of 18th and 19th set. The use 19th set was initiated from July 2020. The conception rate in the field was worked out to be 54.37%. In this period 1956 pregnancies were confirmed and 1430 calving (males 767, females 663) were recorded. In addition, 169 progenies, 43 of 15th, 124 of 16th and 2 of 17th set were also calved and monthly test day milk yield were/ being recorded. The average age at first calving for these 169 daughters was 40.53 months. During the period 270 daughters were recorded, out of which 129 daughters completed the lactation, 25 daughters sold before the lactation was completed and recording of 116 daughters are in

progress. The physical identification using ear tagging has been done in all female progenies born in the field till Nov 2020 and being done for progenies born thereafter. As on 31st March 2021, 1190 female progenies of 15th to 18th set of different age are standing at various field unit centres for future recordings.

F 1. Herd Strength of Registered females under field unit during 2020-21

Name of Village	OB	Addition		Deduction		CB
		New Reg. (Birth/ Purchase)		Sold	Death	
--						

F 2. Status of Breedable females under field unit during 2020-21

Name of Village	Heifers >2 ½ years		Buffalo (NP)		Buffalo Pregnant	
	Total	Pregnant	In milk	Dry	In milk	Dry
--						

F 3. Month-wise AI at Different Field Unit Centres during 2020-21

Months	Centre/ Village										Total
	Beed	Juglan	Dhiktana	Kheri	Jewra	Kirara	Sarsod	Bichpari	Bado	Bugana	
April 20	-	-	-	-	7	-	-	-	-	-	7
May	38	23	26	4	44	4	28	29	7	24	227
June	37	22	23	6	44	11	46	40	11	19	259
July	23	42	19	5	31	3	28	26	12	25	214
Aug	32	51	28	5	51	0	47	41	12	28	295
Sept	71	77	36	33	44	17	44	54	22	32	430
Oct	90	62	36	38	65	23	72	56	21	48	511
Nov	51	70	27	39	56	21	69	51	28	30	442
Dec	65	55	29	31	33	17	62	55	27	24	398
Jan 21	39	44	24	34	28	7	33	40	27	20	296
Feb	32	33	20	23	31	4	30	25	17	20	235
March	23	18	16	17	23	12	15	18	13	11	166
Total	501	497	284	235	457	119	474	435	197	281	3480

F 4. Bull-wise AI at Different Field Unit Centres during the Period 4/2020 to 3/2021

Month	Bull No.																				Total
	2677 XVIII	2689 XVIII	4905 XVIII	4995 XVIII	1208 XVIII	1209 XVIII	1219 XVIII	7147 XVIII	7227 XVIII	7263 XVIII	2674 XIX	2737 XIX	2759 XIX	5181 XIX	5232 XIX	5246 XIX	5310 XIX	5320 XIX	5333 XIX	5374 XIX	
April 20	2	-	4	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7
May	1	-	-	-	-	91	32	-	-	103	-	-	-	-	-	-	-	-	-	-	227
June	-	26	-	-	37	4	103	66	9	14	-	-	-	-	-	-	-	-	-	-	259
July	-	5	-	-	19	-	5	5	36	-	-	-	-	61	83	-	-	-	-	-	214
Aug	-	-	-	-	-	-	-	-	-	-	-	-	-	90	144	61	-	-	-	-	295
Sept	-	-	-	-	-	-	-	-	-	-	-	-	-	159	145	126	-	-	-	-	430
Oct	-	-	-	-	-	-	-	-	-	-	114	97	19	23	169	89	-	-	-	-	511
Nov	-	-	-	1	-	-	-	-	-	-	103	141	92	-	-	85	20	-	-	-	442
Dec	-	-	-	-	-	-	-	-	-	-	1	15	62	-	-	3	157	34	-	126	398
Jan 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	126	95	-	75	296
Feb	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-	40	40	61	82	235
March	-	-	-	-	-	-	-	-	-	-	-	-	86	-	-	-	-	19	45	16	166
Total	3	31	4	1	57	95	140	71	45	117	218	253	271	333	541	364	343	188	106	299	3480

F 5. Month-wise Conception at Different Field Unit Centres during 2020-21

Months	Centre/ Village										Total
	Beed	Juglan	Dhiktana	Kheri	Jewra	Kirara	Sarsod	Bichpari	Baado	Bugana	
April 20	41	40	16	6	13	7	27	12	12	12	186
May	41	35	14	6	18	4	14	14	6	10	162
June	16	16	7	3	10	5	15	10	7	6	95
July	-	-	-	-	4	-	-	-	-	-	4
Aug	19	12	10	2	17	0	15	14	4	7	100
Sept	19	11	11	2	32	6	22	16	4	9	132
Oct	11	21	10	2	19	2	16	15	6	12	114
Nov	15	25	12	2	35	0	25	25	6	12	157
Dec	41	46	14	15	23	10	27	32	10	13	231
Jan 21	54	37	17	19	42	11	48	36	8	21	293
Feb	34	44	14	19	41	8	37	33	15	14	259
March	39	37	13	15	21	9	37	26	13	13	223
Total	330	324	138	91	275	62	283	233	91	129	1956

F 6. Bull-wise Conception at Different Field Unit Centres during the Period 4/2020 to 3/2021

Months	Bull No.																						Total
	2677 XVIII	2689 XVIII	4905 XVIII	4995 XVIII	5147 XVIII	1150 XVIII	1208 XVIII	1209 XVIII	1219 XVIII	7094 XVIII	7147 XVIII	7227 XVIII	7263 XVIII	2674 XIX	2737 XIX	2759 XIX	5181 XIX	5232 XIX	5246 XIX	5310 XIX	5320 XIX	5374 XIX	
April 19	-	63	-	-	23	78	18	-	-	1	-	3	-	-	-	-	-	-	-	-	-	-	186
May	35	14	41	-	-	3	69	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	162
June	41	-	31	-	-	-	3	13	-	-	-	-	7	-	-	-	-	-	-	-	-	-	95
July	2	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Aug	-	-	-	-	-	-	-	38	11	-	-	-	51	-	-	-	-	-	-	-	-	-	100
Sept	-	12	-	-	-	-	23	2	58	-	24	6	7	-	-	-	-	-	-	-	-	-	132
Oct	-	3	-	-	-	-	13	-	2	-	2	22	-	-	-	-	30	42	-	-	-	-	114
Nov	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	49	76	32	-	-	-	157
Dec	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	85	79	67	-	-	-	231
Jan 20	-	-	-	-	-	-	-	-	-	-	-	-	-	67	53	10	11	100	52	-	-	-	293
Feb	-	-	-	1	-	-	-	-	-	-	-	-	-	56	93	53	-	-	47	9	-	-	259
March	-	-	-	-	-	-	-	-	-	-	-	-	-	1	7	38	-	-	-	85	20	72	223
Total	78	92	73	1	23	81	127	53	71	1	26	31	65	124	153	101	175	297	198	94	20	72	1956

F 7. Month-wise Calving at Different Field Unit Centres during 2020-21

Month	Centre/Village																				Total	
	Beed		Juglan		Dhiktna		Kheri		Jewra		Kirara		Sarsod		Bichpari		Bado		Bugana		M	F
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F		
April 20	5	5	7	8	6	3	0	1	10	4	1	1	9	7	6	10	0	0	5	2	49	41
May	4	6	8	8	6	3	1	1	1	5	1	0	8	6	3	6	0	1	6	3	38	39
June	6	6	10	9	5	7	2	2	8	2	1	0	10	9	9	7	2	0	6	4	59	46
July	9	11	16	12	5	7	3	4	4	2	1	0	19	12	10	5	3	1	10	6	80	60
Aug	16	14	17	21	12	6	5	3	2	4	1	0	14	13	10	10	3	6	6	7	86	84
Sept	31	20	19	14	10	4	4	3	11	5	1	0	25	25	17	7	3	3	7	7	128	88
Oct	29	27	19	18	8	8	0	1	10	3	8	8	12	19	13	13	2	1	10	8	111	106
Nov	18	17	16	15	8	6	4	2	6	1	4	3	9	13	5	3	4	4	5	5	79	69
Dec	17	16	14	11	6	4	3	2	7	6	2	1	5	6	6	6	2	2	5	3	67	57
Jan 21	6	8	6	7	3	2	2	1	3	2	1	2	4	9	4	4	2	2	4	2	35	39
Feb	-	-	-	-	-	-	-	-	1	2	-	-	-	-	-	-	-	-	-	-	1	2
March	7	7	4	5	4	2	1	1	4	6	0	0	4	3	5	5	1	1	4	2	34	32
Total	148	137	136	128	73	52	25	21	67	42	21	15	119	122	88	76	22	21	68	49	767	663

F 8. Bull-wise Calving at Different Field Unit Centres during the Period 4/2020 to 3/2021

Months	Bull No.																												Total			
	2645 XVIII		2676 XVIII		2677 XVIII		2689 XVIII		4905 XVIII		4995 XVIII		5147 XVIII		1150 XVIII		1208 XVIII		1209 XVIII		1219 XVIII		7094 XVIII		7147 XVIII		7227 XVIII				7263 XVIII	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
April 20	15	10	1	0	1	0	5	1	-	-	-	-	9	12	-	-	-	-	12	15	2	1	-	-	4	2	-	-	-	-	49	41
May	-	-	8	9	-	-	8	9	-	-	-	-	12	11	-	-	-	-	-	-	10	10	-	-	-	-	-	-	-	-	38	39
June	-	-	1	2	2	4	0	1	-	-	5	11	19	11	0	1	-	-	-	-	22	9	-	-	-	-	-	-	10	7	59	46
July	-	-	12	7	15	12	-	-	-	-	1	1	1	3	-	-	12	5	-	-	1	0	14	20	-	-	13	6	11	6	80	60
Aug	28	21	0	1	15	13	-	-	-	-	-	-	-	-	-	29	34	-	-	11	11	-	-	1	1	1	2	1	1	86	84	
Sept	15	9	39	25	1	0	-	-	-	-	11	12	-	-	-	-	1	0	-	-	-	-	13	7	26	20	22	15	-	-	128	88
Oct	-	-	-	-	-	-	22	18	-	-	24	26	18	22	3	4	-	-	-	-	-	-	24	21	-	-	20	15	-	-	111	106
Nov	-	-	-	-	-	-	26	21	-	-	-	-	9	12	34	24	7	11	-	-	-	-	0	1	-	-	3	0	-	-	79	69
Dec	-	-	-	-	15	13	7	4	17	10	-	-	-	-	0	3	28	27	-	-	-	-	-	-	-	-	-	-	-	-	67	57
Jan 21	-	-	-	-	16	17	-	-	7	14	-	-	-	-	-	-	3	0	6	5	-	-	-	-	-	-	-	-	3	3	35	39
Feb	-	-	-	-	0	2	-	-	-	-	-	-	-	-	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	1	2
March	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	12	4	5	-	-	-	-	-	-	14	15	34	32
Total	58	40	61	44	65	61	68	54	24	24	41	50	68	71	37	32	81	77	34	32	50	36	51	49	31	23	59	38	39	32	767	663

F 9. Bull-wise Live Female Progeny at Different Field Unit Centers (0-6month) as on 3/2021

Bull No. Centres	1150 XVIII	1208 XVIII	1209 XVIII	1219 XVIII	2677 XVIII	2689 XVIII	4905 XVIII	4995 XVIII	5147 XVIII	7094 XVIII	7227 XVIII	7263 XVIII	Total
Beed	5	6	1	1	2	3	1	5	2	2	2	1	31
Juglan	3	6	1	1	3	2	1	1	3	1	-	-	22
Dhiktana	1	1	1	-	-	6	-	-	-	3	-	1	13
Kheri	-	1	-	-	-	1	1	-	-	1	-	-	4
Jewra	-	-	1	-	1	1	1	1	1	-	-	2	8
Kirara	1	1	-	-	-	2	1	2	1	1	-	-	9
Sarsod	5	-	1	-	1	2	2	3	6	1	2	-	23
Bichpari	1	1	1	-	2	1	-	3	3	1	2	1	16
Bado Patti	1	-	-	-	2	-	-	-	-	1	-	1	5
Bugana	-	1	1	-	1	2	1	-	2	3	-	-	11
Total	17	17	7	2	12	20	8	15	18	14	6	6	142

F 10. Bull-wise Live Female Progeny at Different Field Unit Centers (6-12month) as on 3/2021

Bull No. Centres	1150 XVIII	1208 XVIII	1209 XVIII	1219 XVIII	2645 XVIII	2676 XVIII	2677 XVIII	2689 XVIII	4995 XVIII	5147 XVIII	7094 XVIII	7147 XVIII	7227 XVIII	7263 XVIII	Total
Beed	-	2	4	4	2	5	3	-	3	3	3	2	3	-	34
Juglan	-	7	2	3	5	6	1	-	7	2	2	1	2	2	40
Dhiktana	1	-	-	1	2	1	2	1	-	1	4	-	-	1	14
Kheri	-	3	-	1	-	-	-	-	-	1	-	3	-	2	10
Jewra	-	1	-	1	3	-	1	1	1	1	-	2	1	-	12
Kirara	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sarsod	-	2	2	1	6	6	3	-	2	1	1	3	6	-	33
Bichpari	-	1	3	5	5	4	2	4	1	3	4	1	1	1	35
Bado Patti	-	-	-	-	4	2	1	-	-	-	1	-	-	-	8
Bugana	-	2	-	-	-	3	2	-	-	2	2	1	1	1	14
Total	1	18	11	16	27	27	15	6	14	14	17	13	14	7	200

F 11. Bull-wise Live Female Progeny at Different Field Unit Centers (1-3 years) as on 3/2021

Bull No. Centres	1053 XVI	1064 XVI	4592 XVI	M29 XVI	M51 XVI	6379 XVI	6409 XVI	6646 XVI	6753 XVI	2558 XVII	2565 XVII	2594 XVII	2607 XVII	4687 XVII	4715 XVII	4733 XVII	4837 XVII	1148 XVII	53M XVII
Beed	-	2	1	-	1	-	-	-	2	7	12	6	5	12	5	9	6	7	4
Juglan	-	-	-	2	-	3	1	-	1	5	8	5	3	6	5	4	12	5	4
Dhiktana	-	-	1	-	1	-	-	-	-	1	3	2	3	-	4	2	5	5	6
Kheri	-	-	9	-	-	-	-	-	-	7	1	3	5	1	-	3	1	2	-
Jewra	-	-	-	1	1	-	1	-	1	1	3	3	2	4	2	5	6	3	4
Kirara	1	-	1	-	1	-	-	-	1	2	-	-	-	-	-	1	-	-	-
Sarsod	-	-	-	-	4	1	-	1	1	7	10	11	6	8	7	8	11	6	11
Bichpari	-	-	1	-	2	-	3	2	-	2	4	8	5	-	4	4	4	5	5
Bado Patti	1	-	3	-	1	2	-	-	-	2	-	2	-	1	-	2	-	-	2
Bugana	-	-	-	-	-	-	-	-	-	3	-	2	1	2	1	-	2	1	-
Total	2	2	16	3	11	6	5	3	6	37	41	42	30	34	28	38	47	34	36

Cont..

Bull No. Centres	B1/330 XVII	6942 XVII	7010 XVII	Sika-nder	Dara XVII	1150 XVIII	1198 XVIII	1209 XVIII	2645 XVIII	2676 XVIII	2677 XVIII	4905 XVIII	4995 XVIII	5147 XVIII	7094 XVIII	7147 XVIII	7227 XVIII	Total
Beed	10	7	10	6	3	5	1	1	2	1	-	6	-	-	1	-	1	133
Juglan	9	7	7	3	11	5	1	3	2	-	1	4	2	-	1	-	-	120
Dhiktana	5	2	1	-	8	1	-	-	1	-	-	-	1	-	-	-	1	53
Kheri	5	4	1	1	-	2	-	-	-	-	-	-	-	1	-	1	-	47
Jewra	1	2	7	3	5	2	-	-	-	1	-	3	2	-	-	1	-	64
Kirara	-	1	1	2	-	1	-	-	-	1	-	-	-	-	1	-	-	14
Sarsod	6	6	9	9	8	4	-	1	2	2	-	2	-	-	1	-	-	142
Bichpari	5	2	4	6	8	-	-	1	-	-	-	-	2	-	2	-	-	79
Bado Patti	4	3	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	25
Bugana	2	2	4	2	3	3	1	1	-	1	-	1	-	-	-	-	-	32
Total	47	36	44	33	46	23	3	7	7	6	1	17	7	1	6	2	2	709

F 12. Bull-wise Live Female Progeny at Different Field Unit Centers (> 3 years) as on 3/2021

Bull No. Centres	2417 XV	2429 XV	2459 XV	4328 XV	4354 XV	6139 XV	6405 XV	1027 XVI	1053 XVI	1064 XVI	2383 XVI	2467 XVI	2501 XVI	4592 XVI	4705 XVI
Beed	1	-	-	1	-	1	2	3	4	-	3	1	1	1	1
Juglan	-	-	-	-	-	-	1	-	4	1	-	-	1	-	-
Dhiktana	-	-	-	-	-	-	-	2	-	-	1	-	-	-	-
Kheri	-	-	-	-	-	-	1	-	1	-	-	2	-	-	2
Jewra	-	-	-	-	-	-	-	1	-	1	-	1	-	1	-
Kirara	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-
Sarsod	1	-	1	1	1	-	-	2	1	-	-	3	-	1	-
Bichpari	-	1	-	-	-	-	-	2	2	1	1	1	3	-	-
Bado Patti	-	1	-	-	-	-	-	2	1	-	-	-	1	-	-
Bugana	-	-	-	-	-	-	-	1	-	-	-	-	2	2	-
Total	2	2	1	2	1	1	4	14	14	3	5	8	8	5	3

Cont.. F 12.

Bull No. Centres	4889 XVI	M29 XVI	M51 XVI	6379 XVI	6409 XVI	6646 XVI	6753 XVI	Total
Beed	2	1	4	2	2	3	4	37
Juglan	-	4	-	1	-	3	1	16
Dhiktana	1	-	4	-	-	1	-	9
Kheri	-	1	-	-	-	-	-	7
Jewra	-	2	4	-	2	2	1	15
Kirara	-	-	-	-	-	2	2	6
Sarsod	2	1	3	-	1	1	-	19
Bichpari	1	1	-	1	1	-	1	16
Bado Patti	-	1	-	1	-	-	-	7
Bugana	-	-	1	-	-	-	-	6
Total	6	11	16	5	6	12	9	138

F 13. Bull-wise Daughters Calved at Different Field Units during 2020-2021

Bull No. Centres	2412 XV	2417 XV	2459 XV	4324 XV	4328 XV	4354 XV	4363 XV	4403 XV	4438 XV	6007 XV	6139 XV	6290 XV	6405 XV	1027 XVI	1053 XVI	1064 XVI	2383 XVI	2467 XVI	2501 XVI
Beed	-	-	1	-	1	-	-	1	1	-	1	3	1	-	1	3	1	-	-
Juglan	-	-	-	1	1	-	-	-	-	1	2	-	2	2	1	-	1	3	-
Dhiktana	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	1	4	-	2
Kheri	-	-	-	-	-	-	-	-	1	-	-	-	1	-	2	-	-	1	-
Jewra	-	-	-	-	-	1	-	-	-	-	1	1	-	6	1	1	-	-	1
Kirara	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-
Sarsod	1	-	1	2	1	-	1	-	-	-	-	-	-	1	2	-	2	-	-
Bichpari	-	-	-	-	-	1	-	-	2	-	-	1	-	-	2	-	2	-	1
Bado	-	2	-	-	1	-	-	-	-	1	-	-	1	-	-	-	-	2	-
Bugana	-	1	-	1	-	-	1	-	-	-	-	-	1	-	-	-	-	1	-
Total	1	4	2	4	4	2	2	1	4	2	4	6	7	10	9	5	10	7	4

Cont..

Bull No. Centres	4592 XVI	4705 XVI	4889 XVI	M29 XVI	M51 XVI	6379 XVI	6409 XVI	6646 XVI	6753 XVI	2607 XVII	4837 XVII	Total
Beed	1	2	2	1	1	1	2	1	-	-	-	25
Juglan	-	1	-	2	3	2	2	2	4	-	-	30
Dhiktana	1	1	-	2	2	-	-	1	-	-	-	16
Kheri	-	2	-	2	1	1	-	-	-	-	-	11
Jewra	-	1	3	4	1	-	-	2	1	-	1	25
Kirara	-	-	-	1	-	-	-	-	-	-	-	3
Sarsod	2	-	1	2	2	-	2	-	-	-	-	20
Bichpari	2	4	2	1	4	-	1	1	-	1	-	25
Bado	-	-	-	-	-	-	-	-	1	-	-	8
Bugana	1	-	-	-	-	-	-	-	-	-	-	6
Total	7	11	8	15	14	4	7	7	6	1	1	169

F 14. Bull-wise Daughters Recorded at Different Field Units Centres during the Period 4/2020 to 3/2021

Field Units	Bull No.	Dgr No.	Date of Birth	Date of Calving	Monthly Milk Records																			
					I		II		III		IV		V		VI		VII		VIII		IX		X	
					M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E
Beed																								
	2417 XV	515	12/03/16	14/07/19	4.0	4.0	3.5	3.5	4.5	4.5	5.0	5.0	5.0	5.0	5.5	5.5	5.5	5.5	4.0	4.0	3.3	3.2	2.5	2.5
	6007 XV	472	14/10/15	20/07/19	4.3	4.2	4.5	4.5	5.0	5.0	5.3	5.2	5.5	5.5	6.0	6.0	5.8	5.7	4.0	4.0	3.5	3.5	3.3	3.2
	2459 XV	505	20/01/16	03/09/19	4.0	4.0	4.0	4.0	4.5	4.5	5.0	5.0	4.8	4.7	4.5	4.5	4.0	4.0	3.5	3.5	5.0	0	4.0	0
	6139 XV	583	05/10/16	05/09/19	3.5	3.5	4.0	4.0	4.0	4.0	4.5	4.5	4.5	4.5	4.3	4.2	4.0	4.0	3.8	3.7	3.0	3.0	3.0	0
	4439 XIV	421	04/05/15	19/09/19	4.0	4.0	4.3	4.2	4.5	4.5	5.0	5.0	6.0	6.0	4.5	4.5	4.5	4.5	4.4	4.0	3.8	3.7	3.0	3.0
	6139 XV	439	22/07/15	20/09/19	3.8	3.7	4.3	4.2	5.8	5.7	5.8	5.7	5.5	5.5	4.8	4.7	4.3	4.2	4.0	4.0	3.0	3.0	2.5	2.5
	4403 XV	518	10/03/16	22/09/19	4.0	4.0	4.8	4.7	5.0	5.0	5.5	5.5	4.5	4.5	4.3	4.2	3.5	3.5	2.5	2.5	4.0	0	4.0	0.0
	4324 XV	445	05/08/15	26/09/19	4.5	4.5	5.0	5.0	5.3	5.2	5.0	5.0	5.0	5.0	4.0	4.0	3.8	3.7	3.0	3.0	4.5	0	3.0	0.0
	4196 XIV	404	12/01/15	05/10/19	4.0	4.0	4.5	4.5	5.0	5.0	6.0	6.0	4.3	4.2	4.3	4.2	4.0	4.0	3.8	3.7	3.5	3.5	3.0	3.0
	6405 XV	501	03/01/16	22/09/19	4.0	4.0	5.0	5.0	5.5	5.5	5.5	5.5	4.0	4.0	4.0	4.0	4.0	4.0	3.5	3.5	3.0	3.0	3.0	3.0
	6007 XV	545	05/07/16	23/09/19	3.5	3.5	4.5	4.5	5.0	5.0	5.8	5.7	5.0	5.0	4.8	4.7	4.5	4.5	4.0	2.5	2.5	4.5	0.0	0.0
	6405 XV	541	27/06/16	28/10/19	4.0	4.0	5.0	5.0	4.8	4.7	4.8	4.7	4.5	4.5	4.0	4.0	4.0	3.5	3.5	3.0	3.0	4.0	0.0	0.0
	2371 XV	535	06/06/16	27/11/19	4.0	4.0	4.5	4.5	4.3	4.2	4.0	4.0	3.8	3.7	3.5	3.5	3.0	3.0	2.5	2.5	2.5	2.0	3.0	0.0
	4328 XV	593	19/10/16	27/11/19	4.3	4.2	5.0	5.0	5.0	5.0	5.3	5.2	5.0	5.0	4.5	4.5	3.8	3.7	3.5	3.5	3.0	3.0	5.0	0.0
	2417 XV	563	08/08/16	24/12/19	4.0	4.0	4.8	4.7	5.0	5.0	4.8	4.7	4.0	4.0	3.5	3.5	3.5	3.5	2.8	2.7	2.5	2.0	4.0	0.0
	6646 XVI	621	18/12/16	24/12/19	4.3	4.2	6.0	6.0	4.0	4.0	4.3	4.2	4.0	4.0	3.5	3.5	3.5	3.5	3.3	3.2	3.0	3.0	3.0	3.0
	2371 XV	433	04/07/15	28/12/19	4.0	4.0	4.5	4.5	3.5	3.5	3.0	3.0	3.0	2.5	2.5	5.0	0.0	4.0	0.0	4.0	0.0	3.0	0.0	0.0
	6405 XV	527	09/05/16	14/01/20	4.3	4.2	4.0	4.0	4.5	4.5	4.7	4.8	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0	3.8	3.7	3.0	3.0
	M-51 XVI	720	29/09/17	25/01/20	4.0	4.0	4.3	4.2	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.0	4.0	4.0	3.5	3.5	5.0	0.0	4.0	0.0
	6409 XVI	637	29/01/17	28/01/20	4.3	4.2	4.5	4.5	5.0	5.0	4.8	4.7	4.5	4.5	4.0	4.0	3.8	3.7	3.5	3.5	2.0	3.0	2.0	2.0
	6405 XV	548	13/07/16	25/04/20	3.5	3.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.2	3.2	3.0	3.0	4.0	0.0	3.0	0	3.0	0.0
	6290 XV	557	05/05/16	02/05/20	3.8	3.7	4.3	4.2	4.5	4.5	4.5	4.5	5.0	5.0	4.5	4.5	4.0	4.0	3.0	3.0	3.0	2.0	2.3	2.2
	6379 XVI	722	30/09/17	27/06/20	3.0	3.0	4.8	4.7	5.0	5.0	4.0	4.0	4.0	4.0	3.5	3.5	3.3	3.2	3.0	3.0	4.0	0.0		
	4889 XVI	421	27/11/16	03/07/20	4.5	4.5	4.0	4.0	5.3	5.2	4.5	4.5	4.3	4.2	4.0	4.0	3.8	3.7	3.5	3.5	2.5	2.5		
	6139 XV	568	28/08/16	10/07/20	3.8	3.7	4.5	4.5	5.8	5.7	4.8	4.7	4.0	4.0	4.0	4.0	3.5	3.5	3.5	3.5	2.0	2.0		
	4438 XV	521	04/04/16	16/07/20	4.0	4.0	4.3	4.2	4.5	4.5	5.8	5.7	4.5	4.5	4.3	4.2	4.0	4.0	4.0	4.0	3.0	3.0		
	4705 XVI	617	13/12/16	20/07/20	4.0	4.0	5.5	5.5	5.5	5.5	4.0	4.0	5.0	5.0	5.0	3.5	3.5	3.8	3.7	3.0	3.0			
	6290 XV	556	02/08/16	09/08/20	3.5	3.5	4.0	4.0	4.0	4.0	4.0	4.0	4.3	4.2	3.3	3.2	3.0	3.0	2.5	2.5				
	4592 XVI	682	02/08/17	22/08/20	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	M-29 XVI	724	29/09/17	29/09/20	4.0	4.0	4.5	4.5	5.0	5.0	4.5	4.5	5.0	5.0	4.0	4.0								
	4328 XV	598	31/10/16	18/10/20	4.3	4.2	4.0	4.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0								
	1064 XVI	761	12/12/17	19/10/20	4.0	4.0	4.5	4.5	4.5	4.5	4.0	4.0	4.5	4.5	3.8	3.7								
	6646 XVI	710	12/19/17	20/10/20	3.5	3.5	5.0	5.0	4.8	4.7	5.0	5.0	5.5	5.5	5.0	5.0								
	4403 XV	595	22/10/16	29/10/20	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	1064 XVI	782	02/03/18	29/10/20	5.0	5.0	6.0	6.0	6.0	6.0	7.0	7.0	6.0	6.0										
	6409 XVI	636	27/01/17	03/11/20	5.0	5.0	5.0	5.0	5.3	5.2	5.5	5.5	5.8	5.7										
	1053 XVI	665	26/05/17	06/11/20	4.0	4.0	4.5	4.5	5.0	5.0	5.0	5.0	5.0	5.0										
	1064 XVI	780	23/02/18	02/12/20	4.0	4.0	4.3	4.2	4.5	4.5	5.5	5.5												
	6409 XVI	648	18/03/17	05/01/21	4.0	4.0	4.5	4.5	4.5	4.5														
	6290 XV	547	10/07/16	20/01/21	3.5	3.5	4.0	4.0	5.0	5.0														
	2459 XV	508	02/02/16	26/01/21	4.5	4.5	5.0	5.0																
	4705 XVI	599	04/11/16	12/02/21	4.5	4.5	5.5	5.5																
	4889 VI	705	06/09/17	22/02/21	5.0	5.0																		
	M-51 XVI	700	27/08/17	23/02/21	4.0	4.0																		

