NETWORK PROJECT ON BUFFALO IMPROVEMENT

ANNUAL REPORT 2019 - 2020

AND

PROJECT CO-ORDINATOR'S OBSERVATIONS

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

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COORDINATING UNIT

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HISAR – 125 001 (HARYANA)

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NETWORK PROJECT ON BUFFALO IMPROVEMENT

Annual Report 2019-20

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 Complux for Eastren 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. About 17200 artificial inseminations were carried out in 2019-20 at farmer's door in the village to produce daughters. The milk yields of daughters are being recorded for use in sire evaluation.

1044 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 (approximately 1067 AIs per annum) and field buffaloes (approximately 14000 AIs per annum) for test mating over 18 months duration. From 1st January 2019 to 31st December 2019 semen of XVIII set is being used at the Murrah centres. There are 15 superior bulls (3 bulls from CIRB Hisar, 4 bulls from GADVASU Ludhiana, 4 bulls from LUVAS, Hisar and 4 bulls from NDRI Karnal are in the XVIII set. It will continue till June 2020. So far, 234 superior bulls have been testmated in 17 sets.

Data of 581 daughters born from the 13th set of bulls which completed 1st lactation was compiled and bulls were evaluated. Bull no. 2234 and 2269 from GADVASU, Ludhiana ranked first second and second with sire index value of 2688 kg and 2619 kg, respectively. The percent superiority over their contemporary daughters was 14.80 and 13.86 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 682 (Nili-Ravi-355, Jaffarabadi-213, Surti-66 and Bhadawari-48) is being maintained at the above four breeds. A total of 404827 semen doses produced and 450262 semen doses were sold/use and at the end of 2019-20. Murah breeding bull's was 327997 semen doses production and 40813 dissemination of Murrah breeding bulls, in other breed 76830 semen doses produced and 42131 disseminated i.e sale/used in farm herd/ field under field progeny testing program.

HEAD-WISE/YEAR-WISE PHASING OF BUDGET OUTLAY FOR NPBI
(2017-18 to 2019-20)(Sub scheme-24 ii)

Centre wise and Headwise allocation of funds for Network Project on Buffalo Improvement for the financial year'S 2017-18 to 2019-20 (Rs. In lakh)

Name of the centre	SALARY		General				Capital								Total		
	Total Pay	ICAR share	Rec Cont.	ICAR share	TA	ICAR share	Equi-pment	ICAR share	Works	ICAR share	Live-stock	ICAR share	Fur. Fixt.	ICAR Share	Net Requir-ement	ICAR Share	State Share
ICAR based centres																	
Coordinating Unit, Hisar	0.00	0.00	78.55	78.55	0.00	0.00	26.00	26.00	0.00	0.00	0.00	0.00	1.00	1.00	105.55	**105.55**	0.00
CIRB, Hisar, Main Unit	0.00	0.00	72.00	72.00	0.00	0.00	12.00	12.00	0.00	0.00	0.00	0.00	0.40	0.40	84.40	**84.40**	0.00
NDRI Karnal, Main Unit	0.00	0.00	72.00	72.00	0.00	0.00	6.00	6.00	0.00	0.00	0.00	0.00	0.40	0.40	78.40	**78.40**	0.00
IVRI, Izatnagar Main Unit	0.00	0.00	30.00	30.00	0.00	0.00	4.00	4.00	0.00	0.00	0.00	0.00	0.40	0.40	34.40	**34.40**	0.00
IGFRI Jhansi	0.00	0.00	114.00	114.00	0.00	0.00	10.00	10.00	8.00	8.00	12.00	12.00	1.00	1.00	145.00	**145.00**	0.00
ICAR Res. Comp. ER Patna	0.00	0.00	52.00	52.00	0.00	0.00	6.00	6.00	8.00	8.00	12.00	12.00	0.40	0.40	78.40	**78.40**	0.00
CIRB Sub Campus, Nabha	0.00	0.00	91.35	91.35	0.00	0.00	18.50	18.50	8.00	8.00	14.00	14.00	0.60	0.60	132.45	**132.45**	0.00
CIRB, Hisar FPT	0.00	0.00	70.00	70.00	0.00	0.00	6.50	6.50	0.00	0.00	0.00	0.00	1.00	1.00	77.50	**77.50**	0.00
NDRI, Karnal, FPT	0.00	0.00	70.00	70.00	0.00	0.00	6.50	6.50	0.00	0.00	0.00	0.00	1.00	1.00	77.50	**77.50**	0.00
PPP mode centre FPT	0.00	0.00	28.25	28.25	0.00	0.00	4.00	4.00	0.00	0.00	0.00	0.00	0.50	0.50	32.75	**32.75**	0.00
SAU's based centres																	
GADVASU, Ludhiana (Murrah)	94.00	70.50	158.00	118.50	3.00	2.25	14.00	10.50	4.00	3.00	12.00	9.00	1.00	0.75	286.00	**214.50**	71.50
GADVASU, Ludhiana (FPT)	94.00	70.50	86.00	64.50	4.60	3.45	6.00	4.50	0.00	0.00	0.00	0.00	1.00	0.75	191.60	**143.70**	47.90
LUVAS, Hisar	0.00	0.00	214.00	160.50	3.00	2.25	16.00	12.00	4.00	3.00	20.00	15.00	1.00	0.75	258.00	**193.50**	64.50
JAU, Junagadh	58.00	43.50	158.00	118.50	3.00	2.25	14.00	10.50	8.00	6.00	8.00	6.00	1.00	0.75	250.00	**187.50**	62.50
RAJVASU, Bikaner	66.00	49.50	124.00	93.00	3.00	2.25	18.00	13.50	6.00	4.50	8.00	6.00	1.00	0.75	226.00	**169.50**	56.50
MPKV, Kolhapur	28.00	21.00	16.00	12.00	0.80	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.80	**33.60**	11.20
AAU Khanapara	28.00	21.00	43.20	32.40	0.80	0.60	0.00	0.00	0.00	0.00	4.00	3.00	0.00	0.00	76.00	**57.00**	19.00
GADVASU, Ludhiana (Nili Ravi)	0.00	0.00	90.00	67.50	1.80	1.35	0.00	0.00	0.00	0.00	16.00	12.00	1.00	0.75	108.80	**81.60**	27.20
Total	368.00	276.00	1567.35	1345.05	20.00	15.00	167.50	150.50	46.00	40.50	106.00	89.00	12.70	11.20	2287.55	**1927.25**	360.30
ICAR Share	**276.00**		**1345.05**		**15.00**		**150.50**		**40.50**		**89.00**		**11.20**		**1927.25**		
State Share	92.00		222.30		5.00		17.00		5.50		17.00		1.50		360.30		

Centre wise and Headwise allocation and expenditure of funds for Network Project on Buffalo Improvement for the financial year 2019-20 as per R E (Rs. In lakh)

	SALARY		General					Capital										Total		Expend-iture ICAR Share
Name of the centre	Total Pay	ICAR share	Rec Cont.	ICAR share	ICAR share SCSP	TA	ICAR share	Equi-pment	ICAR share	ICAR share SCSP	Works	ICAR share	Live-stock	ICAR share	Fur. Fixt.	ICAR Share	Net Requir ement	ICAR Share	State Share	
ICAR Based centres																				
Coordinating Unit, Hisar	0.00	0.00	23.50	23.50		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.50	0.50	24.00	**24.00**	0.00	23.37184
CIRB, Hisar, Main Unit	0.00	0.00	29.80	29.80		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	29.80	**29.80**	0.00	29.76460
NDRI Karnal, Main Unit	0.00	0.00	21.50	21.50	*2.00*	0.00	0.00	6.00	6.00	*1.00*	0.00	0.00	0.00	0.00	0.20	0.20	30.70	**30.70**	0.00	30.70000
IVRI, Izatnagar Main Unit	0.00	0.00	18.00	18.00	*2.00*	0.00	0.00	4.00	4.00	*1.00*	0.00	0.00	0.00	0.00	0.20	0.20	25.20	**25.20**	0.00	25.20000
IGFRI Jhansi	0.00	0.00	40.00	40.00	*0.00*	0.00	0.00	1.00	1.00	*0.00*	0.00	0.00	4.00	4.00	0.00	0.00	45.00	**45.00**	0.00	45.00000
ICAR Res. Comp. ER Patna	0.00	0.00	24.00	24.00	*2.00*	0.00	0.00	6.00	6.00	*1.00*	0.00	0.00	0.00	0.00	0.40	0.40	33.40	**33.40**	0.00	33.40000
CIRB Sub Campus, Nabha	0.00	0.00	30.70	30.70		0.00	0.00	6.00	6.00		0.00	0.00	3.80	3.80	0.40	0.40	40.90	**40.90**	0.00	40.35805
CIRB, Hisar FPT	0.00	0.00	20.00	20.00		0.00	0.00	0.50	0.50		0.00	0.00	0.00	0.00	0.20	0.20	20.70	**20.70**	0.00	20.41758
NDRI, Karnal, FPT	0.00	0.00	20.00	20.00		0.00	0.00	2.00	2.00		0.00	0.00	0.00	0.00	0.00	0.00	22.00	**22.00**	0.00	22.00000
SAU's Based centres																				
GADVASU, Ludhiana (Murrah)	21.91	16.43	62.00	46.50	*8.00*	1.00	0.75	2.00	1.50	2.00	0.00	0.00	4.00	3.00	0.40	0.30	101.31	**78.4825**	22.83	78.4825
GADVASU, Ludhiana (FPT)	30.72	23.04	30.00	22.50	*0.00*	1.40	1.05	0.00	0.00		0.00	0.00	0.00	0.00	0.40	0.30	62.52	**46.89**	15.63	46.8900
LUVAS, Hisar	0.00	0.00	70.00	52.50	*8.00*	1.00	0.75	2.00	1.50	1.50	0.00	0.00	4.00	3.00	0.40	0.30	86.90	**67.55**	19.35	67.5500
JAU, Junagadh	21.00	15.75	52.00	39.00	*8.00*	1.00	0.75	2.00	1.50	1.50	4.00	3.00	4.00	3.00	0.40	0.30	93.90	**72.80**	21.10	72.8000
RAJVASU, Bikaner	3.46	2.60	54.00	40.50	*10.00*	1.00	0.75	0.00	0.00	2.00	4.00	3.00	4.00	3.00	0.40	0.30	78.86	**62.15**	16.72	62.1450
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
AAU Khanapara	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	40.00	30.00		0.60	0.45	0.00	0.00		0.00	0.00	10.00	7.50	0.40	0.30	51.00	**38.25**	12.75	38.2500
Total	***77.09***	***57.82***	***535.50***	***458.50***	***40.00***	***6.00***	***4.50***	***31.50***	***30.00***	***10.00***	***8.00***	***6.00***	***33.80***	***27.30***	***4.30***	***3.70***	***746.19***	***637.82***	***108.37***	**636.32957**
ICAR Share	**57.82**		**458.50**		***40.00***	**4.50**		**30.00**		***10.00***	**6.00**		**27.30**		**3.70**		**637.82**			
State Share	19.27		77.00			1.50		1.50			2.00		6.50		0.60		108.37			

Note: GADVASU Main & FPT Unit additional funds released under salary **Rs. 7.43250 lakhs + Rs. 5.71750 lakhs = Rs. 13.15 lakhs** received unspent under salary head from RAJUVAS centre.

PARTICIPATING CENTRES (As on 31.03.2020)

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, Vallabhnagar	Surti	2001
V	Field Unit GADVASU, Ludhiana	Murrah	2001
VI	GADVASU, Ludhiana	Nili Ravi	2018
ICAR Institute based Centres			
I	IGFRI, Jhansi	Bhadawari	2001
II	CIRB, Sub - Campus Nabha	Nili-Ravi	2001
III	Field Unit NDRI, Karnal	Murrah	2001
IV	Field Unit CIRB, Hisar	Murrah	2001
V	IVRI, Izatnagar (Main Unit)	Murrah	1993
VI	NDRI, Karnal (Main Unit)	Murrah	1993
VII	CIRB, Hisar (Main Unit)	Murrah	1993
VIII	ICAR Res. Comp. ER Patna (Main Unit)	Murrah	2014

Scientists Meets:	**Place**	**Duration**
1st Scientist meet	GAU, Junagarh,	February 10-11, 1993
2ndScientist meet	PAU Ludhiana	April 28 – 29, 1994
3rdScientist meet	RAU, Udaipur	November 2 - 3 , 1995
4thScientist meet	PAU, Ludhiana	July 28 – 29, 2000
5thScientist meet	AAU, Khanapara	January 3- 4, 2002
6thScientist meet	MPKV, Kolhapur	April 5 - 6, 2005
7thScientist meet	CIRB, Hisar	April 4 - 5, 2007
8thScientist meet	JAU, Junagadh	March 5 - 6, 2009.
Midterm Review meet	CIRB, Hisar	December 5, 2009
9th Scientist meet	CIRB, Hisar	November 27-28, 2010
10thAnnual Review Meet	Bhuj, Gujarat	September 2 - 3, 2011
11thAnnual Review Meet	NDRI, Karnal	August 24, 2012
12thAnnual Review Meet	LRS Vallabhnagar	September 09-10, 2014
13th Annual Review Meet	CIRB, Hisar	September 23-24, 2015
14th Annual Review Meet	GADVASU, Ludhiana	July04 - 05, 2016
15th Annual Review Meet	ICAR RCER, Patna	July 21 - 22, 2017
16th Annual Review Meet	ICAR-NDRI, Karnal	November 19 - 20, 2018
17th Annual Review Meet	ICAR-NASC Complex, New Delhi	August 27 - 28, 2019

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, Mamnoor 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 : 2019- 20

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 2019-20:

(Rs in Lakhs)

Sanctioned as per R E 2019-20		Released ICAR Share as per R E	Expenditure		Balance
Total	ICAR Share		ICAR Share	State Share	
24.00	24.00	24.00	23.37184	0.00	0.62816

8. Staff Position : Reademployment

9. **Herd Performance**

9.1 Herd Strength during the Period 1st April 2019 to 31st March, 2020

Sr. No.	Category	Addition			Disposal				CB
		OB	**B / P**	**T**	**D**	**T**	**S**	**E**	**CB**
	Female								
1.	Below 3 months	16	86	--	5	82	1	--	14
2.	3-12 months	36	--	82	--	53	-	--	65
3.	1-2 years	63	--	53	--	63	--	--	53
	Above 2 years	118	--	63	1	72	12	--	96
4.	Buffaloes in Milk	112	--	72	2	25	24	--	133
5.	Buffaloes Dry P /NP	45	--	25	-	--	26	--	43
	Sub Total	390	86	295	8	295	63	1	404
	Males								
1.	Below 3 months	24	78	--	8	77	1	--	16
2.	3-12 months	29	--	77	1	48	3	--	54
3.	1-2 years	54	--	48	--	33	40	--	29
	Above 2 years	12	--	33	1	--	33	--	12
4.	Breeding bulls	13	--	--	--	--	4	--	06
5.	Bullocks / Teasers / others	-	--	-	1	--	--	--	1
	Sub Total	132	78	158	11	158	81		117
	Grand Total	522	164	453	19	453	144	1	522

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 2019 – March 2020

Month	Male	Female	Still Birth		Overall
April-2019	5	2	--	--	7
May	3	1	--	--	4
June	2	1	--	--	3
July	6	9	2	--	17
August	11	15	--	--	26
September	17	17	--	--	34
October	9	11	--	--	20
November	9	12	--	--	21
December	--	3	1	--	4
January-2020	7	5	--	--	12
February	5	5	--	1	11
March	4	5	--	--	9
Overall	78	86	3	1	168

9.3. Disposal of Animals (1st April 2019 to 31st March 2020)

Female	Primary cause of disposal							
Category	Surplus	Low Producers	Reprod. Problem	Weak & Old	Udder Health	Death	Exptl.	Total
Calves								
0 to 3 months	1	--	--	--	--	5	--	6
3-12 months	--	--	--	--	--	--	--	--
Heifers								
1-2 years	--	--	--	--	--	--	--	--
> 2 years	--	--	10	2	--	1	--	13
Buffaloes								
Milch	12	2	--	3	7	2	1	27
Dry	1	5	11	7	2	--	--	26
Sub Total	14	7	21	12	9	8	1	72
Males	**Primary cause of disposal**							
Calves								
0 to 3 months	1	--	--	--	--	8	--	9
3-12 months	3	--	--	--	--	1	--	4
Young bull								
1-2 years	40	--	--	--	--	--	--	40
>2 years	33	--	--	--	--	1	--	34
Breeding bulls	4	--	--	--	--	--	--	4
Bullock+Teaser etc	--	--	--	--	--	1	--	1
Sub Total	81	--	--	--	--	11	--	92
Grand Total	95	7	21	12	9	19	--	164

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

	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.	102	118	116	181	278	775	102	82	36	160	380	1155
Died	5	--	--	1	2	8	8	--	1	1	10	18
%	4.9	--	--	0.55	0.72	1.02	7.84	--	2.77	0.62	2.63	1.56

9.5. Causes of Mortality (qtr. wise) during the period 1st April 2019 to 31st March, 20

Particulars	1st quarter (April-June)	2nd quarter (July-Sept)	3rd quarter (Oct-Dec.)	4th quarter (Jan.-March)	Total
Enteritis	1	2	3	--	6
Pheumonities	1	2	2	-	5
Peritonitis	--	--	--	--	--
TRP / TP	--	--	2	--	2
Miscellaneous	1	2	2	--	5
Total	3	6	9	--	18

9.6 Prophylactic Measures undertaken during 2019-20

Disease	Vaccination: Month / No. of animals	No. of animals Tested / Positive		Month and No. of animals treated for Parasitism
FMD	April/50, May/595, Sept/565, Jan/580, March/30	---	----	Apr/52, May/42, June/42, July,58, Aug/62, Sept/626, Oct/100, Non/80, Dec/100, Jan/167, Feb/145, Mar/108
HS	April/50, May/595, Sept/565, March/30	----	----	
BQ	April/50, May/50, Sept/565, March/30			
Brucellosis	Aug/24, Oct/11, March/57	190	Nil	
JD		170	Nil	
TB		170	Nil	
IBR		72	14	
Mastitis				
Trichomnas		72	Nil	
Campylobacter		72	Nil	

9.7 Female Conception Rate During the Period January to December 2019

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	160	74	46.25	79	35	44.30	30	13	43.33	35	16	45.71	304	142	46.71
Adults	55	28	50.91	34	17	50.00	13	6	46.15	20	5	25.00	122	52	42.62
Overall	215	102	47.44	113	52	46.02	43	19	44.19	55	21	38.18	426	194	45.54

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 19 Previous year	93	30	31.25
April – June 2019	82	41	50.00
July – September 2019	85	40	47.06
October- December 2019	166	83	50.00
Overall	426	194	45.54

9.9. Bull-wise Conception Rate During the period January to December, 2019

Sr. No.	Bull No.	SET No.	Total AI	Conceived	CR%
1.	2594	17th	10	3	30.00
2.	2607	17th	5	1	20.00
3.	4995	18th	24	11	45.83
4.	4905	18th	30	7	23.33
5.	2676	18th	26	10	38.46
6.	2677	18th	17	8	47.06
7.	2645	18th	43	25	58.14
8.	2269	18th	43	21	48.84
9.	2234	13 PT	19	10	52.63
10.	7147	18th	19	10	52.63
11.	7094	18th	18	9	50.00
12.	2558	17Th	1	0	00
13.	2565	17Th	11	5	45.45
14.	7227	18th	20	9	45.00
15.	7263	18th	18	10	55.55
16.	4687	17th	2	0	00
17.	183	2nd PT	6	3	50.00
18.	2185	12th PT	10	5	50.00
19.	1156	18th	27	13	48.15
20.	1198	18th	6	5	83.33
21.	1208	18th	27	12	44.44
22.	1209	18th	22	9	40.91
23.	1219	18th	13	6	46.15
24.	Dhanna	Non-set	5	1	20.00
25.	Heera	Non-set	4	2	50.00
Over all			**426**	**194**	**45.54**

9.10 Bull Wise Semen Stock : Proven (progeny tested) bulls

Bull	O.B.	Produ-ction	Received	Sold	Supp.	Exp.	Balance	Dam's best lactation	Remarks	SET
392-I CIRB PT	**113**	**0**	**0**	**0**	**0**	**0**	**113**	**2594**		**1**
3567-I NDRI PT	**497**	**0**	**0**	**0**	**0**	**0**	**497**	**2877**		**1**
896-I CIRB	142	0	0	0	0	0	142	3003		1
3098-I NDRI	453	0	0	0	0	0	453	3164		1
761- II CIRB PT	**276**	**0**	**0**	**0**	**0**	**0**	**276**	**2578**		**2**
93-II CIRB PT	**88**	**0**	**0**	**0**	**0**	**0**	**88**	**22kgPY**		**2**
829- II CIRB PT	360	0	0	0	0	0	360	2626		2
759- II CIRB	198	0	0	0	0	0	198	2650		2
3638–II NDRI	863	0	0	0	0	0	863	3278		2
3551–II NDRI	136	0	0	0	0	0	136	3898		2
M-1253 –II GAD	36	0	0	0	0	0	36	3348		2
M-1268–II GAD	265	0	0	0	0	0	265	2802		2
M-1290–II GAD	482	0	0	0	0	0	482	2628		2

1153-III CIRB PT	**2767**	**0**	**0**	**0**	**0**	**0**	**2767**	**2540**		**3**
1061-III CIRB	209	0	0	0	0	0	209	2846		3
1354 III GAD PT	**108**	**0**	**0**	**0**	**0**	**0**	**108**	**3088**		**3**
1165-III CIRB	640	0	0	0	0	0	640	2627		3
3930–III NDRI	1038	0	0	0	0	0	1038	2912		3
1131-III CIRB	98	0	0	0	0	0	98	2827		3
3966–III NDRI	258	0	0	0	0	0	258	3700		3
1023-III CIRB	252	0	0	0	0	0	252	2710		3
1171-III CIRB	256	0	0	0	0	0	256	3007		3
993-III CIRB	100	0	0	0	0	0	100	2976		3
1315-III GAD	266	0	0	0	0	0	266	2808		3
1084-III CIRB	98	0	0	0	0	0	98	3007		3
1506 IV GAD PT	**337**	**0**	**0**	**0**	**0**	**0**	**337**	**3018**		**4**
1451-IV GAD PT	**446**	**0**	**0**	**0**	**0**	**0**	**446**	**3401**		**4**
1437–IV GAD	423	0	0	0	0	0	423	3127		4
1319-IV CIRB	536	0	0	286	0	0	250	2538		4
1341-IV CIRB	98	0	0	15	0	0	83	2878		4
1538-IV CIRB	98	0	0	0	0	0	98	2786		4
1363-IV CIRB	98	0	0	0	0	0	98	3031		4
1434-IV GAD	6	0	0	0	0	0	6	2640		4
1360-IV CIRB	365	0	0	0	0	0	365	2537		4
1485- V CIRB	246	0	0	0	0	0	246	2523		4
4371–V NDRI PT	**253**	**0**	**0**	**0**	**0**	**0**	**253**	**3258**		**5**
4245–V NDRI	398	0	0	0	0	0	398	3215		5
4395–V	116	0	0	0	0	0	116	3344		5
1798- V CIRB	597	0	0	0	0	0	597	2753		5
1641-V CIRB	34	0	0	0	0	0	34	2753		5
1536–V GAD	274	0	0	15	0	0	259	3786		5
1491-V CIRB	791	0	0	15	0	0	776	3148		5
1555–V GAD	175	0	0	0	0	0	175	2948		5
1749-V CIRB	173	0	0	0	0	0	173	2796		5
1573-V GAD	179	0	0	0	0	0	179	1866		5
1717–VI GAD	68	0	0	0	0	0	68	2775		6
1153-HAU-VI PT	**2138**	**0**	**0**	**580**	**0**	**0**	**1558**	**2675**		**6**
4506-VI NDRI PT	**123**	**0**	**0**	**0**	**0**	**0**	**123**	**3512**		**6**
1933-VI CIRB	2427	0	0	100	0	0	2327	2650		6
1944-VI CIRB	148	0	0	0	0	0	148	2752		6
1135 -VI CIRB	132	0	0	0	0	0	132	3250		6
1667-VI GAD	58	0	0	0	0	0	58	2988		6
1836-VI CIRB	133	0	0	0	0	0	133	2744		6
1922-VI CIRB	98	0	0	15	0	0	83	2684		6
2028-VI CIRB	142	0	0	0	0	0	142	2689		7
1796-VII- GAD PT	**9**	**0**	**0**	**0**	**0**	**0**	**9**	**3170**		**7**