	6405 XV	1179	22/09/16	20/10/20	3.5	3.5	5.0	5.0	5.5	5.5	4.5	4.5	4.8	4.7	4.5	4.5								
	4328 XV	1188	11/10/16	28/10/20	4.0	4.0	5.0	5.0	5.0	5.0	4.5	4.5	5.0	5.0										
	6379 XVI	1312	21/09/17	03/11/20	4.0	4.0	5.0	5.0	5.5	5.5	6.0	6.0	5.5	5.5										
	6646 XVI	1331	07/11/17	27/11/20	4.5	4.5	4.3	4.2	4.5	4.5	4.3	4.2												
	1027 XVI	1344	21/12/17	01/01/21	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	6409 XVI	1301	08/09/17	24/01/21	4.5	4.5	5.5	5.5																
Dhiktana																								
	2412 XV	694	15/08/15	01/07/19	5.3	5.0	5.8	5.3	5.5	5.2	5.7	5.2	5.4	4.9	4.2	3.7	3.8	3.5	2.7	2.3	4.6	0	2.8	0
	2459 XV	698	27/08/15	06/07/19	4.2	3.7	5.6	5.2	5.2	4.8	5.5	5.1	5.2	4.8	3.9	3.5	3.7	3.4	3.3	3.0	3.2	2.9	2.7	2.3
	4438 XV	751	08/06/16	09/08/19	4.2	3.7	5.3	4.8	5.6	5.3	5.4	5.0	4.8	4.4	4.5	4.0	3.4	3.1	3.4	0	2.5	0	2.1	0.0
	4363 XV	713	05/10/15	15/09/19	3.8	3.4	4.8	4.4	5.3	4.9	5.5	5.1	5.3	5.0	4.2	3.7	4.0	3.6	3.3	3.0	3.0	2.7	2.6	2.2
	2371 XV	721	07/11/15	22/09/19	4.4	4.1	4.9	4.8	5.2	4.8	5.4	5.0	4.6	4.1	3.5	3.0	3.2	2.8	2.9	2.5	2.3	2.0	1.9	0.0
	6405 XV	759	20/09/16	24/09/18	4.6	4.2	4.8	4.5	4.9	4.6	5.1	4.7	3.9	3.6	3.7	3.4	3.5	3.0	3.3	3.0	2.5	2.1	2.1	0.0
	6405 XV	757	14/09/16	30/10/19	4.7	4.2	5.4	5.0	5.6	5.2	5.8	5.3	4.6	4.2	4.4	4.0	3.9	3.4	2.4	2.1	2.2	1.7	1.9	0.0
	2501 XVI	763	19/12/16	01/11/19	4.5	4.1	4.8	4.3	5.1	4.6	5.4	5.0	4.7	4.2	4.3	4.0	3.8	3.4	3.4	3.0	3.1	2.7	2.3	1.7
	2501 XVI	778	14/07/17	14/05/20	3.8	3.4	5.3	4.8	5.7	5.3	5.9	5.5	5.7	5.2	5.3	5.0	4.1	3.7	3.9	3.5	2.5	2.1	2.2	0.0
	2383 XVI	780	24/07/17	01/06/20	4.5	4.5	5.2	4.7	5.6	5.3	5.8	5.4	5.4	5.0	5.2	4.8	4.7	4.3	3.8	3.4	3.4	3.0	2.2	1.7
	4592 XVI	802	18/09/17	13/07/20	3.5	3.1	4.7	4.2	5.2	4.8	5.5	5.1	5.6	5.3	5.0	4.5	4.5	4.0	3.5	3.1	2.6	2.2		
	M-51 XVI	813	12/10/17	14/07/20	3.7	3.2	5.2	4.8	5.8	5.4	5.9	5.5	5.7	5.3	5.3	4.9	4.6	4.2	3.7	3.3	2.8	2.4		
	1027 XVI	776	06/07/17	22/08/20	4.6	4.2	5.3	4.9	5.4	5.0	5.1	4.8	4.8	4.3	3.8	3.4	3.5	3.0						
	2501 XVI	800	15/09/17	23/08/20	4.5	4.2	4.9	4.5	5.7	5.3	5.3	4.8	4.9	4.5	3.7	3.3	3.4	3.0						
	2417 XV	755	08/08/16	25/08/20	4.9	4.5	5.5	5.2	5.6	5.2	4.9	4.4	4.8	4.4	3.5	3.2	3.3	3.0						
	1064 XVI	825	21/11/17	26/08/20	4.5	4.1	4.8	4.4	5.0	4.6	4.6	4.3	4.3	4.0	4.0	3.6	3.6	3.1						
	2383 XVI	807	07/10/17	31/08/20	4.7	4.4	5.1	4.7	5.5	5.0	5.7	5.2	5.5	5.1	4.6	4.2	3.5	3.0						
	M-29 XVI	805	05/10/17	14/09/20	3.6	3.2	4.5	4.0	5.4	5.0	5.6	5.2	5.8	5.4	5.4	5.0	4.4	4.2						
	4705 XVI	786	16/08/17	08/10/20	3.7	3.4	4.6	4.2	5.4	5.0	5.9	5.5	5.5	5.1	5.0	4.6								
	2383 XVI	811	14/10/17	13/10/20	3.0	3.5	4.5	4.1	5.5	5.1	5.8	5.4	5.6	5.2	5.1	4.6								
	2383 XVI	781	21/07/17	27/10/20	4.3	4.0	5.6	5.1	5.7	5.2	5.3	4.9	4.6	4.2										
	6646 XVI	822	03/11/17	08/11/20	4.0	3.6	4.6	4.02	5.5	5.0	5.7	5.4	5.9	5.5										
	M29 XVI	810	19/10/17	23/12/20	4.3	3.9	5.4	5.0	5.7	5.4														
	M-51 XVI	833	11/02/18	22/02/21	4.3	3.8																		
Kheri																								
	4438 XV	609	15/07/16	20/09/19	4.0	4.0	4.5	4.7	3.5	3.4	5.2	4.9	5.6	4.9	5.0	4.5	3.8	3.4	3.4	3.2	1.8	1.3	Dry	x
	4705 XVI	644	17/11/16	21/10/19	4.0	3.9	4.8	4.4	3.4	3.2	3.6	2.3	3.4	3.2	3.4	3.2	2.4	1.9	2.4	2.1	2.4	2.1	2.3	2.1
	4438 XV	631	24/09/16	14/05/20	2.4	2.1	3.8	2.4	3.6	3.2	3.6	3.1	3.5	3.2	3.4	3.3	3.1	2.5	2.5	2.0	3.1	2.6	2.3	2.0
	2467 XVI	725	31/12/17	09/07/20	4.7	4.2	4.9	4.3	5.5	5.1	5.3	5.0	5.3	5.0	5.4	5.0	5.5	4.9	5.2	4.5	4.0	3.7		
	4705 XVI	640	04/11/16	10/07/20	5.2	4.9	5.1	4.8	5.5	5.1	5.4	5.0	4.7	4.3	4.5	4.0	4.6	4.0	4.5	4.0	3.7	3.5		
	M-29 XVI	692	09/08/17	22/08/20	5.7	5.2	5.7	5.3	5.7	5.1	5.6	5.0	5.7	4.7	5.0	4.6	3.7	3.3						
	M-29 XVI	674	10/05/17	23/08/20	4.7	4.1	4.4	4.0	5.3	4.8	5.1	4.6	4.6	4.2	4.5	4.1	4.4	4.0						
	6405 XV	604	15/06/16	07/09/20	4.5	4.3	4.6	4.3	5.1	4.6	5.3	5.0	4.7	4.3	4.8	4.2	4.7	4.1						
	6379 XVI	656	06/01/17	11/10/20	4.5	4.5	5.1	4.6	5.1	4.6	5.1	4.6	5.1	4.5	4.5	4.1								
	M-51 XVI	695	18/08/17	27/11/20	5.3	5.0	5.1	4.7	5.2	4.7	5.1	4.6												
	1053 XVI	706	18/10/17	29/11/20	5.2	4.8	4.7	4.4	4.8	4.5	4.6	4.3												
	4705 XVI	704	29/09/17	02/01/21	4.3	4.0	4.5	4.5	5.2	4.7														
	1053 XVI	680	14/06/17	04/02/21	5.1	4.7	5.1	4.7																
Jewra																								
	4363 XV	825	26/04/16	31/07/19	4.3	3.8	4.8	4.4	4.2	3.7	4.5	4.3	3.0	3.0	4.4	4.4	4.0	4.0	4.0	3.0	3.2	2.9	3.0	3.0
	4363 XV	884	17/09/16	05/08/19	4.8	4.4	5.6	4.8	5.7	4.4	5.5	4.2	5.0	5.0	4.0	3.0	5.0	5.0	5.0	4.0	4.5	2.4	2.5	2.5
	4403 XV	814	25/02/16	18/08/19	4.6	4.2	4.6	4.2	4.6	4.2	4.4	4.1	4.6	3.0	2.0	2.0	3.0	3.0	2.0	3.0	2.5	2.5	3.0	0.0

	6405 XV	874	08/09/16	20/08/19	5.3	4.9	6.2	5.9	5.7	5.4	5.9	5.4	5.1	2.6	5.0	5.5	6.0	5.0	5.0	5.0	4.0	3.0	Dry	x
	6290 XV	808	12/01/16	03/09/19	4.8	4.6	3.4	3.2	4.2	3.9	4.0	5.0	5.0	4.0	5.0	3.0	4.0	3.0	3.2	2.9	Dry	x	x	x
	6405 XV	890	29/09/16	03/09/19	5.8	5.4	6.5	6.1	6.4	5.7	6.0	6.0	5.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	2.0	2.0	Dry	x
	6290 XV	856	14/07/16	14/09/18	4.7	4.2	4.2	3.9	4.4	4.2	3.0	3.0	4.0	3.0	3.0	3.0	3.0	2.0	2.0	3.0	2.0	3.0	0.0	
	4328 XV	871	05/09/16	18/09/19	4.1	3.7	5.2	4.5	5.3	4.7	3.2	4.1	4.0	4.0	4.0	3.0	4.0	3.0	2.0	2.0	2.0	1.0	Dry	x
	2467 XVI	926	15/11/16	07/10/19	5.5	5.0	4.5	4.5	4.0	4.0	4.5	4.0	4.0	4.0	4.0	3.0	4.0	3.0	3.0	3.0	3.0	2.0	3.0	
	6405 XV	845	05/07/16	16/10/19	4.2	3.9	4.4	4.2	5.0	5.0	6.0	6.0	5.0	4.0	5.0	3.0	4.0	3.0	4.0	3.0	3.0	2.0	1.0	
	2412 XV	818	12/03/16	17/10/19	5.6	5.1	5.3	5.1	6.0	6.0	6.0	6.0	6.0	5.0	4.0	5.0	4.0	4.0	4.0	3.0	3.0	2.0	2.0	
	2429 XV	861	05/08/16	22/10/19	6.4	6.2	4.0	3.0	5.0	5.0	5.0	4.0	5.0	3.0	4.0	3.0	4.0	2.0	2.0	2.0	Dry	x	x	x
	6290 XV	809	12/01/16	13/11/19	5.4	4.7	6.0	5.0	6.0	5.0	6.0	5.0	5.0	5.0	5.0	4.0	3.0	3.0	2.0	2.0	Dry	x	x	x
	2501 XVI	921	26/11/16	17/04/20	4.4	3.8	4.0	4.0	4.0	4.0	4.0	3.0	4.0	3.0	3.0	3.0	3.1	2.4	3.0	2.0	2.5	2.5	2.5	2.5
	1027 XVI	987	09/07/17	20/04/20	4.0	3.0	4.3	4.2	5.0	5.0	5.0	4.0	5.0	5.0	5.0	4.0	4.2	3.8	4.3	3.7	2.0	2.0	2.1	2.0
	6290 XV	858	21/07/16	21/04/20	7.0	8.0	7.0	6.0	7.0	5.0	3.0	3.0	3.0	2.0	2.0	2.0	5.7	5.3	4.2	3.8	4.2	3.9	4.1	3.9
	1027 XVI	984	10/07/17	24/04/20	5.0	4.0	4.4	4.4	4.0	4.0	4.0	4.0	4.0	4.0	4.2	3.8	4.2	2.8	3.2	2.8	2.5	2.5	2.0	2.0
	4354 XV	835	04/06/16	02/07/20	4.0	4.0	5.0	3.0	4.0	3.0	3.6	2.4	5.2	4.8	3.2	3.8	3.8	3.4	4.0	4.0	4.2	3.5		
	4705 XVI	952	20/03/17	10/07/20	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	M-51 XVI	999	15/08/17	21/07/20	5.0	4.0	4.0	4.0	4.1	3.9	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x
	6139 XV	906	05/11/16	29/07/20	6.0	5.0	5.0	5.0	4.8	4.2	4.4	2.6	4.3	4.7	4.4	4.8	5.1	4.2	4.6	3.4				
	M-29 XVI	1005	19/08/17	01/08/20	4.0	3.0	3.0	3.0	3.1	2.0	4.2	3.8	4.2	3.8	4.3	3.9	4.0	3.0	3.0	3.0				
	6646 XVI	949	02/03/17	23/08/20	5.0	4.0	4.8	4.2	2.0	2.0	3.0	0.0	Dry	x	x	x	x	x	x	x	x	x	x	x
	M-29 XVI	996	10/08/17	08/09/20	4.0	4.0	4.1	3.9	4.5	3.5	3.2	3.8	3.5	3.9	4.5	4.2	5.3	4.7						
	M-29 XVI	946	25/02/17	11/09/20	4.0	3.0	3.6	2.8	3.2	3.8	2.1	1.9	2.1	1.5	Dry	x	x	x	x	x	x	x	x	x
	1027 XVI	1028	07/10/17	14/09/20	4.0	4.0	4.3	3.7	5.3	4.7	4.4	4.6	4.3	4.2	4.0	4.0	5.8	3.4						
	M-29 XVI	944	26/01/17	15/09/20	4.0	4.0	4.5	4.0	4.2	3.8	3.2	3.8	3.2	3.9	4.6	3.2	4.0	3.0						
	6753 XVI	990	15/07/17	22/09/20	3.0	2.0	4.2	3.8	4.2	3.8	4.0	3.8	3.6	3.4	3.0	3.0								
	6646 XVI	969	22/05/17	30/09/20	3.6	2.4	6.2	5.8	5.5	5.5	5.3	5.2	5.1	5.0	4.5	4.3								
	4889 XVI	1015	18/09/17	21/10/20	4.2	4.8	4.2	3.8	4.3	3.5	4.3	3.0	4.0	3.0										
	1053 XVI	1041	31/10/17	22/10/20	4.2	3.8	4.1	2.9	3.7	2.6	3.0	3.0	2.5	2.5										
	4889 XVI	932	19/12/16	27/10/20	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	1064 XVI	1061	09/01/18	15/11/20	4.0	4.0	6.2	5.8	6.3	4.7	6.2	4.1	4.6	4.5										
	1027 XVI	1064	26/01/18	21/12/20	4.3	3.7	4.0	4.0	4.2	3.8														
	1027 XVI	1019	25/09/17	29/12/20	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	4889 XVI	1013	23/09/17	28/12/20	6.1	5.9	5.7	5.3	5.1	4.9														
	4837 XVII	1147	26/09/18	01/01/21	4.0	4.0	3.4	3.1	3.0	3.0														
	1027 XVI	1017	18/09/17	17/03/21	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Kirara																								
	2371 XV	411	31/12/15	10/09/19	4.6	4.2	3.4	3.2	3.4	3.2	3.0	2.5	4.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0	Dry	x	x	x
	4328 XV	436	06/11/16	12/10/19	5.4	5.2	5.4	5.2	6.0	4.0	4.0	3.0	4.0	3.0	4.0	2.0	3.0	2.0	Dry	x	x	x	x	x
	4705 XVI	437	12/11/16	13/10/19	3.5	3.2	3.5	3.2	4.0	2.0	5.0	4.0	5.0	4.0	5.0	3.0	4.0	3.0	3.0	2.0	3.0	0.0	3.0	3.0
	4889 XVI	445	07/01/17	28/11/19	4.5	4.5	4.0	4.0	6.0	5.0	5.0	5.0	4.0	4.0	4.0	3.0	3.0	3.0	2.0	3.0	Dry	x	x	x
	4705 XVI	440	26/11/16	13/12/19	3.6	3.4	5.0	4.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	3.0	3.0	5.0	5.0	5.0	5.0	4.0
	4324 XV	429	09/09/16	20/01/20	5.0	5.0	5.0	5.0	5.0	4.0	4.0	3.0	3.0	3.0	2.0	2.0	Dry	x	x	x	x	x	x	x
	6405 XV	431	09/10/16	04/07/20	3.0	3.0	6.0	6.0	5.0	5.0	3.4	3.6	4.1	3.9	4.2	3.8	4.3	3.8	4.0	3.0	2.5	2.5		
	6290 XV	420	01/05/16	21/07/20	5.0	5.0	4.0	4.0	4.1	3.9	3.6	2.4	4.2	3.8	3.8	3.4	3.2	3.1	3.1	2.9				
	M-29 XVI	458	03/08/17	27/10/20	4.1	3.9	5.2	4.8	5.3	4.2	4.3	4.2	4.3	3.2										
Sarsod																								
	4705 XVI	416	11/11/16	23/08/19	5.2	5.0	4.9	4.7	5.2	5.0	5.3	5.1	3.8	3.6	3.3	3.1	1.5	1.3	Dry	x	x	x	x	x
	2412 XV	354	25/05/16	25/08/19	5.6	5.4	4.3	4.1	4.3	4.1	4.8	4.6	3.9	3.7	4.2	4.0	3.5	3.2	2.7	2.4	3.0	2.8	2.3	2.1
	2429 XV	383	10/09/16	29/08/19	4.9	4.7	5.4	5.2	4.7	4.5	4.4	4.2	4.3	4.1	5.3	5.1	3.8	3.6	3.5	3.2	2.7	2.5	2.0	1.8

	2429 XV	404	26/10/16	30/08/19	5.4	5.2	5.2	5.0	5.0	4.8	4.5	4.3	5.2	5.0	4.2	4.0	3.5	3.3	3.7	3.5	2.8	2.6	1.8	1.6
	6405 XV	335	06/01/16	22/09/19	4.2	4.0	4.8	4.6	2.4	2.2	4.2	4.0	3.4	3.2	3.2	3.0	4.1	3.8	3.2	3.0	2.7	2.5	2.0	0.0
	2417 XV	359	21/06/16	10/10/19	4.3	4.1	3.8	3.6	3.6	3.4	4.8	4.6	3.9	3.7	3.8	3.6	4.4	4.2	2.8	2.6	2.5	2.3	2.2	2.0
	6139 XV	329	19/12/15	30/10/19	4.9	4.7	5.4	5.2	4.7	4.5	4.8	4.6	4.8	4.6	4.9	4.7	5.2	5.0	4.2	4.0	4.8	4.6	4.0	3.8
	4403 XV	357	11/06/16	05/11/19	3.8	3.6	4.2	4.0	5.0	4.8	4.3	4.1	5.2	5.0	3.2	3.0	3.7	3.5	3.3	3.1	3.0	2.8	4.2	4.0
	4705 XVI	418	16/11/16	28/12/19	5.3	5.1	4.7	4.5	4.7	4.5	Sold	x	x	x	x	x	x	x	x	x	x	x	x	
	M-51 XVI	469	18/08/17	10/01/20	4.2	4.0	5.6	5.4	4.9	4.7	3.9	3.7	3.9	3.6	4.3	4.1	3.9	3.7	3.2	3.0	2.0	1.8	2.3	2.1
	4592 XVI	448	02/04/17	10/04/20	4.2	4.0	4.2	4.0	4.7	4.5	4.3	4.1	3.3	3.1	3.2	3.0	2.2	1.7	2.8	2.6	2.5	2.3	2.0	1.5
	2459 XV	362	26/06/16	12/05/20	2.8	2.6	5.2	5.0	6.2	6.0	5.8	5.5	5.2	5.0	5.2	5.0	4.5	4.2	4.6	4.3	4.8	4.6	3.3	3.1
	M-51 XVI	468	05/08/17	15/05/20	5.0	5.0	5.4	5.2	5.3	5.1	5.2	5.0	3.4	3.2	3.4	3.2	2.3	2.1	3.5	3.2	Dry	x	x	x
	4328 XV	405	19/10/16	07/07/20	6.0	5.8	6.2	6.0	5.8	5.6	4.7	4.5	3.3	3.0	3.7	3.5	Sold	x	x	x	x	x	x	x
	4363 XV	367	26/07/16	15/07/20	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	4592 XVI	462	25/07/17	15/07/20	4.8	4.6	4.8	4.6	4.3	4.1	3.9	3.7	6.2	6.0	2.4	2.2	3.2	3.0	2.2	2.0	2.0	0.0		
	M-51 XVI	504	30/10/17	24/07/20	6.2	6.0	5.6	5.4	5.3	5.1	4.3	4.1	5.2	5.0	4.7	4.5	4.8	4.6	3.7	3.5				
	4324 XV	381	10/09/16	30/07/20	4.9	4.7	3.9	3.7	5.0	4.8	5.0	4.8	5.8	5.6	5.2	5.2	4.5	4.3	3.9	3.7				
	1053 XVI	466	06/08/17	08/08/20	5.2	5.0	5.2	5.0	5.6	5.3	4.2	4.0	4.9	4.7	4.7	4.5	3.9	3.7	3.2	3.0				
	4324 XV	380	02/09/16	09/08/20	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	M-29 XVI	499	09/10/17	20/08/20	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	2383 XVI	501	19/10/17	28/08/20	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	6409 XVI	441	10/03/17	29/08/20	5.1	4.9	4.7	4.5	5.6	5.4	3.2	3.0	4.3	4.1	4.3	4.1	4.0	3.8						
	4889 XVI	480	01/09/17	02/09/20	4.8	4.6	4.9	4.6	4.7	4.5	4.6	4.4	3.9	3.7	4.8	4.6	4.2	4.0						
	2412 XV	385	15/09/16	04/09/20	4.5	4.3	5.8	5.6	5.3	5.1	4.4	4.2	3.7	3.5	4.2	4.0	3.2	3.0						
	1053 XVI	455	15/06/17	11/09/20	5.2	5.0	5.3	5.1	5.1	4.7	5.2	5.0	3.8	3.5	5.1	4.8	3.8	3.6						
	1027 XVI	478	02/09/17	11/09/20	5.2	5.0	4.9	4.7	6.2	6.0	6.0	5.8	4.7	4.5	5.3	5.1	4.7	4.5						
	M-29 XVI	436	06/02/17	21/09/20	5.6	5.3	5.8	5.6	5.2	6.0	2.5	2.3	5.8	5.6	5.8	5.5								
	2383 XVI	500	19/10/17	07/11/20	5.0	4.7	5.2	5.0	5.2	5.0	5.4	5.2	5.7	5.5										
	6409 XVI	434	18/01/17	18/01/21	4.5	4.2	4.9	4.7	5.0	4.8														
Bichpari																								
	6007 XV	264	06/11/15	06/07/19	7.5	7.3	7.5	7.3	6.8	6.6	6.7	6.5	6.9	6.1	5.8	5.6	5.3	5.1	4.8	4.6	1.5	1.3	1.5	0
	2412 XV	262	28/10/15	03/08/19	5.2	5.0	5.6	5.3	4.8	4.6	5.2	5.0	5.0	4.8	4.7	4.5	4.7	4.5	3.2	3.0	2.8	2.6	3.5	3.3
	2429 XV	225	19/07/15	05/08/19	5.8	5.5	5.7	5.5	6.6	6.1	5.5	5.3	5.2	5.0	5.1	4.9	4.8	4.5	4.2	4.0	3.8	3.6	3.0	2.8
	M-29 XVI	388	10/02/17	06/08/19	5.2	5.0	5.4	5.2	4.9	4.7	5.3	5.1	5.4	5.2	4.7	4.5	5.2	5.0	3.8	3.6	2.3	2.1	Dry	x
	4324 XV	341	03/09/16	10/08/19	5.8	5.6	5.8	5.6	5.2	5.0	4.7	4.5	4.8	4.6	5.7	5.5	4.3	4.1	2.8	2.6	Dry	x	x	x
	4363 XV	353	18/09/16	17/08/19	4.2	4.0	4.3	4.1	4.7	4.5	5.2	5.0	3.4	3.2	5.2	5.0	5.2	5.0	4.8	4.6	4.7	4.5	3.2	3.0
	2429 XV	303	10/05/16	29/08/19	3.7	3.5	4.2	4.0	3.8	3.6	3.2	3.2	3.7	3.5	3.9	3.7	3.7	3.5	4.8	4.6	3.5	3.2	1.2	0.0
	2412 XV	306	16/05/16	13/09/19	5.2	5.0	4.2	4.0	4.7	4.5	3.8	3.6	4.9	4.7	2.8	2.6	2.9	2.7	2.8	2.6	4.2	4.0	1.7	1.5
	2459 XV	312	05/07/16	21/10/19	4.8	4.6	5.8	4.0	6.0	5.8	5.9	5.7	5.8	5.6	4.2	4.0	2.8	2.6	3.8	3.2	3.8	3.6	3.2	3.0
	4438 XV	356	09/10/16	18/11/19	4.3	4.1	4.2	4.0	5.2	5.0	5.4	5.2	5.6	5.4	5.2	5.0	3.9	3.7	3.2	3.0	4.2	4.0	2.6	2.4
	6007 XV	259	10/10/15	01/12/19	4.2	4.0	5.1	4.9	5.2	5.0	5.5	5.3	3.2	3.0	3.9	3.7	3.0	2.8	3.8	3.6	3.8	3.6	2.2	2.2
	4328 XV	370	25/10/16	17/12/19	3.8	3.6	5.3	5.1	4.8	4.7	4.8	4.6	4.3	4.1	4.2	4.0	3.8	3.6	4.0	3.8	4.2	4.0	3.5	3.2
	4328 XV	304	14/05/16	19/12/19	3.5	3.3	4.3	4.1	4.2	4.0	5.2	5.0	2.8	2.6	3.8	3.6	3.2	3.0	3.7	3.5	2.3	2.1	2.2	2.0
	4363 XV	322	25/07/16	23/12/19	4.7	4.5	5.3	5.1	4.5	4.3	5.2	5.0	3.3	3.1	3.9	3.6	4.8	4.6	2.4	2.2	2.8	2.8	2.8	2.6
	1053 XVI	405	13/06/17	13/04/20	4.7	4.5	5.2	5.0	5.2	5.0	5.2	5.0	4.8	4.6	3.2	3.0	3.8	3.6	4.0	3.8	4.0	4.2	3.7	3.4
	4438 XV	359	23/09/16	26/04/20	6.7	6.5	5.1	4.8	6.2	6.0	4.9	4.7	4.8	4.6	4.2	4.0	4.2	4.0	3.8	3.6	3.9	3.7	1.7	1.5
	2501 XVI	379	26/11/16	30/04/20	4.4	4.2	5.7	5.5	5.2	5.0	5.2	5.0	4.2	4.0	5.7	5.5	4.5	4.3	4.2	4.0	4.7	4.5	2.8	2.6
	M-51 XVI	442	01/10/17	14/05/20	4.8	4.6	5.9	5.7	5.9	5.7	4.9	4.7	5.2	5.0	4.8	4.6	2.8	2.5	3.2	6.0	Dry	x	x	x
	4889 XVI	380	13/12/16	08/06/20	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	4354 XV	363	06/10/16	11/06/20	4.7	4.5	6.3	6.1	5.1	4.9	6.8	6.6	5.5	5.3	4.0	3.8	4.3	4.1	3.5	3.3	3.4	3.2	2.6	2.4
	4438 XV	360	08/10/16	12/06/20	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

	4705 XVI	415	04/08/17	16/06/20	5.2	5.0	6.8	6.6	6.3	6.1	6.3	6.1	5.5	5.3	5.2	5.0	4.2	4.0	4.8	4.6	2.8	2.6	Dry	x
	4592 XVI	382	25/12/16	17/06/20	4.5	4.3	6.0	5.8	4.8	4.6	5.3	5.1	6.3	6.1	5.0	4.8	4.3	4.1	3.9	3.7	3.5	3.2	3.2	0.0
	M-29 XVI	448	11/10/17	21/07/20	5.8	5.6	3.8	3.6	4.9	4.7	5.2	5.0	5.0	4.7	3.7	3.5	3.2	3.0	Dry	x	x	x	x	x
	4705 XVI	414	01/08/17	22/07/20	6.3	6.1	6.9	6.7	5.3	5.1	4.7	4.5	5.2	5.0	3.8	3.6	3.8	3.6	3.2	3.0				
	4705 XVI	372	04/11/16	18/08/20	4.9	4.7	5.2	5.2	5.2	5.0	3.7	3.5	5.1	4.9	3.9	3.6	3.2	3.0	3.8	3.6				
	6409 XVI	457	26/10/17	01/09/20	2.2	2.0	2.0	2.2	3.2	3.0	4.0	3.8	3.2	3.4	Dry	x	x	x	x	x	x	x	x	x
	6290 XV	326	06/08/16	06/09/20	3.9	3.7	4.2	4.0	4.9	4.7	3.9	3.7	4.3	4.1	4.4	4.2	3.0	2.8						
	4705 XVI	416	01/08/17	08/09/20	3.7	3.5	5.2	5.0	5.3	5.1	5.3	5.1	5.9	5.7	4.4	4.2	3.6	3.4						
	M-51 XVI	420	10/08/17	10/09/20	3.8	3.6	4.3	4.1	4.9	4.7	5.8	5.6	5.2	5.0	4.8	4.6	4.5	4.3						
	M-51 XVI	421	19/08/17	12/09/20	5.2	5.0	3.8	3.5	4.1	3.8	4.9	4.7	4.2	4.0	4.2	4.0	4.0	3.8						
	4592 XVI	412	27/07/17	21/09/20	4.2	4.0	5.3	5.1	6.2	6.0	5.2	5.0	5.9	5.7	6.2	6.0								
	6646 XVI	439	18/09/17	21/09/20	4.9	4.7	3.0	2.8	3.2	3.0	4.0	3.8	2.8	2.6	Dry	x	x	x	x	x	x	x	x	x
	2383 XVI	453	27/10/17	26/10/20	4.3	4.1	5.3	5.1	5.2	5.0	5.0	4.8	2.3	2.0										
	4889 XVI	376	22/11/16	22/11/20	5.9	5.7	5.9	5.7	5.0	5.2	5.3	5.0												
	M-51 XVI	422	18/08/17	08/01/21	4.4	4.2	4.8	4.6	6.2	6.0														
	1053 XVI	406	10/06/17	04/03/21	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	2383 XVI	450	12/10/17	11/03/21	4.8	4.6																		
	2607 XVII	528	25/09/18	15/03/21	4.2	4.0																		
Bado Patti																								
	2412 XV	197	24/02/16	18/09/19	4.5	4.5	3.8	3.5	2.5	2.2	4.2	3.9	4.4	3.9	4.2	3.4	4.2	3.9	3.2	2.9	3.4	2.8	2.6	2.2
	4324 XV	174	19/10/15	10/11/19	4.0	3.7	5.6	5.2	6.2	5.9	5.6	5.1	5.3	4.6	4.8	4.4	4.4	3.9	4.2	3.7	3.6	3.2	3.4	3.1
	2467 XVI	278	23/08/17	23/08/20	3.5	3.0	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	2417 XV	231	26/09/16	28/08/20	4.5	4.1	4.7	4.2	6.1	5.8	5.5	5.0	4.9	4.5	4.5	4.0	3.8	3.2						
	6753 XV	291	15/11/17	29/09/20	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	2467 XVI	280	06/09/17	09/11/20	5.1	4.6	4.8	4.2	4.6	4.4	4.6	4.0	4.7	4.5										
	2417 XV	211	02/06/16	18/11/20	4.5	4.0	5.3	4.8	4.7	4.2	5.1	4.7	5.1	4.7										
	6405 XV	146	28/09/16	14/12/20	5.1	4.5	5.2	4.8	5.2	4.8	5.1	5.0												
	4328 XV	233	08/11/16	07/01/21	4.9	4.5	4.5	4.0	4.8	4.4														
	6007 XV	216	04/07/16	10/02/21	4.6	4.1	4.9	4.4																
Bugana																								
	6405 XV	149	06/10/16	06/09/19	4.3	4.0	5.3	4.9	5.5	5.1	5.7	5.4	5.2	4.8	4.8	4.4	3.6	3.2	3.3	2.8	2.8	0	1.5	0
	4354 XV	115	21/09/15	06/10/19	3.8	3.5	4.8	4.3	5.2	4.7	5.4	4.9	4.9	4.6	4.3	4.0	4.0	3.6	3.2	2.8	2.8	2.4	2.1	0.0
	4354 XV	119	14/10/15	28/11/19	4.4	4.0	5.7	5.4	5.9	5.4	5.8	5.4	5.2	4.7	4.4	4.0	3.9	3.6	2.8	2.4	2.6	0.0	1.2	0.0
	4363 XV	147	30/09/16	14/07/20	3.4	3.0	4.6	4.2	4.8	4.4	5.2	4.7	5.0	4.6	4.3	4.0	4.8	0	2.3	0.0	Dry	x	x	x
	4324 XV	145	01/09/16	27/07/20	4.7	4.3	5.2	4.8	5.4	5.0	5.5	5.1	5.1	4.7	3.4	3.0	2.5	2.1	2.3	2.0				
	2417 XV	143	09/08/16	23/08/20	4.3	2.9	5.2	4.8	5.6	5.2	5.3	5.0	4.6	4.0	4.1	3.7	3.4	3.0						
	2467 XVI	168	30/10/17	22/10/20	4.4	4.0	4.9	4.4	5.3	4.8	4.6	4.2	4.5	4.1										
	4592 XVI	170	07/11/17	02/01/21	4.2	3.8	5.3	5.0	5.6	5.2														
	6405 XV	142	30/07/16	31/01/21	4.2	3.8	5.3	5.0																

Milk Recording up to March 2021 & Calving till March 2021

F 15. Set-wise AI, Conception and daughters retained

Set No.	Duration	Bulls (n)	AI	Preg	Calving		Progenies				
					Total	F	Calved (n)	Av. AFC (month)	Complete Recording	Av. Milk Yield (kg/day)	Available (n)
VIII	Jan 2004 to July 2005	17	1679	737	440	199	23	40.84	18	6.86	-
IX	Aug 2005 to Jan 2007	14	3418	1744	1222	556	89	44.45	58	7.88	-
X	Jan 2007 to Oct 2008	13	3400	1795	1252	600	100	42.23	78	7.49	-
XI	Oct 2008 to March 2010	14	4058	2066	1825	892	128	42.39	88	7.10	-
XII	March 2010 to Sept 2011	12	4569	2356	1119	538	142	42.13	101	7.58	-
XIII	Sept 2011 to March 2013	9	6251	3197	1989	937	272	42.75	203	7.94	-
XIV	March 2013 to July 2014	10	4693	2271	1325	638	162	41.63	132	8.0	-
XV	July 2014 to Dec 2015	15	6955	3762	2732	1286	295#	40.18	227	8.20	13
XVI	Jan 2016 to June 2017	15	6116	3218	2485	1251	146#	37.23	119	8.71	178
XVII	July 2017 to Jan 2019	15	6053	3382	2636	1254	2#	-	-	-	574
XVIII	Jan 2019 to June 2020	15	5287	2839	1925*	872*	-	-	-	-	425
XIX	July 2020 to Dec. 2021	12	2916 Upto Mar 21	1234*							
# Calving and milk recording of progenies of XVth and XVIth set is in progress *Set XVIII - Calving recorded till March 2021 @ Set XIX - Preg reported till March 2021 (AI of Dec 2020)											1290

F 16. Performance of FPT Programme on Farmer's Buffaloes

Duration	AI	Pregnancies	CR%	Calvings		Progenies				
				Total	Females	Calved (n)	Av. AFC (months)	Complete Recording	Av. Milk Yield (kg/day)	Daughters Available for Future Recording
2001-02	139	25	17.98	17	6	-	-	-	-	-
2002-03	540	236	43.70	14	3	-	-	-	-	-
2003-04	1001	356	35.56	147	73	-	-	-	-	-
2004-05	1298	566	43.61	243	133	-	-	-	-	-
2005-06	1999	1009	50.48	382	179	1	32.28	1	4.61	-
2006-07	2102	1139	54.19	756	352	6	40.36	5	6.97	-
2007-08	2132	1104	51.78	772	311	7	43.31	7	8.04	-
2008-09	2176	1086	49.91	716	358	30	42.70	27	6.26	-
2009-10	2803	1450	51.73	971	481	28	39.69	14	7.33	-
2010-11	3433	1743	50.77	1279	634	48	41.94	36	7.93	-
2011-12	3308	1756	53.08	732	348	62	43.71	47	8.10	-
2012-13	4204	2104	50.05	1159	574	71	41.67	54	7.26	-
2013-14	3962	1903	48.03	1230	552	72	41.39	50	7.26	-
2014-15	4129	2218	53.72	1093	528	93	42.11	70	7.00	-
2015-16	4434	2326	52.46	1718	818	119	41.52	78	7.50	-

Cont..F 16

Duration	AI	Pregnancies	CR%	Calvings		Progenies				
				Total	Females	Calved (n)	Av. AFC (months)	Complete Recording	Av. Milk Yield (kg/day)	Daughters Available for Future Recording
2016-17	3807	2063	54.19	1661	797	170	42.04	139	7.77	8
2017-18	4093	2248	54.92	1593	799	160	43.03	126	7.86	26
2018-19	3977	2214	55.67	1710	830	181	40.02	144	8.21	325
2019-20	3957	2140	54.08	1754	801	172	40.44	123	8.01	374
2020-21	3480	1901	54.63	1430	663	169	40.53	139	7.96	372
Overall	56974	29587	51.93	19377	9240	1389	41.45	1060	7.75	1105

Project Co-ordinator's observations on field unit performance

Financial Statement for the year 2020-21 (Rs in Lakhs)

Sanctioned as per R E 2020-21		Released ICAR Share as per R E	Expenditure as per AUC	
Total	ICAR Share		ICAR Share	Balance
16.55	16.55	16.55	16.54813	0.04746

- During the period from April 2020 to March 2021, 3480 artificial inseminations were performed using test bulls of 18th and 19th set. The use 19th set was initiated from July 2020.
- The conception rate in the field was worked out to be 54.37 percent.
- In this period 1513 pregnancies were confirmed and 1430 calving (767 males, 663 females) were recorded. In addition, 169 progenies, 43 of 15th, 124 of 16th and 2 of 17th set were also calved and monthly test day milk yield were/ being recorded.
- The average age at first calving for these 169 daughters was 40.53 months.
- During the period 270 daughters were recorded, out of which 129 daughters completed the lactation, 25 daughters sold before the lactation was completed and recording of 116 daughters are in progress.
- As on 31st March 2021, 1190 female progenies of 15th to 18th set of different age are standing at various field unit centres for future recordings.

Recommendations:

- Follow up action be taken to record maximum number of daughters' first lactation milk yield.
- To create awareness and active participation of farmers in FPT program organized milk competitions in villages for dams and daughters.

FIELD UNIT: GADVASU, LUDHIANA

(i) Nodal agency : Coordinating unit CIRB HISAR

(ii) Participating Units : 1. CIRB, Hisar
2. GADVASU, Ludhiana
3. NDRI, Karnal

Date of start : November, 2001

OBJECTIVES:

To strengthen the ongoing sire evaluation programme of associated herd progeny testing by including field performance recording of the daughters of test bulls.

Financial Statement :

Statement showing budget sanctioned, amount spent for the period 1st April, 2020 to March, 2021.

Financial Statement for the year 2020-21 (Rs in Lakhs)

	Budget Sanctioned (Rs.)	Amount Spent (Rs.)
Pay & allowances	21,33,333	12,36,795
T.A.		
Contingencies		
Recurring	24,00,000	23,96,000
Equipments	2,00,000	2,00,000
Total	47,33,333	38,32,795

Staff and Infrastructure Buildup during the year :

i) Staff in position: Principal Investigator : Dr. Puneet Malhotra (Asstt. Professor)

Sr. No.	Name & Designation of the person employed on the sanctioned post with pay scale	Pay scale	Total time spent for the project	Remarks
1.	Milk Recording Supervisor	Rs. 10300-34800+3800	Full Time	
2.	Milk Recorder	Rs. 10300-34800+3200	Full Time	

F 1. Herd Strength of Registered females at Different Field Centers during 2020-21

Centers/ Village	OB	Addition			Deduction		Closing Birth
		New Reg.	Birth	Purchase/ Traced	Sold/	Death/ AB	
Aitiana	159	67		0	1	0	225
Barsal	156	26		0	10	1	171
Batha Dhua	379	22		0	21	2	378
Bharowal Kalan 1 (Bharowal Khurd)	36	32		0	4	0	64
Bhundri (Gorahoor), Bhundri Dairy	352	109		0	13	4	444
Boparai Kalan	9	0		0	0	0	9
Chimna	374	124		0	40	26	432
Chowkiman	195	53		0	8	0	240
Dhat	7	0		0	0	0	7
Bharowal Kalan 2 (Gkb)	46	148		0	2	1	191
Gurusar Kaunke	129	20		0	5	7	137
Gidharpindi	9	30		0	0	0	39
Hans Kalan	3	64		0	0	0	67
Jandi	30	43		0	0	1	72
Jassowal	492	130		0	25	3	594
Kailpur	340	29		0	21	1	347
Kehra Bet	140	106		0	4	0	242
Khudai Chak	303	16		0	16	6	265
Mandiani	19	0		0	3	0	16
Ponna	132	27		0	13	8	138
Raqba	35	5		0	1	0	39
Sadarpura	179	30		0	11	2	196
Sawaddi Kalan (Majri)	59	3		0	15	4	43
Sawaddi Khurd	249	60		0	11	2	296
Sidhwana Bet	5	13		0	0	0	18
Talwandi Khurd	217	41		0	9	0	249
Walipur Kalan	302	5		0	17	0	290
Walipur Khurd	220	40		0	10	0	250
	4576	1243		0	260	67	5492

F2. Status of breedable females at different field unit centers during 2020-21

Centers/ Village	Heifers >3 years		Buffalo (NP)		Buffalo Pregnant	
	Total	Pregnant	In milk	Dry	In milk	Dry
Aitiana	90	34	20	15	6	10
Barsal	121	33	21	18	6	8
Bhatha Dhua	117	31	17	17	17	13
Bharowal Kalan 1 & 2 Gkb	162	34	10	9	4	9
Bhundri 1 & 2 Gorahoor	180	92	26	31	17	8
Boparai Kalan	115	35	7	3	1	3
Chimna	190	171	19	22	7	6
Dhatt	140	18	2	1	0	1
Walipur Kalan	280	66	19	21	6	4
Gurusar	190	37	10	9	11	5
Jandi	260	39	10	8	4	5
Kailpur	180	133	20	28	28	12
Kehra Bet	75	58	26	35	2	5
Khudai Chak	90	62	8	8	10	2
Pandori	40	20	2	1	1	1
Raqba	90	45	3	2	2	1
Sawaddi Khurd	170	73	37	33	8	8
Walipur Khurd 1 & 2	250	90	22	20	13	6
Chowkiman	200	45	11	13	8	4
Sadarpura	205	55	15	11	12	5
Jasowal	300	140	35	33	33	9
Mandiani	80	11	4	1	4	2
Talwandi Khurd	140	80	26	23	6	3
Sidhwan Bet	170	62	25	18	4	5
Total	3835	1464	395	380	210	135

F3. Monthly A.I.'s at different field unit centers during the period from 4/2019 to 3/2020

Centre/ month	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Grand Total
Aitiana	25	33	35	30	30	40	35	28	36	29	18	20	359
Barsal	10	10	10	10	17	15	21	10	23	13	10	10	159
Batha Dhua	10	10	15	10	10	10	10	9	15	15	7	10	131
Bharowal Khurd	40	30	20	25	5	20	37	50	40	35	36	32	370
Bhundry Dairy	4	5	5	5	2	5	8	8	3	3	2	2	52
Boparai Kalan	10	5	12	10	6	20	18	15	25	20	21	20	182
Chimna	30	55	50	50	30	30	35	40	40	15	20	34	429
Chowkiman	22	16	20	15	13	20	23	35	25	15	12	18	234
Dhat	5	5	5	5	5	5	5	3	5	5	3	5	56
Giderpindi	16	25	18	20	16	10	25	20	20	20	26	20	236
Gkb	10	20	5	15	30	25	25	25	30	16	23	20	244
Gorahoor	30	20	17	20	35	25	35	25	35	48	38	28	356
Gurusar	20	20	30	35	17	30	20	20	20	6	8	20	246
Hans Kalan	20	20	5	22	32	35	20	25	15	23	19	28	264
Jandi	35	25	30	30	30	40	70	50	50	55	35	52	502
Jassowal	65	65	65	75	85	90	70	40	60	65	75	70	825
Kailpur	50	40	48	40	50	35	40	45	35	35	30	40	488
Kehra Bet	30	30	30	35	35	45	45	40	30	36	35	50	441
Khudai Chak	20	20	30	20	17	20	30	5	22	10	10	14	218
Leelan/Sidhwan Bet	30	20	23	20	13	15	34	30	12	17	30	20	264
Ponna	10	20	10	10	15	20	10	10	20	10	20	15	170
Raqba	8	5	10	5	5	10	10	10	5	5	5	5	83
Sadarpura	15	15	14	15	14	15	20	20	20	16	25	25	214
Sawaddi Kalan/Majri	14	16	14	20	12	10	20	15	16	20	20	15	192
Sawaddi Khurd	30	10	20	17	32	20	15	20	15	15	20	15	229
Talwandi Khurd	25	35	26	20	20	35	35	35	30	30	30	30	351
Walipur Kalan	35	40	30	25	20	35	35	40	25	35	25	37	382
Walipur Khurd	15	30	30	25	25	40	30	27	20	27	20	25	314
Grand Total	634	645	627	629	621	720	781	700	692	639	623	680	7991

F4. Bull-wise A.I.'s. at different field unit centers during the period from 4/2020 to 3/2021

Bull No.	Set no.	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Grand Total
1208	18			241	234									475
1219	18	70	317	71										458
2645	18	80	26		115	60								281
2674	19				122	337	155	42			25			681
2676	18				158									158
2737	19					224	460	270	40	6				1000
2759	19						60	87	73	40	38	10	81	389
5147	18	444	292	315										1051
5181	19							123	115	269	86	18		611
5232	19							209	322	80	45			656
5246	19						45	50	150	297	188	10	55	795
5310	19										207	332	107	646
5320	19											72	181	253
5333	19											59	171	230
5374	19										50	122	85	257
7147	18	30	10											40
7227	18	10												10
Grand Total		634	645	627	629	621	720	781	700	692	639	623	680	7991

F5: Month –wise Conception at different field unit centers for period from 4/2020 to 3/2021

Centre	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Gr. Total
Aitiana	15	17	18	8	13	17	18	15	15	20	18	14	188
Barsal	11	8	4	5	6	5	6	6	9	7	11	5	83
Batha Dhua	5	7	15	10	5	5	7	4	4	4	5	4	75
Bharowal Khurd	26	36	21	21	21	15	10	12	3	10	19	23	217
Bhundri Dairy	5	2	3	3	2	3	3	3	1	3	4	4	36
Boparai Kalan	4	6	6	5	6	3	6	5	3	10	10	8	72
Chimna	39	31	26	21	16	30	23	24	16	15	19	20	280
Chowkiman	9	10	9	9	11	9	10	8	7	10	12	19	123
Dhat	2	3	2	3	3	3	3	3	3	3	3	2	33
Giderpindi	11	9	12	12	9	14	11	11	9	6	14	11	129
Gkb	11	11	5	13	5	10	3	7	14	12	13	11	115
Gorahoor	15	14	19	17	17	10	9	11	18	12	16	13	171
Gurusar	21	10	8	10	10	10	14	17	9	16	10	9	144
Hans Kalan	14	10	29	6	10	10	3	10	16	18	10	13	149
Jandi	5	21	27	17	18	13	15	15	16	21	32	22	222
Jassowal	55	53	31	30	33	33	32	38	40	45	34	20	444
Kailpur	47	25	31	30	25	20	24	17	22	17	18	20	296
Kehra Bet	18	20	22	12	15	15	14	15	17	20	21	19	208
Khudai Chak	18	21	16	18	11	11	18	9	9	10	16	3	160
Leelan/Sidhwan Bet	9	11	14	17	16	12	13	10	7	8	15	16	148
Ponna	8	5	0	3	5	10	4	5	8	10	6	5	69
Raqba	10	3	0	3	4	3	5	3	3	5	5	5	49
Sadarpura	15	15	14	14	9	8	8	8	7	8	10	11	127
Sawaddi Kalan/Majri	12	7	11	12	8	9	7	11	6	5	9	8	105
Sawaddi Khurd	8	8	11	13	16	6	12	8	17	10	8	10	127
Talwandi Khurd	19	16	21	16	12	17	13	8	10	16	16	16	180
Walipur Kalan	20	15	12	19	17	20	15	10	9	16	16	19	188
Walipur Khurd	5	11	11	13	7	14	13	11	10	20	13	11	139
Grand Total	437	405	398	360	330	335	319	304	308	357	383	341	4277

F6: Month –wise Calving at different field unit centers during the period from 4/2019 to 3/2020

Month	Apr-20		May-20		Jun-20		Jul-20		Aug-20		Sep-20		Oct-20		Nov-20		Dec-20		Jan-21		Feb-21		Mar-21		Total	
	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M
Aitiana	6	4	6	4	4	3	8	6	11	9	8	4	11	10	7	7	9	8	7	7	3	3	4	7	84	72
Barsal	3		2	2	3	1	3	1	5	5	5	6	1	2	5	5	3	4	2	2	2	2	2	3	36	33
Batha Dhua	2	2	2	1	3	2	2	3	3	3	2	2	3	4	2	3	3	4	6	8	4	6	2	3	34	41
Bharowal Khurd	6	6	8	8	4	5	7	8	10	12	10	13	13	15	10	12	13	20	11	7	8	9	8	9	108	124
Bhundry Dairy	1												1	2	2	2	1	1	1	2	1	1	1	1	8	9
Boparai Kalan	3	3	3	2	4	3	2	1	4	1	3	3	2	2	2	1	3	3	2	2	2	2	3	3	33	26
Chimna	9	7	7	7	10	11	10	12	12	18	15	19	20	24	14	20	10	18	9	14	6	11	5	8	127	169
Chowkiman	3	3	4	2	2	2	4	3	5	4	8	8	8	7	5	3	4	4	4	4	3	3	5	5	55	48
Dhat	1	1	2	2	1	1	1		1		2	2	2	2	1	1	1	1	1	1	1	1	2	1	16	13
Giderpindi	6	6	6	4	4	3	5	4	6	4	3	3	9	10	4	4	3	3	4	5	5	4	4	3	59	53
Gkb	2	3	2	1	2	3	3	4	5	6	9	3	5	7	4	5	4	6	2	2	4	8	2	2	44	50
Gorahoor	6	6	5	4	6	6	7	5	6	6	7	5	6	5	5	6	5	5	6	8	6	7	5	7	70	70
Gurusar	3	3	7	8	6	6	3	3	7	11	5	5	14	19	7	12	3	6	3	4	3	5	3	6	64	88
Hans Kalan	9	8	4	3	5	3	5	4	7	5	5	5	5	3	7	6	5	3	12	12	2	2	3	5	69	59
Jandi	5	6	5	6	7	6	5	4	9	12	6	5	6	7	2	2	8	11	12	14	6	7	7	7	78	87
Jassowal	11	11	16	13	14	13	14	13	26	24	26	24	27	27	22	21	20	20	12	11	10	10	12	15	210	202
Kailpur	7	9	6	6	11	13	10	11	12	14	13	20	11	16	20	26	10	12	11	16	12	15	9	13	132	171
Kehra Bet	8	6	7	3	5	7	10	8	10	8	12	17	10	10	9	9	9	10	8	10	5	6	8	7	101	101
Khudai Chak	6	6	4	3	5	4	5	5	12	13	7	9	8	11	6	9	8	11	5	7	6	9	4	6	76	93
Leelan/Sidhwan Bet	7	3	5	3	3	3	5	3	4	3	3	3	5	5	3	3	4	4	5	5	6	7	5	7	55	49
Ponna	2	4	3	4	3	2	5	5	2	3	4	6	3	5	3	3	2	3			1		2	3	30	38
Raqba	3	3	4	3	3	3	4	2	4	2	2	1	3	2	4	3	1	1			1	1	2	1	31	22
Sadarpura	3	1	3	2	3	2	3	2	4	3	5	3	4	4	6	5	6	5	5	6	5	5	3	3	50	41
Sawaddi Kalan/Majri			4	3	4	4	5	4	4	4	4	3	4	3	5	3	3	2	4	3	4	5	3	4	44	38
Sawaddi Khurd	5	1	3	2	3	3	4	3	3	2	4	4	4	3	3	2	3	2	4	4	5	5	5	6	46	37
Talwandi Khurd	6	6	3	4	7	6	6	4	7	8	7	8	8	13	7	10	7	9	8	11	7	8	5	4	78	91
Walipur Kalan	7	9	8	9	9	7	9	10	7	7	8	10	7	11	7	11	5	8	5	7	8	10	10	7	90	106
Walipur Khurd	3	3	3	3	5	6	4	3	10	8	5	6	6	9	2	3	5	6	4	6	5	7	3	4	55	64
Grand Total	133	120	132	112	136	128	149	131	196	195	188	197	206	238	174	197	158	190	153	178	131	159	127	150	1883	1995

F= Female M = Male

F7: Bull-wise Conception at different field unit centers during the period from 4/2020 to 3/2021

Bull No.	SET	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Total
1150	18	2												2
1208	18	60	10	5				123	114					312
1219	18	39	8			36	167	37						287
2645	18		111	86	162	39	13		55	29				495
2674	19								60	166	75	21		322
2676	18	101	121						75					297
2689	18	98	23											121
2737	19									113	230	133	21	497
2759	19										29	44	39	112
4905	18	43												43
5147	18					233	149	159						541
5181	19											57	54	111
5232	19											104	158	262
5246	19										23	24	69	116
7094	18	13	35	46	23									117
7147	18	54	6	23	54	16	6							159
7227	18		22	82	101	6								211
7263	18	26	69	156	20									271
Skinder	17	1												1
Gr. Total		437	405	398	360	330	335	319	304	308	357	383	341	4277

F8 Bull-wise calving at different field unit centers during the period from 4/2020 to 3/2021

Month	Set No.	Apr-20		May-20		Jun-20		Jul-20		Aug-20		Sep-20		Oct-20		Nov-20		Dec-20		Jan-21		Feb-21		Mar-21		Total		
Bull No.	Set No.	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	
1150	18	51	45	50	40	15	15	1	2					1	1											118	103	
1208	18											8	11	18	22	21	22	4	3	2	2					53	60	
1209	18			3	3	46	46	25	18	36	34	48	57	18	22											176	180	
1219	18							38	36	52	48	2	1			18	19	4	3					17	18	131	125	
2645	18																	45	49	35	38	56	71	17	19	153	177	
2676	18			6	4	19	16	12	8					12	11	44	51	46	62							139	152	
2677	18	2	1	41	35	26	23																			69	59	
2689	18													83	98	39	41	9	11							131	150	
4905	18	44	39	24	25	7	7			1		7	3	31	37	16	18									130	129	
4995	18					21	21	65	59	33	33	49	48	20	23											188	184	
5147	18																						86	104	86	104		
7094	18	5	7							18	19	23	33	8	8	5	3	14	13	18	23	9	10			100	116	
7147	18	10	8							42	48	27	22			20	27	3	3	9	10	21	25	5	6	137	149	
7227	18	21	19	7	5			8	8	14	13	11	9	15	17			9	11	33	38	38	45	2	3	158	168	
7263	18													13	12			10	14	24	35	56	67	7	8	110	136	
Dara	17			1		1	0						1													2	1	
Sikander	17		1			1	0							1		1										2	2	
Grand Total		133	120	132	112	136	128	149	131	196	195	188	197	206	238	174	197	158	190	153	178	131	159	127	150	1883	1995	

F = Female M = Male

F9. Live female progeny at field unit centers from (0 to ≤ 6 mo.) as on 3/2021.