4915-VII NDRI PT	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3437**		**7**
2331-VII CIRB	364	0	0	0	0	0	364	2664		7
4807-VII NDRI	68	0	0	0	0	0	68	3437		7
1749-VII GAD	68	0	0	0	0	0	68	3182		7
1727-VII GAD	47	0	0	0	0	0	47	3098		7
1419–VII CIRB	267	0	0	0	0	0	267	3042		7
2363-VII CIRB	153	0	0	0	0	0	153	2654		7
2522-VIIICIRB	98	0	0	0	0	0	98	2567		7
1746-VII GAD	40	0	0	0	0	0	40	2718		7
1868-VIII GAD	160	0	0	0	0	0	160	2591(3)		8
1875-VIII GAD PT	**42**	**0**	**0**	**0**	**0**	**0**	**42**	**2714**		**8**
4813VIII NDRI PT	**18**	**0**	**0**	**0**	**0**	**0**	**18**	**3016(1)**		**8**
2422-VIII CIRB	1643	0	0	0	0	0	1643	3369(4)		8
2308-VIII CIRB	660	0	0	0	0	0	660	2655(3)		8
2250-VIII CIRB	100	0	0	0	0	0	100	2748(5)		8
5049–VIII NDRI	68	0	0	0	0	0	68	2912		8
1867-VIII GAD	434	0	0	0	0	0	434	2709(1)		8
1509-VIIICIRB	112	0	0	0	0	0	112	3690(4)		8
4865–VIII NDRI	38	0	0	0	0	0	38	3392(2)		8
1893-VIII GAD	150	0	0	0	0	0	150	2753(1)		8
2479-VIIICIRB	100	0	0	0	0	0	100	2519(5)		5
2184-VII CIRB	188	0	0	0	0	0	188	2574		8
1994- IX GAD PT	**1253**	**0**	**0**	**0**	**0**	**0**	**1253**	**2938**		**9**
5197-IX NDRI	354	0	0	0	0	0	354	2831		9
2582-IX CIRB	111	0	0	0	0	0	111	2836		9
5112- IX NDRI	719	0	0	0	0	0	719	3333		9
2720-IX	162	0	0	0	0	0	162	2664		9
1903-IX GAD	136	0	0	0	0	0	136	2718		9
1575-IX CIRB	100	0	0	0	0	0	100	3194		9
2592-IX CIRB	173	0	0	0	0	0	173	3336		9
5218-IX NDRI	170	0	0	0	0	0	170	3333		9
2910-IX CIRB	147	0	0	0	0	0	147	3062		9
1940- IX GAD	292	0	0	0	0	0	292	2775		9
1913- IX GAD	301	0	0	0	0	0	301	2740		9
1964- IX GAD	13	0	0	0	0	0	13	2672		9
2990-X CIRB	1688	0	0	0	0	0	1688	2655		10
3103-X CIRB	687	0	0	225	0	0	462	2942		10
1693-X CIRB PT	**460**	**0**	**0**	**0**	**0**	**0**	**460**	**3194**		**10**
2045-X GAD PT	**1183**	**0**	**0**	**0**	**0**	**0**	**1183**	**3369**		**11**
507-X CIRB	1896	0	0	360	0	0	1536	2572		10
2062-X GAD	846	0	0	0	0	0	846	2672		10
2073-X GAD	442	0	0	0	0	0	442	2717		10
2074-X GAD	525	0	0	0	0	0	525	3050		10

2083-X GAD	375	0	0	0	0	0	375	3063		10
3631-X CIRB	521	0	0	271	0	0	250	18 kg PY		10
ND2-X NDAUT	135	0	0	0	0	0	135	2583		10
3267-XI CIRB PT	**1700**	**0**	**0**	**0**	**0**	**0**	**1700**	**2489**		**11**
3591-XI CIRB PT	**3460**	**0**	**0**	**0**	**0**	**0**	**3460**	**2598**		**11**
2133-XI GAD	904	0	0	77	0	0	827	2844		11
2148-XI GAD	102	0	0	0	0	0	102	3008		11
2154-XI GAD	98	0	0	0	0	0	98	2593		11
3226-XI CIRB	1152	0	0	100	0	0	1052	2655		11
3255-XI CIRB	1348	0	0	280	0	0	1068	3051		11
HAU-12-XI CIRB	585	0	0	335	0	0	250	2858		11
5489-XI NDRI	663	0	0	0	0	0	663	3031		11
5496-XI NDRI	408	0	0	0	0	0	408	2780		11
5516-XI NDRI	658	0	0	0	0	0	658	2765		11
ND6-XI NDAUT	360	0	0	110	0	0	250	2702		11
ND8-XI NDAUT	340	0	0	90	0	0	250	2702		11
2185-XII GAD PT	**146**	**0**	**100**	**0**	**0**	**0**	**246**	**3423**		**12**
183-HAU-XII PT	**3308**	**0**	**0**	**120**	**0**	**0**	**3188**	**2824**		**12**
2176-XII GAD	208	0	0	0	0	0	208	2754		12
2177-XII GAD	275	0	0	0	0	0	275	3024		12
3598-XII CIRB	3624	0	0	0	0	0	3624	2655		12
R-10-XII CIRB	414	0	0	0	0	0	414	5192		12
R-11-XII CIRB	614	0	0	0	0	0	614	4000		12
220 XII HAU	591	0	0	0	0	0	591	2631		12
4059-XIII CIRB	596	0	0	346	0	0	250	2510		13
3964-XIII CIRB	3439	0	0	15	0	0	3424	3369		13
4440 XIII CIRB	5011	0	0	240	0	0	4771	2850		13
4441 XIII CIRB	1476	0	0	884	0	0	592	3805		13
4442-XIII CIRB	5260	0	0	0	0	0	5260	2882		13
5943-XIII NDRI	83	0	0	0	0	0	83	3232		13
2234-XIII GAD PT	**25**	**0**	**20**	**0**	**0**	**0**	**45**	**3114**		**13**
2269-XIII GAD PT	**372**	**0**	**50**	**85**	**50**	**0**	**287**	**3617**	**LUVAS-50**	**13**
2304-XIII GAD	96	0	0	0	0	0	96	3114		13
4439-XIV CIRB	8430	0	0	0	0	0	8430	22 kg PY		14
4093-XIV CIRB	7729	0	0	0	0	0	7729	3040		14
4196-XIV CIRB	6328	0	0	0	0	0	6328	3304		14
4100- XIV CIRB	6446	0	0	0	0	0	6446	2971		14
6014-XIV NDRI	988	0	0	0	0	0	988	3072		14
6044-XIV NDRI	378	0	0	0	0	0	378	3567		14
6136-XIV NDRI	**1158**	**0**	**0**	**0**	**0**	**0**	**1158**	**4341**		**14**
2369-XIV GAD	4382	0	0	0	0	0	4382	3114		14
2357-XIV GAD	2198	0	0	0	0	0	2198	3559		14
4354-XV CIRB	6420	0	0	0	0	0	6420	3605		15

4324-XV CIRB	6224	0	0	0	0	0	6224	3528		15
4438-XV CIRB	5793	0	0	0	0	0	5793	3222		15
4363-XV CIRB	6683	0	0	0	0	0	6683	3068		15
4403-XV CIRB	5574	0	0	0	0	0	5574	3059		15
4328-XV CIRB	6217	0	0	0	0	0	6217	3228		15
2371-XV GAD	2055	0	0	0	0	0	2055	3053		15
2412 -XV GAD	5418	0	0	0	0	0	5418	2998		15
2417-XV GAD	1218	0	0	0	0	0	1218	3565		15
2429-XV GAD	5886	0	0	0	0	0	5886	3435		15
2459-XV GAD	**4995**	**0**	**0**	**5**	**0**	**0**	**4990**	**4636**		**15**
6007-XV NDRI	1652	0	0	0	0	0	1652	3260		15
6139-XV NDRI	2152	0	0	0	0	0	2152	2828		15
4889 XVI CIRB	10315	0	0	545	0	2	9768	4120		16
4705 XVI CIRB	6285	0	0	86	0	0	6199	3990		16
4592 XVI CIRB	5975	0	0	0	0	0	5975	3528		16
M-29 XVI CIRB	7310	0	0	8	0	0	7302	4600		16
1027 XVI LUVAS	6926	0	0	0	0	0	6926	3763		16
1053 XVI LUVAS	6772	0	0	0	0	0	6772	3559		16
1064 XVI LUVAS	5816	0	0	0	0	0	5816	3579		16
2467 XVI GAD	2026	0	0	0	0	0	2026	3574		16
2501 XVI GAD	2838	0	0	0	0	0	2838	3053		16
2383 XVI GAD	1986	0	0	0	0	0	1986	4636		16
6379 XVI NDRI	2257	0	0	0	0	0	2257	3505		16
6409 XVI NDRI	2207	0	0	0	0	0	2207	4090		16
6646 XVI NDRI	423	0	0	0	0	0	423	3533		16
6753XVI NDRI	8	0	0	0	0	0	8	3389		16
M-51 XVII CIRB	22366	0	0	1053	0	2	21311	4668		17
4715 XVII CIRB	6073	0	0	0	0	0	6073	3059		17
4733 XVII CIRB	6376	0	0	0	0	0	6376	2851 (1)		17
4687 XVII CIRB	3998	0	0	0	0	0	3998	3309		17
M-53 XVII CIRB	10968	0	0	549	0	2	10417	4100		17
Sikander XVII	3825	0	0	0	0	0	3825	28.9 kg		17
Daara XVII	1635	0	0	0	0	0	1635	28.9 kg		17
2565 XVII GAD	500	0	0	6	0	0	494	3287		17
2594 XVII GAD	849	0	0	0	0	0	849	3557		17
7010 XVII NDRI	2205	0	0	0	0	0	2205	3068		17
4837 XVIICIRB	7418	0	0	0	0	0	7418	3076		17
2558 XVIIGAD	1194	0	0	0	0	0	1194	3574		17
B-1-330 XVII	10357	0	0	897	0	2	9458	4595		17
2607 XVII GAD	375	0	0	0	0	0	375	3899		17
1148 XVII LUVAS	8496	0	0	0	0	0	8496	3124		17
6942 XVII NDRI	2625	0	0	0	0	0	2625	3188		17
4905 XVIII CIRB	7666	1015	0	0	50	0	8631	3371/14	IVRI-50	18
5147 XVIII CIRB	3484	331	0	0	1550	0	2265	3057/14.8	IVRI-50; GADVASU-1500	18
1209 XVIII LUV	7815	0	0	0	300	0	7515	3593/17.2	FPT-300	18
4995 XVIII CIRB	5697	418	0	0	20	0	6095	3064/15.5	CIRB-20	18
7094 XVIII NDRI	1068	0	0	0	100	0	968	3465/17	IVRI-50; LUVAS-50	18

7227 XVIII NDRI	668	0	0	0	50	0	618	3099/16.5	IVRI-50	18
7147 XVIII NDRI	968	0	0	0	50	0	918	3108/15.5	IVRI-50	18
2676 XVIII GAD	2425	0	0	0	50	0	2375	3023/15.5	IVRI-50	18
2677 XVIII GAD	2425	0	0	0	50	0	2375	3135/16.5	IVRI-50	18
1219 XVIII LUVAS	5360	0	0	0	800	0	4560	3837/17.8	GADVASU-800	18
2689 XVIII GAD	87	0	750	0	0	0	837	3151/18.8		18
7263 XVIII GAD	1550	0	0	0	450	0	1100	3465/17.0	LUVAS-100 IVRI-50; FPT-300	18
1208 XVIII LUVAS	2596	696	0	0	1100	0	2192	3437/15.1	LUVAS-100; GAD-1000	18
1150 XVIII CIRB	8556	0	0	0	50	0	8506	3127/15.9	IVRI-50	18
2645 XVIII GAD	1855	0	0	6	50	0	1799	3394/19	IVRI-50	18
Total	**376889**	**2460**	**920**	**7719**	**4720**	**8**	**367822**			
Non set bulls										
3570 NDRI	215	0	0	0	0	0	215			
5031 NDRI	0	0	0	0	0	0	0			
M-82 GAD	446	0	0	0	0	0	446			
610 GAD	210	0	0	0	0	0	210			
888 GAD	228	0	0	0	0	0	228			
1292GAD	433	0	0	0	0	0	433			
2085 CIRB	100	0	0	0	0	0	100			
3882 CIRB	0	0	0	0	0	0	0			
188 CIRB	650	0	0	0	0	0	650			
HISAR GAURAV	10223	505	0	0	0	0	10728			
5232	741	405	0	0	0	0	1146			
Sach Gaurav	523	704	0	0	0	0	1227			
Total	**13769**	**1614**	0	**0**	**0**	**0**	**15383**			
Field bulls										
Golu-Didwadi	48	0	0	0	0	0	48	22 Kg		
Raka-Bamla	38	0	0	38	0	0	0			
R-12	0	0	0	0	0	0	0			
Raka-2	0	0	0	0	0	0	0			
Yuvraj	17	0	0	0	0	0	17			
R-14	0	0	0	0	0	0	0			
R-24	0	0	0	0	0	0	0			
Heera	119	0	0	69	0	0	50			
Dhanna	200	0	0	100	0	0	100			
Kohinoor	1093	0	0	1093	0	0	0			
Birla	227	0	0	227	0	0	0			
Ramu Hariana bull	367	0	0	30	0	0	337			
Shenshah	250	0	0	250	0	0	0			
Total	**2359**	**0**	**0**	**1807**	**0**	**0**	**552**			

Summary of semen freezing and dissemination during 2019-20.

Sr. No.	Semen Freezing details	**2017-18**	**2018-19**	**2019-20**
1	Opening balance on 31st March	413887	473437	393017
2	Semen Freezing up to 31st March	136341	173840	80279
3	Semen doses received	12570	4500	920
4	Semen doses supplied	43856	8832	4720
5	Semen doses sold	76704	97657	138906
6	Semen doses used for Experiment	992	40	8
7	**Balance / Grand Total**	**441246**	**462153**	**383757**

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

9.12 Production Performance during 1st April 2019 to 31st March 2020

Lact. No.	No. of obs.	TLMY (kg)	Lact. Length (days)	SLMY (kg)	Peak yield (kg)
1st	31	2430.82	309.21	2341.42	11.81
2nd	32	2858.47	308.47	2744.44	14.14
3rd	15	2756.73	283.73	2661.93	13.95
4th	19	2908.89	298.37	2829.74	15.15
5th & above	31	2770.42	282.71	2737.05	15.29
Overall	128	2732.47	300.02	2648.39	13.90

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 ±1 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	299 ± 4.66	1891 ± 34.12	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)**

9.13 Average Milk Composition from April 2019 to March 2020 : NA

9.14: Reproductive Performance

Lactation / Parity	N	AFC (Months)	SP (Days)	DP (Days)	CI (Days)
1st	71	43.62 ± 0.80	--	--	--
2nd	27	--	155.41	155.52	453.85
3rd	25	--	108.92	154.69	471.38
4th	10	--	163.60	188.80	492.10
≥5th	28	--	171.61	111.21	410.07
Over all	**---**	**43.62±0.80(71)**	**143.19±8.29 (90)**	**145.73±7.24 (90)**	**450.71±8.49 (90)**

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	51.51.5 (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 ± 9.01 (93)	142.52(93)± 6.44	458 ± 8.82 (93)
2017-18	43.58±0.67 (67)	167±9.82 (101)	162±7.54 (101)	478±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)**

9.15 Month wise Milk Production and Disposal during the Period 01/04/2019 to 31/03/2020

Month	Total milk produced (kg)	Disposal(Kg)		
		Milk Sold	Calf feeding	Expt.
April, 2019	29389.4	25625.5	3763.9	--
May	30397.0	25915.5	4481.5	--
June	27300.0	23863.5	3436.5	--
July	27376.5	23746.5	3630.0	--
August	30126.5	26324.5	3802.0	--
September	33548.0	28445.0	5103.0	--
October	42582.0	35517.5	7064.5	--

November	41838.5	35221.0	6617.5	--
December	45062.0	36707.5	8354.5	--
January, 2020	45746.5	38783.0	6963.5	--
February	42294.5	35966.5	6328.5	
March	41248.5	35204.0	6044.5	
Total	**436909.4**	**371320.0**	**65589.4**	**--**

9.16 Feed and Fodder purchased and offered to animals during the year 2019-20

Quarter	Type of Fodder	OB	Produced at CIRB	Qty. Purchased	Actually Fed.	Balance
I	Green	--	6508.50	--	6508.50	--
	Dry	693.00	829.45	4943.25	1522.45	4946.70
	Silage	--	--	--	--	--
	Sugar beet pulp	--	457.60	457.60	108.80	348.80
	Concentrate	--	--	--	1714.00	--
II	Green	--	8763.85	--	8763.85	--
	Dry	4946.70	--	--	1522.45	3369.70
	Silage	--	--	--	--	--
	Sugar beet pulp	348.80	--	458.40	414.80	392.40
	Concentrate	--	--	--	1839.20	--
III	Green	--	6044.50	--	6044.50	--
	Dry	3369.70	--	--	2114.70	1255.00
	Silage	--	--	--	--	--
	Sugar beet pulp	392.40	--	466.00	392.40	466.00
	Concentrate	--	--	--	1964.15	--
IV	Green	--	10820.80	--	10820.80	--
	Dry	1255.00	--	1404.75	1446.00	1213.75
	Silage	--	--	--	--	--
	Sugar beet pulp	466.00	--	--	268.00	198.00
	Concentrate	--	--	--	1990.85	--
Total	Green	--	32142.15	**--**	**32142.15**	--
	Dry	693.00	829.45	**6348.00**	**6605.60**	1213.75
	Silage	--	--	**--**	**--**	--
	Sugar beet pulp	--	--	**1382.00**	**1184.00**	198.00
	Concentrate	--	--	**--**	**7508.20**	--

9.17 Milking performance 1st April 2019 to 31st March 2020

Month	Buffaloes in Milk	Dry Buffaloes	Total	% in Milk	Wet Av. (kg)	Herd Av. (kg)
April 2019	105	47	152	69	9.26	6.41
May2019	102	53	155	66	9.53	6.33
June2019	98	58	156	63	9.26	5.86
July2019	95	58	153	62	9.27	5.74
August2019	104	57	161	64	9.51	6.12
September2019	123	50	173	70	9.32	6.53
October2019	144	45	189	76	9.65	7.32
November2019	144	39	183	78	9.74	7.64
December2019	147	39	186	79	9.93	7.85
January2020	144	46	190	76	10.29	7.82
February2020	148	46	194	76	9.89	7.53
March 2020	133	43	176	76	9.77	7.44
Overall	**124**	**48**	**172**	**72**	**9.66**	**6.94**

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**

9.18: Bull wise daughters born during 2019-20

Sr. No.	Bull No.	Daughter born
1	1148	3
2	2185	4
3	B-1-330	4
4	Heera	3
5	6942	5
6	Dhanna	3
7	4733	1
8	2594	9
9	2607	4
10	2565	5
11	2558	4

12	4837	6
13	220	4
14	7010	5
15	1150	4
16	Hisar Gorav	2
17	4995	2
18	2645	1
19	Dara	6
20	2234	2
21	2676	1
22	1209	1
23	7094	1
24	7147	1
Total		**81**

9.19 Bull wise daughters completing 1st lactation

Sr No	Bull No	Daughter No	D.O.B.	D.O.C.	AFC (Month	Lact. Length (Days)	TLMY (kg)	SLMY (KG)
1.	2594	4857	1.1.15	20.7.18	42.20	259	1603	1603
2.	6942	4856	1.1.15	29.6.18	42.00	294	2627	2627
3.	2645	4765	7.8.14	15.8.18	48.00	247	1797	1797
4.	2565	4867	14.1.15	19.8.18	42.00	302	2257	2257
5.	Dara	4789	14.9.14	15.8.18	47.00	303	4881	4881
6.	4837	4584	5.6.13	14.8.18	62.00	318	2338	2302
7.	2565	4776	24.8.14	2.9.18	48.26	306	2538	2535
8.	Dara	4778	27.8.14	28.8.18	48.00	318	2266	2240
9.	330	4817	12.10.14	2.10.18	47.20	283	2606	2606
10.	Heera	4882	13.2.15	29.10.18	44.12	291	2526	2526
11.	1201	4813	10.10.14	2.11.18	48.22	287	2262	2262
12.	7010	4865	12.01.15	27.9.18	44.17	330	2750	2660
13.	2676	4872	22.1.15	12.12.18	46.20	254	1754	1754
14.	7010	4655	20.10.13	7.10.18	59.17	327	2552	2482
15.	4995	4933	30.8.15	12.12.18	39.12	268	2341	2341
16.	2562	4858	2.1.15	13.9.18	44.05	375	2552	2290
17.	2234	4862	10.1.15	21.11.18	46.12	303	1975	1975
18.	2676	4552	19.2.13	24.7.18	65.05	430	3745	2956
19.	1209	4744	7.7.14	24.10.18	51.18	338	3018	2903
20.	4995	4903	1.6.15	17.1.19	43.16	260	1731	1731
21.	2645	4878	27.1.15	19.10.18	45.12	357	3241	2958
22.	1148	4804	30.9.14	25.7.19	59.14	106	606	606
23.	4995	4904	9.6.15	1.1.19	42.23	311	2613	2590
24.	4995	4895	15.4.15	25.11.18	43.10	355	3106	2869
25.	1209	5003	21.12.15	8.1.19	36.18	311	1989	1976
26.	4354	4909	4.7.15	8.1.19	42.04	318	3513	3449
27.	2369	4743	6.7.13	2.2.19	41.20	293	2473	2473

28.	4196	4841	5.13.14	19.4.19	53.09	238	2078	2078
29.	2676	4917	1.8.15	19.1.19	41.09	349	2628	2459
30.	1994	4782	1.9.14	30.1.19	52.29	338	2346	2207
31.	2417	4944	10.9.15	19.4.19	43.23	322	2580	2512
32.	4100	4861	6.1.15	31.3.19	51.00	341	2385	2232
33.	5943	4609	13.8.13	10.8.19	72.22	216	1732	1732
34.	4196	4842	7.12.14	8.3.19	51.02	378	3066	2668
35.	6290	4941	5.9.15	10.6.19	45.10	270	1843	1843

9.20: Breeding bulls for test mating (18th set from CIRB Unit)

Sr No	Bull No	Date of Birth	Dam No	Dam's 305 best LMY (kg)/PY (kg)	Sire No / set No	Parity
1	4905	09-06-2015	3633	3371/14.0	4324 - XV	4
2	4995	07-12-2015	4713P	3064/15.5	M 51 - XVII	3
3	5147	01-01-2017	4384	3057/14.8	4592 - XVI	2

9.20.1: P T Bulls for nominated mating (2019 on ward).