159 live female progeny (0 to ≤ 6 month.) available in the field unit centres.

F10. Live female progeny at different field unit centers from (>6 to ≤ 12mo.) as on 3/2021.

547 live female progeny (>6 to ≤ 12month) available in the field unit centres.

F11 : Live female progeny at different field unit centers (>1 to ≤3 years) as on 3/2021

1722 live female progeny (>1 to ≤3 years) available in the field unit centres.

F12 : Live female progeny at different field unit centers (>3 years) as on 3/2021

3388 live female progeny (>3 years)available in the field unit centres.

F13 : Daughters calved at different field unit centers during 2020-2021

366 daughters calved during the report period at different field unit centres.

F 14 Daughters recorded at different field units during 2019-2020

Test day milk recording of 353 daughters completed at different field unit during the period and 305 days average milk yield was 2573.38 kg

F15. Bull-wise A.I., Conception, Calving and Daughter's retained till completion of milk recording

Bull No.	Set No.	A.I.	P.D.	Calving		Daughters retained up to			Calving	Complete
				Total	Female	1 year	2 years	3 years		
1667	6	159	56	18	7	0	0	2	2	2
1706	6	421	141	130	61	0	0	4	4	4
1713	6	423	208	121	54	0	0	0	0	0
1717	6	497	168	145	65	0	0	4	4	4
1933	6	27	11	5	3	0	0	0	0	0
1944	6	25	11	5	2	0	0	0	0	0
4506	6	210	76	49	21	0	0	1	1	1
4523	6	117	82	65	30	0	0	4	4	4
4619	6	99	52	26	11	0	0	0	0	0
4637	6	124	48	30	12	0	0	3	3	3
4640	6	221	90	75	34	0	0	6	6	6
1727	7	301	109	88	42	0	0	5	5	5
1746	7	594	219	132	67	0	0	9	9	9
1749	7	314	110	84	39	0	0	0	0	0
1796	7	200	80	45	17	0	0	1	1	1
2121	7	85	34	13	6	0	0	0	0	0
2133	7	103	32	26	12	0	0	3	3	3
2184	7	36	28	27	13	0	0	0	0	0
2331	7	61	19	13	7	0	0	2	2	2
2363	7	61	20	8	3	0	0	0	0	0
1492	8	134	43	40	18	0	0	1	1	1
1509	8	101	30	26	13	0	0	1	1	1
1867	8	604	202	173	78	0	0	9	9	9
1868	8	520	199	169	85	0	0	8	8	8
1875	8	980	366	236	105	0	0	7	7	7
1893	8	342	110	88	41	0	0	1	1	1
2250	8	84	33	27	14	0	0	0	0	0
2308	8	136	48	27	12	0	0	3	3	3
2396	8	60	22	16	6	0	0	0	0	0
2422	8	63	30	22	10	0	0	0	0	0
2479	8	81	38	27	13	0	0	1	1	1
2522	8	77	35	28	14	0	0	2	2	2
4813	8	21	12	5	2	0	0	1	1	1
4865	8	103	51	37	20	0	0	0	0	0
5049	8	88	34	23	10	0	0	0	0	0
5054	8	73	25	10	6	0	0	0	0	0
5083	8	75	40	28	14	0	0	0	0	0

Bull No.	Set No.	A.I.	P.D.	Calving		Daughters retained up to			Calving	Complete
				Total	Female	1 year	2 years	3 years		
1575	9	76	29	19	9	0	0	1	1	1
1903	9	785	299	219	97	0	0	14	14	14
1913	9	571	224	146	66	0	0	7	7	7
1940	9	1107	427	272	121	0	0	18	18	18
1964	9	1014	378	267	118	0	0	14	14	14
1994	9	856	301	209	92	0	0	15	15	15
2582	9	165	72	48	26	0	0	6	6	6
2592	9	146	58	35	13	0	0	2	2	2
2720	9	105	39	17	6	0	0	0	0	0
2910	9	54	22	12	6	0	0	0	0	0
5112	9	95	54	40	18	0	0	5	5	5
5197	9	33	13	10	4	0	0	1	1	1
5218	9	76	27	19	9	0	0	0	0	0
5258	9	36	13	6	3	0	0	0	0	0
5312	9	37	14	12	6	0	0	0	0	0
1693	10	52	19	15	6	0	0	0	0	0
2045	10	1431	555	425	187	0	0	43	43	43
2062	10	1190	481	354	162	0	0	33	33	33
2073	10	1022	388	279	129	0	0	23	23	23
2074	10	945	347	253	111	0	0	16	16	16
2083	10	497	195	145	66	0	0	15	15	15
2084	10	10	3	2	1	0	0	0	0	0
2990	10	50	20	13	5	0	0	1	1	1
3103	10	101	47	28	12	0	0	1	1	1
3631	10	70	28	19	8	0	0	1	1	1
5396	10	28	11	9	3	0	0	0	0	0
2133	11	3263	1202	759	379	0	0	59	59	59
2148	11	2905	1068	706	338	0	0	77	77	77
2154	11	2558	975	647	322	0	0	66	66	66
3226	11	76	32	23	13	0	0	1	1	1
3255	11	220	104	67	32	0	0	8	8	8
3267	11	53	37	11	5	0	0	2	2	2
3591	11	46	17	12	7	0	0	2	2	2
5496	11	45	18	10	5	0	0	0	0	0
5516	11	35	14	10	5	0	0	0	0	0
HAU12	11	217	91	65	33	0	0	3	3	3
ND6	11	23	8	4	2	0	0	1	1	1
ND8	11	37	13	12	6	0	0	0	0	0
2176	12	2980	1159	913	429	0	0	73	73	73
2177	12	2520	956	672	315	0	0	85	85	85
2185	12	2420	893	626	293	0	0	74	74	74
3598	12	104	36	26	13	0	0	3	3	3
HAU183	12	80	29	17	9	0	0	2	2	2
HAU220	12	35	13	9	5	0	0	0	0	0
Khurana	12	2	1	0	0	0	0	0	0	0
Redhu 11	12	71	23	17	9	0	0	1	1	1
2234	13	5060	2129	1651	749	0	0	199	182	170
2269	13	3349	1445	1158	536	0	0	102	94	87
2304	13	6134	2631	2115	985	0	0	258	235	214
3964	13	131	52	45	25	0	0	11	10	10
4059	13	214	85	69	32	0	0	13	10	7
5943	13	31	13	10	5	0	0	1	1	1
2357	14	1640	701	578	262	0	0	76	59	51
2369	14	5454	2323	2001	973	0	0	179	144	132
4093	14	253	109	91	42	0	0	20	14	7
4100	14	110	48	45	24	0	0	16	12	7
4196	14	143	60	73	50	0	0	6	6	6
4439	14	214	87	76	35	0	0	24	21	17
6014	14	146	63	60	31	0	0	19	15	13

Bull No.	Set No.	A.I.	P.D.	Calving		Daughters retained up to			Calving	Complete
				Total	Female	1 year	2 years	3 years		
6044	14	166	70	68	33	0	0	14	10	7
6136	14	202	89	85	42	0	0	32	23	18
2371	15	854	378	297	137	0	0	98	44	14
2412	15	820	367	304	139	0	0	70	36	11
2417	15	1605	707	592	284	0	0	164	66	23
2429	15	991	430	358	171	0	0	109	34	13
2459	15	917	383	352	158	0	0	54	27	13
4324	15	1121	505	419	193	0	0	67	31	16
4328	15	701	314	265	125	0	0	60	33	21
4354	15	1069	461	369	168	0	0	103	48	23
4363	15	588	257	202	98	0	0	59	33	23
4403	15	624	272	215	97	0	0	55	23	13
4438	15	564	257	211	96	0	0	54	35	27
6007	15	579	247	213	97	0	0	29	10	7
6139	15	407	183	147	71	0	0	40	17	11
6290	15	371	159	129	59	0	0	30	18	8
6405	15	411	180	142	63	0	0	35	19	8
1027	16	425	190	161	74	0	0	26	2	0
1053	16	278	127	108	48	0	0	18	0	0
1064	16	0	0	0	0	0	0	0	0	0
2383	16	1069	471	386	177	0	0	113	6	0
2467	16	856	383	306	146	0	0	71	2	1
2501	16	1161	520	419	199	0	0	130	9	0
4592	16	386	173	136	61	0	0	23	5	0
4623	16	0	0	0	0	0	0	0	0	0
4705	16	1074	476	392	188	0	0	119	12	1
4889	16	888	403	330	157	0	0	84	10	1
6379	16	174	82	66	33	0	0	11	0	0
6409	16	260	117	95	42	0	0	21	0	0
6646	16	341	154	132	63	0	0	39	1	0
6753	16	52	24	18	7	0	0	0	0	0
29M	16	489	222	175	82	0	0	44	0	0
1148	17	674	327	285	128	0	43	0	0	0
2558	17	1308	604	511	237	0	50	96	0	0
2565	17	1192	545	460	215	0	31	79	0	0
2594	17	1335	609	536	259	0	47	119	0	0
2607	17	1291	610	525	252	0	77	97	0	0
4687	17	857	392	328	166	0	24	106	0	0
4715	17	741	336	288	142	0	6	86	0	0
4733	17	454	209	176	86	0	30	22	0	0
4837	17	584	237	197	98	0	17	50	0	0
7010	17	286	132	110	56	0	1	43	0	0
6942	17	381	190	157	76	0	29	0	0	0
51M	17	890	411	299	123	0	44	59	1	0
53M	17	362	173	201	119	0	33	0	0	0
B-1-330	17	368	171	151	69	0	33	0	0	0
Sikander	17	207	96	83	41	1	12	12	0	0
Dara	17	147	78	69	33	1	15	1	0	0
4905	18	977	472	427	211	47	82	0	0	0
4928	18	0	0	0	0	0	0	0	0	0
4995	18	803	415	372	188	90	0	0	0	0
5031	18	0	0	0	0	0	0	0	0	0
1150	18	689	331	306	160	34	58	0	0	0
1198	18	0	0	0	0	0	0	0	0	0
1208	18	761	382	113	53	23	0	0	0	0
1209	18	763	389	356	176	100	0	0	0	0
1219	18	952	489	256	131	78	0	0	0	0
2645	18	1540	762	567	269	5	81	0	0	0
2676	18	1416	684	540	257	65	70	0	0	0

Bull No.	Set No.	A.I.	P.D.	Calving		Daughters retained up to			Calving	Complete
				Total	Female	1 year	2 years	3 years		
2677	18	685	328	293	145	40	41	0	0	0
2689	18	743	370	317	151	49	6	0	0	0
7094	18	582	294	248	115	48	16	0	0	0
7147	18	748	382	329	161	36	27	0	0	0
7227	18	763	392	337	163	51	20	0	0	0
7263	18	563	298	246	110	38	0	0	0	0
5147	18	1051	541	190	86	0	0	0	0	0
1315	19	0	0	0	0	0	0	0	0	0
2674	19	681	322	0	0	0	0	0	0	0
2737	19	1000	497	0	0	0	0	0	0	0
2759	19	389	112	0	0	0	0	0	0	0
2767	19	0	0	0	0	0	0	0	0	0
2781	19	0	0	0	0	0	0	0	0	0
5181	19	611	111	0	0	0	0	0	0	0
5232	19	656	262	0	0	0	0	0	0	0
5246	19	795	116	0	0	0	0	0	0	0
5310	19	646	0	0	0	0	0	0	0	0
5320	19	253	0	0	0	0	0	0	0	0
5333	19	230	0	0	0	0	0	0	0	0
5374	19	257	0	0	0	0	0	0	0	0
5375	19	0	0	0	0	0	0	0	0	0
7604	19	0	0	0	0	0	0	0	0	0
Total		107815	45081	33903	16004	706	893	4217	2109	1732

Performance of FPT Programme since Inception

Duration	A.I.	Pregnancies	CR%	Calvings	Females born	Daughters recorded	Av. AFC (Mo.)	Av. Milk Yield (kg./days)	Daughters available for recording
2001-02	493	184	37.3	-	-	3	56.1	7.9	-
2002-03	1908	723	37.9	229	135	20	49.7	7.8	-
2003-04	1858	629	33.9	472	245	26	51.1	8.0	-
2004-05	2435	726	29.8	466	215	14	46.1	8.0	-
2005-06	2822	967	34.3	699	333	55	49.7	8.0	-
2006-07	3313	1178	35.6	755	357	50	48.0	8.4	-
2007-08	4015	1438	35.8	870	368	82	47.9	8.3	-
2008-09	4147	1622	39.1	1149	491	85	49.7	8.1	-
2009-10	5415	1878	34.7	1140	538	155	49.7	8.2	-
2010-11	6846	2289	33.4	1274	603	183	49.2	8.1	-
2011-12	7298	2814	38.6	1800	853	172	49.0	8.1	7
2012-13	8517	3463	40.7	2497	1155	257	47.5	7.9	30
2013-14	8014	3380	42.2	2831	1303	208	47.1	8.1	192
2014-15	8316	3810	45.8	2958	1447	68	42.5	8.2	606
2015-16	6325	3054	48.3	3013	1383	1	34.9	8.0	591
2016-17	5289	2464	46.6	2236	1049				480
2017-18	6344	2579	40.7	1933	899				788
2018-19	7779	3299	42.4	2468	1192				503
2019-20	8690	4307	49.6	3235	1555				
2020-21	7991	4277	53.6	3878	1883	353		8.3	1229
Overall	107815	45081	41.8	33903	16004	1732	48.2	8.1	4426

A.I., Conception, Calvings and Daughters Retained –13th Set

Bull No.	2234	2269	2304	3964	4059	5943	Total
AI	5060	3349	6134	131	214	31	14919
Pregnancies	2129	1445	2631	52	85	13	6355
Daughter Born	749	536	985	25	32	5	2332
Daughters Ear tagged	199	102	258	11	13	1	584
Daughter Calved	182	94	235	10	10	1	532
Complete Recording	170	87	214	10	7	1	489
Daughter Available	29	15	44	1	6	0	95

A.I., Conception, Calvings and Daughters Retained –14th Set

Bull No.	2357	2369	4093	4100	4196	4439	6014	6044	6136	Total
AI	1640	5454	253	110	143	214	146	166	202	8328
Pregnancies	701	2323	109	48	60	87	63	70	89	3550
Daughter Born	262	973	42	24	50	35	31	33	42	1492
Daughters available	76	179	20	16	6	24	19	14	32	386
Daughter Calved	59	144	14	12	6	21	15	10	23	304
Complete Recorded	51	132	7	7	6	17	13	7	18	258
Daughters to be recorded	25	46	13	10	0	7	6	7	14	128

A.I., Conception, Calvings and Daughters Retained –15th Set

Bull No.	2371	2412	2417	2429	2459	4324	4328	4354	4363	4403	4438	6007	6139	6290	6405	Total
AI	854	820	1605	991	917	1121	701	1069	588	624	564	579	407	371	411	11622
Pregnancies	378	367	707	430	383	505	314	461	257	272	257	247	183	159	180	5100
Daughter Born	137	139	284	171	158	193	125	168	98	97	96	97	71	59	63	1956
Daughters available	98	70	164	109	54	67	60	103	59	55	54	29	40	30	35	1027
Daughter Calved	44	36	66	34	27	31	33	48	33	23	35	10	17	18	19	474
Daughters Complete Recorded	14	11	23	13	13	16	21	23	23	13	27	7	11	8	8	231
Daughters to be recorded	84	59	141	96	41	51	39	80	36	42	27	22	29	22	27	796

A.I., Conception, Calvings and Daughters Retained –16th Set

Bull No.	1027	1053	1064	2383	2467	2501	4592	4623	4705	4889	6379	6409	6646	6753	29M	TOTAL
AI	425	278	0	1069	856	1161	386	0	1074	888	174	260	341	52	489	7453
Pregnancies	190	127	0	471	383	520	173	0	476	403	82	117	154	24	222	3342
Daughter Born	74	48	0	177	146	199	61	0	188	157	33	42	63	7	82	1277
Daughters available	26	18	0	113	71	130	23	0	119	84	11	21	39	0	44	699
Daughter Calved	2	0	0	6	2	9	5	0	12	10	0	0	1	0	0	47
Daughters Complete Recorded	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	3
Daughters to be recorded	26	18	0	113	70	130	23	0	118	83	11	21	39	0	44	696

A.I., Conception, Calvings and Daughters Retained –17th Set

Bull No.	1148	2558	2565	2594	2607	4687	4715	4733	4837	6942	7010	51M	53M	B-1-330	Dara	Sikander	Total
AI	674	1308	1192	1335	1291	857	741	454	584	381	286	890	362	368	147	207	11077
Pregnancies	327	604	545	609	610	392	336	209	237	190	132	411	173	171	78	96	5120
Daughter Born	128	237	215	259	252	166	142	86	98	76	56	123	119	69	33	41	2100
Daughters available	43	146	110	166	174	130	92	52	67	29	44	103	33	33	17	25	1264
Daughter Calved	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Daughters Complete Recorded	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Daughters to be recorded	43	146	110	166	174	130	92	52	67	29	44	103	33	33	17	25	1264

A.I., Conception, Calvings and Daughters Retained –18th Set

Bull No.	1150	1198	1208	1209	1219	2645	2676	2677	2689	4905	4928	4995	5031	7094	7147	7227	7263	5147	Total
AI	689	0	761	763	952	1540	1416	685	743	977	0	803	0	582	748	763	563	1051	13036
Pregnancies	331	0	382	389	489	762	684	328	370	472	0	415	0	294	382	392	298	541	6529
Daughter Born	160	0	53	176	131	269	257	145	151	211	0	188	0	115	161	163	110	86	2376
Daughters available	150	0	23	100	78	167	205	122	61	211	0	90	0	80	90	91	38	0	1506
Daughter Calved	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Complete Recorded	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Daughters to be recorded	150	0	23	100	78	167	205	122	61	211	0	90	0	80	90	91	38	0	1506

A.I., Conception, Calvings and Daughters Retained –19th Set

Bull No.	1315	2674	2737	2759	2767	2781	5181	5232	5246	5310	5320	5333	5374	5375	7604	Total
AI	0	681	1000	389	0	0	611	656	795	646	253	230	257	0	0	5518
Pregnancies	0	322	497	112	0	0	111	262	116	0	0	0	0	0	0	1420
Daughter Born																
Daughters available																
Daughter Calved																
Complete Recorded																
Daughters to be recorded																

Set-wise AI, Conception and daughters retained

Set no.	No. of Bulls used	AI	Preg.	Calving		Daughters Retained			Daughters Recorded	Av. AFC (Mo.)	Av. Milk Yield (kg)	Daughters to be recorded
				Total	Female	Up to 1Year	Up to 2 Year	3 Year & above				
6th	11	2323	943	669	300	0	0	24	24	52.0	7.9	0
7th	9	1755	651	436	206	0	0	20	20	49.4	8.0	0
8th	17	3542	1318	982	461	0	0	34	34	50.3	8.1	0
9th	15	5156	1970	1331	594	0	0	83	83	47.6	8.2	0
10th	11	5396	2094	1542	690	0	0	133	133	48.1	8.3	0
11th	12	9478	3579	2326	1147	0	0	219	219	50.4	8.1	0
12th	8	8212	3110	2280	1073	0	0	238	238	49.4	8.1	0
13th	6	14919	6355	5048	2332	0	0	584	489	59.1	8.0	95

14th	9	8328	3550	3077	1492	0	0	386	258	56.2	8.3	128
15th	15	11622	5100	4215	1956	0	0	1027	231	46.6	8.3	796
16th	15	7453	3342	2724	1277	0	0	699	3	34.9	8.6	696
17th	16	11077	5120	4376	2100	2	492	770	0	0	0	1264
18th	17	13036	6529	4897	2376	704	401	0	0	0	0	1506
19th	15	5518	1420	0	0	0	0	0	0	0	0	
Total	176	107815	45081	33903	16004	706	893	4217	1732	49.4	8.2	4485

Bull- wise additional daughters completing 1st lactation from 13th set

Bull No.	Daughter No	Date of birth	Date of calving	Age at 1 st calving (days)	Lact length	Lact. Yield
2234	1943	5-Dec-14	5-Apr-19	1582	305	2651.5
2234	5587	10-May-15	18-Apr-19	1439	305	2303.6
2234	5598	17-Jan-15	26-May-19	1590	305	2362.9
2234	5508	7-Feb-15	13-May-19	1556	305	2426.9
2234	5594	29-May-15	17-May-19	1449	305	2486.0
2234	2845	18-Feb-14	7-Jun-19	1935	305	2463.4
2234	5571	20-May-15	20-Jun-19	1492	305	2428.4
2234	B2691	20-Feb-13	23-Jul-19	2344	305	2558.7
2234	2705	15-Aug-14	3-Jul-19	1783	305	2608.1
2234	5487	8-Dec-14	19-Aug-19	1715	305	2537.5
2234	2724	15-Dec-14	13-Aug-19	1702	305	2601.8
2234	5529	18-May-15	16-Aug-19	1551	305	2538.3
2234	5502	15-Oct-15	28-Aug-19	1413	305	2363.6
2234	5544	10-May-15	24-Nov-19	1659	305	2138.8
2234	2020	18-Nov-13	10-Dec-19	2213	305	2744.8
2234	5597	13-May-15	19-Jan-20	1712	305	2363.6
2269	B0901	12-Jan-13	24-Mar-19	2262	305	2699.1
2269	5560	2-Apr-15	12-Apr-19	1471	305	2298.0
2269	5136	15-Mar-15	18-May-19	1525	305	2192.7
2269	3092	30-Dec-14	27-May-19	1609	305	2855.7
2269	5152	25-May-14	28-Jun-19	1860	305	2798.9
2269	2840	22-Oct-14	11-Aug-19	1754	305	2302.6
2269	3525	28-Apr-15	2-Aug-19	1557	305	2516.0
2269	3536	12-May-15	12-Aug-19	1553	305	2439.1
2269	B0840	16-Apr-13	18-Nov-19	2407	305	2606.5
2304	3363	15-Apr-15	16-Apr-19	1462	305	2276.4
2304	B2626	30-Nov-13	29-May-19	2006	305	2523.6
2304	3366	6-Jan-15	16-May-19	1591	305	2308.4
2304	3322	7-Jan-15	18-May-19	1592	305	2422.5
2304	B2606	28-Jan-14	27-May-19	1945	305	2551.3
2304	2800	25-Aug-14	20-Jun-19	1760	305	2628.6
2304	3346	5-Jan-15	15-Jun-19	1622	305	2440.4
2304	2026	10-May-14	15-Jul-19	1892	305	2452.7
2304	B2304	28-Feb-14	15-Aug-19	1994	305	2408.9
2304	2412	10-Oct-13	29-Aug-19	2149	305	2950.0
2304	2334	28-Mar-14	11-Sep-19	1993	305	2231.1
2304	2320	25-Apr-14	4-Sep-19	1969	305	2681.6
2304	2704	25-Dec-14	15-Sep-19	1725	305	2669.5
2304	2686	20-Mar-15	6-Sep-19	1631	305	2645.4
2304	2115	8-Jun-14	15-Oct-19	1955	305	2399.4
2304	3368	5-Feb-15	14-Oct-19	1712	305	2324.7
2304	B0803	10-Oct-13	5-Nov-19	2217	305	2549.1
2304	3518	3-Jun-15	3-Dec-19	1644	305	2307.1
2304	2275	25-Jan-14	9-Dec-19	2144	305	2990.2
2304	2352	25-Oct-14	28-Jan-20	1921	305	2637.8
2304	2252	25-Oct-13	12-Mar-20	2330	305	2196.8
2304	5472	22-Jan-15	19-Mar-20	1883	305	2309.2
3964	2279	28-Dec-14	5-Jun-19	1620	305	2379.0
3964	B0403	27-Dec-14	19-Feb-20	1880	305	2414.3
4059	1917	25-Dec-14	15-Apr-19	1572	305	2767.9
4059	2834	25-Jan-14	11-Jan-20	2177	305	2827.1
4059	2887	6-Jun-15	28-Dec-19	1666	305	2717.8

Bull- wise additional daughters completing 1st lactation from 14th Set

Bull No.	Daughter No.	Date of birth	Date of calving	Age at 1st calving	Lact. Length	Milk Yield
1869	2357	20-Nov-14	28-Jun-19	1681	305	2655.5
1899	2369	6-Dec-14	10-Aug-19	1708	305	2757.7
2090	2369	10-Jan-15	15-Feb-20	1862	305	2460.8
2110	2369	24-Jan-15	13-Oct-19	1723	305	2242.3
2146	6014	17-Oct-14	22-Nov-19	1862	305	2429.0
2151	2369	15-Aug-14	18-Aug-19	1829	305	2416.7
2164	6014	24-Oct-14	15-Jul-19	1725	305	2437.5
2175	2369	28-Nov-14	8-Sep-19	1745	305	2513.2
2242	2369	10-Mar-15	29-Mar-19	1480	305	2768.5
2245	4439	30-Apr-15	5-Nov-19	1650	305	2708.1
2301	2369	15-Jul-15	3-Feb-20	1664	305	2519.2
2376	6136	5-Sep-14	5-May-19	1703	305	2403.5
2385	2369	15-Mar-14	14-Jun-19	1917	305	2734.3
2390	2369	15-Jan-15	21-Jan-20	1832	305	2674.0
2630	2369	7-Oct-14	27-Sep-19	1816	305	2598.6
2665	2369	18-Jan-15	7-Nov-19	1754	305	2745.2
2736	2369	21-May-15	3-Feb-20	1719	305	2651.3
2748	6014	5-Sep-14	10-Oct-19	1861	305	2388.6
2749	2369	12-Aug-14	24-Jun-19	1777	305	2736.3
2760	2369	18-May-14	2-Sep-19	1933	305	2231.6
2774	2357	20-Jul-14	20-Aug-19	1857	305	2561.0
2802	2369	14-Apr-14	13-Dec-19	2069	305	2809.4
2811	2369	6-Aug-14	16-Jan-20	1989	305	2802.4
2812	2369	11-Jul-14	11-Nov-19	1949	305	2929.5
2849	2369	3-Aug-14	7-May-19	1738	305	2404.0
2865	4439	30-Aug-14	7-Nov-19	1895	305	2925.0
2879	2369	28-Jul-14	4-Jul-19	1802	305	2473.6
2882	4439	7-Jul-15	30-Jan-20	1668	305	2758.3
2913	2357	5-Aug-14	16-Dec-19	1959	305	2344.4
2923	2357	25-Sep-14	25-Aug-19	1795	305	2423.4
2948	2369	30-Dec-14	7-Oct-19	1742	305	2686.6
2953	2369	13-Dec-14	25-Aug-19	1716	305	2513.0
2954	2357	28-Sep-14	23-Apr-19	1668	305	2623.5
2974	2369	2-Nov-14	30-Oct-19	1823	305	2753.8
2984	2357	20-Oct-14	5-May-19	1658	305	2117.8
2990	2369	14-Aug-14	5-Jul-19	1786	305	2685.5
3002	2369	14-Jan-15	13-Oct-19	1733	305	3002.0
3043	2369	10-Jan-15	19-Aug-19	1682	305	2675.9
3075	4093	8-Feb-15	23-Oct-19	1718	305	2973.3
3078	4196	18-Jan-15	9-Jul-19	1633	305	2643.6
3124	6136	28-Feb-15	18-Mar-20	1845	305	2547.5
3159	2357	20-May-14	20-Mar-19	1765	305	4603.9
3180	4439	10-Dec-14	17-Feb-20	1895	305	2357.3
3215	2357	13-Oct-14	24-Oct-19	1837	305	2682.1
3217	6044	5-Mar-15	4-Oct-19	1674	305	2712.1
3230	4100	6-Feb-15	1-Aug-19	1637	305	2370.2
3232	2357	12-Nov-14	1-Oct-19	1784	305	2562.3
3237	2369	18-Feb-15	1-Apr-19	1503	305	2799.0
3242	4439	15-Sep-14	15-Oct-19	1856	305	2522.4
3245	4100	10-Feb-15	1-Jun-19	1572	305	2556.8
3247	4439	27-Jul-15	16-Jul-19	1450	305	2427.5
3255	2369	9-Dec-14	13-May-19	1616	305	2293.4
3260	2369	20-Mar-15	25-Sep-19	1650	305	2383.8
3287	2369	30-Dec-14	28-Oct-19	1763	305	2810.4
3291	4439	15-Aug-15	25-Sep-19	1502	305	2614.9

3291	2369	22-Nov-14	13-Nov-19	1817	305	2782.3
3312	2369	30-Apr-15	22-Aug-19	1575	305	2524.0
3325	2357	5-Dec-15	7-Mar-20	1554	305	2786.1
3326	2357	12-Dec-14	14-Sep-19	1737	305	2191.6
3331	2357	22-Apr-15	8-Apr-19	1447	305	2136.3
3335	6136	10-Jan-15	11-Mar-20	1887	305	2515.3
3345	6136	9-Jan-15	18-Jun-19	1621	305	2371.8
3356	2357	15-Apr-15	14-Oct-19	1643	305	2345.0
3361	6136	16-Jan-15	17-Sep-19	1705	305	2280.9
3364	2357	17-Dec-14	29-Aug-19	1716	305	2366.3
3371	2369	7-Apr-15	15-May-19	1499	305	2457.8
3375	2369	14-May-15	13-Jul-19	1521	305	2372.6
3533	2369	30-Apr-15	12-Aug-19	1565	305	2463.1
3538	2369	28-Mar-15	20-Mar-20	1819	305	2656.6
3544	2357	5-Jul-14	3-May-19	1763	305	2772.8
3547	2357	5-Jul-15	12-Jun-19	1438	305	2733.6
3548	2357	23-May-15	15-May-19	1453	305	2486.2
3549	2357	7-Jul-15	11-Sep-19	1527	305	2273.1
3550	2369	15-Mar-15	2-Jul-19	1570	305	2520.7
5458	2357	28-Jan-15	6-Apr-19	1529	305	2419.3
5477	2357	27-Jan-15	24-Dec-19	1792	305	2368.9
5489	6044	5-Feb-15	23-Dec-19	1782	305	2605.7
5492	6044	30-Jun-15	22-Oct-19	1575	305	2575.0
5517	4196	29-May-15	20-Jan-20	1697	305	2230.0
5519	2369	15-Apr-14	3-Jul-19	1905	305	2824.2
5532	2369	30-Jul-14	25-Jul-19	1821	305	2678.9
5533	6014	18-May-15	8-Jun-19	1482	305	2543.3
5539	4196	28-May-15	26-Jul-19	1520	305	2452.8
5547	2369	5-Jul-14	28-Mar-20	2093	305	2620.2
5565	4196	28-May-15	12-Oct-19	1598	305	2352.5
5567	4196	25-May-15	21-Jul-19	1518	305	2474.1
5578	6014	7-Dec-15	25-Feb-20	1541	305	2523.2
5930	2357	19-May-15	5-Jan-20	1692	305	2956.7
B2503	2369	10-Jul-14	20-Aug-19	1867	305	2621.4
B2506	2369	7-Jun-14	22-Jan-20	2055	305	2698.9
B2583	2369	27-Dec-14	11-Feb-20	1872	305	2739.6
B2598	2357	10-Jun-14	29-Jun-19	1845	305	2661.3
B6390	2357	14-Oct-16	8-Nov-19	1120	305	2946.6

Bull- wise additional daughters completing 1st lactation from 15th & 16 Set

Bull No.	Daughter No.	Date of Birth	Date of Calving	Age at 1st Calving	Lact. Length	Total myield
2371	2647	13-Aug-15	21-Mar-19	1316	305	2353.0
4324	5979	16-Jun-15	28-Mar-19	1381	305	2108.1
2429	5612	5-Feb-15	7-Apr-19	1522	305	2039.5
6405	2610	10-Jul-15	10-Apr-19	1370	305	2079.5
6405	5600	15-Jul-15	5-Apr-19	1360	305	2179.7
2429	5611	5-Aug-15	13-Apr-19	1347	305	1999.1
4354	B5738	16-Aug-15	10-Apr-19	1333	305	2347.8
4354	B5734	9-Sep-15	10-May-19	1339	305	2804.1
4354	B5729	10-Sep-15	18-May-19	1346	305	2787.6
2412	5591	17-Sep-15	28-Apr-19	1319	305	2516.3
4324	5552	17-Sep-15	22-May-19	1343	305	2412.6
2459	5931	20-Sep-15	20-May-19	1338	305	2888.3
2412	5939	15-Jun-15	17-May-19	1432	305	2550.7
4363	B5424	10-Aug-15	10-Jun-19	1400	305	2332.8
4354	B5726	26-Aug-15	18-Jun-19	1392	305	2029.2
2412	2636	12-Oct-15	21-Jun-19	1348	305	1932.5

4438	5615	24-Oct-15	19-Jun-19	1334	305	2595.2
2459	5981	9-Oct-15	12-Jun-19	1342	305	2891.1
6290	5506	15-Jun-15	14-Jun-19	1460	305	2605.6
4403	5418	30-Oct-15	26-Jun-19	1335	305	2574.4
6007	5531	10-Sep-15	25-May-19	1353	305	2566.4
4328	B5735	29-Oct-15	17-May-19	1296	305	2641.7
4328	B5736	30-Oct-15	30-May-19	1308	305	2662.3
2412	B5525	4-Jun-15	30-May-19	1456	305	2336.5
6139	5540	14-Oct-15	23-May-19	1317	305	2326.1
4438	5978	10-Sep-15	10-Jun-19	1369	305	2607.7
2412	3480	17-Oct-15	26-Jul-19	1378	305	2641.0
2417	5649	20-Aug-15	14-Jul-19	1424	305	2303.2
2417	5645	10-Nov-15	15-Jul-19	1343	305	2483.5
2429	5535	5-Nov-15	17-Jul-19	1350	305	2414.4
2459	5620	10-Nov-15	10-Jul-19	1338	305	2517.0
4324	5508	14-Jul-15	18-Jul-19	1465	305	2573.2
4328	6223	23-Oct-15	12-Jul-19	1358	305	2401.4
4328	5575	19-Nov-15	19-Jul-19	1338	305	2904.0
4354	5594	5-Jul-15	14-Jul-19	1470	305	2458.3
4354	B5731	29-Jul-15	1-Jul-19	1433	305	2423.6
4354	B5454	26-Aug-15	15-Jul-19	1419	305	2486.7
4363	5906	8-Jul-15	29-Jun-19	1452	305	2843.4
4363	3497	26-Jul-15	13-Jul-19	1448	305	2949.4
4438	6151	8-Sep-15	23-Jul-19	1414	305	2642.7
4438	5413	5-Nov-15	19-Jul-19	1352	305	2618.8
4438	5945	25-Nov-15	8-Jul-19	1321	305	2561.2
4438	5820	27-Nov-15	3-Jul-19	1314	305	2429.8
4438	5754	27-Nov-15	12-Jul-19	1323	305	2566.6
6139	5563	2-Jun-15	8-Jul-19	1497	305	2582.2
2417	B5721	12-Oct-15	15-Jul-19	1372	305	2336.7
2417	6417	15-Jul-16	17-Jul-19	1097	305	2630.4
4363	3061	31-May-15	22-Aug-19	1544	305	2755.3
2371	5576	6-Jul-15	17-Aug-19	1503	305	2560.7
4363	3401	8-Jul-15	20-Aug-19	1504	305	2703.9
4328	5559	25-Aug-15	25-Aug-19	1461	305	2500.0
4328	6219	13-Sep-15	3-Aug-19	1420	305	2460.7
4363	5436	17-Sep-15	19-Aug-19	1432	305	2773.8
4354	B5710	18-Sep-15	7-Aug-19	1419	305	2418.6
4324	3455	20-Sep-15	7-Aug-19	1417	305	2501.9
2417	5966	30-Sep-15	12-Aug-19	1412	305	2512.5
6007	6178	20-Oct-15	16-Aug-19	1396	305	2307.4
4438	6141	22-Oct-15	21-Aug-19	1399	305	2365.8
2417	5623	15-Nov-15	28-Aug-19	1382	305	2522.7
4403	5948	25-Nov-15	7-Aug-19	1351	305	2748.9
4403	5561	30-Nov-15	28-Aug-19	1367	305	2766.1
2429	5554	5-Dec-15	15-Aug-19	1349	305	2461.5
4438	5776	9-Dec-15	8-Aug-19	1338	305	2584.9
4403	5557	10-Dec-15	13-Aug-19	1342	305	2632.3
4403	5937	18-Dec-15	11-Aug-19	1332	305	2667.8
2412	5505	20-Dec-15	6-Aug-19	1325	305	2721.0
4438	6144	20-Dec-15	16-Aug-19	1335	305	2367.8
4403	5574	22-Dec-15	10-Aug-19	1327	305	2880.6
2459	3414	22-Dec-15	10-Aug-19	1327	305	2461.1
6007	5751	30-Dec-15	14-Aug-19	1323	305	2675.0
6139	5949	6-Jul-15	15-Sep-19	1532	305	2633.7
2459	5950	10-Aug-15	12-Sep-19	1494	305	2754.5
4354	5957	10-Sep-15	27-Aug-19	1447	305	2960.9
4354	B5747	10-Sep-15	20-Aug-19	1440	305	2889.9
4354	B5708	18-Sep-15	25-Aug-19	1437	305	2613.3

4324	5527	24-Sep-15	27-Aug-19	1433	305	2891.3
2417	5909	6-Oct-15	24-Aug-19	1418	305	2705.3
4403	6177	15-Oct-15	8-Sep-19	1424	305	2281.0
4354	5915	20-Oct-15	23-Aug-19	1403	305	2865.9
4328	5934	30-Oct-15	13-Sep-19	1414	305	2884.3
2429	3463	25-Nov-15	21-Sep-19	1396	305	2710.5
4363	5539	5-Dec-15	16-Sep-19	1381	305	2671.6
4438	5606	5-Dec-15	22-Sep-19	1387	305	2403.9
4403	5664	25-Dec-15	8-Sep-19	1353	305	2702.7
6139	6230	31-Dec-15	3-Sep-19	1342	305	2421.6
6290	6244	5-Jan-16	1-Sep-19	1335	305	2739.6
4363	6436	11-Jan-16	6-Sep-19	1334	305	2906.5
6139	6236	13-Jan-16	3-Sep-19	1329	305	2395.5
4438	5953	15-Jan-16	18-Sep-19	1342	305	2422.2
4403	5921	20-Jan-16	13-Sep-19	1332	305	2782.7
2371	6234	25-Jan-16	19-Sep-19	1333	305	2268.5
6405	6098	1-Mar-16	20-Sep-19	1298	305	2485.2
4354	B5412	26-Jun-15	21-Oct-19	1578	305	2829.5
4403	5586	10-Dec-15	26-Oct-19	1416	305	2879.9
2429	B6040	15-May-16	20-Oct-19	1253	305	2677.8
4363	B6096	15-Feb-16	10-Oct-19	1333	305	2496.2
2459	5550	3-Sep-15	12-Oct-19	1500	305	2608.2
2412	B6654	25-Feb-16	13-Oct-19	1326	305	2634.8
4438	5679	25-Nov-15	26-Sep-19	1401	305	2890.9
2371	B6318	28-Feb-16	2-Oct-19	1312	305	2743.9
4354	5427	21-Aug-15	21-Oct-19	1522	305	2653.8
4438	6221	20-Dec-15	7-Oct-19	1387	305	2299.0
6405	B6498	10-Feb-16	24-Oct-19	1352	305	2608.7
4354	B5724	18-Jul-15	7-Oct-19	1542	305	2893.5
4328	B5703	28-Oct-15	10-Oct-19	1443	305	2946.5
6139	B6347	29-Feb-16	3-Oct-19	1312	305	2284.3
4328	3428	17-Oct-15	18-Oct-19	1462	305	2739.0
4438	6101	25-Jul-15	3-Oct-19	1531	305	2402.1
6290	5595	6-Oct-15	16-Oct-19	1471	305	2840.3
4324	5588	27-Sep-15	12-Oct-19	1476	305	2777.7
4328	5589	29-Oct-15	25-Oct-19	1457	305	2557.5
6290	B6063	3-Feb-16	17-Oct-19	1352	305	2579.8
2459	5534	10-Jun-15	1-Oct-19	1574	305	2692.5
6405	6225	10-Jan-16	9-Oct-19	1368	305	2237.7
4438	6240	12-Jan-16	5-Oct-19	1362	305	2343.8
2417	6940	28-Aug-16	18-Oct-19	1146	305	2582.9
2417	B6075	22-Feb-16	7-Nov-19	1354	305	2431.6
4403	6191	28-Oct-15	8-Oct-19	1441	305	2851.1
2371	6945	20-Sep-16	24-Oct-19	1129	305	2757.3
2371	6875	25-Sep-16	29-Nov-19	1160	305	2654.6
4324	B3256	25-Sep-15	1-Nov-19	1498	305	2667.7
2417	6006	16-Sep-15	5-Nov-19	1511	305	2627.6
2459	5619	20-Sep-15	14-Nov-19	1516	305	2310.6
2429	5604	15-Nov-15	10-Nov-19	1456	305	2301.7
2459	5640	30-Nov-15	17-Nov-19	1448	305	2373.1
4328	5765	21-Nov-15	3-Nov-19	1443	305	2674.2
4354	5560	6-Jul-15	7-Nov-19	1585	305	2726.4
4438	6114	6-Nov-15	16-Nov-19	1471	305	2112.7
6007	B6322	18-Mar-16	1-Nov-19	1323	305	2760.1
4328	3416	15-Nov-15	29-Oct-19	1444	305	2870.7
4363	6125	16-Oct-15	8-Nov-19	1484	305	2407.4
6139	6164	11-Nov-15	5-Nov-19	1455	305	2457.7
2429	3462	21-Nov-15	10-Nov-19	1450	305	2438.4
4324	B6469	20-Mar-16	15-Oct-19	1304	305	2536.2

4354	5902	16-Aug-15	16-Nov-19	1553	305	2500.9
2412	5910	20-Sep-15	7-Nov-19	1509	305	2453.1
2417	B6395	5-Feb-16	25-Nov-19	1389	305	2322.0
2459	B3239	1-Aug-15	25-Oct-19	1546	305	2601.8
2371	5775	27-Mar-16	20-Oct-19	1302	305	2994.4
2417	5655	10-Aug-15	11-Dec-19	1584	305	2163.0
4438	5597	5-Sep-15	17-Dec-19	1564	305	2403.9
4438	6123	15-Sep-15	28-Nov-19	1535	305	2372.7
4324	B2634	15-Sep-15	7-Dec-19	1544	305	2820.0
4363	3430	25-Sep-15	22-Dec-19	1549	305	2740.0
4328	5919	24-Oct-15	23-Nov-19	1491	305	2975.6
2417	5644	25-Oct-15	13-Dec-19	1510	305	2396.8
4328	5501	12-Nov-15	20-Dec-19	1499	305	2883.3
4363	B6088	3-Jan-16	26-Dec-19	1453	305	2217.8
2371	B6296	5-Feb-16	15-Dec-19	1409	305	2584.0
2429	B6323	22-Mar-16	12-Dec-19	1360	305	2470.2
2429	B6064	7-Apr-16	20-Dec-19	1352	305	2731.2
2459	B6656	9-Apr-16	22-Dec-19	1352	305	2461.9
4363	5812	13-Apr-16	25-Nov-19	1321	305	2807.7
6405	B6404	13-Apr-16	29-Nov-19	1325	305	2993.5
6139	B6321	20-Apr-16	23-Dec-19	1342	305	2651.2
2429	B6533	25-Apr-16	24-Nov-19	1308	305	2821.2
2371	B6069	25-Apr-16	9-Dec-19	1323	305	2329.8
4438	6763	18-Dec-16	20-Dec-19	1097	305	2967.7
2371	B3272	20-Jul-15	22-Dec-19	1616	305	3035.5
4324	5946	30-Aug-15	23-Jan-20	1607	305	2884.5
4438	5523	8-Sep-15	17-Jan-20	1592	305	2500.3
4354	B5744	15-Sep-15	15-Dec-19	1552	305	2739.0
2459	5530	3-Oct-15	15-Jan-20	1565	305	2676.5
4324	B3271	8-Oct-15	15-Dec-19	1529	305	2833.4
4363	6217	3-Nov-15	3-Jan-20	1522	305	2397.5
6007	6155	6-Nov-15	28-Dec-19	1513	305	2509.1
4328	5684	20-Nov-15	22-Jan-20	1524	305	2256.0
4438	5677	25-Nov-15	5-Jan-20	1502	305	2540.1
4328	3457	25-Nov-15	22-Jan-20	1519	305	2587.8
6139	B6032	4-Jan-16	8-Jan-20	1465	305	2348.7
4438	6121	20-Jan-16	28-Dec-19	1438	305	2686.7
4328	6208	23-Jan-16	18-Jan-20	1456	305	2382.6
2417	B6252	4-Mar-16	10-Jan-20	1407	305	2424.7
6139	B6330	3-May-16	18-Jan-20	1355	305	2634.8
2429	B6687	17-May-16	19-Jan-20	1342	305	2513.8
4403	B6336	18-May-16	3-Jan-20	1325	305	2483.3
2417	B6057	21-May-16	19-Jan-20	1338	305	2574.0
2371	5607	6-Nov-15	23-Feb-20	1570	305	2431.7
2417	B6398	5-Jun-16	13-Feb-20	1348	305	2373.0
4354	B5444	22-Oct-15	21-Jan-20	1552	305	2551.6
4438	5519	30-Oct-15	9-Jan-20	1532	305	2786.3
6405	B6659	18-Feb-16	27-Feb-20	1470	305	2479.7
6007	6218	28-Dec-15	4-Feb-20	1499	305	2540.5
6290	B2601	18-May-15	5-Jan-20	1693	305	2839.2
2417	B6306	12-Aug-15	4-Feb-20	1637	305	2519.3
2417	5609	5-Dec-15	10-Feb-20	1528	305	2680.8
6007	5773	27-Dec-15	27-Jan-20	1492	305	2781.9
2417	6272	13-Mar-16	28-Jan-20	1416	305	2549.3
4363	3450	28-Jul-15	22-Jan-20	1639	305	2880.1
4363	6159	15-Oct-15	20-Feb-20	1589	305	2685.5
2371	B6456	25-Jun-16	25-Feb-20	1340	305	2781.8
4324	3129	22-Jan-15	10-Mar-20	1874	305	2763.4
6290	B3211	12-May-15	7-Mar-20	1761	305	2767.8

2459	5533	8-Jun-15	14-Mar-20	1741	305	2611.1
4324	5536	11-Oct-15	29-Mar-20	1631	305	2655.1
2417	B5719	18-Oct-15	14-Mar-20	1609	305	2575.8
4328	5581	31-Oct-15	28-Mar-20	1610	305	2644.2
4438	5916	10-Nov-15	28-Mar-20	1600	305	2717.5
4328	5857	19-Nov-15	15-Mar-20	1578	305	2933.2
6139	B6348	22-Feb-16	12-Mar-20	1480	305	2418.2
2429	B6391	26-May-16	13-Mar-20	1387	305	2823.7
4403	B6685	28-May-16	19-Mar-20	1391	305	2586.5
2417	B6558	15-Jun-16	12-Mar-20	1366	305	2238.1
2417	6264	15-Jul-16	15-Mar-20	1339	305	2463.3
2412	6461	20-Jul-16	1-Mar-20	1320	305	2689.4
2467	7005	20-Mar-17	30-Oct-19	954	305	2854.3
4889	6795	12-Nov-16	26-Dec-19	1139	305	2601.8
4705	6591	5-Jan-17	18-Jan-20	1108	305	2623.0

Project Co-ordinator's observations on Field Unit performance

Financial Statement for the year 2020-21 (Rs in Lakhs)

Sanctioned as per R E 2020-21		Released ICAR Share as per R E	Expenditure as per AUC		Balance (ICAR Share)
Total	ICAR Share		ICAR Share	State Share	
47.33	35.50	35.50	28.74596	9.58199	(+)6.75404

- Total 7991 AI's were performed and 4277 buffalos conceived using 7 bulls from 18th set and 10 bulls of 19th during report period. The conception rate reported 53.52 %.
- 3878 calving reported during the period out of which 1883 male and 1995 were female.
- At various centers 2428 female progenies of different age groups are standing for future recording
- 366 daughters calved during the year and 353 daughters recorded in 2020-21.

Recommendations:

- Organized milk competition in the villages for the animals participating in NPBI (Dams and their daughters).

FIELD UNIT: ICAR-NDRI, KARNAL

a. Research Evaluation Performa

1. Name of Center and year of initiation : ICAR-NDRI, Karnal (2001-02)
2. Name of project In-charge : Dr. Vikas Vohra, Principal Scientist, AG&B
3. Activities assigned and targets fixed: : As per technical programme of the FPT Murrah Enclosed Tables 1-15
4. Activities carried out during the period : AI, Milk recording, Deworming, Vaccination, Camps, Calf Rally, Farmer Visit.
5. Selection of Bull Set wise : Bulls selected for 19th Set
6. Progeny test evaluation- set wise : As Specified
7. Technology developed / patent : Nil
8. Bulls for elite mating : As Specified
9. Feeding, Reproduction, Management study, if any: No
10. Gaps / Constraints / Shortfalls
 - A large movement of buffaloes due to sale-purchase in the villages.
 - The animals in the project, when tagged, fetch higher prices in the village hence frequently sold, leading to less number of daughters for recording.
11. Further programme, activities, target : Enclosed

b. Financial Statement/ administrative evaluation Performa

1. No. of Sanction posts and designation	Nil
2. No. of posts filled	NA
3. No. of posts vacant (vacant since when)	NA
4. Funds released during the year	Rs. 20,00,000.0
5. Previous balance (refunded)	Rs. 08,05,562.0
6. Funds Utilised	Rs. 18,80,906.0 (94.04% utilized)
7. Closing Balance	Rs. 1,19,094.0

Research Target: 4000 AI in the villages **Target Achieved:** 4874 AI (121.85%)

Research Achievements

A total of 4874 AI were performed in Murrah Buffaloes under field conditions during 2020-21 and as a result an overall conception rate of 47.76% was obtained. The highest conception rate was achieved in the month of December (49.19%) and the lowest was found for the month of January-2021 (46.77%), when recorded till February 2020. Across the villages, the highest conception rate was observed in Kherimaan Singh (50.79%) village and lowest in the Rindal (45.11 %), when recorded village till January 2021. A total of 1559 (919 male and 640 female) Murrah buffalo calves were born in the farmers' herds and performance data on milk recording of 85 daughters have been recorded for evaluation of bulls under field conditions. The average lactation yield in the field was recorded as 2551.66 ± 52.22 kg daily milk yield in the recorded daughter were 8.07 kg/day. The total herd strength of registered females and the breedable females at different centers was 7927 and 5282, respectively. As many as 12 breeding bulls of belonging to the 18th Set and 10 breeding bulls of belonging to the 19th Set were used for AI during the year 2020-21.

Other Activities

The AG&B Division, NDRI, has organized an event "Support to the Dairy Farmers" under the SC-SP sub-fund of Network Project on Buffalo Improvement. Under this program the general-purpose medicines, spray and calcium supplement were distributed as support to

about 50 dairy farmers belonging to the SC community from Garhi Gujran Village, district Karnal. The dairy farmers were also upraised about the scientific breeding and management practices of dairy buffaloes, with special emphasis on the role of calcium supplementation in buffaloes.