Sr. No	Bull No.	Institute	DoB	Dam No.	Sire No.	Dams' Best yield	Sire Index	Superiority (%)
1	2234	GADVASU	06-03-2008	2138	5396 X	3114	2688.44	+ 14.80
2	2269	GADVASU	17-12-2008	2295	3631 X	3617	2618.87	+ 13.86

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.	5181	11/04/17	4340	3591 PT-XI	2543,3144,3328,**3428,** In Lact	3428/17.9
2.	5232	06/08/17	4322	1354 PT-III	2557,3041,3286,**3513**	3513/16.3
3.	5245	19/08/17	4223	1354 PT-III	2534, 3003,**3336**, Dam Auct	3336/14.5
4.	5246	20/08/17	4672	4371 PT-V	2166,**3124**, In Lact	3124/15.7
5.	5310	23/12/17	4545	6646 Set 16	2427,**3570**, In Lact	3570/20.0
6.	5320	15/01/18	4017	1053 Set 16	2550,2678,2667,**3340**, 2511 (Dam Died)	3340/15.2
7.	5333	02/02/18	3485	1354 PT-III	1916,2868,3073,2868,**3304**, 2555, 3211, 2780,3118, 2785, 347	3304/17.6
8.	5374	12/07/18	4344	Sknder Set 17	2484,3087,**3244,**3028	3244/17.4
9.	5375	13/07/18	3703	4687 Set 17	2528,2157,1880,2394,**3197**, 2840, 2491, 1857 (Dam Auct)	3197/14.9
10.	5414	03/10/18	4593	4998 clone	2708,**3321**, In Lact	3321/14.6

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

20.2 Future Breeding Bulls (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.	5405	15/09/18	4343	4998 clone	2285,2914,2903,**3179,** Dam Died	3179/16.1
2.	5427	10/11/18	3633	2594 -XVII	2726,2300,3241,**3371**, 3025,3211	3371/15.3
3.	5432	25/11/18	4895	2594 -XVII	2869 (1)	2869/13.4
4.	5434	03/12/18	4219	R14 Field	2121,3028,3374,2793, **3719**, In Lact	3719/17.5
5.	5442	03/01/19	4692	R-25 Field	2795,**3261**	3261 /15.5
6.	5456	04/02/19	4234	Dara - XVII	2359,2756,**3007**,1700 (Dam Auct)	3007/15.6
7.	5462	13/02/19	4479	Siknader - XVII	2851,2837,**3118**, In Lact	3118/18.2
8.	5465	23/02/19	4713P	M-53 - XVII	NK,NK,867,2084,3064,2695, **3257**,2845, In Lact	3257/15.5
9.	5466	24/02/19	4369	M-53 - XVII	2068,2816,**3297,**2785, 2788, In Lact	3297/15.3
10.	5467	27/02/19	4197	B1/330 - XVII	2209,2891,2760,2854,3112, **3184**, In Lact	3184/17.3
11.	5473	22/03/19	4458	R-25 Field	3044,**3631,**3571	3631/17.0
12.	5476	26/03/19	4449	4687 - XVII	2186,2810,**3200,**3001, In Lact	3200/17.00
13.	5481	29/03/19	4621	4733 - XVII	2002,1455,**3332**	3332/16.6
14.	5485	03/04/19	4322	Kohinoor Field	2557,3041,3286,**3513**	3513/16.3
15.	5487	13/04/19	4518P	B1/330 Set 17	1234,2835,**3254**,28622778,3138,1989 (Dam Auct)	3254/15.2
16.	5497	25/06/19	4561	B1/330 - XVII	2390,2020,**3185**	3185/14.5
17.	5498	07/07/19	4344	2607 - XVII	2484,3087,**3244**,3028	3244/17.4
18.	5500	15/07/19	4934	1148 -XVII	2888(1)	2888/12.6
19.	5505	22/07/19	4251	Dara - XVII	2407,3184,**4138**,3784	4138/22.0
20.	5511	27/07/19	4800	1148 - XVII	2612, **3356**	3356/14.2

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

Sr. No.	305 DLMY groups	No. of elite buffalo
1	3000 to 3500 kg	46
2	3500 to 4000 kg	11
3	≥ 4000 kg	04
Total		**61**

9.21: Accomplishment and Targets Achieved:

Sr. No.	Trait	Target	2017-18	2018-19	2019-20
1	Av. age at first calving (Months)	40.0 months	43.09 ± 0.64 (68)	45.76±0.80 (31)	43.62 (71)
2	Av. service period (Days)	130 days	169.03 ± 9.89 (103)	136.35±6.98 (97)	143.19 (90)
3	Calf mortality (0-3 months)	≤ 4 %	6.96 %	13.94 %	6.96 %
4	Wet average (Kg)	≥ 8.50 kg	8.71 kg	8.92 kg	9.66 kg
5	Herd average (Kg)	≥ 5.50 kg	5.90 kg	5.80 kg	6.94 kg

11. Achievements and summary:

Achievements and summary:

Herd Strength: The overall herd strength of Murrah buffalo in March 2020 was 522, which included 272 breedable buffaloes, 149 suckling calves (< 1 year), 82 young males and females (1-2 years), 96 heifers (> 2.0 years) and 18 breeding males (>2.0 years).

Mortality: During the period April 2019 to March 2020 calf mortality (0-3 month) was reported 6.96 percent, which is comparatively lower than the last year calf mortality.

Milk Production Performance: The overall wet average and herd average were reported **9.66 and 6.94** kg, respectively. The overall 305 days lactation milk yield and total lactation milk yield during April 2019 to March 2020 was reported **2648** kg and **2732** kg, respectively. During the period under report 128 buffaloes completed their lactation.

Reproductive Performance: The overall conception rate during January to December 2019 was reported 45.54 %. The other reproductive traits viz. Age at first calving, service period and calving interval were observed 43.62 months, 143 days and 451 days, respectively for buffaloes calved during April 2019 to March 2020.

Semen Production and Dissemination: A total 80,279 semen doses frozen at CIRB Lab during April 2019 to March 2020. A total of 4720 doses of frozen semen were supply in NPBI and 1,38,906 frozen semen doses sold during the period under report.

Contributions made in compilation/documentation:

- Dahiya S S, **K P Singh** and Ram Chander (2019). Compiled and edited-Annual Report of Network Project on Buffalo Improvement: 2018-19-PC unit, Hisar pp; 1-238.
- **K P Singh** (Annual report-2018-19. Network Project of Genetic improvement of Murrah Buffalo, CIRB-unit, Hisar. Pp: 1 to 23.
- **K P Singh (2018).** Compiled proceeding of 17th Annual Review Meet of Network Project on Buffalo Improvement.

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	
24.00	24.00	24.00	23.37184	0.00	0.62816

Herd Performance

Herd Strength: The overall herd strength of Murrah buffalo in March 2020 was 522, which included 272 breedable buffaloes, 149 suckling calves (< 1 year), 82 young males and females (1-2 years), 96 heifers (> 2.0 years) and 18 breeding males (>2.0 years).

Mortality: During the period April 2019 to March 2020 calf mortality (0-3 month) was reported 6.37 percent, which is comparatively lower than the last year calf mortality.

Milk Production Performance: The overall 305 days lactation milk yield and total lactation milk yield during April 2019 to March 2020 was reported **2648** and **2732** kg, respectively, revealed an improvement of 3.15 and 3.48 % respectively, over the performance of 2018-18. The wet average and herd average were reported **9.66 and 6.94** kg, respectively which is significantly improved as 8.29 and 19.65 % as compared to previous year performance. During the period under report 128 buffaloes completed their lactation.

Reproductive Performance: The overall conception rate during January to December 2019 was reported 45.54 %. The other reproductive traits viz. Age at first calving, service period and calving interval were observed 43.62 months, 143 days and 451 days, respectively for buffaloes calved during April 2019 to March 2020. The AFC was reported lower (2.14 months @ -4.67%) as compared to previous year performance (45.76 months). Total 168 calving reported which involved 71 first calvers during the period under report.

Semen Production and Dissemination: Total 80,279 semen doses frozen at CIRB Lab during April 2019 to March 2020. A total of 4720 doses of frozen semen were supply in NPBI and 1, 38,906 frozen semen doses sold to farmers, developmental agencies and NGOs during the period under report.

Accomplishment and Targets Achieved:

Sr. No.	Trait	Target	Achieved 2016-17	Achieved 2017-18	Achieved 2018-19	**Achieved 2019-20**
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)**
2	Av. service period (Days)	130 days	148 ± 9.01 (93)	167±9.82 (101)	136±6.98 (97)	**143.19 (90)**
3	Calf mortality (0-3 months)	≤ 4 %	8.88	6.96 %	13.94%	**6.37 %**
4	Wet average (Kg)	≥ 8.50 kg	8.08 kg	8.71 kg	8.92 kg	**9.66 kg**
5	Herd average (Kg)	≥ 5.50 kg	5.32 kg	5.90 kg	5.80 kg	**6.94 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 2018 to 31st March, 2019

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 2019 to 31st March 2020.

	Budget Sanctioned (Rs.)	**Amount Spent (Rs.)**
Pay & Allowances	21,91,000	20,94,094
T. A.	1,00,000	99,637
Contingencies		
i) Recurring Cont.	62,00,000	61,89,629
SCSP Recurring General	10,66,667	10,34,704
ii) Non-Recurring Cont.		
Machinery and Equipment	2,00,000	1,96,040
Furniture	40,000	39,904
Livestock	4,00,000	2,99,000
Vehicles/Building Works	-	-
SCSP Equipments	2,66,666	1,76,668
Total	**1,04,64,333**	**1,01,29,676**

Receipts: The project transferred **1,55,163** kg of milk to the College of Dairy Sciences, GADVASU for sale after processing. The department sold **37** surplus/breeding animals and 52268 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	18/02/16	-	-	Full Time	-	-

Herd performance:-

9.1. Herd strength during the period 4/2019 to 3/2020

Sr. No	Category	Addition			Disposal			CB
		OB	B/P	T	D	T	S	
	Female							
1.	Calves 0 – 3 months	12	39/2	-	2	44	1	**6**
2.	Calves >3 – 12 months	34	0/2	44	6	43	-	**31**
3.	Heifers							
	1 – 2 years	52	0/6	43	1	53	1	**46**
	> 2 years	38	0/4	53	2	21	2	**70**
4.	Buffaloes in Milk	75	0/9	21	3	18	15	**69**
5.	Buffaloes Dry P /NP	43	-	18	1	-	22	**38**
	Sub Total	254	39/23	179	15	179	41	**260**
	Male							
1.	Calves 0 – 3 months	9	41/1	-	2	42	1	**6**
2.	Calves >3 – 12 months	43	-	42	3	32	21	**29**
3.	Male above							
	1 – 2 years	15	-	32	0	6	12	**29**
	> 2 years	7	-	6	1	0	3	**9**
4.	Breeding bulls	10	-	0	-	-	-	**10**
5.	Bullocks	-	-	-	-	-	-	-
6.	Teasers	-	-	-	-	-	-	-
	Sub Total	84	41/1	80	6	80	37	**83**
	Grand Total	338	80/24	259	21	259	78	**343**

OB = Opening Balance D = Deaths S = Sale B/P = Births/Purchase
T = Transfer CB = Closing Balance

9.2. Calving statistics during the period 4/2019 to 3/2020

Month	Male		Female		Dystokia		Prolapses		Still Birth		Abortion		Overall	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
April, 19	1	2.44	2	5.13	0	-	0	-	0	-	0	-	**3**	3.66
May	2	4.88	2	5.13	0	-	0	-	0	-	1	20.0	**5**	6.10
June	0	0.00	5	12.82	0	-	0	-	0	-	0	-	**5**	6.10
July	3	7.32	2	5.13	0	-	0	-	0	-	0	-	**5**	6.10
August	7	17.07	4	10.26	0	-	0	-	1	8.33	0	-	**12**	14.63
September	3	7.32	7	17.95	0	-	2	20.0	0	-	**0**	-	**10**	12.19
October	8	19.51	5	12.82	1	7.69	0	-	0	-	0	-	**13**	15.85
November	7	17.07	2	5.13	0	-	0	-	0	-	0	-	**9**	10.97
December	2	4.88	2	5.13	0	-	0	-	0	-	0	-	**4**	4.88
January,20	3	7.32	5	12.82	0	-	0	-	0	-	0	-	**8**	9.76
February	0	0.00	1	2.56	0	-	0	-	0	-	0	-	**1**	1.22
March	5	12.20	2	5.13	0	-	0	-	0	-	0	-	**7**	8.54
Overall	**41**	100.00	**39**	100.00	**1**	1.22	**2**	2.44	**1**	**1.22**	**1**	**1.22**	**82**	100.00

Sex ratio Male: Female = 1.0:0.95

9. 3 Disposal of animals during the period 4/2019 to 3/2020

Sr. No.		Surplus	Rep. Problem	Weak & Old	Death	Experimental purpose	Total
	Female						
1.	Calves 0 – 3 months	-	-	1	2	-	3
2.	Calves >3 – 12 months	-	-	-	6	-	6
3.	Heifers 1 – 2 years > 2 years	- -	1 2	- -	1 2	- -	2 4
4.	Buffaloes in Milk	-	8	14	3	-	25
5.	Buffaloes Dry P /NP	-	2	13	1	1*	16+1*
	Sub Total	-	13	28	**15**	1*	56+1*
	Male						
1.	Calves 0 – 3 months	01	-	-	2	-	3
2.	Calves >3 – 12 months	21	-	-	3	-	24
3.	Male 1 – 2 years > 2 years	12 03	-	-	- 1	- -	12 4
4.	Breeding bulls	-	-	-	-	-	-
5.	Bullocks	-	-	-	-	-	-
6.	Teasers	-	-	-	-	-	-
	Sub Total	37	-	-	**6**	-	43
	Grand Total	37**	13	28	21	1*	99+1*

*****Transfer for breeding purposes ** 37 bulls/bull calves sold for breeding purpose

9.4. Month-wise mortality during the period 4/2019 to 3/2020

		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.**	12	12	21	55	156	256	9	9	32	35	85	341
	Died		1				**1**				1	1	**2**
	%		8.33				0.39				2.85	1.17	0.58
May	**No.**	10	11	22	56	154	253	7	8	31	38	84	337
	Died					1	1		1			1	**2**
	%					0.64	0.39		12.5			1.19	0.59
June	No.	9	11	21	56	136	233	3	6	19	33	61	294
	Died					1	1		1			1	**2**
	%					0.73	0.42		16.6			1.63	0.68
July	**No.**	9	10	22	52	140	233	5	6	17	34	62	295
	Died												
	%												
August	**No.**	10	9	17	53	146	235	9	6	16	37	68	303
	Died				1	1	**2**						**2**
	%				1.88	0.68	0.85						0.66
Sept.	**No.**	12	8	20	46	156	242	13	3	13	41	70	312
	Died												
	%												
October	**No.**	16	8	20	32	170	246	19	4	11	44	78	324
	Died												
	%												
Nov.	**No.**	14	11	19	31	178	253	20	10	12	44	86	339
	Died	1					1						1

	%	7.14					0.39						0.29
Dec.	**No.**	10	13	19	39	173	254	18	11	8	44	81	335
	Died							1				1	**1**
	%							5.55				1.23	0.29
January	**No.**	11	13	20	42	173	259	13	19	7	44	83	342
	Died	1	1	1		1	4	1	1			2	**6**
	%	9.09	7.69	5		0.57	1.54	7.69	5.26			2.40	1.75
Feb.	**No.**	9	13	21	43	176	262	4	19	11	46	80	342
	Died		1	1		1	3						**3**
	%		7.69	4.76		0.56	1.14						0.87
March	**No.**	6	11	20	46	177	**260**	6	**18**	11	48	83	343
	Died		**1**			**1**	**2**						**2**
	%		9.09			0.56	0.76						0.58
Total	**Died**	**2**	**4**	**2**	**1**	**6**	**15**	**2**	**3**		**1**	**6**	**21**

9.5. Causes of Mortality (quarter-wise) during the period 4/2019 to 3/2020

Particulars	**1st quarter**	**2nd quarter**	**3rd quarter**	**4th quarter**
A. Respiratory System :				
1. Pheumo-Enteritis	-	-	2	2
2. Broncho-Pheumonia	-	-	-	1
B. Digestive System :				
1. Enteritis	1	-	-	4
2. Septicemia & Toxaemia	1	1	-	-
3. Peritonitis	2	1	-	1
4. Haem. Enteritis	-	-	-	2
C. Circulatory				
D. Others				
1. Chronic debility	1	-	-	-
2. JD/TB	-	-	-	-
3. Accidents	1	-	-	1
4. Miscellaneous	-	-	-	-
Total	**6**	**2**	**2**	**11**

9.6. Prophylactic measures taken during the period 4/2019 to 3/2020

Vaccination	No. of animals		Screening	No. of animals		No. of animals treated for Parasitism etc.
	Available	Inoculated		Tested	Results	
FMD		608	TB	180	No clinical case	No clinical case of parasitic infestation was observed during the year. All the animals were dewormed as per normal schedule.
HS		901	Brucellosis	180	01	
BQ		280	-	-	-	
Brucellosis		-	-	-	-	
TB		60				

9.7. Female conception rate during the period 4/2019 to 3/2020

Month	Heifer									First Calver									Multiparous									Overall		
	1st AI			2nd AI			3rd & Above AI			1st AI			2nd AI			3rd & Above AI			1st AI			2nd 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
Jan. 19	1	0	**0**	0	0	**0**	1	0	**0**	2	2	**100**	4	2	**50.0**	0	0	**0**	4	3	**75.0**	4	1	**25.0**	2	1	**50.0**	18	9	**50.0**
Feb.	0	0	**0**	0	0	**0**	1	1	**100**	1	0	**0**	2	1	**50.0**	1	0	**0**	4	4	**100**	0	0	**0**	1	1	**100**	10	7	**70.0**
March	2	2	**100**	1	0	**0**	1	1	**100**	4	2	**50.0**	0	0	**0**	0	0	**0**	2	2	**100**	1	0	**0**	3	3	**100**	14	10	**71.42**
April	1	0	**0**	0	0	**0**	0	0	**0**	2	2	**100**	0	0	**0**	1	0	**0**	4	4	**100**	2	0	**0**	0	0	**0**	10	6	**60.0**
May	2	1	**50**	0	0	**0**	0	0	**0**	6	2	**33.3**	1	1	**100**	2	1	**50.0**	3	1	**33.3**	3	1	**33.3**	3	1	**33.3**	20	8	**40.0**
June	1	0	**0**	0	0	**0**	0	0	**0**	1	1	**100**	1	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	3	1	**33.33**
July	2	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	1	0	**0**	0	0	**0**	6	3	**50.0**	1	1	**100**	2	1	**50.0**	12	5	**41.66**
Aug.	1	1	**100**	0	0	**0**	3	1	**33.3**	2	0	**0**	2	2	**100**	1	0	**0**	5	1	**20**	1	0	**0**	4	3	**75.0**	19	8	**42.10**
Sep.	5	1	**20**	0	0	**0**	1	1	**100**	3	0	**0**	0	0	**0**	2	2	**100**	5	2	**40.0**	0	0	**0**	1	1	**100.**	17	7	**41.17**
Oct.	1	1	**100**	0	0	**0**	0	0	**0**	3	3	**100**	1	0	**0**	1	0	**0**	3	0	**0**	1	0	**0**	1	0	**0**	11	4	**36.36**
Nov.	11	4	**36.4**	2	1	**50**	0	0	**0**	2	1	**50**	1	1	**100**	1	1	**100**	3	2	**66.7**	5	3	**60**	2	0	**0**	27	13	**48.14**
Dec. 18	1	1	**100**	1	1	**100**	0	0	**0**	5	4	**80**	2	0	**0**	0	0	**0**	8	3	**37.5**	5	3	**60**	6	3	**50.**	28	15	**53.57**
Total	**28**	**11**	**39.3**	**4**	**2**	**50**	**7**	**4**	**57.1**	**31**	**17**	**54.8**	**15**	**7**	**46.7**	**9**	**4**	**44.4**	**47**	**25**	**53.2**	**23**	**9**	**39.1**	**25**	**14**	**56.0**	**189**	**93**	**49.20**

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

9.8. Bull-wise conception rate during the period 4/2019 to 3/2020

Sr. No.	Bull No.	Total Number of AI	Total Conceived	CR%
1.	183	1	1	100.0
2.	1150	12	7	58.33
3.	1209	15	7	46.66
4.	1210	1	0	0.00
5.	1219	6	2	33.33
6.	1354	15	5	41.66
7.	1875	8	1	12.5
8.	2185	5	3	60.0
9.	2234	5	1	20.0
10.	2269	10	5	50.0
11.	2565	1	0	0.00
12.	2645	9	6	66.66
13.	2676	13	7	53.84
14.	2677	6	2	33.33
15.	2689	6	4	66.66
16.	3591	1	1	100.0
17.	4905	17	12	70.58
18.	4495	15	10	66.66
19.	7094	17	9	52.94
20.	7147	9	3	33.33
21.	7149	1	0	0.00
22.	7227	11	4	36.36
23.	Sikander	5	3	60.00
Total	---	**189**	**93**	**49.20**

9.9. Bull-wise semen stock 4/2019 to 3/2020

Sr. No	Bull No.	Set No	Opening Balance	Semen Prod./ Received	Consumption for AI/Supplied					Balance
					Dairy Farm	Field Unit	Other Agencies	Sold	Total Supply	
1	M156	1	200							200
2	888	2	200							200
3	458	3	200							200
4	293	4	200							200
5	558	5	200							200
6	610	6	200							200
7	M82	7	200							200
8	M432	8	34							34
9	M584	9	200							200
10	M675	10	79							79
11	M1354	NW3	1834							1834
12	M1451	NW4	1062							1062
13	M1437	NW4	1150							1150
14	M1506	NW4	3595							3595
15	M1749	NW6	343					20	20	323
16	M1796	NW7	594							594
17	M1875	NW8	2844		30		15	121	166	2678
18	M1994	NW9	1331		30		15	9	54	1277
19	M2045	NW10	302		30				30	272
20	M2073	NW10	231							231
21	M2074	NW10	303							303
22	M2083	NW10	293							293
23	M2133	NW11	359							359
24	M2148	NW11	200							200
25	M2154	NW11	534							534
26	M2176	NW12	2806							2806
27	M2177	NW12	3560					60	60	3500
28	M2185	NW12	1519				100		100	1419
29	M2234	NW13	200		30		120		150	50

30	M2269	NW13	1014		75		550		625	389
31	M2304	NW13	5365					350	350	5015
32	M2357	NW14	4164							4164
33	M2369	NW14	5158					3	3	5155
34	M2371	NW15	4407							4407
35	M2412	NW15	4440							4440
36	M2417	NW15	5410							5410
37	M2429	NW15	4144							4144
38	M2459	NW15	3115					75	75	3040
39	M2383	NW16	4469	1290			15	862	877	4882
40	M2467	NW16	6822							6822
41	M2501	NW16	5960	11775			15	9874	9889	7846
42	M2558	NW17	7054	10365			15	6945	6960	10459
43	M2565	NW17	8352	11874			15	6369	6384	13842
44	M2588	-	310							310
45	M2594	NW17	7954	5090			15	5175	5190	7854
46	M2607	NW17	4560	8385				6345	6345	6600
47	M2645	NW18	1140	4211	10	1123	2260		3393	1958
48	M2674			1635				190	190	1445
49	M2676	NW18	1603	9157		1875	2800		4675	6085
50	M2677	NW18	1439	3795		430	2700		3130	2104
51	M2689	NW18	390	3462	30	1235	2337		3602	250
Grand Total			**112043**	**71039**	**235**	**4663**	**10972**	**36398**	**52268**	**130814**

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**

Year	At Birth	3 Months	6 Months	12 Months	18 Months	24 Months
Male						
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**