F 1. Herd Strength of Registered females under field unit as on 31-03- 2021

Name of Centre	OB	Addition	Deduction		CB
		New Reg. (Birth/ Purchase)	Sold	Death	
Darar	1958	162	135	8	1977
Kheriman Singh	1564	114	160	12	1506
Rindal	1112	98	108	9	1093
Sheikhpura	1335	124	158	7	1292
Kamalpur	691	122	45	5	763
Total	6660	620	608	41	6631

F2. Status of Breedable females under field unit as on 31-03- 2021

Name of Village	Heifers >3 years		Buffalo (NP)		Buffalo Pregnant	
	Total	Pregnant	In milk	Dry	In milk	Dry
Darar	274	168	381	74	178	61
Kheriman Singh	319	225	317	92	134	86
Rindal	226	160	184	46	178	52
Sheikhpura	371	191	204	67	278	84
Kamalpur	304	167	194	61	144	58
Total	1494	918	1280	340	912	341

F 3. Monthly AI under Field Unit during 01-04-2020 to 31-03-2021

Month	Centre / Village					Total
	Darar	Kheriman Singh	Rindal	Shekhpura	Kamalpur	
April 20	12	53	41	16	46	168
May	80	52	91	74	72	369
June	84	68	96	75	78	401
July	89	56	96	80	85	406
Aug.	67	102	87	82	80	418
Sept.	52	76	84	70	84	366
Oct.	84	130	93	80	90	477
Nov.	95	127	91	65	109	487
Dec.	100	121	96	87	92	496
Jan. 21	84	97	94	80	94	449
Feb.	71	85	91	73	80	400
March.	85	96	91	85	80	437
Total	903	1063	1051	867	990	4874

F 4 Bullwise AI at Different Field Unit Centers during the Period 1-4-2020 to 31-03-2021

Bull No	Set	April	May	June	July	Aug	Sept	Oct.	Nov.	Dec	Jan	Feb	Mrch	Total
2689	18	12	19	--	--	--	--	--	--	--	--	--	--	31
2676	18	70	--	--	50	22	71	30	--	--	--	--	--	243
1208	18	24	39	45	30	--	--	--	--	--	--	--	--	138
2645	18	32	24	--	--	--	64	20	--	--	--	--	--	140
5147	18	--	84	--	--	--	43	--	--	--	--	--	--	127
4995	18	--	41	36	--	--	18	29	--	--	--	--	--	124
1150	18	30	93	15	--	--	--	--	--	--	--	--	--	138
4905	18	--	19	153	10	--	--	--	--	--	--	--	--	182
7227	18	--	50	99	112	--	--	--	--	--	--	--	--	261

7263	18	--	--	53	115	23	--	--	--	--	--	--	--	191
7147	18	--	--	--	16	98	--	--	--	--	--	--	--	114
2677	18	--	--	--	--		107	68	--	--	--	--	--	175
5232	19	--	--	--	--	109	50	36	86	128	145	--	--	554
5246	19	--	--	--	--	57	13	--	111	145	92	63	--	481
5181	19	--	--	--	73	109	--	73	221	183	15	--	--	674
2674	19	--	--	--	--	--	--	86	50	--	--	--	--	136
2759	19	--	--	--	--	--	--	45	--	--	--	45	121	211
2737	19	--	--	--	--	--	--	90	--	--	--	--	--	90
7604	19	--	--	--	--	--	--		19	40	197	271	136	663
5310	19	--	--	--	--	--	--	--	--	--	--	21	85	106
5333	19	--	--	--	--	--	--	--	--	--	--	--	49	49
5320	19	--	--	--	--	--	--	--	--	--	--	--	46	46
Total		168	369	401	406	418	366	477	487	496	449	400	437	4874

F 5: Month – wise Conception at Different Field Units during the period 01-4-20 to 31/03/21

Month	Village / Centre						Total Conce.	Total AI	CR %
	Darar	Kherimann Singh	Rindal	Sheikhpura	Kamalpur				
April 20	6	24	21	8	20	79	168	47.02	
May	39	26	42	38	34	179	369	48.51	
June	44	32	38	37	37	188	401	46.88	
July	40	29	45	41	36	191	406	47.04	
Aug.	32	48	40	41	37	198	418	47.37	
Sept.	25	40	39	34	40	178	366	48.63	
Oct.	40	66	39	40	42	227	477	47.59	
Nov.	44	67	42	33	48	234	487	48.05	
Dec	48	66	45	44	41	244	496	49.19	
Jan. 21	38	50	41	39	42	210	449	46.77	
Feb.	--	--	--	--	--	--	--	--	
March	--	--	--	--	--	--	--	--	
Total	356	448	392	355	377	1928	4037	47.76	
AI	747	882	869	709	830				
CR%	47.66	50.79	45.11	50.07	45.42				

F 6: Monthwise Calvings at Different Field Unit Centers During the Period 01-04-2020 to 3-2021

Month	Darar		Rindal		Kherimann Singh		Sheikhpura		Kamalpur		Total	
	M	F	M	F	M	F	M	F	M	F	M	F
Apr 20	18	12	10	6	9	8	14	10	17	11	68	47
May	20	13	10	6	9	6	13	7	18	16	70	48
June	19	13	13	11	10	8	15	8	17	12	74	52
July	20	12	16	15	10	8	13	8	18	12	77	55
Aug.	22	13	18	13	10	8	12	6	19	13	81	53
Sept.	23	13	24	19	10	15	10	8	21	14	88	69
Oct.	25	14	19	13	10	7	17	11	27	14	98	59
Nov.	22	12	14	12	11	10	12	9	24	17	83	60
Dec.	26	14	22	18	12	9	16	11	20	15	96	67
Jan 21	16	8	15	15	10	7	10	6	17	13	68	49
Feb	4	2	13	8	6	4	4	3	11	9	38	26
Mar	24	15	9	12	10	7	12	7	23	14	78	55
Total	239	141	183	148	117	97	148	94	232	160	919	640

M = Male: 919

F = Female: 640

Total = 1559

F 7. Bull wise Conception at different Field Unit Centers during 1-4-2020 to 31-03-2021

Set No	Bull No	April 20	May-20	Jun-20	Jul-20	Aug. 20	Sept. 20	Oct. 20	Nov. 20	Dec. 20	Jan. 2021	Feb. 21	Mar-21	Total
18	2689	6	8	--	--	--	--	--	--	--	--	--	--	14
18	5147	--	41	--	--	--	21	--	--	--	--	--	--	62
18	4995	--	20	17		--	--	13	--	--	--	--	--	50
18	2676	34	--	--	27	10	34	14	--	--	--	--	--	119
18	1208	11	15	22	14	--	--	--	--	--	--	--	--	62
18	1150	13	49	10		--	--	--	--	--	--	--	--	72
18	7227	--	26	50	53	--	9	--	--	--	--	--	--	138
19	5181	--	--	--	32	52	--	34	110	89	7	--	--	324
18	2677	--	--	--	--	--	52	35	--	--	--	--	--	87
19	5232	--	--	--	--	53	26	15	37	61	66	--	--	258
19	2674	--	--	--	--	--	--	46	23	--	--	--	--	69
19	5246	--	--	--	--	27	6	--	53	73	43	--	--	202
18	7263	--	--	22	52	10	--	--	--	--	--	--	--	84
18	7147	--	--	--	9	46	--	--	--	--	--	--	--	55
18	7604	--	--	--	--	--	--	--	11	21	94	--	--	126
18	4905	--	8	67	4	--	--	--	--	--	--	--	--	79
19	2737	--	--	--	--	--	--	44	--	--	--	--	--	44
18	2645	15	12	--	--	--	30	9	--	--	--	--	--	66
19	2759	--	--	--	--	--	--	17	--	--	--	--	--	17
	Total	79	179	188	191	198	178	227	234	244	210	--	--	1928

F8. Bullwise Calving at Different Field Unit Centers during 1-4-2020 to 31-3-2021

Month		April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan	Feb	Mrch	Total
7147/18	M	23	9	--	1	--	--	--	--	--	--	--	--	33
	F	17	6	--	--	--	--	--	--	--	--	--	--	23
1150/18	M	--	20	17	2	--	--	--	--	--	--	7	26	72
	F	--	13	12	--	--	--	--	--	--	--	6	20	51
5147/18	M	--	--	12	18	5	6	5	18	--	--	--	19	83
	F	--	--	9	12	3	5	4	15	--	--	--	14	62
7263/18	M	4	--	--	2	22	--	6	3	--	--	--	--	37
	F	3	--	--	--	13	--	3	1	--	--	--	--	20
2676/18	M	--	--	--	--	--	31	40	-	--	10	14	--	95
	F	--	--	--	--	--	27	26	--	--	10	9	--	72
1208/18	M	--	--	--	--	3	51	8	--	--	--	5	4	71
	F	--	--	--	--	4	37	4	--	--	--	3	5	53
2677/18	M	--	--	--	12	4	--	29	--	--	--	--	--	45
	F	--	--	--	8	2	--	18	--	--	--	--	--	28
2645/18	M	--	--	8	16	15	--	--	31	27	27	8	4	136
	F	--	--	5	15	9	--	--	21	19	19	6	3	97
4995/18	M	14	10	--	--	--	--	10	19	12	--	--	7	72
	F	10	6	--	--	--	--	4	12	7	--	--	4	43
2689/18	M	--	7	17	8	--	--	--	12	57	31	4	5	141
	F	--	6	12	7	--	--	--	11	41	20	2	3	102
4905/18	M	10	13	20	1	19	--	--	--	--	--	--	5	68
	F	6	7	14		13	--	--	--	--	--	--	2	42
1209/18	M	--	--	--	9	12	--	--	--	--	--	--	--	21
	F	--	--	--	6	8	--	--	--	--	--	--	--	14
1219/18	M	--	--	--	10	1	--	--	--	--	--	--	--	11
	F	--	--	--	5	1	--	--	--	--	--	--	--	6
7227/18	M	17	11	--	--	--	--	--	--	--	--	--	8	36
	F	11	10	--	--	--	--	--	--	--	--	--	4	25
	Total	115	118	126	132	134	157	157	143	163	117	64	133	1559

M = Male: 919

F = Female: 640

Total = 1559

F. 9 Bull wise female progeny at different Field Unit Centers (0-12 months) as on 31/3/21

Bull No	Darar	Kheriman Singh	Rindal	Sheikhpura	Kamalpur	Total
1150/18	17	8	10	-	18	53
4905/18	-	18	-	9	15	42
7147/18	12	-	11	-	-	23
7227/18	-	-	-	4	21	25
7263/18	17	-	3	-	-	20
4995/18	14	2	7	16	4	43
5147/18	32	9	7	8	6	62
2676/18	8	28	15	10	11	72
1208/18	12	18	11	4	8	53
2677/18	4	6	3	10	5	28
2645/18	5	29	4	17	42	97
2689/18	20	30	12	15	25	102
1209/18	-	-	14	-	-	14
1219/18	-	-	-	1	5	6
Total	141	148	97	94	160	640

F. 10. Bull wise Live Female Progeny at different Field Unit s (1-2 yrs) as on 31/3/ 2021

Bull No	Darar	Kheriman Singh	Rindal	Sheikhpura	Kamalpur	Total
6942/17	9	17	7	-	-	33
4715/17	-	-	-	1	-	1
2594/17	-	-	-	6	-	6
2558/17	-	9	-	16	14	39
4837/17	-	15	8	2	-	25
2607/17	17	-	-	4	-	21
2222/17	4	5	-	10	-	19
1111/17	11	8	-	-	-	19
2565/17	-	5	-	-	11	16
4687/17	-	-	-	-	12	12
51-M/17	25	5	-	-	-	30
53-M/17	12	7	9	-	-	28
B-1-330/17	-	-	12	6	9	27
1150/18	-	-	-	10	-	10
4905/18	-	9	-	-	-	9
7094/18	41	12	11	12	17	93
7147/18	26	-	10	13	19	68
7227/18	-	29	-	-	2	31
7263/18	-	-	6	1	-	7
Total	145	121	63	81	84	494

F. 11. Bull wise Live Female Progeny at different Field Unit s (2-3 yrs) as on 31/3/ 2021

Bull No	Darar	Kheriman Singh	Rindal	Sheikhpura	Total
1027/16	-	-	-	18	18
4705/16	12	-	-	-	12
6753/16	10	-	3	-	13
6646/16	-	-	9	3	12
4687/17	22	21	7	-	50
4715/17	11	3	6	17	37
4733/17	12	2	-	8	22
7010/17	8	13	9	6	36
51-M/17	-	4	3	8	15
6942/17	-	-	1	7	8
2594/17	9	1	8	2	20
2565/17	-	-	-	2	2
4837/17	-	17	-	4	21
M-29/17	-	5	-	-	5
2558/17	-	3	-	-	3

2607/17	-	4	-	-	4
1111/17	-	-	-	5	5
Total	84	73	46	80	283

F. 12. Bull wise Live Female Progeny at different Field Unit Centers (>3 Years) as on 31/3/2021

Bull No	Darar	Kheriman Singh	Rindal	Sheikhpura	Total
6379/16	6	6	11	-	23
2467/16	-	-	3	7	10
2501/16	28	-	4	-	32
29-M/16	-	2	8	23	33
4363/15	-	-	1	-	1
1053/16	-	-	1	6	7
2383/16	-	-	9	-	9
1027/16	17	23	-	-	40
4592/16	17	34	-	20	71
4705/16	3	1	-	28	32
4889/16	7	21	-	7	35
6409/16	-	9	15	-	24
4438/15	-	3	-	-	3
4623/16	8	3	-	-	11
6646/16	7	-	--	-	7
Total	93	102	52	91	338

F 13. Bull wise daughters calved at different field unit centers during2020-21

Bull No	Darar	Kheriman Singh	Rindal	Sheikhpura	Total
4439/14	1	-	-	-	1
4354/15	-	1	-	2	3
6139/15	-	1	-	3	4
4438/15	-	3	2	-	5
6007/15	-	1	-	-	1
6290/15	-	2	-	-	2
6405/15	-	1	-	-	1
2417/15	-	-	1	2	3
4623/15	1	-	-	-	1
4328/15	-	-	6	-	6
2371/15	1	-	4	1	6
4324/15	2	-	3	2	7
4403/15	-	-	2	-	2
4363/15	1	-	3	-	4
2429/15	-	-	2	-	2
2412/15	2	-	1	-	3
6409/16	-	2	-	-	2
4592/16	1	1	3	1	6
2501/16	3	-	-	-	3
4889/16	2	-	-	-	2
6379/16	2	-	-	-	2
4705/16	-	-	-	2	2
Total	16	12	27	13	68

F. 14. Bull wise daughters recorded at different field units during2020-21

Bull No	Darar	Kheriman Singh	Rindal	Sheikhpura	Total
4363/15	2	-	-	-	2
4889/16	1	-	-	-	1
4592/16	1	1	-	-	2
4623/16	2	-	-	-	2
6044/15	1	1	-	-	2
2371/15	3	2	-	-	5
4438/15	1	1	-	-	2

4324/15	1	2	-	1	4
6139/15	1	2	4	4	11
6290/15	1	1	-	-	2
4354/15	2	5	6	-	13
6405/15	2	1	-	-	3
6014/14	-	1	-	2	3
4439/14	-	1	-	-	1
6379/16	-	1	-	-	1
4093/14	-	1	-	-	1
4100/14	-	1	-	-	1
4328/15	-	-	8	-	8
8511/13	-	1	-	-	1
2417/15	-	-	6	4	10
6136/14	-	-	4	1	5
2412/15	1	-	-	4	5
Total	19	22	28	16	85

F 15. Bull-wise AI, conception, calving and daughters retained till completion of milk recording as on 31/03/2021

Sr. no.	Set No	Bull No.	AI	Conceptions	Calvings		Daughters retained upto				Complete Recording
					Total	Female	1 Year	2 Year	3 Year	Calving	
1	6	1836	28	15	6	3				0	0
2	6	4506	282	117	57	30				18	9
3	6	4523	317	158	127	62				12	10
4	6	4619	183	74	37	20				14	14
5	6	4637	156	60	50	15				6	6
6	6	4640	190	76	48	14				12	8
7	7	1419	241	86	40	25				10	10
8	7	1727	103	40	29	5				6	6
9	7	1746	112	57	48	19				9	9
10	7	1749	63	39	28	12				5	5
11	7	1796	95	53	24	10				4	4
12	7	2121	62	29	18	10					
13	7	2133	282	171	94	49				13	14
14	7	2184	384	178	109	46				19	26
15	7	2331	270	92	70	32				12	10
16	7	2363	216	85	52	26				8	6
17	7	4807	82	42	17	14				8	7
18	7	4915	389	152	63	33				14	14
19	8	1492	146	46	17	8				4	4
20	8	1509	37	20	12	6				5	3
21	8	1867	27	15	5	2				1	1
22	8	1868	46	13	8	4				4	4
23	8	1875	101	48	27	16				8	7
24	8	1893	224	127	55	25				8	6
25	8	2250	217	99	79	34				18	6
26	8	2308	118	58	38	23				8	7
27	8	2422	163	63	38	19				5	5
28	8	2479	150	42	28	10				7	7
29	8	2522	71	25	8	7				1	1
30	8	4813	255	107	61	29				23	14
31	8	4865	325	109	55	25				12	10
32	8	5049	120	49	41	17				10	8
33	8	5054	435	200	107	45				21	20
34	9	1575	291	105	58	29				20	18
35	9	1903	82	34	17	9				3	5
36	9	1913	127	35	25	11				3	6
37	9	1940	101	50	37	23				12	11

38	9	1964	127	66	61	29				14	14
39	9	1994	57	24	19	11				3	3
40	9	2582	394	147	88	47				20	16
41	9	2592	301	124	86	38				19	25
42	9	2720	342	154	114	63				39	10
43	9	2910	202	79	46	25				22	8
44	9	5112	706	292	181	82				56	30
45	9	5197	176	89	72	42				33	11
46	9	5218	765	370	246	137				42	29
47	9	5312	64	23	16	6				1	
48	10	ND-1	207	100	62	34				29	25
49	10	ND-2	105	50	36	15				7	7
50	10	ND-6	305	146	104	43				1	
51	10	ND-8	217	94	92	48				18	13
52	10	507	187	86	45	23				14	10
53	10	1693	215	98	59	29				21	18
54	10	2045	221	81	52	19				2	4
55	10	2062	82	34	24	9				2	2
56	10	2073	310	132	128	57				42	25
57	10	2074	185	68	40	21				8	9
58	10	2083	184	74	36	13				3	8
59	10	2990	188	102	80	33				14	11
60	10	3103	309	135	94	44				31	17
61	10	3631	218	101	56	27				16	13
62	10	5396	200	93	73	33				26	14
63	11	H-10	190	100	88	41				21	10
64	11	H-12	482	230	192	95				24	16
65	11	2154	90	49	38	21				6	4
66	11	3226	553	211	140	60				19	18
67	11	3255	540	270	188	108				27	25
68	11	3267	497	243	164	93				16	11
69	11	3591	540	261	242	114				34	30
70	11	5414	515	176	173	96				54	48
71	11	5489	1313	598	483	215				73	60
72	11	5496	736	348	301	140				32	31
73	11	5516	966	429	314	162				38	29
74	12	R-10	34	19	11	7				2	--
75	12	R-11	36	17	8	6				1	1
76	12	5604	61	32	25	13				1	1
77	12	5710	746	364	338	170				21	14
78	12	5720	1057	567	417	212				72	55
79	13	851	301	154	139	69				11	10
80	13	858	223	122	90	37				16	14
81	13	2234	74	40	28	12				4	2
82	13	2269	139	73	58	27				7	9
83	13	2304	183	85	62	29				3	3
84	13	3964	512	289	208	103				22	15
85	13	4059	266	108	87	42				10	7
86	13	5943	563	244	193	84				24	12
87	14	2357	72	40	38	16				--	--
88	14	2369	108	64	59	29				7	8
89	14	2371	640	221	50	24				20	12
90	14	4093	648	300	217	107				15	17
91	14	4100	417	208	171	87				6	7
92	14	4439	670	355	300	109				16	19
93	14	6014	1598	705	598	293				34	34
94	14	6044	791	344	302	139				32	22
95	14	6066	67	25	16	10				--	--
96	14	6136	1559	873	756	382				40	34

97	15	2412	469	222	120	58				9	7
98	15	2417	435	239	129	53				16	11
99	15	2429	83	51	33	15				2	--
100	15	2459	50	36	35	18				--	--
101	15	4324	804	355	178	79				14	6
102	15	4328	582	263	171	83				15	9
103	15	4354	934	418	124	58				19	16
104	15	4363	551	122	102	49				9	14
105	15	4403	73	43	32	16				2	1
106	15	4438	450	200	116	53				8	4
107	15	6007	397	227	71	36				1	2
108	15	6139	742	386	144	71				23	16
109	15	6200	74	43	41	20				--	--
110	15	6290	246	93	76	37				5	3
111	15	6405	406	125	31	15				5	5
112	16	M-29	652	422	212	98			5		
113	16	1027	456	248	166	86			18		
114	16	2383	148	88	64	29					
115	16	2467	222	117	60	27					
116	16	2501	388	183	105	48				3	
117	16	4592	661	386	295	134				6	2
118	16	4623	229	104	89	38				2	2
119	16	4705	451	249	161	69			12	2	
120	16	4889	370	173	143	59				2	1
121	16	6379	372	179	124	60				3	1
122	16	6409	440	212	141	60				2	
123	16	1053	112	60	31	15					
124	16	6646	275	150	83	37			12		
125	16	6753	161	87	49	20			13		
126	17	2565	147	68	60	27		16	2		
127	17	2594	324	126	92	40		6	20		
128	17	2607	245	114	76	35		21	4		
129	17	4687	479	208	181	82		12	50		
130	17	4715	555	228	194	85		1	37		
131	17	4733	202	100	93	38			22		
132	17	4837	459	153	111	49		25	21		
133	17	7010	447	201	176	78			36		
134	17	Daara	253	86	73	29		19			
135	17	M-51	407	187	158	62		30	15		
136	17	6942	372	177	123	54		33	8		
137	17	Sikander	235	105	78	34		19	5		
138	17	M-53	345	163	95	41		28			
139	17	2558	280	138	87	38		39	3		
140	17	B 1 330	311	145	92	41		27			
141	18	7094	757	356	273	115			93		
142	18	7147	983	410	260	107		23	68		
143	18	7227	569	282	140	62		25	31		
144	18	4905	498	219	136	54		42	9		
145	18	1150	424	199	155	65		53	10		
146	18	7263	479	207	88	33		20	7		
147	18	1208	394	191	124	53		53			
148	18	1209	138	62	35	14		14			
149	18	1219	110	51	17	6		6			
150	18	2645	720	281	233	97		97			
151	18	2676	619	278	167	72		72			
152	18	2677	450	215	73	28		28			
153	18	2689	637	257	243	102		102			
154	18	4995	449	207	115	43		43			
155	18	5147	443	223	145	62		62			

156	19	5181	674	324							
157	19	5232	554	258							
158	19	5246	481	202							
159	19	7604	663	126							
160	19	2674	136	69							
161	19	2737	90	44							
162	19	2759	211	17							
163	19	5310	106								
164	19	5320	46								
165	19	5333	49								
Total*			56919	25813	16980	7897	640	494	283	1661	1301

*as on 31.03.2021

F 16. Performance of FPT Programme on Farmer's Buffaloes NDRI unit as on 31.03.2021

Duration	AI	Pregnancies	CR%	Calvings	Females Born	Daughters Recorded	Av. AFC (months)	Av. Milk Yield (kg/day)	Daughters Available for Future Recording
2004-05	2223	993	41.97	710	333	34	41.4	7.55	
2005-06	2224	994	42.97	875	400	45	45.4	6.11	
2006-07	2193	976	33.5	918	440	65	46.7	6.87	
2007-08	2594	1212	46.72	1140	517	109	46.8	7.29	
2008-09	2529	1190	47.05	1086	503	138	45.3	7.36	
2009-10	2739	1377	50.27	1159	569	211	45.3	7.08	
2010-11	2747	1399	50.92	1225	560	183	44.2	7.68	21
2011-12	2995	1600	53.42	1260	605	133	45.2	7.82	78
2012-13	2905	1422	48.95	1159	569	138	42.9	7.29	109
2013-14	4419	2242	51.27	1225	560	119	42.6	7.37	168
2014-15	3941	2033	51.58	1860	905	83	41.58	8.60	298
2015-16	3905	1994	51.06	1648	768	87	43.02	7.69	58
2016-17	3916	1975	50.43	1524	722	85	48.56	8.07	125
2017-18	3241	1605	49.52	1397	640				485
2018-19	4315	1995	46.23	1030	456				529
2019-20	4571	1999	46.96	1532	647				289
2020-21	4874	1928	47.76	1559	640				286
Overall	56331	26934	47.68	21307	9834	1430	44.53	7.44	

Conception of March, 2021 will be added in July 2021





PROPOSED ACTION PLAN FOR 2020-21

- Thrust will be to bring more number of buffaloes under the AI coverage and to retain most of the female progeny up to the completion of their first lactation, more farms in the vicinity of project area having relatively large herd size (10-15 breedable buffaloes) will be identified and included in the project.

- Efforts will be made to improve the conception rate by balanced feeding through supplementation of mineral mixture offered to farmers as an incentive and by timely heat detection and proper time AI.
- The work of identification of progeny born in the field by ear tagging will continue so that and the progenies born will be properly identified.
- Organization for Infertility and Veterinary aid campaigns, deworming and tick control programmes on mass level, awareness programme for balanced feeding and mastitis control program will be a regular practice in various adopted village through Kisan Sangosthees and Scientific panel discussion with various buffalo breeder groups.
- Calf rallies will be given more emphasis to encourage the farmers for up-gradation of breeds and rearing progeny with improved dairy husbandry practices.
- Schedule for determining genetic improvement and enhancement in productivity at farmers' herd shall be developed to document the impact of the project. It will also cover animal health management as being undertaken a regular process while performing the breeding and sire evaluation activities.
- The performance recording in terms of monthly recording of milk yield of the daughters and their dams will continue. Finally the data generated on AI's, conception rate, milk production and performance traits will be supplied to coordinating unit for analysis as per ICAR Test Day recording schedule.
- Elite buffaloes will be identified in the field and mated with proven bulls for production of young bulls.
- There is need to develop modalities for procuring such superior young male calves for future breeding and providing necessary funds for procuring males.

Project Co-ordinator's observations on field performance

Financial Statement for the year 2020-21 (Rs in Lakhs)

Sanctioned R E 2020-21		Released ICAR Share as per R E	Expenditure as per AUC		Balance
Total	ICAR Share		ICAR Share	State Share	
20.00	20.00	20.00	18.80906		(+) 1.22904

- A total of 4874 AI was performed in adopted villages with the semen of 12 bulls of 18th set and 10 of 19th sets for test mating during 2020-21.
- The conception rate was reported 47.76 %. (1928/4037 upto Dec., 2020)
- Total 1559 calvings reported in the farmers' herd (919 male and 640 female).
- During the report period 104 daughters calved and 85 daughters completed first lactation milk yield.
- As on 31st March 2022: total 1755 daughters of various age groups (0-12 months: 640, 1-2 years: 494, 2-3 years: 283 and > 3 year: 338) are standing in field for future recording.

Recommendations:

- Action to be taken to record maximum daughters first lactation milk yield. The number of daughters completed the recording reduce significantly as compared to previous year.
- Meeting and interface with field workers-farmers-scientist to be organized frequently in field and at Institute.

SUMMARY OF RESEARCH ACHIEVEMENTS AND PROGRESS OF THE PROJECT

Selection and use of Breeding Bulls for Murrah breed

From July 93 till date test mating from 18 sets of Murrah breeding bulls have been completed and test mating of 19th set is continuing from July 2020 and complete in December 2021. Brief summary of the duration, the number of bulls, average of the dam's best yield and highest dam's yield in each set is shown below.

Eighteen sets of bulls used under Network Project on Buffalo since July 1993.

Set No.	Duration	Centrewise No. of bulls						Total Bull	Av. of 305 day or less dams best yield (kg)	Highest dam 305 day yield (kg)	305 day or less herd average (kg)
		CIRB	NDRI	GADVA	LUVAS	NDUAT	IVRI				
1.	July, 1993 to Dec., 1994	2	9	0				11	3050	4114	1820/501
2.	Jan., 1995 to June, 1996	4	5	6				15	3002	3898	1920/487
3.	July, 1996 to Dec., 1997	8	5	2				15	2876	3275	2053/476
4.	Jan., 1998 to June, 1999	5	4	5				14	2999	3401	1973/457
5.	July, 1999 to Dec., 2000	6	5	4				15	3120	3898	1943/551
6.	Jan., 2001 to June 2002	5	5	4	2			16	3055	3898	1972/562
7	July 2002 to Dec., 2003	5	2	4	1			12	2928	3544	2017/505
8.	Jan., 2004 to June 2005	5	5	4	2			16	2928	3690	2056/511
9.	July 2005 to Dec. 2006	4	5	5	1			15	2923	3336	2008/458
10.	Jan., 2007 to June 2008	3	1	5	1	3	1	14	2829	3369	2130/509
11.	July 2008 to Dec., 2009	4	4	3	1	1	1*	14	2792	3051	2046/483
12.	Jan., 2010 to June 2011	1	3	3	1		3**	11	3362	5192	2115/384
13.	July 2011 to Dec., 2012	2	1	3			2	8	3205	3805	2199/380
14.	Jan., 2013 to June 2014	4	4	3			1	12	3451	4636	2356/288
15.	July, 2014 to Dec., 2015	6	5	4				15	3350	4636	2361/335
16.	Jan., 2016 to June 2017	5	4	3	3			15	3762	4636	2349/280
17.	July, 2017 to Dec., 2018	10	2	4				16	3526	4668	2449/315
18.	Jan., 2019 to June 2020	3	4	4	4			15	3284	3867	2586/333
19.	July, 2020 to Dec., 2021	7	1	3	1	-	-	12	3435	4069	2607/374

* bulls from Deedwadi

** Two from Redhu Farm

List of bulls selected for 19th set (Murrah Breed)

Sr. No.	Bull No.	Location	Date of Birth	Dam No.	Sire No./ Set No	Dam's best lact. 305 day or less yield (kg)/Peak yield(kg)
1.	1315	LUVAS	18-11-16	708	2045 PT-X	3824/18.4
2.	2674	GADVASU	01-03-16	2532	2412 - XV	3583/23.0
3.	2737	GADVASU	04-08-17	2543	2383 - XVI	3241/22.8
4.	2759	GADVASU	0911-17	2502	2133 PT - XI	3340/20.7
5.	5181	CIRB	11-04-17	4340	3591 PT - XI	3428/17.9
6.	5232	CIRB	06-08-17	4322	1354 PT - III	3568/17.0
7.	5246	CIRB	20-08-17	4672	4371 PT - V	3124/15.7
8.	5310	CIRB	23-12-17	4545	6646 - XVI	4069/20.0
9.	5320	CIRB	15-01-18	4017	1053 - XVI	3340/15.2
10	5333	CIRB	02-02-18	3485	1354 PT -III	3304/17.6
11	5374	CIRB	12-07-18	4344	1148 XVII	3244/17.4
12	7604	NDRI	18-06-18	6477	7010 - XVII	3158/16.0
13						

Note: From each bull 10,000 semen doses are to be frozen.