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)
1st	25	2774.86±87.85	318.32±19.78	2649.10±38.68	13.55±0.20
2nd	21	3096.81±75.81	326.85±14.48	2961.71±55.84	16.25±0.74
3rd	14	2890.46±46.18	305.78±8.78	2844.94±40.78	16.05±0.74
4th	5	3024.92±110.13	300.80±1.46	3024.92±110.13	17.96±0.92
5th & onwards	8	3049.26±59.21	311.62±9.22	3003.61±45.87	16.46±1.31
Overall	**73**	**2936.84±41.91**	**316.43±8.12**	**2841.18±29.19**	**15.43±0.32**

9.12.1 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**

9.12.2 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**

9.12.3. Herd Life Productivity Traits (Buffalo completed 4 or more Lactation) during 2019-20

Sr.No	Traits	Buffalo No	Average
1	Herd Life (days)	14	3700.6
2	Productive Life (days)	14	2407
3	Productive Days	14	1682.7
4	Life time milk yield (kg)	14	14051.5
5	Milk Yield /day HLF (kg)	14	3.80
6	Milk Yield /day PLF (kg)	14	5.84
7	Milk Yield /day Productive Days (kg)	14	8.35

9.13. Average milk components during the period (month-wise) 4/2019 to 3/2020

Month	Number of Observation	Fat %	SNF	Protein	Lactose
April, 2019	68	7.13	9.01	3.37	5.28
May	73	7.18	9.33	3.78	5.61
June	62	7.22	9.56	3.62	5.53
July	58	7.35	9.43	3.47	5.36
August	57	7.48	9.59	3.49	5.57
September	61	7.26	9.17	3.98	5.19
October	63	7.11	9.08	4.29	5.17
November	72	7.37	9.53	4.11	5.44
December	71	7.22	9.19	4.8	5.36
January, 2020	77	7.7	9.3	3.46	5.19
February	73	7.39	9.37	3.29	5.42
March	69	7.63	9.67	3.69	5.69
Overall	**67**	**7.34**	**9.35**	**3.78**	**5.40**

9.14. Reproduction performance of buffaloes calving during the period 4/2019 to 3/2020

Traits/Lac	1 (23)	2 (23)	3 (16)	4 (11)	5 & Above (9)	Overall (82)
Average Age at Calving (Months)	40.42 ±1.05	51.01 ±0.88	74.57 ±2.51	91.6 ±3.08	121.0 ±3.58	-
Average Service Period (Days)	-	128.8 ±16.19	143.0 ±15.96	108.72 ±24.27	94 ±24.23	**124.89** ±9.59
Average Dry Period (days)	-	134.0 ±7.82	128.8 ±10.45	156.09 ±13.66	114±7.84	**133.0** ±5.17
Average Calving Interval (Days)	-	**438** ±16.09	**451** ±18.96	**419** ±24.12	**416** ±36.20	**435.76** ±10.52

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)**

Figures in parenthesis indicate number of observations

9.15. Month-wise milk production and disposal during the period 4/2019 to 3/2020

	Production	**Disposal**			
Month	Total milk produced (kg)	Liquid milk (kg)	Calf feeding (kg)	Experimental purposes (kg)	Milk lost in handling (kg)
April, 2019	15641.9	13625	1987.2	2.5	27.2
May	12289.9	10735	1525.7	0	29.2
June	12122.7	10618	1476	2	26.7
July	11619	10339	1246.5	2	31.9
August	12626	10689	1910.6	0	27.3
September	12786	10606	2154.8	2	23.2
October	15088.5	12173	2887.7	0	27.8
November	16973.7	13604	3343.5	0	26.2
December	18300.1	15148	3112	12	28.1
January, 2020	18752.4	16246	2474.5	4.5	27.4
February	17709.6	15892	1780	11	26.6
March	16902	15448	1425.7	3.5	24.9
Total	**180811.8**	**155123**	**25324.2**	**39.5**	**326.5**

9.16. Feed and fodder purchased and offered (qtls) to animals during the period 4/2019 to 3/2020

Month	Type of fodder/feed	Qty. produced at Farm	Qty. Purchased	Actually fed	Balance
April, 19	Green	2087.0		2087.0	-
	Dry	127.0		127.0	-
	Silage	-		-	-
	Concentrate	698.500	698.500	698.500	-
May	Green	869.0		869.0	-
	Dry	500.0		500.0	-
	Silage	866.0		866.0	-
	Concentrate	649.80	649.80	649.80	-
June	Green	1026.0		1026.0	-
	Dry	203.0		203.0	-
	Silage	497.0		497.0	-
	Concentrate	661.5	661.5	661.5	-
July	Green	1848		1848	-
	Dry	104.0		104.0	-
	Silage	406.0		406.0	-
	Concentrate	670.250	670.250	670.250	-
August	Green	1772.0		1772.0	-
	Dry	129.0		129.0	-
	Silage	821.0		821.0	-
	Concentrate	666.0	666.0	666.0	-
September	Green	1687.0		1687.0	-
	Dry	231.0		231.0	-
	Silage	532.0		532.0	-
	Concentrate	658.250	658.250	658.250	-
October	Green	1419.0		1419.0	-
	Dry	286.0		286.0	-
	Silage	418.0		418.0	-
	Concentrate	659.500	659.500	659.500	-
November	Green	1522.0		1522.0	-
	Dry	63.0		63.0	-
	Silage	-		-	-
	Concentrate	655.70	655.70	655.70	-
December	Green	1355.0		1355.0	-
	Dry	75.0		75.0	-
	Silage	361.0		361.0	-
	Concentrate	639.250	639.250	639.250	-
January 20	Green	900.0		900.0	-
	Dry	110.0		110.0	-
	Silage	713.0		713.0	-
	Concentrate	616.05	616.05	616.05	-
February	Green	1694.0		1694.0	-
	Dry	127.0		127.0	-
	Silage	-		-	-
	Concentrate	586.71	586.71	586.71	-
March	Green	2276		2276	-
	Dry	190.0		190.0	-
	Silage	-		-	-
	Concentrate	605.41	605.41	605.41	-
Total	Green	18455.0		18455.0	-
	Dry	2145.0		2145.0	-
	Silage	4614.0		4614.0	-
	Concentrate	7766.92	7766.92	7766.92	-

9.17. Milking performance during the period 4/2019 to 3/2020

Month	No. of Animal in milk	No. of Animal dry	Total Animal	% in Milk	Wet average (kg)	Herd average (kg)
April, 2019	68	48	116	61.08	7.71	4.71
May	73	44	117	60.06	7.23	4.02
June	62	35	97	61.17	7.55	4.17
July	58	39	97	60.66	7.39	4.12
August	57	44	101	65.89	7.83	5.16
September	61	41	102	62.76	8.11	5.09
October	63	43	106	61.63	8.47	5.22
November	72	38	110	71.62	9.26	6.63
December	71	31	102	73.12	9.27	6.71
January, 2020	77	27	104	73.31	9.25	6.7
February	73	31	104	75.95	9.38	6.69
March	69	38	107	70.25	8.26	6.04
Overall	**67**	**38**	**105**	**66.46**	**8.31**	**5.44**

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**

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
1150	2	-	-	-
2133	1	-	-	-
2185	3	-	-	-
2565	2	-	-	-
2594	1	-	-	-
2607	1	-	-	-
2645	2	-	-	-
2677	2	-	-	-
2689	1	-	-	-
4687	3	-	-	-
4733	1	-	-	-
4837	2	-	-	-
4905	4	-	-	-
7094	1	-	-	-
7227	1	-	-	-
Daara	1	-	-	-
M-BALI	1	-	-	-
PC574	1	-	-	-
M-53	1	-	-	-
M183	2	-	-	-
Rustam E Hind	2	-	-	-
Sikander	3	-	-	-
Sheru	1	-	-	-
Total	**39**	-	-	-
Bull No.	**No. daughters born**	**No. reaching A. F. C.**	**No. completing 1st Lact.**	**Last Lact.**
M3591	-	2	-	-
1150	-	1	-	-
2185	-	2	-	-
2558	-	1	-	-
2565	-	1	-	-
2594	-	1	-	-
2645	-	1	-	-
2676	-	1	-	-
4687	-	2	-	-
4905	-	1	-	-
M29	-	1	-	-
PC574	-	1	-	-
SHERU-2	-	1	-	-
Sikander		4	-	-
Total	**-**	**20+3 Purchase**	-	-
Bull No.	**No. daughters born**	**No. reaching A. F. C.**	**No. completing 1st Lact.**	**Last Lact.**
M1994	-	-	1	-
M2269	-	-	1	-
M2369	-	-	3	-
M2412	-	-	1	-
M2459			2	
Total *	**-**	**-**	**8+17* Purchase**	**-**

*** Set bulls only**

9.19. Bull-wise daughters completing 1st lactation during the period 4/2019 to 3/2020

Sr. No	Bull No.	Daughter No.	Date of birth	Date of calving	1st lactation 305-day milk yield (kg)	Total lactation yield (kg)	Lactation length (days)
1	M2369	2924	20-04-15	18-Aug-18	2622	2622	243
2	*	2983	22-10-15	7-Aug-18	2657	2657	266
3	M2459	2948	23-12-15	2-Sep-18	2739	2739	271
4	*	2966	12-01-16	3-Aug-18	2907	2907	276

5	M2269	2815	14-08-13	19-Sep-18	2715	2715	264
6	M2369	2905	12-02-15	3-Sep-18	2566	2566	280
7	*	2959	28-10-15	25-Jul-18	2930	3104	338
8	*	2968	16-05-15	2-Jan-19	2628	2628	238
9	M2459	2947	11-12-15	4-Aug-18	2950	3322	450
10	*	2973	12-08-15	26-Jan-19	2623	2623	276
11	*	2992	25-10-15	11-Sep-18	2892	3105	413
12	M2369	2889	16-09-14	12-Dec-18	2467	2588	352
13	*	2967	10-11-15	12-Dec-18	2861	2945	352
14	M2412	3000	23-03-16	14-Feb-19	2423	2423	288
15	M1994	2887	30-08-14	3-Jan-18	2981	4578	700
16	*	3254	-	11-Mar-19	2794	2794	256
17	*	2963	19-11-15	1-Jun-19	2679	2679	283

***Animal purchased as female calves from periurban dairies.**

9.20 List of breeding/young bulls as on 3/2020

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	4469	
2.	M2501	10.10.12	P1794	M1875	3053	5960	
3.	M2558	20.12.13	P2279	M1875	3574	7054	
4.	M2565	24.01.14	P2522	M2269	3287	8352	
5.	M2584	03.04.14	P2530	M1875	3395		
6.	M2594	30.07.14	P2221	M1994	3557	7954	
7.	M2607	17.12.14	P2605	M2369	3899	4560	
8.	M2645	20.06.15	P2530	M1994	3394		
9.	M2674	01.03.16	P2532	M2412	3583*		
10.	M2676	15.03.16	P2759	M2412	3023*	1140	
11.	M2689	03.07.16	P2436	M1693	3151		
12.	M2699	12.09.16	P2530	M1693	3394		
13.	M2707	02.12.16	P2604	M6405	2902*	1603	
14.	M2737	04.08.17	P2543	M2383	3108	1439	
15.	M2741	23.08.17	P2718	6753	2958	390	
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

Sr. No	Trait	Target	2017-18	2018-19	2019-20
1.	Av. Age at first calving	40 months	41.3	40.74	40.42 months
2.	Av. Service period	130 days	152	135.9	124 days
3.	Calf mortality (0-3 months)	≤3 %	8.22	1.94	3.45%
4.	Wet average	≥8.5 kg.	8.03 kg.	8.40	8.31 Kg.
5.	Herd average	≥5.5 kg.	5.25 kg.	5.38	5.44 Kg.

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

- Four bulls have been selected for 18th set of the project .
- The average age at 1st calving is achieved to 40.4 months.
- The average age at first collection of the bulls at the institute was 29.3 months.
- The average 305-day yield of the herd was 2841 kg and wet average of 8.31 kg and herd average of 5.44 kg during the period 4/2019 to 3/2020.

11. Publications:

Ramandeep Kaur, Puneet Malhotra, Neeraj Kashyap, SK Dash and Simarjeet Kaur. 2019. Analysis of different non-genetic factors affecting production performance of Murrah buffaloes. *Indian J. Anim. Res. (Accepted in).*

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 concentrate ration of their own and other managemental practices

13. Constraints if any:

Number of regular staff like beldars, cattle attendants and milk recorder have been reduced very much which is effecting working efficiency 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 2019-20 (Rs in Lakhs)

Sanctioned as per R E 2019-20		Released ICAR Share as per R E	Expenditure as per AUC		Receipts (ICAR Share)	Balance
Total	ICAR Share		ICAR Share	State Share		
101.31	68.4825 +10.00 (SCSP)	78.48250	75.97257	22.83	7.39862	+ 9.90855

Herd Performance:

Herd strength at the centre was 343 animals with 177 breedable buffaloes (> 2 year). During the period 80 calving were reported with 41 male and 39 females, one still births and one abortion. The calf mortality (0-3 months) during the period was 3.85 % (4/104). The female conception rate at the farm was higher (49.20 %) and compared to last year CR (48.88 %).

During the report period 71039 semen doses were produced and 52268 semen doses were sold and supplied to field unit/ other Murrah centers and other agencies. 130814 frozen semen doses from superior bulls are available at the centre. 305 day or less day milk yield was 2841 kg (73) with average peak yield 15.43 kg higher than previous year 2771 kg (56) with average peak yield of 15.10 kg. The average lactation lengths of 316 days (n=73). The reproductive performance viz. AFC, SP, DP and C I were 40.42 months (23), 125 days (82), 133 days (82) and 436 days (82), respectively. The wet 8.31 kg is slightly lower and herd averag 5.44 kg higher than the previos year 8.40 kg and 5.38 kg respectively.

Accomplishment and Targets Achieved:

Sr. No.	Trait	Target	Achieved 2016-17	Achieved 2017-18	Achieved 2018-19	**Achieved 2019-20**
1	Av. AFC (Months)	40.0 months	41.51 (27)	41.3 (25)	40.74±1.43 (39)	**40.42±1.05 (23)**
2	Av. service period (Days)	130 days	184 (26)	152 (41)	135.8±9.5 (104)	**124.89±9.59 (82)**
3	Calf mortality (0-3 months)	≤ 3 %	8.11	8.22	1.94	**4.82**
4	Wet average (Kg)	≥ 8.50 kg	7.92	8.03	8.40 kg	**8.31 kg**
5	Herd average (Kg)	≥ 5.50 kg	5.45	5.25	5.38 kg	**5.44 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
5. Objectives
   a) To establish elite herd of 50 to 100 Murrah for the production of genetically superior young bulls.
   b) To evaluate sires through institutional progeny testing
   c) 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		
		Furniture	**Contingency**	**Total**
Total funds Received during 2018-19		720000	2350000	3070000
Expenditure up to 31-03-2019		249900	1268702	1518602
Closing Balance on 31-03-2019		470100	1081298	1551398

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

Discipline	**Name of Scientist / Staff**	**Status PI/Co-PI**
AGB	Dr. I. D. Gupta, Principal Scientist (from March 2018) Dr. Vikas Vohra, Principal Scientist (from Aug. 2018)	PI Co-PI
ARGO	Dr. T. K. Mohanty, Principal Scientist & I/c ABRC Dr. Mukesh Bhakat, Senior Scientist	Co-PI Co-PI
LPM	Dr. Pawan Singh, Principal Scientist & I/c LPM	Co-PI
No. of staff		
Contractual staff	2 (High Skilled); 1 (Skilled); - 12 Months	

9. Herd Performance Enclosed Tables 9.1 to 9.21

9.1 Herd Strength during the Period 1st April 2019 to 31st March, 2020

Sr. No.	Category	Addition			Disposal				CB
		OB	**B / P**	**T/E**	**D**	**T/E**	**S**	**E**	**CB**
	Female								
1	Below 3 months	14	71		6	76			3
2	3-12 months	34		76	17	36			57
3	1-2 years	46		36	14	40			28
	Above 2 years	81	34	40	56	20			79
4	Buffaloes in Milk	120		20	61	19	4		56
5	Buffaloes Dry P /NP	103		19	8		14		100
	Sub Total	**398**	**105**	**191**	**162**	**191**	**18**		**323**
	Males								
1	Below 3 months	17	72		14	65			10
2	3-12 months	36		65	16	42			43
3	1-2 years	53		42	12	58			25
	Above 2 years	15		58	10	63			
4	Breeding bulls	36		63					99
5	Bullocks / Teasers	2							2
	Sub Total	**159**	**72**	**228**	**52**	**228**			**179**
	Grand Total	**557**	**177**	**419**	**214**	**419**	**18**		**502**

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

9.2 Calving Statistics including abnormalities (1st April 19 to 31st March 2020)

Month	Male	Female	Still Birth	Abortion	Dystokia	ROP	Prolapse	Overall
April 19	6	6	-	-	-	1	1	14
May	2	1	-	2	1	3	2	11
June	3	1	-	1	1	-	3	9
July	4	5	1	-	-	1	1	12
August	14	12	1	-	-	1	2	30
September	7	14	-	-	-	1	2	24
October	11	16	1	-	-	-	-	28
November	7	6	-	-	-	-	-	13
December	5	7	-	-	-	-	-	12
January 20	6	1	-	-	1	1	-	9
February	4	-	-	1	-	-	2	7
March	3	2	-	1	-	-	-	6
Overall	**72**	**71**	**3**	**5**	**3**	**8**	**13**	**175**

Sex ratio Male : Female 1:0.986; SB% = 1.71; Abortion % = 2.86%

9.3. Disposal of Animals during the Period 1st April 19 to 31st March 20

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						6		6
3-12 months						17		17
Heifers								
1-2 years						14		14

> 2 years						56		56
Buffaloes Milch Dry		- 4	- 4	1 1	3 5	61 8		65 22
Sub Total		**4**	**4**	**2**	**8**	**162**		**180**
Males	**Primary cause of disposal**							
Calves 0 to 3 months 3-12 months						14		
1 to 2 year						16		
>2 year						12		
Breeding bulls	4					10		4
Bullock+Teaser+Others	5						1	6
Sub Total	**9**					**52**	**1**	**10**
Grand Total	**9**	**4**	**4**	**4**	**4**	**214**	**1**	**190**

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.	16	33	48	82	241	420	16	38	54	15	123	543
	Died	0	0	1	1	1	3	0	1	3	1	5	8
	%	0.0	0.0	2.1	1.2	0.4	0.7	0.0	2.6	5.6	6.7	4.1	1.5
May, 19	No.	12	32	50	81	225	400	10	30	53	12	105	505
	Died	1	2	0	1	0	4	2	1	1	0	4	8
	%	8.3	6.3	0.0	1.2	0.0	1.0	20	3.3	1.9	0.0	3.8	1.6
Jun, 19	No.	7	36	51	80	225	399	9	33	52	12	106	505
	Died	0	2	0	2	0	4	0	0	1	0	1	5
	%	0.0	5.6	0.0	2.5	0.0	1.0	0.0	0.0	1.9	0.0	0.9	1.0
Jul, 19	No.	7	39	50	78	229	403	9	37	48	0	94	497
	Died	0	0	0	5	5	10	0	0	0	0	0	10
	%	0.0	0.0	0.0	6.4	2.2	2.5	0.0	0.0	0.0	0.0	0.0	2.0
Aug, 19	No.	17	35	51	73	219	395	17	37	45	0	99	494
	Died	1	0	0	2	1	4	3	1	0	0	4	8
	%	5.9	0.0	0.0	2.7	0.5	1.0	17.6	2.7	0.0	0.0	4	1.6
Sep, 19	No.	28	24	36	71	208	367	18	28	35	0	81	448
	Died	2	11	12	36	51	112	3	10	6	7	26	138
	%	3.6	45.8	33.3	50.7	24.5	30.5	16.7	35.7	17.1	0.0	32.1	30.8
Oct, 19	No.	37	24	34	68	211	374	27	28	31	0	86	460
	Died	2	0	0	2	2	6	0	0	0	0	0	6
	%	5.4	0.0	0.0	2.9	0.9	1.6	0.0	0.0	0.0	0.0	0.0	1.3
Nov, 19	No.	31	31	29	72	213	376	23	35	27	0	85	461
	Died	0	1	0	1	2	4	1	0	0	0	1	5
	%	0.0	3.2	0.0	1.4	0.9	1.1	4.3	0.0	0.0	0.0	1.2	1.1
Dec, 19	No.	26	40	26	75	214	381	19	38	24	0	81	462
	Died	0	1	1	2	4	8	2	1	1	2	6	14
	%	0.0	2.5	3.8	2.7	1.9	2.1	10.5	2.6	4.2	0.0	7.4	3.0
Jan, 20	No.	13	53	26	75	214	381	12	42	23	0	77	458
	Died	0	0	0	0	0	0	2	2	0	0	4	4
	%	0.0	0.0	0.0	0.0	0.0	0.0	16.7	4.8	0.0	0.0	5.2	0.9
Feb, 20	No.	8	55	25	79	214	381	9	44	26	0	79	460
	Died	0	0	0	1	1	2	1	0	0	0	1	3
	%	0.0	0.0	0.0	1.3	0.5	0.5	11.1	0.0	0.0	0.0	1.3	0.6
Mar, 20	No.	3	57	28	79	211	378	10	43	25	0	78	456
	Died	0	0	0	3	2	5	0	0	0	0	0	5
	%	0.0	0.0	0.0	3.8	0.9	1.3	0.0	0.0	0.0	0.0	0.0	1.1
Overall	%	**7.06**	**15.5**	**17.1**	**36.1**	**26.3**	**23.3**	**15.7**	**15.8**	**12.6**	**5.7**	**11.3**	**18.6**

Overall (0-3 months calves) (Opening Balance + Born = 31+143=174; calf died = 20 = 20/174= **11.49%)**

9.5. Causes of Mortality (quarter wise) during the period 1st April 19 to 31st March 2020

Particulars	1st quarter (April-June)	2nd quarter (July-Sept)	3rd quarter (Oct-Dec.)	4th quarter (Jan.-March)	Total
Enteritis	2	16	3	2	23
Pheumonities	-	40	5	-	45
Septicamia / Toxaemia	2	12	10	1	25
Peritonitis	1	15	1	2	19
JD/TB	-	-	-	-	-
Milk Fever / metabolic diseases	-	-	-	-	-
TRP / TP	1	1	-	-	2
Parasitism	1	-	1	1	3
Sudden death	2	3	2	3	10
Peri-parturient disorders	-	30	1	-	31
General Debility	11	24	2	3	40
Miscellaneous	1	15	-	-	16
Total	**21**	**156**	**25**	**12**	**214**

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	02-04-2019 to 09-04-2019 09-10-2019 to 11-10-2019			Dewormed all Calves up to 6 months and other buffaloes as required.
HS	-			
BQ	-			
Brucellosis	-			
JD	-			
TB	-			
IBR	-			
Mastitis	-			

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

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	29	15	51.72	10	2	20.00	6	5	83.33	10			55	22	40.00
1st calvers	40	14	35	16	3	18.75	8	2	25	5	2	40.00	69	21	30.43
Multiparous	82	34	43.90	31	13	41.9	23	7	34.7	15	5	33.33	151	59	39.07
Overall	**151**	**65**	**43.04**	**57**	**18**	**31.57**	**57**	**15**	**40.54**	**30**	**7**	**23.33**	**275**	**102**	**37.09**

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 2019

Quarter	No. of A I	Preg. animals	CR %
Jan – Mar	87	29	33.33
Apr- Jun	24	11	45.83
Jul- Sep	31	6	19.35
Oct- Dec	133	56	42.10
Overall	**275**	**102**	**37.09**

9.9. Bull-wise Conception Rate During the period January to December, 2019

Sr. no.	Bull No.	Set No.	Total Number of AI	Total Conceived	CR%

1	4733	17	51	16	31.37
2	3267	11	2	1	50.00
3	7094	18	35	14	40.00
4	4995	18	32	14	43.75
5	2185	12	14	5	35.71
6	4905	18	17	7	41.18
7	183	12	13	6	46.15
8	1150	18	13	6	46.15
9	2645	18	9	2	22.22
10	2677	18	15	4	26.67
11	1209	18	14	3	21.43
12	5147	18	14	7	50.00
13	7227	18	15	6	40.00
14	7263	18	16	4	25.00
15	3591	11	3	1	33.33
16	2689	18	12	6	50.00
Overall			**275**	**102**	**37.09**
No. of services per conception					**2.29**