Health Evaluation and Semen Quality Testing: During the period under report, apparently healthy buffalo breeding bulls of different centres (CIRB Hisar, NDRI Karnal, GADVASU Ludhiana and LUVAS Hisar) all of Murrah breed and proposed for XIX set for semen collection under Network Project on Buffalo were screened for TB, JD and Brucellasis etc.

Progeny Test Evaluation of Bulls : Data of 581 daughters born from the 13th set of bulls which completed 1st lactation was compiled and progeny test evaluated. Bull no. 2234 and 2269 from GADVASU, Ludhiana ranked 1st and 2nd with sire index 2688.44 kg and 2618.87 kg respectively.

Progeny Test evaluation of 14th set bulls (Murrah January 2013 to June 2014)

Bull No.	Centre	Daught. No.	Date of Birth	Dam No.	Sire No./ Set No	Dam's best 305 DLMY (kg)	Dau_1 st lact. MY (kg)	Sire BV	Superiority over BV (%)	Rank
4196	CIRB	21	10-05-10	3586	1153 PT	3304	2505	2474	+2.27	III
4439	CIRB	39	Purchase	NK	NK	22Kg PY	2353	2363	-2.36	VIII
4093	CIRB	29	10-09-09	3133	3255	3040	2382	2420	-0.50	VII
4100	CIRB	26	18-09-09	3033	2154- XI	2971	2225	2328	-3.80	X
6066	NDRI	06	08-04-09	402	4393 PT	3505	2441	2419	-0.04	VI
6136	NDRI	54	25-09-09	5517	2148	4341	2413	2423	+0.14	V
6014	NDRI	49	02-10-08	5234	1693	3072	2344	2353	-2.77	IX
6044	NDRI	34	15-01-09	430	4371 PT	3567	2469	2479	+2.43	II
2369	GADVASU	130	24.08.10	P2138	5496	3114	2458	2464.53	+ 1.85	IV
2357	GADVASU	51	24.07.10	P2488	1933	3559	2473	2486.91	+ 2.78	I

Mean=2419.68; No of daughter 439

Progeny Tested bulls used under Network Project

The top ranking 25 % progeny tested bulls (2 to 3 bulls from each set) used for elite/ nominated matings from set I to set XIV as selected from the centres are listed below. The pedigree detail, sire index and availability of frozen semen doses from each bull are under.

List of Progeny Tested Bulls 1st to 14th Set (Murrah breed)

Sr No.	Bull No.	Location	Date of Birth	Dam No.	Sire No.	Dam's best lact. 305-day yield (kg)	% superiority	Rank
Set - I								
1.	392	CIRB	06.04.89	238	PQ1	2594	22.8	I
2.	3567	NDRI	07.09.89	2408	2304	2877	6.4	II
3.	896	CIRB	27.07.87	911	644	3003	5.5	III
Set - II								
1.	761	CIRB	20-11-90	474	366	2878	9.37	I
2.	93	CIRB	03-11-90	-	PQ-1	22.0*	3.96	II
3.	829	CIRB	04-07-91	597	766	2626	3.53	III
Set - III								
1.	1354	PAU	12-12-92	762	989	3088	13.11	I
2.	1153	CIRB	13-08-93	701	896 PT	2540	12.27	II
3.	1061	CIRB	24-09-92	769	896 PT	2846	9.50	III
Set - IV								
1.	1506	PAU	25-04-95	-	988	3018	18.81	I
2.	1451	PAU	10-08-94	-	3567 PT	3401	10.44	II
3.	1437	PAU	04-04-94	797	636	3127	8.11	III
Set - V								
1.	4393	NDRI	10-12-95	2762	1908	3898	22.29	I
2.	4371	NDRI	23-10-95	2984	988	3258	14.90	II
Set - VI								
1.	1153	HAU	29-09-96	618	759	2675	13.31	I
2.	4506	NDRI	31-10-96	3527	3551	3512	9.29	II
3.	1933	CIRB	01-10-97	208	988	2650	6.92	III
Set - VII								
1	4915	NDRI	28-10-99	3521	2921	3437	17.26	I
2	1796	PAU	10-02-00	1386	1506 PT	3170	15.81	II
Set - VIII								
1.	1875	GADVASU	20-08-01	1669	558	2714	24.89	I
2.	4813	NDRI	17-01-99	3818	3966	3016	12.59	II
3.	2422	CIRB	19-08-00	1194	4371 PT	3369	9.41	III
Set - IX								
1	1994	GADVASU	16-06-03	1884	392 PT	2938	11.73	I
2	5258	NDRI	01-08-02	4066	1706	3305	10.52	II
Set - X*								
1.	1693	LUVAS	27-10-03	1050	392 PT	3194	1.23	I
2.	2045	GADVASU	24-02-04	1835	3567 PT	3369	1.23	II
Set - XI*								
1.	3267	CIRB	27-09-04	2263	1419	2489	0.20	I
2.	3591	CIRB	29-05-06 (P)	3590		2598	0.14	II
3.	2133	GADVASU	09-11-05	2041	1354 PT	2844	0.09	III
Set - XII*								
1.	2185	GADVASU	23-11-06	1898	1354 PT	3423	0.94	I
2.	183	CCS HAU	03-06-07	1374	1354 PT	2824	0.75	II
Set - XIII								
1.	2234	GADVASU	06-03-08	2138	5396	3114	14.80	I
2.	2269	GADVASU	17-12-08	2295	3631	3617	13.86	II
Set - XIV*								
1.	2357	GADVASU	24-07-10	P2488	1933 PT	3559	2.78	I
2.	6044	NDRI	15-01-09	430	4371 PT	3567	2.43	II
3.	4196	CIRB	10-05-10	3586	1153 PT	3304	2.27	III

* BLUP Model used for evaluation

Semen freezing and balance stock for bulls under test

Centre wise test bulls of Murrah breed as on 31-03-2021 at various centres

CIRB			NDRI			GADVASU		
Bull No.	Set No	No of semen doses	Bull No.	Set No	Semen doses CIRB+NDRI	Bull No.	Set No	Semen doses CIRB+GAD
4324	XV	6224	6007	XV	1652+2636	2371	XV	2055+4407
4354	XV	6378	6139	XV	2152+5016	2412	XV	5418+4440
4438	XV	4533	6290	XV	500+1549	2417	XV	1218+5410
4363	XV	6483	6405	XV	2000+4434	2429	XV	5886+4144
4403	XV	5574	6379	XVI	2257+2429	2459	XV	4990+2970
4328	XV	6217	6409	XVI	2207+7355	2383	XVI	1981+4707
29 M	XVI	7268	6646	XVI	2023+4302	2467	XVI	2026+6822
4592	XVI	5975	6753	XVI	2508+2172	2501	XVI	2788+7555
4705	XVI	6199	7010	XVII	2205+5749	2565	XVII	494+13620
4889	XVI	8439	6942	XVII	2625+5226	2558	XVII	1194+13323
1027	XVI	6926	7094	XVIII	948+4560	2607	XVII	375+9258
1053	XVI	6622	7147	XVIII	748+5974	2594	XVII	849+10396
1064	XVI	5816	7227	XVIII	498+1550	2645	XVIII	1799+ 8042
M 51	XVII	16778	7263	XVIII	1180+4428	2676	XVIII	2375+8055
4715	XVII	6043	7604	XIX	0+760	2677	XVIII	2375+2104
4733	XVII	6376				2689	XVIII	737+3935
4687	XVII	3998				2674	XIX	1917+3137
4837	XVII	7418				2737	XIX	930+75
M 53	XVII	8892				2759	XIX	1170+220
Sikander	XVII	3823						
Dara	XVII	1635						
B-1-330	XVII	7958						
1148	XVII	8496						
4905	XVIII	8535						
4995	XVIII	13533						
5147	XVIII	10152						
1150	XVIII	8276						
1208	XVIII	10093						
1209	XVIII	7485						
1219	XVIII	4230						
5232	XIX	9446						
5181	XIX	8503						
5246	XIX	8580						
5310	XIX	11133						
5320	XIX	2134						
5333	XIX	1494						
5374	XIX	2264						
1315	XIX	656			(23503+58140)			(112620+40577)
Sub Total		231503			81643			153197
Grand Total								466343

Germplasm dissemination for breeding purpose (Murrah breed)

Superior germplasm disseminated from various centers is presented below.

Year	CIRB		GADVASU		NDRI	
	Bulls	Semen	Bulls	Semen	Bulls	Semen
1998-99	32	50	10	6000	15	1740
1999-00	26	100	22	5847	11	1320
2000-01	16	70	33	3449	9	2230
2001-02	18	21648	18	8579	8	5030
2002-03	18	2270	8	3205	9	2655
2003-04	53	3300	17	3977	15	15614
2004-05	15	1534	10	19675	8	4579
2005-06	4	372	15	1763	17	4123
2006-07	18	04	8	2227	9	574
2007-08	5	140	6	1777	5	433
2008-09	2	6375	7	4053	3	1232
2009-10	0	63974	5	8181	0	9404
2010-11	0	59546	5	22383	0	22405
2011-12	0	129099	4	53131	16	18129
2012-13	4	80081	2	41276	9	23751
2013-14	6	68635	28	24784	5	62054
2014-15	38	57761	21	13510	9	11966
2015-16	57	41866	37	24529	22	12792
2016-17	64	54077	21	18909	3	14805
2017-18	52	76704	11	25398	20	14554
2018-19	49	97657	4	55758	4	11700
2019-20	37	138906	3	52268	0	15949
2020-21	19	94320	37	3808	30	5400
Total	533	998489	332	404487	227	262439

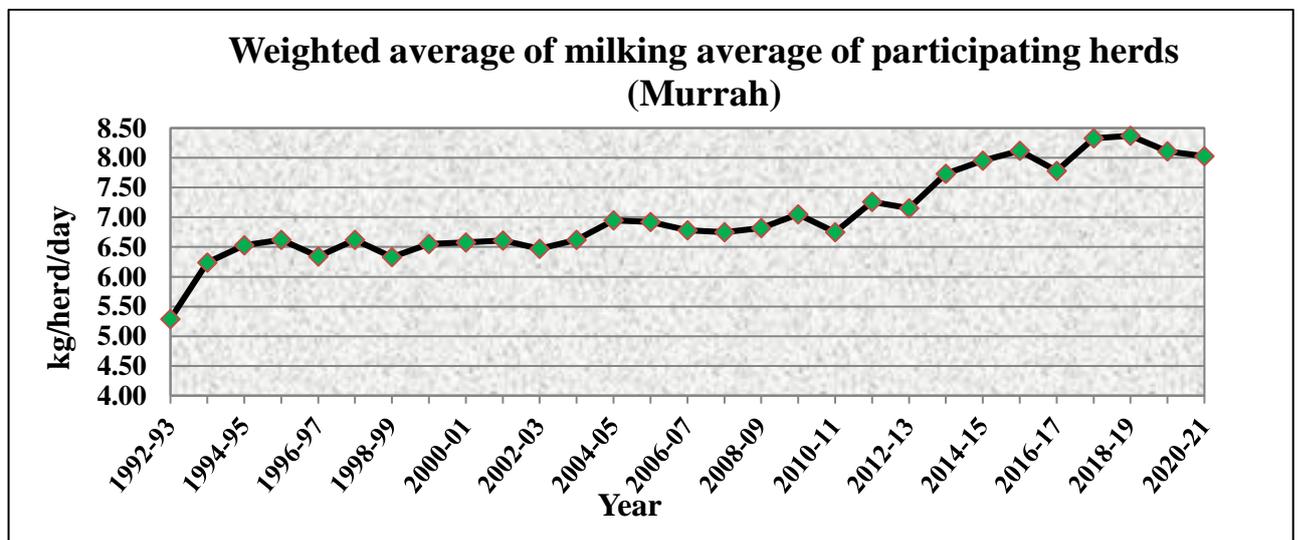
Performance Characteristics

Herd performance with respect to various production and reproduction traits at different participating centers has been compiled and presented as under.

Milking average per buffalo at various participating herds since 1992-93.

Year	CIRB	GADVASU	NDRI	LUVAS	IVRI	CCBF	NDUAT	Weighted average
1992-93	4.80 (165)	5.54 (149)			4.31 (22)	6.3 (65)		5.29 (403)
1993-94	5.65 (153)	6.20 (115)	7.80 (115)	6.3 (42)	4.62 (380)	5.8 (62)		6.24 (525)
1994-95	6.09 (181)	6.09 (116)	8.39 (114)	7.2 (49)	3.90 (39)	6.3 (48)		6.53 (547)
1995-96	6.43 (1.53)	6.43 (123)	8.03 (109)	7.3 (54)	3.63 (29)	6.0 (82)		6.62 (550)
1996-97	5.62 (122)	6.17 (112)	7.90 (103)	7.0 (76)	3.63 (29)	5.7 (67)		6.34 (508)
1997-98	6.12 (121)	6.53 (116)	7.40 (119)	6.5 (68)	4.19 (28)	7.2 (58)		6.62 (509)
1998-99	6.77 (133)	6.26 (119)	5.93 (100)	6.2 (71)	5.79 (20)	6.5 (72)		6.33 (515)

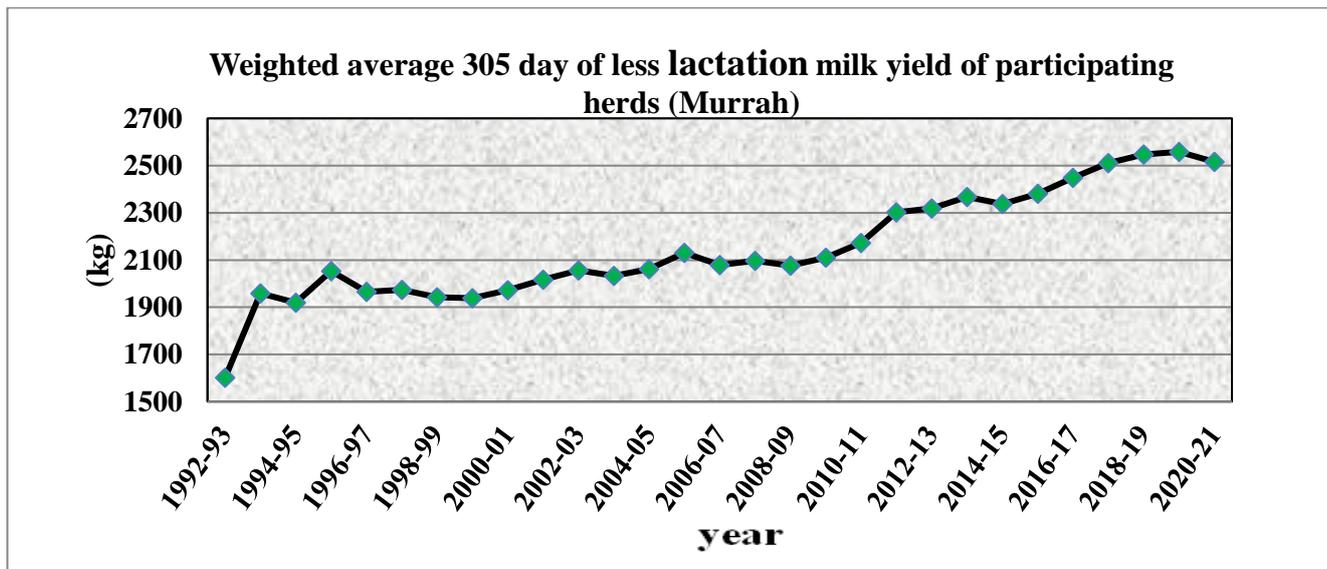
1999-00	6.85 (137)	6.26 (109)	6.60 (90)	5.2 (60)	5.77 (23)	7.4 (98)		6.55 (521)
2000-01	6.68 (148)	6.70 (105)	6.65 (104)	6.7 (55)	5.42 (30)	6.5 (84)		6.58 (523)
2001-02	6.59 (147)	7.09 (94)	6.26 (90)	7.47 (48)	5.82 (32)	6.3 (81)		6.61 (492)
2002-03	6.27 (143)	7.22 (109)	6.23 (73)	7.5 (47)	4.94 (30)	5.9 (68)		6.47 (470)
2003-04	6.49 (151)	7.01 (108)	6.36 (80)	7.30 (68)	5.94 (37)	6.2 (57)		6.62 (501)
2004-05	6.39 (154)	7.33 (91)	7.39 (111)	7.70 (66)	5.99 (38)	6.70 (47)		6.95 (509)
2005-06	6.57 (151)	7.36 (74)	7.05 (107)	7.70 (63)	6.14 (46)	6.7 (39)		6.92 (479)
2006-07	6.45 (137)	7.03 (81)	6.70 (100)	7.8 (65)	6.15 (41)	6.8 (48)	6.52 (29)	6.78 (501)
2007-08	6.64 (146)	6.90 (70)	6.80 (104)	7.60 (66)	5.98 (62)		6.92 (22)	6.75 (470)
2008-09	6.50 (133)	7.07 (78)	7.09 (64)	7.10 (62)	6.69 (53)	6.4 (59)	6.66 (22)	6.82 (412)
2009-10	7.01 (106)	7.62 (83)	7.32 (91)	6.8 (69)	6.68 (45)		5.39 (27)	7.05 (421)
2010-11	7.45 (109)	7.21 (88)	5.83 (96)	7.3 (64)	5.88 (47)		5.60 (21)	6.75 (425)
2011-12	7.83 (110)	7.56 (88)	6.79 (66)		5.82 (41)	KVASU	Mamnoor	7.26 (305)
2012-13	7.74 (109)	7.74 (78)	7.35 (90)		5.66 (39)	4.82 (13)	4.70 (17)	7.15 (346)
2013-14	8.01 (105)	7.98 (61)	7.80 (101)	9.40 (62)	5.85 (45)	5.54 (19)	5.25 (11)	7.73 (404)
2014-15	8.25 (110)	7.97 (54)	8.05 (115)	8.70 (64)	6.80 (43)	RC ER, Patna	5.90 (22)	7.95 (408)
2015-16	8.04 (114)	8.04 (54)	8.43 (132)	9.90 (72)	6.48 (44)	7.45 (14)	5.81 (32)	8.12 (462)
2016-17	8.08 (133)	7.92 (53)	8.39 (85)	9.7 (60)	6.00 (55)	6.39 (19)	5.67 (43)	7.78 (448)
2017-18	8.71 (115)	8.03 (49)	8.23 (99)	10.3 (81)	5.77 (51)	4.30 (12)	--	8.33 (407)
2018-19	8.92 (101)	8.40 (68)	7.40 (112)	11.0 (76)	6.43 (50)	4.85 (15)	--	8.37 (422)
2019-20	9.66 (124)	8.31 (67)	6.67 (115)	10.4 (78)	5.95 (64)	5.12 (27)	--	8.11 (475)
2020-21	9.91 (130)	8.22 (66)	6.6 (86)	9.6 (73)	5.84 (68)	4.42 (27)		8.03 (450)



Average 305 day or less milk yield at various participating herds since 1992 – 93.

Year	CIRB	GADV ASU	NDRI	LUVAS	IVRI	CCBF/ KVASU	NDUAT/ Mamnoor	Weighted average
1992-93	1508±34 (137)	1730 (138)			1458±48 (34)	1899.1		1602 (309)
1993-94	1686±46 (148)	1948 (144)	2351.8 (137)	1818.8	1537±49 (28)	1746.0		1959 (457)
1994-95	1787±0 (206)	1877 (121)	2270.1 (128)	1912.7	1536±40 (32)	1896.7		1920 (487)
1995-96	1855±42 (147)	2008 (126)	2576.1 (106)	1987.5	1457±51 (27)	1950.4		2053 (476)
1996-97	1775±45 (173)	1948 (125)	2423.1 (105)	1880.8	1629±76 (20)	1714.1		1965 (498)
1997-98	1688±37 (123)	1995 (98)	2191.2 (128)	2103.7	1715±95 (23)	2006.8		1973 (455)
1998-99	1702±33 (153)	2101 (125)	2032.7 (112)	1964.7	1980±97 (22)	2179.7		1943 (551)
1999-00	2042±31 (141)	2041 (114)	1822.4 (102)	1688.7	2026±98 (18)	2134.9		1939 (439)
2000-01	1914±36 (173)	2032 (103)	2019 (126)	2183.1	1898±147 (20)	1875.0		1972 (562)
2001-02	1898±35 (152)	2175 (112)	1963±61 (91)	2119±46 (50)	2102±75 (19)	2000.0 (81)		2017 (505)
2002-03	1902±32 (148)	2144 (105)	2000.6 (81)	2522±13 (46)	2362.5 (55)	1789.1 (76)		2056 (511)
2003-04	1837±31 (148)	2233 (111)	1897 (29)	2162±42 (75)	2103±118 (26)	1881.9 (6)		2033 (395)
2004-05	1886±33 (167)	2270 (106)	2025 (98)	2134±44 (61)	2369±128 (10)	2114 (26)		2062 (494)
2005-06	1921±38 (149)	2327 (78)	2159 (142)	2252±47 (77)	2218±89 (32)	2085 (32)		2130 (509)
2006-07	1882±32 (170)	2235 (91)	2054 (111)	2261±44 (75)	2412±89 (27)	2139 (54)	1941±77 (27)	2079 (555)
2007-08	1891±34 (127)	2176±60 (67)	2094 (127)	2130±44 (80)	2525±109 (28)	--	1988±83 (24)	2097 (453)
2008-09	1926 (138)	2141±48 (88)	2256 (86)	2041±48 (76)	2209±106 (16)	1822 (57)	2078±89(2 2)	2076 (426)
2009-10	1995 (102)	2271±53 (67)	2222 (84)	1858±33 (84)	2570±92 (26)		2153±107 (20)	2110 (383)
2010-11	2247 (113)	2470±68 (81)	2015 (130)	2042±48 (66)	2136±63 (56)		2092±54 (22)	2172 (468)
2011-12	2374 (116)	2306±72 (87)	2192 (67)		2277±83 (49)	KVASU	LRS Mamnoor	2302 (319)
2012-13	2335±46 (110)	2528±55 (75)	2256 (83)		2242±108 (20)	1698±219 (11)	1560 (5)	2319 (304)
2013-14	2291±58 (98)	2509±67 (55)	2431 (82)	2808±43 (65)	2038±62 (47)	1728±158 (17)	1753 (13)	2367 (377)
2014-15	2355±48 (110)	2674±82 (46)	2224 (124)	2584±49 (62)	2136±52 (53)	RC ER Patna	1626 (11)	2338 (406)
2015-16	2336±33 (152)	2640±73 (45)	2523 (118)	2577±57 (78)	2302±65 (51)	1866±37 (18)	1843±31 (44)	2381 (506)
2016-17	2457 (133)	2561 (53)	2536 (87)	2967±64 (60)	2194±73 (55)	1736±21 (19)	2028±51 (43)	2449 (450)
2017-18	2424 (140)	2707 (54)	2387±44.8 (96)	3050±72.7 (69)	2129±56.25 (45)	1997±122.6 (12)	--	2511 (416)
2018-19	2567 (123)	2771 (62)	2319 (123)	3067±84.1 (66)	2205±68 (40)	1985±135 (16)	--	2547 (430)

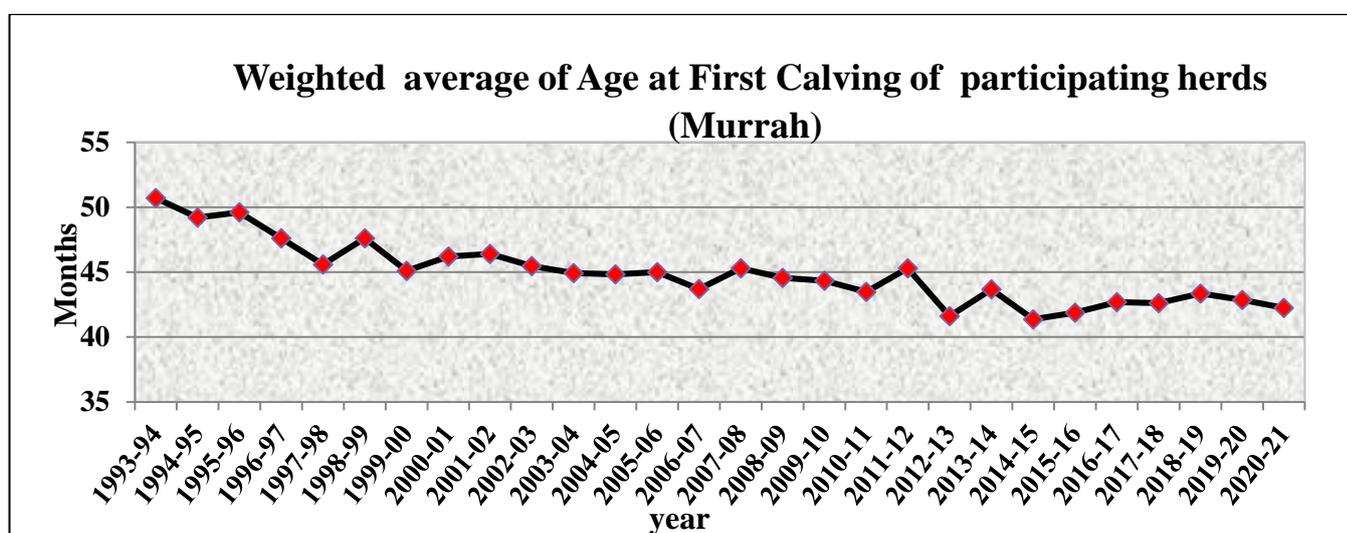
2019-20	2648 (128)	2841 (73)	2184 (106)	3090±54.1 (60)	2307±51 (60)	2088±19.16 (20)		2558 (447)
2020-21	2730 (148)	2614 (50)	2199±41.48 (90)	2976±52.4 (65)	2224±37.11 (57)	1824±63.04 (31)		2516 (441)



Average Age at first calving at various participating herds

Year	CIRB	GADVASU	NDRI	LUVAS	IVRI	CCBF	NDUAT	Weighted average
1993-94	59.1±1.6 (48)	46.7 (24)	45.5 (44)	51.6	39.4±3.0 (7)	43.0		50.7 (123)
1994-95	55.3±1.3 (48)	47.5 (37)	46.0 (37)	51.3	38.3±1.7 (10)	48.0		49.2 (132)
1995-96	55.3±1.5 (22)	49.4 (43)	46.8 (27)	51.9 (26)	42.1±3.4 (14)	51.0		49.6 (132)
1996-97	47.6±1.6 (23)	49.4 (34)	46.8 (27)	47.3 (44)	42.1±3.4 (4)	51.0		47.6 (132)
1997-98	45.5±0.5 (49)	45.0 (45)	44.8 (34)	48.7 (28)	40.1±3.4 (6)	51.0		45.6 (162)
1998-99	50.0±0.01 (57)	47.0 (34)	46.2 (54)	47.3 (22)	43.4±2.3 (8)	54.0		47.6 (178)
1999-00	46.2±1.0 (54)	42.0 (54)	42.6 (29)	49.4 (15)	48.8±7.0 (6)	55.0 (10)		45.1 (168)
2000-01	46.2±1.2 (45)	44.4 (27)	42.4±0.7 (42)	50.6±2.0 (17)	42.4±2.8 (4)	60.5 (11)		46.2 (146)
2001-02	49.8±0.8 (51)	44.7±1.4 (32)	44.0±1.0 (34)	46.7±4.9 (14)	44.4±2.6 (11)	45.0 (12)		46.4 (154)
2002-03	47.83±0.5 (61)	40.2±1.1 (39)	44.0±1.5 (20)	47.0±41.2 (27)	41.2±2.9 (4)	50 (15)		45.47 (166)
2003-04	50.52±0.8 (77)	36.8±1.0 (23)	43.87 (62)	40.37±12.4 (40)	41.82±3.2 (8)	48 (11)		44.94 (221)
2004-05	48.18±0.8 (76)	41.7±1.7 (27)	43.4±0.9 (47)	40.0±3.6 (26)	42.5±1.7 (8)	46 (16)		44.83 (200)
2005-06	47.89±0.7 (76)	43.7±1.0 (35)	39.9±1.0 (36)	41.03±1.1 (31)	42.1 (10)	54 (18)		45.0 (206)
2006-07	46.9±1.06 (43)	43.3±1.2 (20)	41.4±1.5 (50)	41.8±1.8 (15)	41.9±2.3 (10)	45 (19)	47.2±0.4 (3)	43.7 (160)
2007-08	48.3±0.6 (77)	42.7±1.0 (30)	41.8±1.5 (42)	44.4±1.1 (30)	45.8±0.9 (28)		46.4±0.7 (10)	45.3 (217)
2008-09	47.7±0.97 (44)	42.5±0.7 (43)	40.7±1.8 (31)	48.4±1.1 (40)	39.7±1.8 (16)	54.0 (17)	43.8±0.97 (7)	44.56 (181)

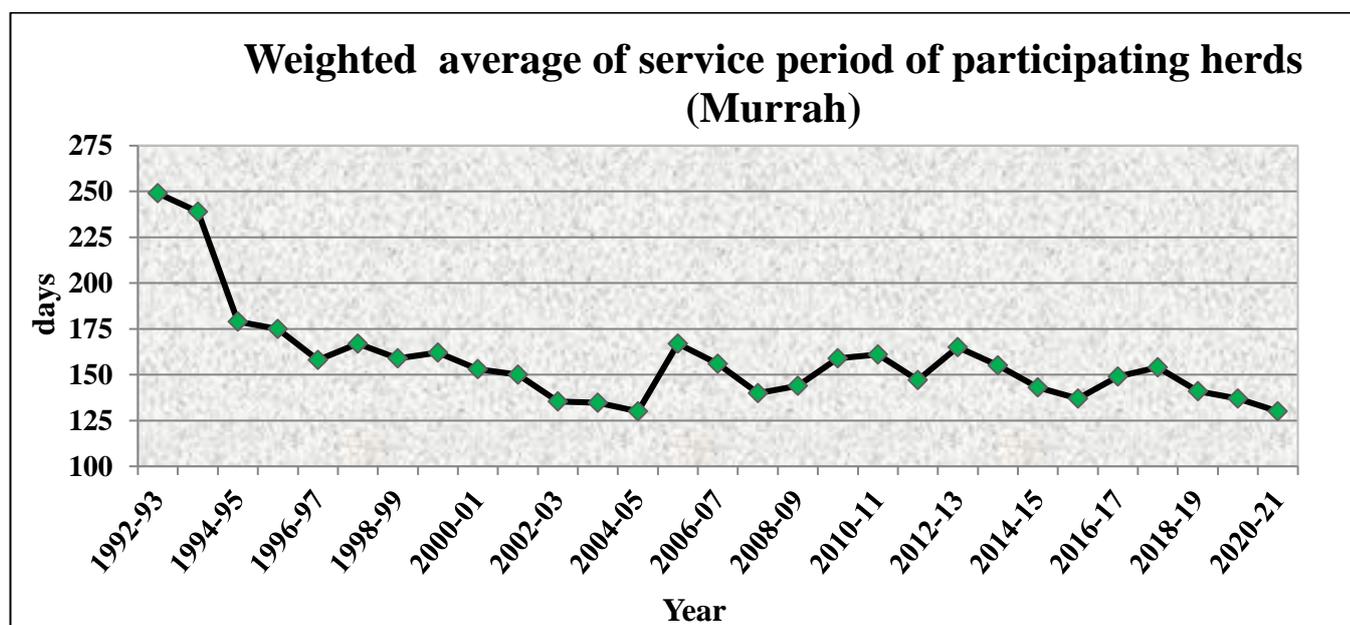
2009-10	49.2±0.75 (51)	39.3±1.2 (29)	41.1±1.4 (25)	45.7±1.1 (27)	41.3±4.7 (15)		43.6±0.14 (14)	44.35 (161)
2010-11	49.9±1.0 (35)	39.1±1.4 (21)	41.26 (50)	45.8±1.8 (33)	39.6±1.2 (25)		43.7±0.44 (9)	43.49 (173)
2011-12	51.9 (37)	37.4 (22)	42.13 (24)		45.6±3.2 (20)			45.30 (103)
2012-13	44.5±1.4 (37)	38.9±3.5 (34)	41.6±5.7 (29)		39.7±2.8 (7)	KVASU	LRS Mamnoor	41.62 (107)
2013-14	45.6±0.8 (37)	42.3±1.6 (12)	41.8±3.8 (36)	46.6±1.4 (33)	38.2±2.2 (18)	59.2±7.4 (7)		43.68 (143)
2014-15	42.8±0.8 (61)	38.6±0.6 (23)	40.4±1.2 (35)	45.9±1.7 (17)	37.64±1.3 (18)	RC ER Patna		41.37 (154)
2015-16	44.96±1.2 (24)	40.2±0.7 (24)	39.3±1.3 (24)	41.7±1.28 (27)	40.2±2.6 (9)	--	54.0±1.19 (4)	41.88 (112)
2016-17	44.91±0.81 (38)	41.50 (27)	43.21 (29)	42.0±7.08 (34)	38.99±1.2 (19)	--	58.50±3.4 (3)	42.68 (150)
2017-18	43.58±0.67 (67)	41.28± 1.19 (25)	43.4 ±0.8 (44)	42.2±0.87 (27)	38.64±1.16 (14)	--	--	42.61 (177)
2018-19	45.76±0.80 (31)	40.74± 1.43 (39)	44.39 (41)	42.5±0.83 (21)	38.62±1.05 (16)	--	--	43.37 (151)
2019-20	43.62±0.80 (71)	40.42±1.05 (23)	44.52 (37)	43.5±0.49 (22)	39.24±2.11 (20)	--		42.87 (173)
2020-21	42.48±0.73 (71)	40.56±0.70 (34)	45.10 (26)	43.1±0.8 (27)	39.03±0.84 (23)	48.34±5.26 (3)		42.25 (184)



Average Service period at various participating herds

Year	CIRB	GADVASU	NDRI	LUVAS	IVRI	CCBF	NDUAT	Wt. Avg.
1992-93	304±15(96)	207 (100)			120±33(8)	115		249(204)
1993-94	312±158(158)	228 (105)	148(97)	107.5	101±16(10)	165		239(370)
1994-95	202±15 (105)	206(96)	119(70)	163.1	77±5(9)	159		179(280)
1995-96	193±10 (149)	218 (105)	115(72)	135.0	100±12(12)	132		175(391)
1996-97	182±10 (149)	196(76)	114(66)	107.0	125±11(7)	204		158(361)
1997-98	175±14 (106)	248(94)	97(59)	107.7	83±06(11)	175		167(325)
1998-99	137±09 (121)	232(81)	118(63)	108.7	153±25(11)	186		159(323)
1999-00	138±09 (104)	213(59)	159(82)	148.3	190±28(16)	187		162(310)
2000-01	146±09 (151)	197 (81)	107±14 (53)	146.0	165±22 (17)	163		153 (370)
2001-02	146±11 (125)	202±14 (83)	123±9 (77)	147±14 (31)	134±25 (12)	126 (69)		150 (397)
2002-03	133±9 (126)	133±9 (95)	141±12 (59)	165±11 (47)	405±96 (5)	102 (76)		135.4 (408)
2003-04	151±10	160	131.65	87.6±8.4	108±15.5	48(11)		134.7

	(142)	(107)	(117)	(42)	(19)			(432)
2004-05	111±7 (100)	140 (80)	126±10 (93)	96±6.0 (52)	150±16 (30)	160 (87)		130 (442)
2005-06	184±12 (112)	143 (65)	149±12 (68)	148±8.5 (128)	180±28 (54)	253 (32)		167 (459)
2006-07	183±11 (113)	166±15 (69)	131±10 (80)	165±12 (60)	139±15 (40)	151 (37)	99±12.7 (22)	156 (421)
2007-08	159±11 (113)	147±12 (53)	119±11 (84)	165±16 (57)	115±7.5 (62)		109±15.6 (22)	140 (391)
2008-09	171±12 (80)	142±9 (90)	131±22 (61)	139±13 (54)	152±12 (48)	191 (63)	91±17.5 (22)	144 (355)
2009-10	212±17 (77)	151±10 (76)	146±22 (62)	157±12 (68)	122±11 (59)		130±14.6 (17)	159 (359)
2010-11	186±14 (80)	154±12 (94)	145 (76)	155±12 (38)	175±16 (35)		140±3.9 (15)	161 (338)
2011-12	181 (80)	136 (65)	121 (87)		153±216 (29)	KVASU 153	Mamnoon	147 (261)
2012-13	174±12 (72)	151±13 (53)	124±27 (69)		213±26 (30)	298±42 (11)	172 (9)	165 (244)
2013-14	190±11 (86)	159±11 (67)	128±11 (73)	118±9 (39)	140±13 (39)	322±115 (6)	143±11 (14)	155 (324)
2014-15	168±8 (88)	160±18 (40)	135±19 (71)	117±11 (52)	124±12 (55)	RC ER Patna	141±17 (34)	143 (340)
2015-16	138±7 (111)	162±116 (26)	134±23 (92)	127±10 (58)	142±15 (51)	140±5 (12)	128±15 (27)	137 (377)
2016-17	148±9 (93)	184 (26)	132.20 (54)	129±9.6 (43)	145.9±9.5 (52)	183±6.25 (14)	183.9±18 (22)	149 (304)
2017-18	167±10 (101)	152±10 (41)	138±10 (49)	135±12 (46)	140.77±15 (35)	195±8.21 (12)	--	154 (272)
2018-19	136±6.98 (97)	136±10 (104)	139 (77)	150±10.7 (60)	169.22±16 (46)	157±9.28 (18)	--	141 (379)
2019-20	143±8.29 (90)	125±9.59 (82)	133 (60)	123±7.5 (64)	172.68±19 (47)	131±12.5 (20)	--	137 (363)
2020-21	126.95±7.29 (100)	138±12.11 (95)	140 (39)	127±9.2 (67)	137.24±11.09 (50)	103±10.85 (31)		130 (382)

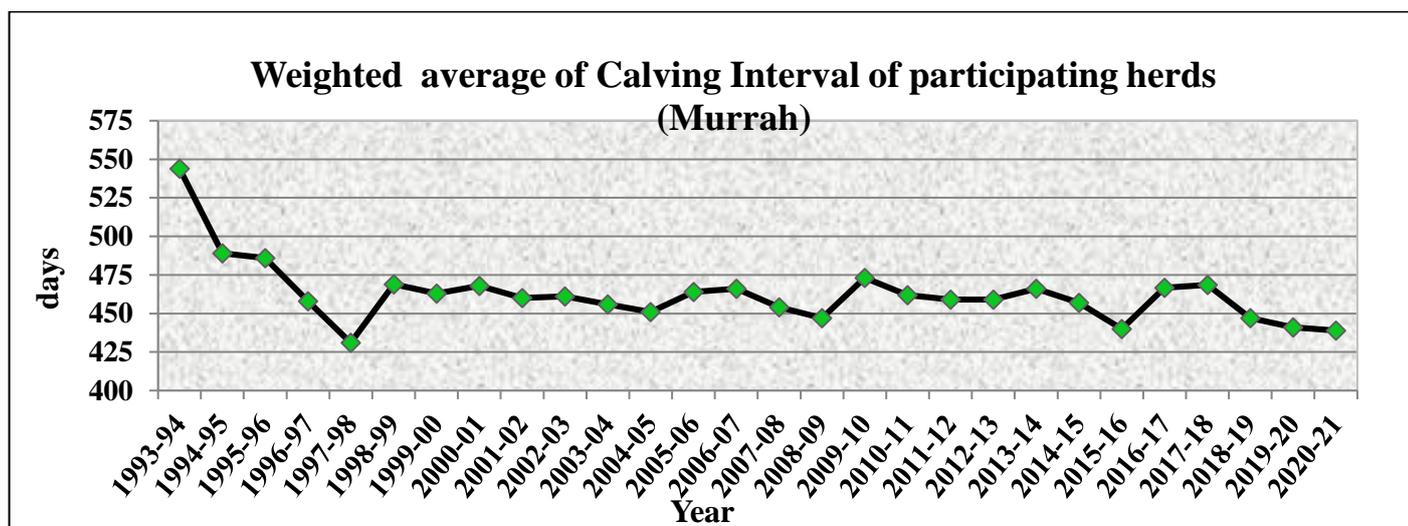


Average calving interval at various participating herds

Year	CIRB	GADVASU	NDRI	LUVAS	IVRI	CCBF	NDUAT	Weighted
------	------	---------	------	-------	------	------	-------	----------

								average
1992-93	489±16 (42)	510 (100)			404±22 (8)	498		495 (250)
1993-94	625±10 (161)	532 (106)	428 (98)		406±17 (3)	480		544 (368)
1994-95	527±10 (116)	512 (96)	428 (70)	459	377±08 (20)	523		489 (302)
1995-96	501±09 (152)	526 (105)	423 (72)	456 (40)	401±16 (7)	539		486 (376)
1996-97	473±09 (152)	510 (76)	423 (66)	408 (76)	424±23 (7)	510		458 (377)
1997-98	491±10 (118)	553 (94)	395 (60)	389 (55)	392±13 (11)	574		431 (338)
1998-99	455±10 (126)	553 (87)	424 (62)	417 (46)	438±15 (10)	522		469 (331)
1999-00	451±08 (120)	518 (63)	435 (52)	459±34 (49)	422±21 (11)	513		463 (295)
2000-01	454±09 (154)	511 (82)	408±21 (56)	479±33 (25)	411±13 (9)	491		468 (427)
2001-02	456±11 (135)	496±15 (84)	428±13 (43)	457±14 (31)	440±24 (12)	445 (69)		460 (374)
2002-03	440±9 (130)	463±13 (95)	406±16 (31)	472±11 (47)	585±69 (4)	501 (76)		461 (383)
2003-04	458±10 (151)	455 (93)	438 (17)	396.3±8.6 (42)	553±36 (29)	441 (10)		456 (342)
2004-05	426±7 (101)	478±13 (80)	428±20 (35)	402±6.2 (52)	481±28 (37)	480 (87)		451 (392)
2005-06	499±12 (112)	433±14.7 (60)	413±36 (54)	455±8.5 (126)	477 (37)	510 (32)		464 (421)
2006-07	495±11 (116)	437±12 (61)	419±11 (50)	473±12 (60)	452±21 (30)	502 (37)	444±4.6 (21)	466 (375)
2007-08	482±12 (117)	419±7 (58)	441±20 (55)	469±16 (57)	443±21 (43)		408±13 (21)	454 (351)
2008-09	469±12 (85)	438±8 (52)	424±14 (21)	444±13.4 (54)	452±11 (48)	503 (63)	402±17 (22)	447 (282)
2009-10	520±16 (77)	492±17 (72)	413±25 (30)	459±21.4 (68)	445±13 (63)		440±14 (17)	473 (327)
2010-11	492±14 (83)	457±105 (76)	442 (44)	462±12.2 (38)	449±16 (60)		426±6.7 (15)	462 (316)
2011-12	485 (81)	473 (85)	428 (56)		461±18 (39)	KVASU	LRS Mamnoor	459 (261)
2012-13	481±12 (73)	453±12 (59)	402±24 (55)		479±23 (31)	654±47 (6)	464±18 (22)	459 (246)
2013-14	495±12 (87)	471±11 (64)	424±24 (48)	423±29 (39)	471±14 (39)	599±48 (12)	398±5 (14)	466 (303)
2014-15	473±8 (88)	513±124 (41)	421±18 (40)	425±11 (52)	439±16 (44)	RC ER Patna	462±21 (34)	457 (299)
2015-16	449±7 (111)	458±17 (25)	430±23 (92)	434±11 (58)	447±16 (49)	425±1.4 (12)	426±16 (27)	440 (374)
2016-17	458±8.82 (93)	472 (26)	428.4±12 (27)	434±10.1 (43)	457.6±15 (40)	481±6.56 (12)	530±27.7 (22)	466.65 (263)
2017-18	478±9.87 (101)	459±11.8 (41)	432±11 (33)	444.59±12 .41 (46)	482.8±19 (35)	515.2±7. 12 (12)	--	468.57 (272)
2018-19	446±7.08	441±10.39	446	454±11.1	495.8±19	463±22.1	--	446.97

	(97)	(104)	(77)	(60)	(36)	(18)		(370)
2019-20	451±8.49 (90)	436±10.52 (82)	444 (60)	430.5±7.9 (64)	448.7±13 (47)	426±40.6 (20)	--	441 (363)
2020-21	437±7.43 (100)	434±11.47 (95)	440 (39)	437±9.2 (67)	434±12 (50)	468±23.7 (31)		439 (382)



Average Fat % during the years

Murrah	CIRB	GADVASU	NDRI	LUVAS	IVRI	NDUAT	SVVU	KVASU	Overall
2006-07	7.01 (130)	7.57 (82)	8.07 (99)	7.6 (37)	7.55 (71)	8.17 (27)			7.55 (446)
2007-08	7.03 (136)	7.31 (71)	7.92 (101)	7.70 (30)	7.99 (111)	8.02 (24)			7.58 (473)
2008-09	7.82 (1436)	7.80 (78)	7.98 (787)	7.3 (652)	8.19 (1244)	7.96			7.88 (4197)
2009-10	7.70 (85)	7.54 (79)	8.11 (1083)	6.8 (65)	7.97 (1008)	7.92 (20)			7.98 (2340)
2010-11	7.81 (1257)	8.17 (87)	8.03 (1107)	6.9 (783)	8.01 (1080)	7.99	7.18 (546)		7.69 (4860)
2011-12	7.66 (1257)	7.99 (88)	8.19 (750)		8.08 (924)		LRS Mamnoor		7.93 (3019)
2012-13	7.66 (1240)	8.27 (83)	8.15 (1010)		7.88 (872)		7.56 (196)	8.95 (12)	7.88 (3413)
2013-14	8.44 (1194)	8.59 (61)	7.90 (101)	6.80 (61)	7.89 (82)		8.20 (133)	7.80 (2423)	8.00 (4055)
2014-15	8.46 (1168)	8.33 (61)	8.30 (116)	7.20 (64)	7.87 (363)	RC ER Patna	8.15 (268)	--	8.26 (2040)
2015-16	--	7.97 (54)	8.28 (1648)	7.4 (78)	7.91 (996)	7.35 (84)	8.00 (380)	--	8.08 (3240)
2016-17	--	7.46 (49)	7.99 (1240)	7.3 (84)	7.95 (970)	--	8.05 (380)	--	7.95 (2723)
2017-18	--	7.32 (49)	7.89 (1150)	7.3 (81)	7.96 (994)	7.42 (12)	--	--	7.89 (2286)
2018-19	--	7.35 (68)	7.69 (106)	7.1 (76)	7.76 (292)	--	--	--	7.60 (542)
2019-20	--	7.34 (67)	7.54 (111)	7.1 (78)	7.35 (364)	--	--	--	7.35 (620)
2020-21			7.97 (79)	6.8 (72)	7.03 (395)	--			
Between breeds	Murrah	Nili Ravi	Bhadawari	Jaffara badi	Pandhar puri	Surti	Godavari	Swamp	
2006-07	7.55	6.8	7.65	8.21	8.01	7.12	7.38	8.38	

	(446)	(118)	(34)	(34)	(25)	(34)	(47)	(12)	
2007-08	7.58 (473)	6.70 (122)	8.09 (106)	8.25 (29)	8.03 (15)	7.25 (34)	7.00 (47)	7.67 (21)	
2008-09	7.88 (4197)	6.9 (108)	8.09 (604)	8.61 (260)	8.04 (180)	7.33 (446)		7.73 (16)	
2009-10	7.98 (2340)	6.9 (146)	8.02 (375)	8.02 (446)	8.04 (257)	7.5 (301)	7.64 (44)	8.52 (20)	
2010-11	7.69 (4860)	6.8 (98)	8.20 (309)	8.01 (364)	8.03 (203)	8.06 (267)		8.91 (159)	
2011-12	7.93 (3019)	7.3 (81)	8.03 (195)	8.03 (27)	8.03 (630)	7.93 (229)		9.23 (115)	
2012-13	7.88 (3413)	7.62 (123)	8.16 (242)	8.24 (1632)	8.01 (545)	7.96 (240)		8.04 (155)	
2013-14	8.00 (4055)	8.20 (109)	8.65 (309)	8.06 (34)	7.85 (187)	7.89 (226)		10.16 (184)	
2014-15	8.265 (2040)	7.86 (115)	8.12 (340)	8.46 (386)	8.02 (289)	7.58 (364)		8.45 (62)	
2015-16	8.08 (3240)	7.38 (110)	8.26 (28)	8.38 (403)	8.09 (137)	7.43 (187)		8.35 (82)	
2016-17	7.95 (2723)	7.23 (111)	--	8.38 (42)	8.03 (120)	7.18 (21)	Nili Ravi (GADVASU)	8.62 (82)	
2017-18	7.89 (2286)	7.40 (108)	8.17 (294)	8.32 (495)	8.04 (83)	8.11 (248)	7.54 (33)	7.65 (80)	
2018-19	7.60 (542)	7.61 (113)	8.23 (187)	8.12 (781)	Center Closed	6.64 (288)	7.99 (33)	Center Closed	
2019-20	7.35 (620)	7.41 (N)	8.23 (309)	7.91 (773)	--	6.94 (270)	8.01 (34)	--	
2020-21		7.21 (115)	8.31 (462)	7.88 (721)	--	6.37 (186)	7.97 (37)	--	

Total AI, Calving, PD, Conception and daughter's milk recording in Field Units

Murrah Breed	AI	Pregnancy	Total calving	Daughters born	Daughters Recorded
GADVASU, Ludhiana					
2001-02	493	184	-	-	3
2002-03	1908	723	229	135	20
2003-04	1858	629	472	245	26
2004-05	2435	726	466	215	14
2005-06	2822	967	699	333	55
2006-07	3313	1178	755	357	50
2007-08	4015	1438	870	368	82
2008-09	4147	1622	1149	491	85
2009-10	5415	1878	1140	538	155
2010-11	6846	2289	1274	603	183
2011-12	7298	2814	1800	853	172
2012-13	8517	3463	2497	1155	257
2013-14	8014	3380	2831	1303	208
2014-15	8316	3810	2958	1447	68
2015-16	6325	3054	3013	1383	1
2016-17	5289	2464	2236	1049	-
2017-18	6344	2579	1933	899	
2018-19	7779	3299	2468	1192	
2019-20	8690	4307	3235	1555	

2020-21	7991	4277	3878	1883	353
Sub Total	107815	45081	33903	16004	1732
CIRB, Hisar					
2001-02	139	25	15	7	-
2002-03	540	236	147	73	11
2003-04	1001	356	237	129	12
2004-05	1298	566	361	173	18
2005-06	1999	1009	744	345	36
2006-07	2102	1139	650	305	34
2007-08	2132	1104	694	341	45
2008-09	2176	1086	955	477	52
2009-10	2803	1450	1276	627	60
2010-11	3433	1743	787	377	72
2011-12	3308	1756	1103	557	112
2012-13	4204	2104	1247	553	129
2013-14	3962	1903	1079	517	133
2014-15	4129	2218	1614	776	147
2015-16	4434	2326	1693	806	129
2016-17	3807	2063	1591	802	88
2017-18	4093	2248	1724	845	-
2018-19	3977	2214	1748	798	-
2019-20	3957	2140	1530	702	-
2020-21	3480	1513*	69*	34*	-
Sub Total	56974	29199	17540	8399	1078
NDRI, Karnal					
2004-05	2223	993	710	333	34
2005-06	2224	994	875	400	45
2006-07	2193	976	918	440	65
2007-08	2594	1212	1140	517	109
2008-09	2529	1190	1086	503	138
2009-10	2739	1377	1159	569	211
2010-11	2747	1399	1225	560	183
2011-12	2995	1600	1260	605	133
2012-13	2905	1422	1159	569	138
2013-14	4419	2242	1225	560	119
2014-15	3941	2033	1860	905	83
2015-16	3905	1994	1648	768	87
2016-17	3916	1975	1524	722	85
2017-18	3241	1605	1397	640	--
2018-19	4315	1995	1030	456	--
2019-20	4571	1999	1532	647	--
2020-21	4874	1928*	1559	640	--
Sub Total	56331	26934	21307	9834	1430
Grand Total	221120	101214	72750	34237	4240

* Conception of March 2020 will be added in July 2020

NDUAT Faizabad					
2006-07	482	57	222	103	
2007-08	372	122	143	61	
2008-09					

2009-10	1178	416	275	122	
2010-11	3695	427	328	164	
2011-12	Centre closed				
Total	5727	1022	968	450	
SVVU Venkataramangudam					
2010-11	282	67	21	8	Centre closed
Grand Total	227129	102303	73739	34695	4240

OTHER BREEDS

	AI	Pregnancy	Total Calving	Daughters born	Daughters Recorded
Jaffarabadi (JAU, Junagadh)					
2005-06	15				-
2006-07	966				-
2007-08	2169	1196(1907)	468	223	-
2008-09	2961	1141(2065)	944	455	-
2009-10	3070	1563(2676)	1429	694	-
2010-11	3457	1613(2651)	1333	666	-
2011-12	3738	1603(2918)	1538	729	-
2012-13	4067	1776(3627)	1684	810	-
2013-14	4121	1957(4021)	1688	801	-
2014-15	4781	2150(4271)	1564	731	1
2015-16	3375	1719(3691)	1892	867	15
2016-17	2971	1228(3041)	1256	537	74
2017-18	2462	1032(2436)	815	365	72
2018-19	2013	840(1971)	803	347	89
2019-20	1962	776(1894)	712	308	86
2020-21	2139	928(1273)	800	374	76
Total	44267	19522(38442)	16926	7907	413
Surti (LRS, Vallabhnagar)					
2001-02	2256	477	393	165	53
2002-03	1850	472	362	159	49
2003-04	1980	471	352	167	51
2004-05	1861	551	445	186	29
2005-06	1717	536	446	170	33
2006-07	1637	506	411	162	38
2007-08	1811	542	420	184	22
2008-09	1804	604	502	218	15
2009-10	1975	671	529	224	18
2010-11	2038	681	458	203	18
2011-12	2023	520	475	226	20
2012-13	1897	583	497	198	20
2013-14	1591	555	410	158	23
2014-15	1534	455	409	156	14
2015-16	1986	556	345	145	8
2016-17	1979	622	467	179	0
2017-18	1478	506	453	188	0
2018-19	1719	485	397	173	
2019-20	1538	539	409	183	
2020-21	1678	456	409	177	

Total	36352	10788	8589	3621	411
Pandharpuri (MPKV, Kolhapur)					
2006-07	3969	1530	770	382	40
2007-08	5299	2001	1254	544	42
2008-09	9349	4402	1314	660	70
2009-10	25006	9622	4273	1902	80
2010-11	22602	10337	6093	2086	108
2011-12	21047	9263	5906	2619	105
2012-13	4081	2183	3520	1523	43
2013-14	3766	2202	2800	1301	152
2014-15	4329	2104	1165	514	61
2015-16	4607	2212	2039	949	-
2016-17	3642	1226	939	392	
2017-18	4286	1976	1438	635	Centre closed
Total	111983	49058	31511	13507	701
Godavari, SVVU, Venkataramangudem					
2006-07	2167	530	271	124	
2007-08	1436	619	428	202	
2008-09					
2009-10	196	32	86	40	Centre closed
Total	3799	1181	785	366	
Grand Total	196401	80549	57811	25401	1525