9.10 Bull Wise Semen Stock (April-2019 to March 2020)

S. No.	Bull No.	Centre	Opening balance on date 01.04.2019	Total semen received & produced	utilization -NPBI			Total utilization	Closing Balance on date 31.03.20
					NDRI, Karnal				
					Main Unit	Field Unit	CIRB Hisar		
18 Set									
1	4905	CIRB	-	700	50	400	-	450	250
2	4995	CIRB	-	650	52	400	-	452	198
3	5147	CIRB	-	700	60	410	-	470	230
4	1150	LUVAS	250	450	50	450	-	500	200
5	1208	LUVAS	-	600	30	430	-	460	140
6	1209	LUVAS	-	250	30	220	-	250	-
7	1219	LUVAS	-	250	30	220	-	250	-
8	2645	GADVASU	-	900	30	400	-	430	470
9	2676	GADVASU	-	900	0	610	-	610	290
10	2677	GADVASU	-	900	90	475	-	565	335
11	2689	GADVASU	-	850	30	772	-	802	48
12	7094	NDRI	70	3245	150		2250	2400	845
13	7147	NDRI	1280	6444	50	200	2000	2250	4194
14	7227	NDRI	440	3000	30	150	2250	2430	570
15	7263	NDRI	100	4708	30	600	3000	3630	1078
Total			**2140**	**24797**	**712**	**5737**	**9500**	**15949**	**8848**

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	31.46	64.74	104.89	171.85	252.68	332.41	559.23
Current year	28.89	72.67	83.83				
Male					**Adults**		
Current year	29.94	82.95	-				

9.12 Average Production Performance of Buffaloes Completing their Lactation

Lact. No.	No. of	TLMY (kg)	Lact. Length	SLMY (kg)	Peak yield (kg)

	obs.		(days)		
1st	39	2156.3	303.51	2058.7	12.1
2nd	30	2427.1	295.4	2361.2	13.1
3rd	12	2269.3	296.9	2200.7	13.7
4th	19	2271.0	285.5	2234.4	13.6
5th & above	6	1942.7	318.5	1894.41	11.0
Overall	**106**	**2256.1**	**296.82**	**2184.1**	**12.8**

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)**

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

Sr. No.	**Traits**	**2017-18**	**2018-19**		**2019-20**	
			Animal No.	Mean	Animal No.	Mean
1	LTMY (kg)	10561	30	11289	26	10795
2	HLF (Days)	3557	30	3845	26	3967
3	PLF (days)	2129	30	2430	26	1503
4	UPLF (days)	--	30	1415	26	896
5	MY/HLF	2.98	30	3.00	26	3.00
6	MY/PLF	5.04	30	4.65	26	5.00

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 pril 2018 to 31st March 2020

Month	**No. of**	**Fat (%)**	**SNF (%)**	**Total**	**Protein**	**Lactose**	**SCC**

	Animals	**(Mean ± SE)**	**(Mean ± SE)**	**solids (%)**	**(%)**	**(%)**	
Apr, 19	109	7.29 ± 0.11	9.84 ± 0.02	17.13	3.67	5.11	
May, 19	111	7.10 ± 0.01	9.86 ± 0.02	16.96	3.71	5.11	
Jun, 19	102	7.24 ± 0.01	9.76 ± 0.02	17.0	3.6	4.96	
Jul, 19	105	7.77 ± 0.01	9.89 ± 0.02	17.66	3.7	5.18	
Aug, 19	105	7.10 ± 0.10	9.84 ± 0.02	16.94	3.76	5.29	
Sep, 19	100	7.89 ± 0.11	9.85 ± 0.03	17.74	3.79	5.3	
Oct, 19	103	7.28 ± 0.10	9.81 ± 0.02	17.09	3.72	5.25	
Nov, 19	106	7.33 ± 0.09	9.83 ± 0.02	17.16	3.79	5.35	
Dec, 19	115	7.87 ± 0.09	9.90 ±0.02	17.77	3.83	5.34	
Jan, 20	136	8.32 ± 0.08	9.98 ± 0.02	18.03	3.88	5.41	
Feb, 20	125	7.70 ± 0.06	9.87 ± 0.02	17.57	3.83	5.34	
Mar, 20	115	7.62 ± 0.80	9.87 ± 0.02	17.49	3.8	5.32	
Overall	**111**	**7.54 ± 0.14**	**9.86 ± 0.02**	**17.38**	**3.76**	**5.25**	

9.14: Reproductive Performance during the period 1st Apr, 2019 to 31st March 2020

Lactation / Parity	AFC (Months) (N)	SP (Days) (N)	Days Open	DP (Days)	CI (Days)
1	44.52 (37)	123.71 (35)		154.17	433.34
2		138.58 (12)		154.16	446.75
3		139.62 (8)		172	450.5
4		170 (3)		201.67	490
5th and above		195 (2)		265.5	507
Over all	**44.52 (37)**	**133.5 (60)**		**162.63**	**443.6**

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)**

9.15 Milk Production and Disposal during the period Apr, 2019- Mar, 2020

Month	Total milk produced (kg)	Disposal (Kg)		
		Milk sold	Calf feeding	Expt.
April 2019	26642.0	Total milk produced was supplied to the milk plant, NDRI, Karnal		
May	26510.0			
June	23128.5			
July	22105.0			
August	21079.5			
September	18464.5			
October	18995.5			
November	24947.0			
December	26549.5			
January 2020	28800.5			
February	24635.5			
March	23591.0			
Total	**285448.5**			

9.16 Feed and fodder (Quintals) availability: NA

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, 19	120	103	223	53.81	7.4	4
May, 19	115	126	241	47.72	7.4	3.6
June, 19	103	122	225	45.78	7.5	3.4
July, 19	104	121	225	46.22	6.9	3.2
August, 19	108	121	229	47.16	6.3	3
September, 19	112	107	219	51.14	5.5	2.8
October, 19	103	105	208	49.52	5.9	2.9
November, 19	117	94	211	55.45	7.1	3.9
December, 19	123	90	213	57.75	7	4
January, 20	127	87	214	59.34	7.3	4.3
February, 20	125	89	214	58.41	6.8	4
March, 20	117	97	214	54.67	6.5	3.6
Overall	**115**	**105**	**220**	**52.12**	**6.7**	**3.5**

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**

9.18: Bull wise daughters born (only numbers) during the period Apr, 2019- Mar, 2020

Set No.	Centre	Bull No.	Daughters born	Daughters Calved	Daughters completing 1st Lactation
16	CIRB	4733	27	-	-
18	CIRB	4905	-	-	-
18	CIRB	4995	1	-	-
18	CIRB	1209	-	-	-
18	CIRB	5147	3	-	-
11	CIRB	3591	3	2	2
18	CIRB	1219	-	-	-
18	CIRB	1208	-	-	-
12	GADVASU	2185	5	2	2
18	GADVASU	2645	-	-	-
18	GADVASU	2677	-	-	-
18	GADVASU	2689	-	-	-
18	GADVASU	2676	-	-	-
18	NDRI	7094	6	-	-
18	NDRI	7227	-	-	-
18	NDRI	7263	-	-	-
18	NDRI	7147	-	-	-
12	HAU	183	2	1	1
18	LUVAS	1150	-	-	-
		Total	**47**	**5**	**5**
Other unknown bulls (from purchase of pregnant buffaloes)					

9.19 Bull wise daughters completing 1ST lactation during the Period April 2019 to March 2020

Bull No.	Daughter No.	Date of birth	Date of calving	AFC (months)	Lact. Length (days)	TLMY (kg)	SLMY (kg)
2176	6478	01-07-2012	23-07-2018	2213	295	2798	2798
NK	6774	20-08-2013	10-03-2018	1663	430	2619.5	1973
858	6792	15-09-2013	15-08-2018	1795	367	2267.5	2141.5
858	6802	24-10-2013	12-10-2018	1814	259	1731	1731.5

6014	6909	12-06-2014	05-12-2018	1637	144	381.5	381.5
2369	6968	09-10-2014	09-09-2018	1431	221	1139	1138
5258	7009	27-12-2014	08-10-2018	1381	327	2449.5	2427
6136	7022	18-01-2015	09-12-2018	1421	438	3466.5	3038
4439	7025	24-01-2015	26-04-2018	1188	398	3116	2720
NK	7031	02-02-2015	06-07-2018	1250	286	2246	2246
NK	7040	20-02-2015	12-11-2018	1361	305	2626	2626
NK	7068	11-02-2015	04-11-2018	1362	314	2322	2308
NK	7078	25-02-2015	18-07-2018	1239	314	2106	2106
6136	7082	03-03-2015	18-10-2018	1325	281	1820.5	1820.5
6136	7087	19-03-2015	05-02-2019	1419	219	2124	2124
NK	7100	17-05-2015	08-01-2019	1332	250	1767.5	1767.5
NK	7106	08-06-2015	01-01-2019	1303	207	1046.5	1046.5
NK	7111	03-07-2015	19-03-2019	1355	180	1660.5	1660.5
NK	7117	17-07-2015	27-11-2018	1229	305	2840.5	2840.5
ET	7134	02-08-2015	18-10-2018	1173	192	1016.5	1016.5
2412	7161	01-09-2015	01-02-2019	1249	412	2917	2637
2412	7162	02-09-2015	26-12-2018	1211	449	3422	2980.5
2412	7163	03-09-2015	15-01-2019	1230	241	2402	2402
2412	7167	06-09-2015	23-01-2019	1235	421	3026	2840.5
NK	7168	11-09-2015	05-01-2019	1212	411	2194.5	1881.5
4438	7184	06-10-2015	03-04-2019	1275	363	2688.5	2350
4363	7185	08-10-2015	27-10-2018	1115	272	1824	1824
4438	7190	23-10-2015	21-01-2019	1186	322	1597.5	1589.5
NK	7218	18-11-2015	28-01-2019	1167	243	1320.5	1320.5
4438	7225	01-01-2016	15-10-2018	1018	348	2351	2225.5
5258	7235	06-02-2016	23-11-2018	1021	309	2273	2271
NK	7237	09-02-2016	29-11-2018	1024	395	2492	2249.5
4363	7238	11-02-2016	16-11-2018	1009	252	1237	1237
6139	7251	26-03-2016	18-01-2019	1028	404	2479.5	25241
607	7252	29-03-2016	12-01-2019	1019	245	1745.5	1745.5
NK	7256	07-04-2016	30-11-2018	967	274	1536.5	1536.5
NK	7257	08-04-2016	19-11-2018	955	285	2570	2570
NK	7208	18-07-2013	03-10-2019	2268	127	1205.5	1205.5
NK	7209	26-10-2015	12-03-2019	1233	205	2172	2172
4438	7221	29-11-2015	17-12-2018	1114	271	1479.5	1479.5

Out of 40 bulls used, daughters of 06 bulls had given SLMY greater than 2700 kg in NDRI herd

9.20 Breeding bulls Selected for current set during the period Apr, 2019- Mar, 2020

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

9.20.1 PT Bulls for nominated mating during the period Apr, 2019- Mar, 2020

Bull No.	Set No.	Centre	Dams' Best yield	Sire Index	Breeding Value	% Superiority
3267	11	CIRB	2489			

9.20.2 List of breeding bulls as on 31.3.2019

Sr. No	Bull No.	DOB	Sire No.	Dam No.	Dam's best SLMY	Semen doses available
1	6136	25-09-2009	2148	5517	4341	7266
2	6253	26-08-2010		418	2601	6897
3	6379	17-10-2011	4915	402	3505	1609
4	6405	26-01-2012		486	2743	3074
5	6409	09-02-2011	4371	490	4187	6785
6	6646	07-02-2013		6627	3533	3187
7	6708	18-03-2013	clone of 59	5573	2387	1740
8	6753	13-07-2013	858	470	3389	1772
9	6822	13-12-2013	2422	490	4187	4
10	6923	23-07-2014	clone of 43	6677	1733	420
11	6942	23-08-2014	4439	6627	3533	5319
12	7010	27-12-2014	4100	415	3088	5269
13	7094	08-04-2015		6625	3465	1225
14	7147	14-08-2015		6631	3018	4174
15	7227	04-01-2016	6044	5851	3099	450
16	7277	22-07-2016	2459	6236	3508	740
17	7281	25-07-2016	1875	470	3389	
18	7263	28-05-2016	6290	6625	3465	1048
19	7290	09-08-2016	2417	6551	3262	140
20	7317	20-09-2016	2459	6871	3272	
21	7435	17-02-2017	6379	5988	3215	150
22	7450	14-05-2017	6409	6116	3570	
23	7441	04-03-2017	6379	6762	2838	60
24	7467	19-08-2017	6646	6351	3030	285
25	7386	04-12-2016	1893	6897	2725	240
26	7584	30-03-2018	6253	6147	3600	
27	7590	17-04-2018	3591	6122	3448	
28	7593	02-05-2018	2501	6359	2782	
29	7604	18-06-2018	7010	6477	3158	
30	7545	29-12-2017	4705	6843	3050	40
31	7552	15-01-2018	2501	6922	3251	
32	7568	24-02-2018	2501	7351	3010	
33	7596	07-05-2018	3267	5988	3215	
34	7606	27-06-2018	3267	6632	2796	
35	7619	03-08-2018	2565	6799	3171	
36	7630	05-09-2018	51	6852	3343	
37	7638	22-09-2018	4687	6795	3076	
38	7646	12-10-2018	4715	6895	2602	
39	7649	15-10-2018	2558	6735	3203	
40	7725	21-11-2018	2558	6503	2514	
41	7739	08-12-2018	7010	6508	2652	
42	7747	28-12-2018	4837	7359	3085	40
43	7477	05-09-2017	6646	6255	2921	
44	7483	15-09-2017	6379	6345	2880	
45	7511	17-11-2017	2133	470	3389	40
46	7492	09-10-2017	1027	6906	2799	
47	7542	27-12-2017	2133	5620	3104	150
48	7465	08-08-2017	6646	6852	3343	100
49	7495	15-10-2017	1027	6503	2514	

9.21 Target achieved during the year during the period

Trait	Target	Achieved (2017-18)	Achieved (2018-19)	Achieved (2019-20)
Av. Age at first calving (months)	40	43.40 (44)	44.39 (41)	44.52 (37)
Av. Service period (days)	130	145 (37)	139 (77)	134 (60)
Calf mortality (0-3 months)	≤ 4 %	7.8 %	18.99 %	11.49
Wet average (kg)	≥8.5 kg	8.23	7.4 kg	6.7 kg
Herd average (kg)	≥5.5 kg	4.21	3.9 kg	3.5 kg

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 set of bulls. Fifteen bull from 18th set were used till March 2020. Semen was received/collected from 15 bulls of 18th set and two proven bulls also (bull no. 183 and 2195). The dam's best lactation 305 day milk yield of 4 bulls of NDRI under 18th set had ranged from 3018 to 3465 Kg.

ii) Targets and Achievements

The herd strength of breedable buffaloes was 156 in 2019-20. Average age at first calving of buffaloes was 44.52 months. The average service period of buffaloes has been estimated as 133.5 days. The overall female conception rate in the herd was 37.09% for the buffaloes inseminated during Jan-Dec, 2019. The overall mortality during the year was only 18.6%. The wet and herd average were 6.7 and 3.5 Kg, respectively. The average Milk Fat, SNF Total Solid, Protein and Lactose were estimated as 7.54 ± 0.14, 9.86 ± 0.02, 17.38, 3.76 and 5.25%, respectively.

Selection of bulls

Total 15 elite Murrah male calves were reserved during the period (2019-20) on the basis of Expected Predicted Difference and dam's best 305d or less lactation milk yield, breed characteristics and physical conformity for selection of young male calves for future breeding. Finally, three young bulls with their dam's best 305 days lactation milk yield of ranged from 2799 Kg in first lactation to 3158 kg were reserved. On the basis of evaluation of 14th set the Bull no. 6044 from NDRI ranked second out of three top ranking bulls 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 2019-20 were collected and compiled for genetic evaluation of Murrah bulls.

Technologies developed / Success story(s)

Supply of Quality germplasm

The NDRI Centre has produced 17397 doses of frozen semen from four bulls of 18th set. The centre has supplied 9500 doses of frozen semen to other centers and field units, out of which 950 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 two proven Murrah Bulls (183 & 3267). Total 48 Murrah buffaloes were identified as elite animals. The average best lactation milk yield of elite Murrah buffaloes was 3291 Kg which was 50.68% higher than the herd average (2184.1 kg). The best lactation milk yield of elite Murrah buffaloes ranged between 3015 kg to 3991 kg (Animal No. 6626) in 305 days. Seventy one female calves and seventy two male calves were born. Total 285448.5 kg milk was produced by during the year.

Gaps/ Constraints, if any

The center has faced the constraint of high mortality in Murrah herd during the period.

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 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	
30.70	27.70+3.00 (SCSP)	30.70	15.18602	0.00	(+) 15.51398

Herd Performance

Herd strength was 502 out of which 235 were breedable buffaloes (>2year). During the period 143 calving took place consisting of 72 males, 71 females, 3 still births and 5 abortions. The calf mortality (0-3 months) was 11.49 percent (20/1174) which is higher than the target. Female conception rate reported as 37.09 percent is lower than the previous year 43.71 percent. During the report period 24797 semen doses were produced and 15949 frozen semen doses were consumed /distributed at farm and field.

Average lactation milk production performance decreased from 2391 kg (123) 2018-19 to 2256 kg (106); 305 days or less days average milk yield decreased from 2318.78 kg (123) 2018-19 to 2184 kg (106), Lactation length was 297 days (106). Age at first calving, Average service period, Average dry period and average calving Interval were 44.52 months (37), 134 days (60), 164 days (60) and 444 days (60) respectively. The centre has maintained its reproduction performance over the years, but significant decrease observed in lactation milk yield, wet and Herd averages as compared to 2018-19. During the report period 52.12 percent animals were in milk.

The lifetime productivity viz. herd life, productive life, lifetime milk yield, milk yield per day of herd life and milk yield per day of productive life were reported: 3967 days, 2399 days, 10795 kg, 3.00 kg and 5.00 kg, respectively.

Accomplishment and Targets Achieved:

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

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 very high and required proper care and management of calves.

ICAR- INDIAN VETERINARY RESEARCH INSTITUTE, IZATNAGAR
Report Period: 2019-20

1. **Name of centre:** I.C.A.R.-I.V.R.I., Izatnagar
2. **Project Code :**
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 4^{th} 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)
	Dr. S.K. Kochewad, Scientist (LPM)	Project Associate (transferred during 2019-20)
Health / Others	Dr. (Er.) Mukesh Singh, Pr. Sci.t (FMP)	Project Associate
	Dr Geeta Chauhan, Pr. Sci., LPT Div.	Project Associate
	Dr. S.K. Dixit, Pr. Scientist (Medicine)	Project Associate (w.e.f. 2018-19)
	Scientist - Division of Surgery	Project Associate (Rotational arrangement)
	Dr. Om Singh, Sr. Scientist (Agronomy)	Project Associate

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		Total	Recurring	Non-recurring		Total		
		Furniture & Fixtures	Equipment		Recurring contingency	Equipment	Furniture & Fixtures			
2019-20	20.00*	0.20	5.00	25.20	13.13227	0.00000	0.17700	13.30927	51.00796	Through sale of 137602kg milk
									7.62900	Sale of 22 buffaloes
Grand Total	**20.00***	**0.20**	**5.00**	**25.20**	**13.13227**	**0.00000**	**0.17700**	**13.30927**	**58.63696**	**-**

** Rs. 3.00 lakhs (Recurring contingency) included for SCSP expenditure*

9.1 Herd Strength (2019-20)

Sr. No.	Category	Addition			Disposal				CB
		OB	B / P	T	D	T	S	E	CB
	Female								
1.	Below 3 months	4	30	-	2	32*	-	-	-
2.	3-12 months	26	-	59*	-	57*	-	-	28
3.	1-2 years	22	-	30*	-	22*	-	-	30
	Above 2 years	35	-	52*	-	54*	1	-	32
4.	Buffaloes in Milk	62	3**	24*	1	19*	3	-	66
5.	Buffaloes Dry P /NP	20	-	19*	2	-	5	-	32
	Sub Total	**169**	**33**	**184***	**5**	**184***	**9**	**-**	**188**
	Males								
1.	Below 3 months	6	33+3**		3	38*	-	-	1
2.	3-12 months	25	-	72*	-	65*	-	-	32
3.	1-2 years	10	-	31*	-	8 15*	7	-	11
	Above 2 years	1	-	15*	-	12 2*	-	-	2
4.	Breeding bulls	11	-	2*	-	-	5	-	8
5.	Bullocks / Teasers / others	2	-	-	-	-	1	-	1
	Sub Total	**55**	**36**	**120***	**3**	**20 120***	**13**	**-**	**55**
	Grand Total	**224**	**69**	**384***	**8**	**20 384***	**22**	**-**	**243**

OB = Opening Balance as on 1st April D = Deaths S = Sale E = Experimental
B / P = Birth / Purchase T/* = Internal Transfer ** Purchased CB = Closing Balance as on 31st March
**** young suckling calf given with auctioned dam**

9.2 Calving statistics including abnormalities (2019-20)

Month	Male	Female	Still Birth	Abortion	Dystokia	ROP	Prolapse
April	-	-	-	1	-	-	-
May	1	-	-	2	-	-	-
June	2	3	1	3+1*	1	1	1
July	2	3	-	2	3	1	-
August	6	3	-	2+2*	-	1	-
September	5	5	-	1	-	2	-
October	4	6	-	3+1*	-	2	-
November	4	9	-	Nil	-	-	-
December	8	1	-	Nil	-	-	-
January	1	-	-	-	-	-	-
February	-	-	-	-	-	-	-
March	-	-	-	1+1*	-	1	-
Overall	**33**	**30**	**1**	**20=15+5***	**4**	**8**	**1**

*Unseen Abortions; Sex ratio (Male : Female)= 52.38 : 47.61; SB% = 1.59%; Abortion% = 31.74%

9.3. Disposal of Animals (2019-20)

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	-	-	-	-	-	2	-	2
3-12 months	-	-	-	-	-	-	-	-
Heifers								
1-2 years	-	-	-	-	-	-	-	-
> 2 years	-	-	1	-	-	-	-	1
Buffaloes								
Milch	-	1	2	-	-	1	-	4
Dry	-	3	2	-	-	2	-	7
Sub Total	**-**	**4**	**5**	**-**	**-**	**5**	**-**	**14**
Males	**Primary cause of disposal**							
Calves								
0 to 3 months	-	-	-	-	-	3	-	3
3-12 months	-	-	-	-	-	-	-	-
1 to 2 year	7	-	-	-	-	-	8	15
>2 year	-	-	-	-	-	-	12	12
Breeding bulls	5	-	-	-	-	-	-	5
Bullock/Teaser/Others	-	-	-	1	-	-	-	1
Sub Total	**12**	**-**	**-**	**1**	**-**	**3**	**20**	**36**
Grand Total	**12**	**4**	**5**	**1**	**-**	**8**	**20**	**50**

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

Sex	**Female**						**Male**					**Overall Herd**
Class	**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.	34	85	52	215	128	202	42	97	41	31	91	293
Died	2	-	-	3	3	5	3	-	-	-	3	8
%	5.88	-	-	**1.40**	**2.34**	**2.48**	7.14	-	-	-	**3.30**	**2.73**

9.5. Causes of Mortality (quarter wise) during the period (2019-20)

Particulars	**1st quarter (April-June)**	**2nd quarter (July-Sept)**	**3rd quarter (Oct-Dec.)**	**4th quarter (Jan.-March)**	**Total**
1. Septicaemia & Toxemia/ Enteritis leading to Septicaemia, Acute abomasamitis & Septicaemia, Fibrinous Pleuritis, Acute Peritonitis, Septicaemia due to Navel ill/ Joint ill	-	-	4	2	6
2. Still birth / NSD/bacterial infection/Premature birth/NSD	1	-	-	1	2
Total	**1**	**-**	**4**	**3**	**8**

9.7 Prophylactic measures undertaken (2019-20)

Vaccination	No. of animals		Screening	No. of animals		No of animals treated for Parasitism etc.	
	Available	Inoculated		Tested	Result		
F.M.D.	-	478	Faecal samples sent to Parasitalogy Div./CADRAD for endoparasitic examination	40	37 were found negative; 2 were found for specific growth one was found for Escherichia coli	Ectoparasites	847
H.S.	-	253				Endoparasites	371
Brucella	-	27	Blood sample	17	11 were found –ive; 3 - No growth	Coccidiostat	150
						Liq. Vit. supplement	156
			-Do-		2 were found +ive for Anaplasmosis	Feed supplement-00	
						Postnatal Coverage	66

9.7. Female Conception Rate During the Period April 2019 to March 2020

AI No.→	1st			2nd			3rd			4th			5th & above			Overall		
Parity↓	**AIs**	**C**	**CR%**	**AIs**	**C**	**CR%**	**AIs**	**C**	**CR%**	**AIs**	**C**	**CR%**	**AIs**	**C**	**CR%**	**AIs**	**C**	**CR%**
Heifers	29	20	68.97	6	3	50.00	3	1	33.33	3	1	33.33	1	1	100.00	**42**	**26**	**61.90**
Adults	83	42	50.60	33	18	54.55	11	5	45.45	4	2	50.00	3	2	66.67	**134**	**69**	**51.49**
Overall	**112**	**62**	**55.36**	**39**	**21**	**53.85**	**14**	**6**	**42.86**	**7**	**3**	**42.86**	4	3	75.00	**176**	**95**	**53.98**

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

9.8 Quarter-wise conception rate (2019-20)

Quarter	No. of A I	Preg. animals	CR %
January – March (Previous year)	8	5	62.50
April - June	25	15	60.00
July - September	78	43	55.13
October- December	65	32	49.23
Overall	**176**	**95**	**53.58**

9.9. Bull wise conception rate (inseminated during April, 2018 to January, 2019, 2018-19)

Sl. No	Bull No.	SET No.	Total No of AI	Total Conceived	CR %
1.	B-183	Proven	9	5	55.56
2.	1150	Proven	23	15	65.22
3.	1209	17th	19	11	57.89
4.	1219	17th	16	9	56.25
5.	2269	17th	9	4	44.44
6.	2645	17th	18	12	66.67
7.	2676	17th	19	11	57.89
8.	2677	17th	18	4	22.22
9.	4905	17th	19	11	57.89
10	4995	17th	5	2	40.00
11.	5147	17th	20	11	55.00
12.	7094	17th	1	0	0.00
Over all			**176**	**95**	**53.98**
No. of services per conception			**1.85 (176/95)**		

9.10 Bull Wise Semen Stock (1st April, 2019 to 31st Jan, 2020, 2019-20)

Sl. No.	Set No.	Bull No	Opening	Semen	Doses used	Balance

			balance (1st April, 2019	Doses Received	/Consumption	(on 31.03.2020)
1.	Proven	B-183	36	Nil	36	Nil
2.	Proven	1150	72	50	74	48
3.	17th	1209	Nil	75	73	02
4.	17th	1219	Nil	75	75	Nil
5.	17th	2269	Nil	31	31	Nil
6.	17th	2645	Nil	125	75	50
7.	17th	2676	Nil	125	79	46
8.	17th	2677	Nil	125	63	62
9.	17th	4905	68	50	62	56
10	17th	4995	29	Nil	29	Nil
11.	17th	5147	Nil	125	79	46
12.	17th	7094	Nil	50	4	46
13.	17th	7147	Nil	50	0	50
14.	17th	7227	Nil	50	0	50
15.	17th	7263	Nil	50	0	50
Grand Total			**205**	**981**	**680**	**506**

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±1176 (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)
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)	-	

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)

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)
1st	25	2387.87±88.60	330.96±12.72	2269.58±71.17 (24)	10.58±0.38
2nd	9	2530.38±257.60	356.22±36.55	2380.04±148.26 (8)	11.43±0.79
3rd	10	2538.32±131.19	319.60±19.90	2433.39±113.81	11.66±0.69
4th	6	2238.58±219.39	292.00±15.09	2219.33±217.05	11.17±0.61
5th & above	13	2325.11±150.28	315.77±12.54	2273.67±129.52 (12)	11.12±0.47
Overall	**63**	**2404.94±65.15**	**325.92±8.43**	**2307.40±50.75 (60)**	**11.04±0.24**

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

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)
* 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 2019-20

Period	LTMY (kg)	Productive Life (d)	Productive Days (d)	Unproductive Days (d)	MY/day of HFL (kg/d)	MY/day of Productive Life (kg/d)
2017-18	12853.87	2599.74	1719.32	880.42	3.33	5.14
2018-19	13721.90	2680.92	1805.25	875.67	3.50	5.21
2019-20	13804.73	2707.04	1864.44	842.60	3.53	5.28

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 2019 to March 2020

Month	N	Fat	SNF
April, 2019-May, 2019	53	7.96	9.80
June, 2019-July, 2019	41	7.70	9.86
August, 2019-September, 2019	50	7.21	9.74
October, 2019-November, 2019	72	6.84	9.86
December, 2019-January, 2020	79	7.17	10.18
February, 2020-March, 2020	69	7.21	10.10
Overall	**364**	**7.35**	**9.92**

9.14 Reproductive Performance

Lactation / Parity	AFC (m)	N →	SP (days)	Days Open (days)	DP (days)	CI (days)
1	39.24±2.11 (20)	22	174.55±24.21	184.45±24.39	457.59±20.91	
2	-	7	147.00±33.74	145.00±16.10	472.43±35.81	538.50±50.09
3	-	6	104.33±19.14	123.83±21.13	394.00±16.59	504.75±49.13
4	-	3	88.67±12.44	103.33±8.35	392.67±10.73	441.75±51.02
≥5	-	9	261.67±71.75	202.44±43.95	463.67±27.08	452.33±21.56
Overall	**39.24±2.11 (20)**	**47**	**172.68±19.55**	**169.11±14.95**	**448.70±12.77**	482.80±19.53

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)

9.15 Milk Production and Disposal (2019-20)

Month	Total milk produced (kg)	Disposal (Kg)		
		Milk sold	Calf feeding	Expt.
April, 2019	10953	The whole milk was given to DT Section (LPT) for disposal		
May, 2019	9817			
June, 2019	8388			
July, 2019	8070			
August, 2019	8972			
September, 2019	10252			
October, 2019	11638			
November, 2019	13531			
December, 2019	15405			
January, 2020	15366			
February, 2020	13250			
March, 2020	11960			
Total	**137602**			

9.16 Feed and fodder (Quintals) availability (2019-20)

Quarter	Type of fodder	Qty. produced at Farm	Qty.* Purchased	Actually fed (Qtls.)*	Balance
I	Green /Semi Dry	-	-	4486.6	-
	Dry	-	-	141.0	-
	Silage	-	-	-	-
	Concentrate	-	-	493.3	-
II	Green /Semi Dry	-	-	5317.3	-
	Dry	-	-	79.9	-
	Silage	-	-	-	-
	Concentrate	-	-	456.2	-
III	Green /Semi Dry	-	-	4589.9	-
	Dry	-	-	262.6	-
	Silage	-	-	-	-
	Concentrate	-	-	305.2	-
IV	Green /Semi Dry	-	-	5546.0	-
	Dry	-	-	262.8	-
	Silage	-	-	-	-
	Concentrate	-	-	360.2	-
Total	Green /Semi Dry	-	-	**19948.70**	-
	Dry	-	-	**746.20**	-
	Silage	-	-	-	-
	Concentrate	-	-	**1614.90**	-

Table 9.17 Milk performance during (April 2019- March 2020)

Month	Buffaloes in Milk	Dry buffaloes	Total	% in Milk	Wet Av. (kg)	Herd Av. (kg)
April 19	58.87	23.43	82.30	71.53	6.20	4.44
May	53.23	29.77	83.00	64.13	5.95	3.82
June	52.57	32.67	85.23	61.67	5.32	3.28
July	47.06	44.32	91.39	51.49	5.53	2.85
August	47.68	49.00	96.68	49.32	6.07	2.99
September	53.43	47.53	100.97	52.92	6.40	3.38

October	65.45	40.29	105.74	61.90	5.74	3.55
November	75.53	32.33	107.87	70.03	5.97	4.18
December	79.42	26.62	108.23	73.38	6.26	4.59
January 20	78.83	28.54	107.38	73.41	6.28	4.61
February	74.17	32.48	106.65	69.54	6.15	4.28
March	69.74	32.58	102.32	68.15	5.53	3.77
Overall	**62.99**	**34.96**	**98.15**	**63.96**	**5.95**	**3.81**

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

* based on pail yields

9.18 Bull wise daughters born (only numbers)

Bull No.	Set No.	Daughters born	Daughters Calved	Daughters completing 1st Lactation
4687		412*, 439	-	-
4837		413, 416, 436	-	-
2665		414	-	-
2565		424	-	-
2594		425, 427	-	-
M-51		431, 464	-	-
M-53		432	-	-
B1-330		437, 445, 455, 460	-	-
4715		442, 454, 458, 465	-	-
4733		446, 459, 466, 467	-	-
183		447, 463*	-	-
2607		448, 453	-	-
4905		468, 476		

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.	6044	129/14	19/08/2014	09/06/2019	1755	8	00.0	-	Died
2.	6044	137/14	08/09/2014	22/02/2019	1628	291	1906.7	-	-
3.	6044	128/14	11/08/2014	22/12/2018	1594	427	3579.9	3075.6	-
4.	2357	151/14	16/11/2014	02/03/2019	1567	283	1939.1	-	-
5.	6014	112/14	13/06/2014	05/07/2018	1483	364	2712.5	2585.1	-
6.	4059	99/13	10/11/2013	06/06/2018	1669	300	2517.2	-	-
7.	1194	119/14	11/07/2014	24/08/2018	1505	229	1723.7	-	-
8.	2371	187/15	01/09/2015	26/09/2018	1121	281	2203.0	-	-
9.	2371	199/15	03/10/2015	09/10/2018	1102	288	2716.5	-	-
10.	2371	194/15	16/09/2015	22/02/2019	1255	390	2492.7	2187.3	-
11.	2371	243/16	26/07/2016	22/04/2019	1000	331	2272.4	2172.3	-
12.	4354	209/15	09/11/2015	19/06/2019	1318	13	23.8	-	Auctioned
13.	4354	174/15	23/06/2015	18/11/2018	1244	276	2326.4	-	-
14.	6290	218/15	12/12/2015	23/10/2018	1046	261	1965.3	-	-
15.	6405	223/16	01/01/2016	09/11/2018	1043	244	1543.6	-	-
16.	6405	214/15	30/11/2015	24/11/2018	1090	358	2834.8	2664.5	-
17.	6136	157/16	01/12/2014	05/12/2018	1465	251	2070.5	-	-
18.	2459	257/16	25/09/2016	25/07/2019	1033	12	19	-	-
19.	4324	277/17	25/01/2017	03/10/2019	981	13	26.30	-	-
20.	1994	155/14	26/11/2014	21/10/2018	1425	410	2510.7	2216.8	-
21.	2417	177/15	03/07/2015	28/08/2019	1517	115	743.4	-	Died
22.	605	275/17	21/10/2017	30/09/2019	982	78	257.8	-	-
23.	4438	228/16	31/01/2016	15/02/2019	1139	320	1913.0	1873.0	-
24.	4328	229/16	03/02/2016	24/02/2019	1117	387	3086.1	2742.3	Auctioned
25.	4328	265/17	16/11/2016	07/10/2019	1055	41	133	-	Auctioned

9.20 Breeding bulls selected for current set (18th 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
2185	XII	GADVASU	3423	2341.35	-	0.94
183	XII	LUVAS	2824	2336.77	-	0.75

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.	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	5/7/2018	112/14	605	2585.1/I	-	-
9.	384/2018	09/10/18	199/15	2594	2716.5/I	-	-
10.	394/2018	24/11/18	214/15	M-53	2664.5/I		

9.21 Target achieved during the year 2019-20

Trait	Target	Achieved (2018-19)	Achieved (2019-20)
Av. Age at first calving (months)	40	38.62 ±1.05 (16)	39.24 ± 2.11 (24)
Av. Service period (days)	130	169.22±15.96 (47)	172.68±19.55 (47)
Calf mortality (0-3 months)	≤ 4 %	4.10 %	6.58 %
Wet average (kg)	≥8.5 kg	6.43 kg	5.95 kg
Herd average (kg)	≥5.5 kg	4.40* kg	3.81 kg

** Based on pail yields*

10. Salient Research Achievements:

(a) Herd Strength: Opening balance of Murrah buffaloes as on 01/04/2019 was 224 (55 males and 169 females). Additions in the herd were due to birth of 30 female and 33 male calves (63 calves), purchase of 3 milch buffaloes (with 3 suckling male calves). Deletions from the herd were due to death of 8 animals (3 males and 5 females), external transfer of 20 males and auction/sale of 22 buffaloes (13 males and 9 females: total 22). In all, 50 animals were deleted from the herd due to various reasons, whereas 69 animals were added due to new births and purchase. The new calvings showed a peak of 13 calvings during November, 2019. There were no calvings during April, 2019 and February-March, 2020. The male: female ratio of new calvings was 52.38 : 47.61. The closing balance of the buffalo herd as on 31/03/2020 was 243 buffaloes (188 females and 55 males, Table 9.1 and 9.2).

Out of total 22 animals culled/sold during the current year (Table 9.1 and 9.3), all buffaloes (13 males and 9 females) were sold/auctioned due to surplus/low production/reproductive ground/weak and old/udder health problems (Table 9.3)

(b) Mortality (Detailed): The overall mortality percent during the current year was 2.73%. The overall female and male group mortality percents were 2.48 and 3.30%, respectively (Table 9.4). A total of 8 deaths were recorded in IVRI buffalo herd during the current year (3 males and 5 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 53.98% (Table 9.7). The respective figures in heifer and adult groups were 61.90 and 51.49%, respectively. The overall calving abnormalities were 34 (1 still birth, 15 abortions and 5 unseen abortions, 4 dystokia, 8 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 39.24±2.11 months, 172.68±19.55 days, 169.11±14.95 days and 448.70±12.77 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 31/03/2020 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 34.16±0.52, 63.90±1.64, 113.52±2.55, 211.36±3.90, 285.00±6.63 and 378.86±6.47 kg, respectively. The respective values for females and males were 33.52±0.61, 61.22±2.11, 115.56±4.21, 219.17±4.81, 282.40±7.67 & 378.86±6.47 and 34.71±0.82, 66.16±2.40, 111.91±3.15, 201.17±5.91, 298.00±9.70 kg (24 months – not available),

respectively. The weight at first calving during the current year was 595.50±19.72 kg (Table 9.11.1).

(f) 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. Channa, G. R., Tomar, A.K.S., Pandey, H.O. and Cherryl Miranda (2019). Effect of age at calving and lactation order on milk yield per kg of live body weight in Murrah buffaloes under organized farm conditions. ***International Journal of Livestock Research***, 9 (9): 2277-1964.doi: 10.5455/ijlr.20180526053743.
2. Baqir, Mohd, Akarthikeyan, Singh, Akansha, Malhotra, Arnav, Tomar, A.K.S. Dutt, Triveni and Kumar, Amit (2019). Lactation and test day random regression models for genetic evaluation of Murrah buffaloes. ***The Indian Journal of Animal Sciences***, 89(10): 1094-1098.
3. Rashid, Sofi Aaqib, Tomar, A.K.S., Verma, Med Ram, Mehrotra, Sanjeev and Bharti, Panch Kishor (2019). Effect of skin and coat characteristics on growth and milk production traits in Tharparkar cattle, ***The Indian Journal of Animal Sciences***, 89(11): 1251-1254.
4. Channa, G.R., Tomar, A.K.S and Pandey, H.O. (2019). Effect of lactation order on monthly milk yield and monthly body weight and milk yield per kg live body weight in Murrah buffalo, Tharparker and Vrindavani cows. ***The Indian Journal of Animal Sciences*** **(Submitted).**
5. Miranda, Cherryl D. and Tomar, A.K.S. (2020). Body condition changes during peripartum period and effect of pre-partum body condition score on production performance of Murrah buffaloes. ***The Indian Journal of Animal Sciences*** (**Submitted**).
6. Miranda, Cherryl D. and Tomar, A.K.S. (2020). Environmental determinants influencing post calving reproductive traits and breeding efficiency of Murrah buffaloes in tropical condition. ***Buffalo Bulletin (*****Submitted*****).***
7. Miranda, Cherryl D. and Tomar, A.K.S. (2020). Influence of prepartum body condition score on production performance of Murrah buffaloes. ***The Indian Journal of Animal Sciences*** (**Submitted**).

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

1. Tomar, A.K.S. and Miranda, C.D. (2019). Best cattle and buffaloes : Selection and procurement. ***Indian Farming***, 69(08): 14–15.
2. Tomar, A.K.S., Miranda, Cherryl D. and Pandey, Hari Om (2020). Management of Young Buffalo Calves. Invited topic on ***Minimum standard and SOP for Buffalo Management****, To be published by PC-B, NPBI, ICR-CIRB, Hisar*.

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

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

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

1. Nirala, Ravikant, Tomar, A.K.S. and Miranda, Cherryl D. (2019). Rearing cost of Vrindavani heifers at different stages of growth. *Proc. of National Conference on Livelihood Improvement through Sustainable Livestock Production & IV Annual Convention of Pashu Poshan Kalyan Samittee (PPKS) November 3 – 4, 2019 at ICAR-Central Institute for Research on Cattle, Grass Farm Road, Meerut Cantt. –250 001 (Uttar Pradesh).*
2. Nirala, Ravikant, Tomar, A.K.S. and Miranda, Cherryl D. (2019). Determinants affecting the lifetime milk production of disposed Vrindavani cows in Northern India. *Proc. of International Conference on Advances in Agriculture under Changing Climate Scenario for Sustainable Global Development (AAUCSGD-2019) held during 16-17 November, 2019 at Department of Botany, University of Allahabad, Prayagraj (UP)*.
3. Nirala, Ravikant, Tomar, A.K.S. and Miranda, Cherryl D. (2019). Lifetime production in disposed Vrindavani cows under organized farm conditions. *Proc. of International Conference on Advances in Agriculture under Changing Climate Scenario for Sustainable Global Development (AAUCSGD-2019) held during 16-17 November, 2019 at Department of Botany, University of Allahabad, Prayagraj (UP).*
4. Nirala, Ravikant, Tomar, A.K.S. and Miranda, Cherryl D. (2020). Impact of culling and profit through rearing improved first calvers (upto completion of first lactation) in Vrindavani cows under institutional conditions. *Proc. of XVII SOCDAB National Symposium-2020 on "Enhancement of Farmers' Income through Management of Animal Genetic Resources" on 10-11 February, 2020 at NDVSU College of Veterinary Science & A.H., Mhow- 453446 (MP).*

(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 (2018-19 & 2019-20) of Network Project on Buffalo Improvement*** (ICAR-IVRI Izatnagar Unit) w.e.f. 01/04/2018 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 (2018-19 & 2019-20)/RPP II of ***Genetic Improvement, conservation and multiplication of Tharparkar native cattle*** w.e.f. 01/04/2018 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. 01/04/2018 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) **<u>Invited Lectures</u>**

- One invited lecture was delivered in Entrepreneurship development programme on "Dairy Farming and Milk Processing" organized by ABI, ICAR-IVRI Izatnagar w.e.f. 26-31/08/2019.
- One lecture was delivered to Afghan Students in November-December, 2019.
- 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	
25.20*	25.20*	25.20*	13.30927	0.00	(+) 11.89073

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

Herd Performance:

Herd strength at the centre was 243 animals including 130 breedable buffaloes (>2 year). During the report period 63 calving were reported and calf mortality (0-3 months) was 6.58 %. Conception rate was 53.98 % lower than the last year 62.67 %.

Body weights at 24 months was 378.86±6.47 kg (22) in females. Average lactation milk yield and 305 days or less day milk yield was 2404.94 ±65.15 (63) kg and 2307.40±50.75 (63) kg, respectively. Reproductive performance of the centre improved over the years. AFC at the centre was 39.24±2.11 months (20) under the target. Service period, Dry period and Calving Interval during the year were 172.68±19.55 days (47), 169.11±14.95 days (47) and 448.70±12.77 days (47) as compare to previous year169.22±15.96 (46), 181.47±13.70 (36), 495.83±18.93 (36) respectively. Wet and herd averages are reported as 5.95 kg and 3.81 kg respectively. 63.96 % animals were in milk during the period. During the year lifetime productivity viz. herd life, productive life, lifetime milk yield, milk yield per day of herd life and milk yield per day of productive life were reported: 2707.04 kg, 1864.44 days, 13804.73 kg, 3.53 kg and 5.28 kg as compare to previous year 2680.92 days, 1805.25 days, 13721.90 kg, 3.50 kg and 5.21 kg, respectively.

Accomplishment and Targets Achieved:

Sr. No.	Trait	Target	Achieved 2016-17	Achieved 2017-18	Achieved 2018-19	Achieved 2019-20
1	Av. AFC (Months)	40.0	38.99 (19)	38.64 (14)	38.62 (16)	39.24 (20)
2	Av. service period (Days)	90	146 (52)	141 (35)	169 (46)	173 (47)
3	Calf mortality (0-3 mnths)	≤ 4 %	4.48 %	6.15 %	6.43 %	6.58 %
4	Wet average (Kg)	≥ 8.50 kg	6.00 kg	5.77	4.40 kg	5.95 kg
5	Herd average (Kg)	≥ 5.50 kg	3.77* kg	3.72*	3.72* kg	3.81*kg

** Based on pail yields*

Recommendations:

- Efforts should be made to improve the buffalo and calf management to reduce calf mortality and involuantry culling.
- 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 envisage and undertake progeny testing for improvement of Murrah breed of buffaloes. Priority and emphasis will be on performance recording and improvement of breed and on semen quality testing laboratory.

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	5250000	5240456	9544
M&E	150000	Nil	150000
OC*(Livestock)	300000	300000	-
TA	75000	21377	53623
POL	-	-	-
OE (Furniture)	30000	26996	3004
Electrical	-	-	-
M&E (SCSP)#	150000	147120	2880
M&S (SCSP)#	800000	800000	-
Total	**6755000**	**6535949**	**219051**

*****Purchase of buffalo in progress (After lockdown)

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 4/2019 to 3/2020

Category		Addition			Disposal			
S. N.		**OB**	**B**	**T**	**D**	**T+E**	**S**	**CB**
Female								
1.	Calves 0 – 3 months	8	46		3	47	1	3
2.	Calves >3 – 12 months	29	-	47	3	(34+1)	1	37
3.	Heifers 1 – 2 years > 2 years	45 66		34 44	1 -	44 24	3 7	31 79
4.	Buffaloes in Milk	72		24	-	13	7	76
5.	Buffaloes Dry P /NP	23		13	3	-	6	27
	Sub Total	243	46	162	10	163	25	253
Male								
1.	Calves 0 – 3 months	7	45		2	(42+1)	-	7
2.	Calves >3 – 12 months	35		42	-	42	-	35
3.	Male above 1 – 2 years > 2 years	21 28		42 21	- -	(21+2) 5	2 8	38 36
4.	Breeding bulls	-		5	-	0	5	-
5.	Bullocks /Teaser/Other	2		0	-	0	-	2
	Sub Total	93	45	110	2	113	15	118
	Grand Total	336	91	272	12	276	40	371

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

9.2 Calving Statistics During the Period 4/2019 to 3/2020

Month	Male		Female		Dystokia		Prolepses		Still Birth		Abortion		Overall	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
April, 19	3		3		-		-		-		-			
May	4		9		-		-		-		-			
June	4		5		-		-		-		-			
July	2		6		-		-		-		-			
August	10		7		-		-		-		-			
September	9		3		-		-		-		2			
October	3		6		-		-		-		-			
November	2		4		-		-		-		1			
December	1		0		-		-		1		-			
January,20	3		2		-		-		-		-			
February	0		1		-		-		-		-			
March	4		0		-		-		-		-			
Overall	**45**		**46**		-		-		1		3			

Sex ratio Male : Female (1:1.02) SB = 1.09% Aboration = 3.3%

9.3 Disposal of Animals During the Period 4/2019 to 3/2020

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	1	-	-	-	-	3	-	4
3-12 months	1	-	-	-	-	3	1	5
Heifers								
1-2 years	2	-	-	-	-	1	-	3
> 2 years	3	-	5	-	-	-	-	8
Buffaloes								
Milch	-	-	3	4	-	3	-	10
Dry	-	-	3	3	-	-	-	6
Sub Total	7	-	11	7	-	10	1	36
Males	**Primary cause of disposal**							
Calves								
0 to 3 months	-	-	-	-	-	2	1	3
3-12 months	-	-	-	-	-	-	-	-
1 to 2 year	2	-	-	-	-	-	2	4
. >2 year	8	-	-	-	-	-	-	8
Breeding bulls	5	-	-	-	-	-	-	5
Bullock+Teaser + Others	-	-	-	-	-	-	-	-
Sub Total	15	-	-	-	-	2	3	20
Grand Total	**22**	**-**	**11**	**7**	**-**	**12**	**4**	**56**

9.4 Month-wise Mortality During the Period 4/2019 to 3/2020

Month		**Female**						**Male**					**Overall Herd**
		0-3	**3-6**	**6-12**	**1-2 Yrs.**	**Above 2 Yrs.**	**Overall Female**	**0-3**	**3-6**	**6-12**	**Above 1 Yrs.**	**Overall Male**	
Overall	No.	3	2	1	1	3	10	2	-	-	-	2	12
	Died	-	-	-	-	-	-	-	-	-	-	-	-
	%	-	-	-	-	-	-	-	-	-	-	-	-

% calf mortality= 4.72 % (5/106)

9.5 Causes of Mortality (quarter-wise) During the Period 4/2019 to 3/2020

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

9.6 Prophylactic Measures Taken During the Period 4/2019 to 3/2020

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	-	-	
IBR	-	-	-	
Mastitis	Milch herd (Once a year)	-	-	

*Not done due to unavailability of PPD kit

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

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	49	19	39%	15	4	27	7	2	29	3	2	67	74	27	36.5
Adults	96	44	45.83	33	17	51.5	10	3	30	12	4	33.3	141	68	48.2
Overall	145	63	43.4	48	21	43.75	17	5	29.41	15	6	40	215	95	**44.2**

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

9.8 Quarter-wise conception rate (1.1.2019 to 31.12.19)

Quarter	No. of A I	Preg. animals	CR %
January – March Previous year	35	16	45.71
April - June	36	11	30.55
July - September	57	29	50.87
October- December	87	39	44.08
Overall	**215**	**95**	**44.2**

9.9 Bull-wise Conception Rate During the Period 4/2019 to 3/2020

S.No.	Bull No.	Total No. of AIs.	Total Conceived	CR%
1	4715	2	1	50.0
2	2677	7	3	42.9
3	6942	4	2	50.0
4	7147	4	1	25.0
5	183	21	14	66.7
6	1209	8	2	25.0
7	1148	1	1	100.0
8	2269	3	2	66.7
9	4687	1	-	0
10	4905	28	11	39.3
11	2676	4	4	100.0
12	2185	19	8	42.1

13	2234	19	9	47.4
14	4995	32	14	43.8
15	1150	24	8	33.3
16	1219	11	5	45.5
17	M-53	3	1	33.3
18	5147	10	3	30.0
19	7227	10	5	50.0
20	5147	4	1	25.0
Overall		**215**	**95**	**44.2**

No. of services per conception 2.03:1

9.10 Bull-wise Semen Stock During the Period 4/2019 to 3/2020

Bull No.	Set no.	Opening balance	Semen produced /Received	Consumption for AI/ Supplied	Balance
4687	17th set	6	-	6	Nil
53M	17th set	9	-	9	Nil
1148	17th set	6	-	6	Nil
6942	17th set	10	-	10	Nil
4715	17th set	4	-	4	Nil
1208	18th set		100	26	74
7094	18th set		50	-	50
7263	18th set		100	-	100
2269	18th set P-5		100	56	44
7147	18th set		50	15	35
7227	18th set		50	36	14
1219	18th set		50	38	12
1209	18th set		50	38	12
1150	18th set				24
5147	18th set		50	50	Nil
2645	18th set		50	50	Nil
2676	18th set		50	50	Nil
2677	18th set		50	50	Nil
2234	18th set		50	50	Nil

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)	5085(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)**
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)**	

9.12 Average Production Performance During the Period 4/2019 to 3/2020

Lact. No.	No. of obs.	Av. Lact. Yield (kg)	Av. Lact. Length (days)	305-day Milk Yield (kg)	Av. Peak yield
1st	19	2901.8	314.1	2830.2	13.0
2nd	18	3091.7	298.0	3124.9	14.4
3rd	10	3191.3	294.6	3171.3	15.5
4th	6	3292.3	299.5	3276.0	15.3
5th& above	7	3334.0	291.6	3327.0	16.6
Overall	**60**	**3107.0±54.2**	**301.4±3.0**	**3090.4±54.1**	**14.6±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	354±8.52 (69)	3373.4±94.83(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	**301.4±3.0 (60)**	**3107.0±54.2 (60)**	**3090.4±54.1 (60)**	**14.6±0.3 (60)**

Figures in parenthesis indicate number of observations.

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

Sr. No.	Traits	Buffalo No.	Average
1.	Herd Life (days)	16	3464
2.	Productive Days	16	1604
3.	Unproductive days	16	507
4.	Productive Life (days)	16	2110
5.	Life time milk Yield (kg)	16	16560
6.	Milk yield / day HLF (kg)	16	4.8
7.	Milk yield / day PLF (kg)	16	8.0
8.	Milk Yield / day productive days	16	10.4

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 Fat Component During the Period 4/2019 to 3/2020

Month	Animal in milk (N)	Av. Fat (%)	SNF	Protein	Lactose
April, 2019	69	7.3	-	-	-
May	69	7.3	-	-	-
June	66	7.1	-	-	-
July	60	7.1	-	-	-
August	67	7.2	-	-	-
September	78	7.0	-	-	-
October	88	7.0	-	-	-
November	93	7.1	-	-	-
December	87	7.1	-	-	-
January, 20	84	7.0	-	-	-
February	86	7.0	-	-	-
March	83	7.0	-	-	-
Overall	**77.5**	**7.1**	-	-	-

9.14 Reproduction Performance During the Period 4/2019 to 3/2020

Traits	Lactation No.					Overall
	1 Mean ± SE (N)	2 Mean ± SE (N)	3 Mean ± SE (N)	4 Mean ± SE (N)	5 & above Mean ± SE (N)	Mean ± SE (N)

Average Age at Calving (Months)	43.5±0.49 (22)	-	-	-	-	43.5±0.49 (22)
Average Service Period (Days)	-	157.1±14.5 (21)	117.2±10.0 (20)	92.0±13.2 (8)	97.7±14.7 (15)	**122.6±7.5 (64)**
Open Days	-					
Average Dry Period (Days)	-	141.0±11.6 (21)	106.1±7.3 (20)	70.5±8.8 (8)	100.0±11.7 (15)	**111.7±6.0 (64)**
Average Calving Interval (Days)	-	464.6±15.7 (21)	424.9±10.9 (20)	392.9±14.9 (8)	410.3±14.7 (15)	**430.7±7.9 (64)**

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)**

Figures in parenthesis indicate number of observations

9.15 Milk Production and DisposalDuring the Period 4/2019 to 3/2020

Month	Total milk produced (kg)	Disposal		
		Liquid Milk	Calf feeding	Expt.
April, 19	20297	18737	1560	-
May	21015	19465	1550	-

June	19684	18184	1500	-
July	21165	19325	1840	-
August	23117	20757	2360	-
September	25811	23141	2670	-
October	29829	27039	2790	-
November	28054	25854	2200	-
December	28294	25424	2870	-
January, 20	26059	23889	2170	-
February	24483	21703	2780	-
March	22605	20065	2540	-
Total	**290413**	**263583**	**26830**	-

9.16 Feed & Fodder (Qtls.) During the Period 4/2019 to 3/2020

Month	Type of fodder/feed	Qty. produced at Farm (qtl.)	Qty. Purchased	Actually fed	Balance
Total	Green	31170.50	-	31170.50	-
	Silage	-	-	-	-
	Dry	1771.00	-	1771.00	-
	Concentrate	3294.6	-	3294.6	-

9.17 Milking Performance During the Period 4/2019 to 3/2020

Month	No. of Animal in Milk	No. of Animal dry	Total Animal	% in Milk	Wet Av. (kg)	Herd Av. (kg)
April, 19	69	30	99	69.69	10.1	7.1
May	69	34	103	66.99	10.2	6.8
June	66	41	107	61.68	10.2	6.3
July	60	47	107	56.0	11.6	6.5
August	67	41	108	62.0	11.4	7.0
September	78	30	108	72.22	11.3	8.2
October	88	22	110	80.00	11.3	9.0
November	93	5	98	94.89	10.3	9.8
December	87	12	99	87.87	10.5	9.3
January, 20	84	16	100	84.00	10.1	8.5
February	86	15	101	85.14	9.0	7.6
March	83	20	103	80.58	9.0	7.2
Overall	**78**	**26**	**104**	**75.1**	**10.4**	**7.7**

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
2207-08	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**

9.18 Bull-wise Daughters Performance (1st lactation) During the Period 4/2019 to 3/2020

Bull No.	Set No	Total No. of daughters born	No. of daughters reaching A.F.C.	No. of daughters completing 1st Lactation
2558	17	3		
B 1330	17	6	-	
M-53	17	4	-	
DARA	17	2	-	
2607	17	2		
183	PT-12	3		
1148	18	4		
2185	PT-12	2		
6942	18	7		
SIKANDER	17	6		
4837	17	2		
4715	17	3	-	
4905	18	1		
1150	18	1		
2429	15	-	2	
6139	15	-	2	
6405	15	-	1	1
4354	15	-	3	1
2045	10	-	5	3
4363	45	-	3	1
6136	14	-	1	1
4328	15	-	1	
2412	15	-	2	2
1693	PT-10	-	1	
4324	15	-	2	
4438	15	-	1	
6044	14			1
70577				2
6007	15			1
2357	14			2
PC 461				1
2371	15			1
1994	PT-9			1
2429	15			1
Total		**46**	**24**	**19**

9.19 Bull-wise Daughters Completing 1st Lactation During the Period 4/2019 to 3/2020

Bull No.	Daughter No.	Date of birth	Date of calving	First lact. 305 day or less milk yield(kg)	Total yield/	Remarks/ LL (days)
6044	1132	26.12.14	03.06.18	3199	3480	352
70577	1096	30.08.14	23.06.18	3362	3552	336
2045	1166	10.07.15	11.07.18	2204	2215	308
2045	1170	02.08.15	16.07.18	3278	3571	347
6007	1173	18.08.15	24.07.18	3404	3443	311
70577	1094	27.08.14	02.08.18	2335	2399	319
2357	1130	14.12.14	02.08.18	2923	3078	332
PC461	1026	28.09.13	20.08.18	3275	3275	301
2357	1129	08.12.14	03.09.18	2832	2832	286
2412	1164	06.07.15	16.09.18	2092	2092	283
2412	1160	20.06.15	02.11.18	4406	4667	419
6405	1181	04.09.15	11.11.18	3436	4146	381
6136	1155	17.05.15	07.02.19	2761	2797	316
2371	1152	08.05.15	07.03.19	2966	3023	320
1994	1156	19.05.15	26.03.19	3273	3273	299
2429	1169	23.07.15	09.04.19	3484	3703	342
4354	1226	09.12.15	21.04.19	2969	3014	312
2045	1172	15.08.15	05.05.19	2181	2181	297
4363	1236	20.01.16	18.05.19	3111	3146	311

9.20 List of Breeding bulls Selected for current set

Sr. No.	Bull No.	Date of Birth	Dam No.	Sire No.	Dam's best lact.305 or days less yield (kg)	Semen doses available	Remarks
1	1208	16.10.15	616	2045	3437		
2	1209	17.10.15	708	2045	3593		
3	1219	24.11.15	787	6405	3867		
4	1150 (sold)	01.05.15	782	6066	3127		

9.20.1 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	1268	19.08.16	655	1693	3149/3		
2	1315	18.11.16	708	2045	3749/5		
3	1365	07.06.17	935	6379	3297/2		
4	1382	18.09.17	981	6379	3773/2		
5	1425	05.02.18	1112	6753	3044/1		
6	1432	19.03.18	1114	4889	2984/1		

9.21 Targets Achieved During the Year 2019-20

Sr. No.	Trait	Target Fixed	Achieved (2018-19)	Achieved (2019-20)
1	Av. Age at first Ist. Service (months)	24.0	42.5	43.5
2	Av. Service Period.	130 days	144.9	123.9
3	Calf Mortality (0-3 months)	≤ 4%	5.5	4.72
4	Wet Average (kg)	≥ 8.5 kg	11.0 Kg	10.4
5	Herd Average (kg)	≥ 5.5 kg	8.0 Kg	7.7

10. Salient Research Achievements: 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 10.4 kg and 7.7 kg, respectively.
ii) Overall 305 day lactation milk yield and total lactation milk were reported 3090 kg and 3107 kg, respectively.
iii) Age at 1st calving during the period was observed 43.5 months.
iv) During the period 1st April, 2019 to 31st March 2020, calf mortality (0-3 months) was 4.72%.

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

- 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
- Performance recording through automatic milk analyzer and 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**.**

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 (ICAR Share)
Total	ICAR Share		ICAR Share	State Share	
86.90	58.05+9.50*(SCSP)	58.05+9.50 (SCSP)	65.35950		(+)2.48958

Herd Performance

Herd strength at the centre was 371 heads with 182 breedable buffaloes (>2 year). 91 calves were added due to birth. During the period of report calf mortality (0-3 months) was 4.72 % and conception rate was 44.18 % lower than 49.00 % of 2018-19.

Average lactation yield, lactation length and 305 or less days milk yield were 3107.0±54.2 kg (60), 301 days (60) and 3090.4±54.1 kg (60). The reproduction parameters viz Age at first calving, Dry Period, Service period and Calving Interval were 43.5±0.49 months (22), 111.7±6.0 days (64), 122.6±7.5 days (64) and 430.5±7.9 days (64), respectively. Wet and herd averages were 10.4 kg and 7.7 kg respectively lower than 11.4 kg and 8.0 kg of 2018-19.

The lifetime productivity viz. herd life, productive life, lifetime milk yield, milk yield per day of herd life and milk yield per day of productive life were reported: 3464 days, 2110 days, 16560 kg, 4.8 kg and 8.0 kg, respectively.

Accomplishment and Targets Achieved:

Sr. No.	Trait	Target	Achieved 2016-17	Achieved 2017-18	Achieved 2018-19	Achieved 2019-20
1	Av. AFC (Months)	40.0	42.0 (34)	42.2±0.87 (27)	42.5±0.83 (21)	43.5 (22)
2	Av. service period (Days)	130 days	129 (43)	135.4±7.28 (46)	144.9±10.7 (60)	122.6 (64)
3	Calf mortality (0-3 months)	≤ 4 %	3.9 %	3.16 %	5.50 %	4.72 %
4	Wet average (Kg)	≥ 8.50 kg	9.7 %	10.3 kg	11.0 Kg	10.4
5	Herd average (Kg)	≥ 5.50 kg	6.6 %	7.6 kg	8.0 Kg	7.7

Recommendations:

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

ICAR RESEARCH COMPLEX FOR EASTERN REGION, PATNA (BIHAR)

Report Period 2019-20

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 150 and 80 breedable females (Murrah).
- Selection and testing of minimum 15 bulls of Murrah / 4-6 bulls for other breeds in every 18 / 24 months cycle.
- 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 4^{th} 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 2019-20 (Amount in Lakhs)											
Heads	**Capital**						**Salary**	**General**			
	Works	**Equip.**	**Library**	**Livestock**	**Furniture**	**Others**		**TA**	**HRD**	**Contingency**	**Others**
Fund released	0.00	7.00	0.00	0.00	0.40	0.00	0.00	0.00	0.00	26.00	33.40
Fund utilized	0.00	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.3	27.3

9.1 Herd Strength during the Period 1st April 2019 to 31st March, 2020

Sr. No.	Category	Addition			Disposal				CB
		OB	**B / P**	**T**	**D**	**T**	**S**	**E**	**CB**
	Female								
1.	Below 3 months	3	13	-	1	14	-	-	1
2.	3-12 months	7	-	14	-	9	-	-	12
3.	1-2 years	12	-	9	1	9	-	-	11
	Above 2 years	15	-	9	-	9	-	-	15
4.	Buffaloes in Milk	16	-	9	2	9	1	-	13
5.	Buffaloes Dry P /NP	21	-	9	-	-	1	-	29
	Sub Total	74	13	50	4	50	2	-	81
	Males								
1.	Below 3 months	1	17	-	-	15	-	-	3
2.	3-12 months	6	-	15	2	7	-	-	12
3.	1-2 years	2	-	7	2	1	1	-	5
	Above 2 years	-	-	1	-	-	1	-	-
4.	Breeding bulls	-	-	-	-	-	-	-	-
5.	Bullocks / Teasers	2	-	-	-	-	-	-	2
	Sub Total	11	17	-	4	-	2	-	22
	Grand Total	87	30	23	10	23	4	0	103

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, 2019	1	-	-	-	-	-	-	1
May	1	-	-	-	-	-	-	1
June	1	2	-	-	-	-	-	3
July	1	1	-	-	-	-	-	2
August	1	-	-	-	-	-	-	1
September	2	3	-	-	-	-	-	5
October	5	3	-	-	-	-	-	8
November	1	-	-	-	-	-	-	1
December	1	3	-	-	-	-	-	4
January, 2020	3	1	-	-	-	-	-	4
February	0	-	-	-	-	-	-	-
March	0	-	-	-	-	-	-	-
Overall	17	13	0	0	0	0	0	30

Sex ratio Male : Female (56.67: 43.33) Abortion % = Nil

9.3. Disposal of Animals during the Period 1st April 19 to 31st March 20

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						1 -		1 -
Heifers 1-2 years > 2 years						 1		 1
Buffaloes Milch Dry			 1 1			 2		 3 1
Sub Total			2			4		6
Males	**Primary cause of disposal**							
Calves 0 to 3 months 3-12 months						- 2		- 2
1 to 2 year	1					2		3
. >2 year	1					-		1
Breeding bulls						-		-
Bullock+Teaser +Others						-		-
Sub Total	2					4		6
Grand Total	2		2			8		12

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

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.	16	12	30	20	45	81	22	12	05	02	22	103
Died	01	00	01	00	02	04	00	02	02	00	04	08
%	6.25	-	3.33	0.0	4.4	4.9	0.0	16.7	40.0	0.0	18.2	7.76

9.5. Causes of Mortality (quarter wise) during the period April 2019 to March 2020

Particulars	1st quarter (April-June)	2nd quarter (July-Sept)	3rd quarter (Oct-Dec.)	4th quarter (Jan.-March)	Total
Enteritis					
Pheumonities		1			1
Septicamia / Toxaemia		1	2	2	3
Peritonitis					
JD/TB					
Misc. (Snake bite)		1			1
Total	0	3	0	2	5

9.8 Prophylactic Measures undertaken

Disease	**Vaccination Date / No. of animals**	**No. of animals** Tested / Positive		**Dates and No. of animals treated for Parasitism**
FMD	05.03.2020 (81) 17.09.2019 (22)	-	-	Calves under one year of age are dewormed on 7th of every month. Adult animals are dewormed once in 6 months.
HS	05.03.2020 (81) 17.09.2019 (22)	-	-	
BQ	05.03.2020 (81) 17.09.2019 (22)	-	-	
Brucellosis	05.03.2020 (8) 17.09.2019 (5)	-	-	
JD	-	-	-	
TB	-	-	-	
IBR	-	-	-	

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

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	5	3	60	2	1	50	1	-	0	-	-	-	8	4	50
Adults	12	5	41.67	15	7	46.67	13	5	38.46	23	13	56.52	63	30	47.62
Overall	17	8	47.06	17	8	47.06	14	5	35.71	23	13	56.52	71	34	47.89

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	17	8	47.06
April – June	7	3	42.86
July – September	10	4	40
October- December	37	19	51.35
Overall	71	34	47.89

9.9. Bull-wise Conception Rate During the period January to December, 2019

Sr. No.	Bull No.	SET No.	Total Number of AI	Total Conceived	CR%
1	1209	XVIII	16	9	56.3
2	1150	XVIII	18	11	61.1
3	1219	XVIII	10	5	50.0
4	4905	XVIII	14	6	42.9
5	2645	XVIII	13	3	23.1
Overall			**71**	**34**	**47.9**
No. of services per conception					**2.1**

9.10 Bull Wise Semen Stock

Sr.No	Set No	Bull No	O.B.	Doses produced / received	Doses used /disseminated			Balance
					Supply	Sold	Exp.	
1.	XVIII	1209	50	50	28	0	10	12
2.	XVIII	1150	50	50	30	0	5	15
3	XVIII	1219	50	50	17	0	5	28
4	XVIII	4905	50	50	25	0	5	20
5	XVIII	2645	50	50	25	0	10	15
Grand Total			250	250	125	Nil	60	90

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)
1st	2	1206.6±15.91	285.4±10.61	1206.6±15.91	7.8±2.41
2nd	2	1606.7±60.83	330.4±42.43	1545.4±62.19	9.2±2.8
3rd	12	2121.78±23.41	332.92±16.55	2072.11±24.27	12.8±1.6
4th	-	-	-	-	-
5th & above	4	2465.25±34.5	338.75±25.03	2316.28±34.8	14.4±1.23
Overall	20	2127.44±18.50	329.38±12.15	2088.45±19.16	12.75±2.11

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)

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

(Buffaloes under the project are purchased herds. Hence, herd life production could not be calculated).

9.13 Average Milk Composition from April 2019 to March 2020

(Not available)

9.14: Reproductive Performance

Lactation / Parity	AFC (Months) (N)	N →	SP (Days)	Days Open	DP (Days)	CI (Days)
1		2	-	-	80.14±12.66	-
2		2	133.64±14.45		98.77±12.9	429.17±40.54
3		12	127.86±11.37	-	89.74±9.42	422.66±18.25
4		-	-	-	-	-
5th and above		4	138.76±10.56	-	95.27±11.34	434.02±28.16
Over all		20	130.92±12.55	-	91.97±13.22	425.91±40.62

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)

9.15 Milk Production and Disposal

Month	Total milk produced (kg)	Disposal (Kg)		
		Milk sold	Calf feeding	Expt.
April	3237	2502.1	735	
May	2918	2318	600	
June	3075	2430.1	645	
July	3435	2649.2	786	
August	3561	2731.1	830	
September	3562.1	2771.1	791	

October	4468	3541.1	927	
November	5523	4366.2	1157	
December	5662	4553.5	1108	
January	5879	4592.2	1284	
February	5455	4278.1	1174	
March	5243	4068	1175	
Total	52018.1	40800.7	11212	

9.16 Feed and fodder (Quintals) availability

Months	Green fodder produced at Farm	Green fodder Purchased	Total
April	143.2	-	126.1
May	121.5	-	112.2
June	115.8	-	119.8
July	275.5	-	293.4
August	367	-	342.4
September	411.2	-	394.6
October	150.8	-	131.2
November	155.6	-	122.4
December	145.6	-	137.4
January	180.3	-	183.2
February	175.4	-	154.2
March	143.8	-	124.3
Total Green	2385.7	-	2241.2
Silage	-	-	-
Dry	900	693.3	1350
Concentrate	-	1450	1450

9.17: Milk performance during April 19 to March 20

Month	Buffaloes in Milk	Dry buffaloes	Total	% in Milk	Wet Av. (kg)	Herd Av. (kg)
April	16	22	38	32.0	6.74	2.84
May	17	22	39	33.3	5.54	2.41
June	18	20	38	35.3	5.69	2.70
July	21	21	42	40.4	5.28	2.64
August	20	22	42	38.5	5.74	2.74
September	24	18	42	49.0	4.95	2.83
October	33	15	48	66.0	4.37	3.00
November	35	11	46	67.3	5.26	4.00
December	38	12	50	69.1	4.81	3.65
January	37	11	48	67.3	5.13	3.95
February	37	11	48	67.3	5.27	4.06
March	33	13	46	60.0	5.13	3.68
overall	27.42	16.5	43.92	52.12	5.20	3.25

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

9.18: Bull wise daughters born (only numbers)

Bull No.	Set No.	Daughters born	Daughters Calved	Daughters completing 1st Lactation
B-851	XIII	2	-	-
4324	XIV	3	-	-
4354	XIV	2	-	-
4403	XIV	4		
4438	XIV	3		

9.19 Bull wise daughters completing 1ST lactation : Nil
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 : NA

9.21 Target achieved during the year 2019-20

Trait	Target	Achieved 2018-19	Achieved 2019-20
Av. Age at first calving (months)	40	-	-
Av. Service period (days)	130	157.22±9.28	130.92±12.55
Calf mortality (0-3 months)	≤ 4 %	45.45%	2.77%
Wet average (kg)	≥8.5 kg	4.85	5.20
Herd average (kg)	≥5.5 kg	3.08	3.25

10. Salient Research Achievements: A study was undertaken to evaluate expression profile of chemokine genes CCL8 and CXCL10, in peripheral blood leukocytes (PBLs) during peri-implantation period in Murrah buffaloes, blood samples from ten buffaloes were collected on 12, 15, 18 and 21 days after artificial insemination (AI). These blood samples were used for RNA extraction. Total RNA was reverse transcribed into cDNA. Conventional PCR was used to check the synthesis of cDNA template in all the samples by amplification of endogenous control GAPDH gene . Pregnancy status of animals was confirmed by ultrasonographic examination and per rectal palpation. Estimation of transcriptional abundance of chemokines CCL8 and CXCL10 in peripheral blood leukocytes is being estimated by relative quantification using ddCt model from cDNA templates by taking Day 0 sample as calibrator sample and GAPDH gene as endogenous control.

11. Publications

Chandran, P.C., Jegaveera Pandian, S., Reena Kamal and Dey A. 2019 Socio-economic status and system of farming practices with Diara buffaloes in the middle Gangetic plains of Bihar, India. *Buffalo Bulletin* **38**:1-14.

12. Socioeconomic impact / Success stories:

The farm continues to be the centre for enhancing the knowledge of visiting farmers. In the year 2019-20, more than 200 farmers visited the farm, and gained knowledge on buffalo husbandry. Awareness on the key issue of round the year fodder cultivation continues by conducting training programme to the farmers. More than 200 farmers were given Napier Hybrid fodder slips for propagating them in the field as one of the objectives of round the year fodder production.

13. Constraints if any

Manpower required in the form of SRF/RA in the project.

14. Focus of work in the coming year

To continue focus on the positives gained in the last year.

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 (ICAR Share)
Total	ICAR Share		ICAR Share	State Share	
33.40	30.40+3.00 (SCSP)	30.40+3.00 SCSP	27.25859	--	+ 6.14141

Herd Performance

The herd strength of farm increased to 103 head from 87 in 2018-19, comprising 48 breedable buffaloes. 30 calves added due to birth during the year. The calf mortality (0-3 months) was 2.94 percent. Conception rate reported 47.89 %.

Av. Lactation milk yield, Av. Lactation length and 305 or less day lactation milk yield were 2127.44 (20), 329.38 (20) and 2088.45 (20), respectively. The service period, dry period and calving interval were 131 days (20), 92 days (20) and 426 days (20), respectively. The wet average (5.12 kg) and herd average (3.25 kg) increased significantly as compared to previous year performance (4.85 and 3.08 kg, resp.).

A. Accomplishment and Targets Achieved:

Sr. No.	Trait	Target	Achieved 2016-17	Achieved 2017-18	Achieved 2018-19	Achieved 2019-20
1	Av. AFC (Months)	40.0	--	--	--	--
2	Av. service period (Days)	130	183 (14)	195 (12)	157.22±9.28	130.92±12.55
3	Calf mortality (0-3 months)	≤ 4 %	0.00 %	50.0%	45.45%	2.77%
4	Wet average (Kg)	≥ 8.50 kg	6.39	4.30	4.85	5.20
5	Herd average (Kg)	≥ 5.50 kg	4.51	2.93	3.08	3.25

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 31/03/2020: Redeployment
8. Herd Performance: Presented in table 9.1 to 9.21

9.1 Herd Strength during the Period 1st April 2019 to 31st March, 2020

Sr. No.	Category	Addition				Disposal				CB
		OB	**B/P**	**P**	**T**	**D**	**T**	**S**	**Sold to Farmer**	**CB**
	Female									
1.	Below 3 months	14	76	-	-	03	73		-	14
2.	3-12 months	44	-	-	147	-	132		-	59
3.	1-2 years	55	-	-	58	-	55		-	58
	Above 2 years	95	-	-	162	-	155	09	-	93
4.	Buffaloes in Milk	106	-	03	152	05	107	24	-	125
5.	Buffaloes Dry P /NP	61	-	-	107	-	104	25	-	39
	Sub Total	**375**	**76**	**03**	**626**	**08**	**626**	**58**	**-**	**388**
	Males									
1.	Below 3 months	10	76	-		05	68	01		12
2.	3-12 months	53		-	125	02	109	11		56
3.	1-2 years	44		-	52	01	33	24		38
	Above 2 years	26		-	47	02	14	23	03	31
4.	Breeding bulls	08		-	-	-	-	-	-	08
5.	Bullocks/Teasers / others	01		-	-	-	-	-	-	01
	Sub Total	**142**	**76**	**-**	**224**	**10**	**224**	**59**	**03**	**146**
	Grand Total	**517**	**152**	**-**	**850**	**18**	**850**	**117**	**03**	**534**

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 19	02	11	-		-	-	-	13
May	03	03	-		-	-	-	06
June	02	04	-		-	01	-	06
July	05	08	-		-	-	-	13
August	18	08	02	-	01	-	-	28
September	07	10	-		-	-	-	17
October	08	08	--		--	--	--	16
November	08	06	-		-	-	-	14
December	09	04	-		-	-	-	13
January 2020	03	06	-		-	-	01	09
February	06	07	-		-	-	-	13
March	05	01	-		01	01	01	06
Overall	76	76	02	-	02	02	02	154

Sex ratio Male : Female (50 : 50) SB% = 1.30 ROP % = 1.30 Dystocia% = 1.30 Prolapse %= 1.30

9.3. Disposal of Animals during the Period 1st April 19 to 31st March 20

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	-	-	-	-	-	03	-	03
3-12 months	-	-	-	-	-	-	-	-
Heifers								
1-2 years	-	-	-	-	-	-	-	-
> 2 years	-	-	09	-	-	-	-	09
Buffaloes								
Milch/								
Dry	23	10	03	-	13	05	-	54
Sub Total	**23**	**10**	**12**	**-**	**13**	**08**	**-**	**66**
Males	**Primary cause of disposal**							
Calves								
0 to 3 months	01					05		06
3-12 months	11					02		13
1 to 2 year	24					01		25
. >2 year	26	-				02		28
Breeding bulls								
Bullock+Teaser+Others								
Sub Total	**62**	**-**				**10**		**72**
Grand Total	**85**	**10**	**12**		**13**	**18**		**138**

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

	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.	90	191	113	257	164	451	86	178	96	82	218	669
Died	03	-	-	-	05	08	05	02	01	02	10	18
%	3.33	-	-	-	3.05	5.81	5.81	1.12	1.04	2.44	4.57	2.69

9.5. Causes of Mortality (quarter wise) during the period April 19 to March 20

Particulars	*1st quarter*	*2nd quarter*	*3rd quarter*	*4th quarter*
A. Respiratory System				
1. Broncho-pneumonia			2	
2. Acute Resp. failure				
3. Pheumo-Enteritis			1	
B. Digestive system				
1. Enteritis			2	1
2. Peritonitis				1
3.Hepatitis				1
C. Cardio-vascular System				
D. Urogenital System				
1. Pyelonephritis			1	
2. Prolapse	1			
1. Premature birth				
2. Congenital abnormality		1		
3. Joint-ill/ Naval ill			1	
4. Euthanasia				
5. Accident			1	

6.Neurological disorder			1	
7.Babesiosis		2	1	
8.Miscellaneous & Others			1	
Total	**01**	**3**	**11**	**03**

9.6 Prophylactic Measures undertaken 2019-2020

Vaccination	*No. of animals*		*Screening*	*No of animals*		*No of animals treated for Parasitism*
	Available	*Inoculated*		*Tested*	*Results*	
FMD	671	671	TB*	240	-ve	460
HS	671	671	JD*	240	-ve	
BQ	-	-	Brucellosis**	155	-ve	
RP	-	-	Mastitis***	250	60 +ve	
Brucellosis	42	42				

* 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		
Parity↓	AIs	C	CR %	AIs	C	CR%	AIs	C	CR%	AIs	C	CR %	AIs	C	CR %
Heifers	44	21	47.73	26	16	61.54	10	03	30.00	27	05	18.52	107	45	42.06
Adults	136	70	51.47	70	38	54.29	26	14	53.85	37	07	20.00	267	129	48.31
Overall	180	91	50.56	96	54	56.25	36	17	47.22	64	12	18.75	374	174	**46.52**

9.8 Quarter-wise conception rate

Quarter	No. of A I	Preg. animals	CR %
January – March (Previous year)	101	42	41.58
April - June	60	24	40.00
July - September	58	28	48.28
October- December	155	80	51.61
Overall	**374**	**174**	**46.52**

9.9. Bull-wise Conception Rate During the period January to December, 2019

Sr. No.	Bull No.	SET No.	Total Number of AI	Total Conceived	CR%
1	543	8th	45	16	35.56
2	480	8th	50	22	44.00
3	487	8th	67	28	41.79
4	511	8th	57	33	57.89
5	435	8th	12	04	33.33
6	507	8th	24	16	66.67
7	501	8th	65	23	35.38
8	516	8th	22	14	63.64
9	473	1st	04	04	100.00
10	411	1st	05	03	60.00
11	535	2nd	08	05	62.50
12	523	2nd	04	01	25.00
13	674	3rd	04	-	-
14	916	4th	04	02	50.00
15	905	4th	03	03	100.00
		Overall	**374**	**174**	**46.52**
No. of services per conception					**2.15**

9.9 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	1st	411	552		04			548
2		439	324			324		0
3		453	130			130		0
4		455	670			560		110
5		464	640					640
6		473	646		04			642
7		479	766			147		619
8	2nd	523	775		06			769
9		524	1378			20		1358
10		525	573			30		543
11		535	832		04			828
12		562	894					894
13		576	340					340
14		577	1376			30		1346
15		579	706					706
16	3rd	596	1326					1326
17		674	1275		44			1231
18		702	1069		144			925
19		716	1350					1350
20		719	1196					1196
21		771	566					566
22		791	1066					1066
23		802	1196					1196
24	4th	806	1500					1500
25		878	2000					2000
26		881	1501			125		1376
27		891	1486			225		1261
28		900	1496					1496
29		902	1500					1500
30		905	1491		07			1484
31		916	1519		06			1513
32		930	1496					1496
33		941	1530			100		1430
34	5th	991	2304					2304
35		03	520					520
36		25	2235					2235
37		27	3151					3151
38		63	3700					3700
39		113	1955			20		1935
40	6th	168	538					538
41		181	919					919
42		214	124					124
43		245	2827					2827
44		252	538					538
45		254	2096					2096
46	7th	298	2024		50			1974
47		308	667					667
48		312	686					686
49		336	212					212
50		342		3000				3000
51		352	03	2727	100			2575

52		359	2675		100			2575
53		Bullet	11			11		0
54		Raja	10			10		0
55		Badshah	08			08		0
56	8th	422	230					230
57		435	10	426	39			397
58		480	253	1438	96	20		1575
59		487	1542	7487	149	345		8535
60		501	0	792	213			579
61		507	464	2258	118	20		2584
62		511	21	303	125			199
63		516	60	1290	150			1200
64		543	254	1437	207	100		1384
65	9th	556	0	399				399
66		674	0	72				72
67		579	0	147				147
68		565	0	30				30
Grand Total			**65202**	**21806**	**1566**	**2225**		**83217**

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)
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)

-------Nil------

9.12 Average Production Performance of Buffaloes Completing their Lactation

Lact. No.	No. of obs.	TLMY (kg)	Lact. Length (day)	SLMY (kg)	Peak yield (kg)
1st	49	2480±95.30	315±6.28	2367±76.41	11.74±0.32
2nd	17	2835±205.11	304±16.12	2693±169.40	13.95±0.47
3rd	15	2884±97.77	277±7.35	2871±93.71	15.45±0.54
4th	12	2838±92.80	297±12.03	2774±92.47	15.26±0.67
5th & above	12	2942±177.64	295±14.01	2887±144.18	14.78±0.47
Overall	**105**	**2688±63.44**	**304±4.68**	**2597±54.68**	**13.38±0.26**

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)

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

No. of Buffaloes	HLF (days)	PLF (days)	LTMY (kg)	MY/HLF	MY/PL	PD (days)	UPD (Days)
24	3222	2028	3.9856	6.4263	1430	598	560

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 2019 to March 2020

Month	N	Fat	SNF	Protein	Lactose	SCC
April 19	106	7.2	9.4	-	-	-
May	110	7.0	9.4	-	-	-
June	107	7.1	9.4	-	-	-
July	108	7.2	9.3	-	-	-
August	106	7.3	9.4	-	-	-
September	100	7.7	10.0	-	-	-
October	120	7.8	10.15	-	-	-
November	125	8.1	10.11	5.42	-	-
December	131	8.7	10.18	5.04	-	-
January 2020	114	7.8	10.49	5.17	-	-
February	113	7.8	10.22	5.15	-	-
March	112	7.5	10.26	5.12	-	-
Overall	113	7.61	9.86	5.18	-	-

9.14: Reproductive Performance

Lactation / Parity	AFC (Months) (N)	N →	SP (Days)	Days Open	DP (Days)	CI (Days)
1	41.78±0.46 (42)					
2		41	179±10.69	168±8.95	489±10.60	447±14.31
3		14	138±17.89	138±10.84	448±17.80	456±16.81
4		14	120±13.06	142±11.90	428±13.27	402±14.56
5th and above		25	150±15.27	159±11.74	459±15.39	439±21.41
Over all		94	157±7.27	157±5.60	466±07.29	438±8.54

9.14.1 Reproduction Performance Since inception of Network.

Years	AFC (days)	AFC (Months)	Service Period (days)	Days Open	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	104±7.53 (95)	135±8.46 (95)	157± 5.56 (95)	444±8.44 (95)
2018-19	1235±19 (55)	40.61±0.63	92± 6.02 (77)	129±8.55 ((77)	148± 5.93 (77)	438±8.54 (77)
2019-20	1270±13.93(42)	41.78	46.52	157±7.27(94)	157±15.27(94)	466±7.29 (94)

9.15 Milk Production and Disposal

Month	**Total milk produced (kg)**	**Disposal (Kg)**		
		Milk sold	**Calf feeding**	**Expt.**
April	24668.8	20362.0	3583.79	4.5
May	23958.0	19906.0	3342.69	11.5
June	23356.5	19127.5	3545.2	3.5
July	22445.5	18579.5	3208.74	3.5
August	24363.8	19764.5	3886.17	3.5
September	28586.9	22291.5	5458.77	4.0
October	31899.4	25787.5	5178.79	4.0
November	32586.49	26553.0	5080.87	3.5
December	34515.6	26795.5	6711.79	3.0
January	35613.7	27727.0	6845.9	3.5
February	33659.9	26513.0	6263.51	3.0
March	33586.7	28196.0	4408.44	4.0
Total	**349240.6**	**281603.0**	**57414.67**	**51.5**

9.16 Feed and fodder (Quintals) availability

Months	Green fodder produced at Farm	Green fodder Purchased	Total
April	3857.0	-	3857.0
May	3445.0	-	3445.0

June	2829.0	-	2829.0
July	3918.0	-	3918.0
Aug	4436.0	-	4436.0
Sep	3867.0	-	3867.0
Oct	3253.0	-	3253.0
Nov	3601.0	-	3601.0
Dec	4636.0	-	4636.0
Jan	4568.0	-	4568.0
Feb	4020.0	-	4020.0
March	4378.0	-	4378.0
Total Green	**46804.0**	**-**	**46804.0**
Silage	-	-	-
Dry	**2590**	**-**	**2590**
Sugarcane	**5327.91**	**-**	**5327.91**
Concentrate	5281.87	-	5281.87

9.17: Milk performance during April 2019 to March 2020

Month	Buffaloes in Milk	Dry buffaloes	Total	% in Milk	Wet Av. (kg)	Herd Av. (kg)
April	97	50	147	66	8.50	5.57
May	91	56	147	62	8.73	5.43
June	91	60	151	61	8.52	5.16
July	87	69	156	56	8.36	4.65
Aug	92	64	156	59	8.69	5.08
Sep	101	60	161	63	9.45	5.92
Oct	106	59	165	64	9.7	6.25
Nov	107	42	149	72	10.17	7.29
Dec	116	36	152	76	9.56	7.30
Jan	122	31	153	80	9.40	7.53
February	122	32	154	79	9.53	7.55
March	117	34	150	77	9.21	7.13
overall	**104**	**50**	**154**	**68**	**9.18**	**6.25**

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**

9.18: Bull wise daughters born (only numbers)

Bull No.	Set No.	Daughters born	Daughters Calved	Daughters completing 1st Lactation
411	1st	01		
473	1st	01		
535	2nd	03		
702	3rd	01		
674	3rd	03		
352	7th	19		
359	7th	07		
298	7th	--		
312	7th	-		
308	7th	-		
336	7th	-		
Bullet	Field bull	03		
435	8th	02		
480	8th	03		
487	8th	05		
501	8th	06		
507	8th	04		
511	8th	06		
516	8th	02		
543	8th	06		
991	5th		-	02
03	5th		-	05
25	5th		02	03
27	5th		05	11
63	5th		04	12
113	5th		01	05
168	6th		07	02
181	6th		06	03
245	6th		02	03
251	6th		04	01
252	6th		08	01
254	6th		09	01
R-3	6th		-	01
Total		**76**	**48**	**50**

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.	27	538	18-08-15	02-05-19	44.51	281	2252	2252
2		547	13-09-15	04-03-19	41.71	256	2229	2229
3		541	31-08-15	13-02-19	41.51	345	3043	2795
4		503	28-01-15	15-12-18	46.61	412	3944	3334
5		525	11-07-15	05-04-19	44.87	301	2566	2566

6		535	15-08-15	05-04-19	43.72	336	3857	3570
7		512	02-04-15	07-05-18	37.20	333	2104	2022
8		543	06-09-15	12-09-18	36.25	275	2051	2051
9		513	04-04-15	18-09-18	41.55	283	1089	1089
10		485	04-11-14	18-04-18	41.48	359	2316	2143
11		509	26-03-15	21-07-18	39.90	363	2562	2408
12	63	520	01-07-15	08-03-19	44.28	301	2053	2053
13		500	09-01-15	02-04-19	50.79	311	1627	1622
14		522	06-07-15	08-04-19	45.16	326	2456	2390
15		408	22-08-13	06-09-18	60.89	281	2280	2280
16		476	27-09-14	13-11-18	49.61	269	1831	1831
17		488	09-11-14	09-04-18	41.02	445	4168	3140
18		437	25-01-14	31-07-18	54.21	381	3106	2795
19		514	21-04-15	10-09-18	40.72	347	2584	2430
20		487	07-11-14	07-09-18	46.05	336	2301	2223
21		504	26-02-15	06-11-18	44.38	297	1811	18-11
22		462	28-08-14	12-11-18	50.56	277	1438	1438
23		497	15-12-14	28-12-18	48.49	273	1904	1904
24	25	521	04-07-15	13-03-19	44.34	352	2790	2657
25		554	12-10-15	28-07-18	33.55	412	3352	2517
26		502	27-01-15	05-11-18	45.33	284	2904	2904
27	03	542	03-09-15	31-01-19	40.99	351	3322	3161
28		473	19-09-14	25-09-18	48.26	304	2242	2242
29		529	17-07-15	26-07-18	36.35	344	3122	2904
30		532	23-07-15	11-10-18	38.68	302	2891	2891
31		528	16-07-15	15-09-18	38.06	335	1988	1905
32	113	492	25-11-14	20-02-19	50.92	275	1865	1865
33		546	13-09-15	03-04-19	42.70	282	2577	2577
34		551	26-09-15	08-09-18	35.46	300	2182	2182
35		534	02-08-15	13-11-18	39.44	339	2991	2823
36		523	06-07-15	11-10-18	39.24	293	2368	2368
37	168	576	21-01-16	18-03-19	37.89	284	2010	2010
38		592	30-04-16	03-03-19	34.11	229	16.39	16.39
39	991	526	15-07-15	22-09-18	38.32	356	2646	2421
40		548	18-09-15	28-07-18	34.34	251	1344	1344
41	252	555	20-10-15	27-04-19	42.27	300	2752	2752
42	245	587	11-04-16	08-05-19	36.91	289	2769	2769
43		573	29-12-15	06-03-19	41.18	284	2138	2138
44		558	2-11-15	09-01-19	38.07	359	3145	2887
45	254	568	09-12-15	13-04-19	40.16	342	3559	3312
46	181	580	15-02-16	01-03-19	36.51	152	797	797
47		583	05-03-16	30-01-19	34.90	261	1827	1827
48		585	02-04-16	13-04-19	36.38	314	2337	2237
49	251	559	05-11-15	13-03-19	40.26	317	2823	2789
50	R-3	549	23-09-15	25-01-19	40.13	315	2366	2366

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	29-11-204	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	1st	CIRB Nabha	2324	1961.74		10.01
523	2nd	CIRB Nabha	2390	2058.79		11.24
535	2rd	CIRB Nabha	3208	2061.91		10.85
674	3rd	CIRB Nabha	3350	2388.91		9.39
702	3rd	CIRB Nabha	3421	2376.83		8.88
905	4th	CIRB Nabha	3639	2561.40		15.29
916	4th	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	3317/5th	-	-
2	556	10-08-2015	366	R-1	3277/2nd	-	-
3	561	25-08-2015	367	25	3888/3rd	-	-
4	565	02-09-2015	134	63	4050/3rd	-	-
5	579	26-10-2015	827	245	3199/6th	-	-
6	593	22-12-2015	81	168	3746/5th	-	-
7	674	19-01-2017	68	252	3161/6th	-	-
8	705	10-07-2017	115	473	3146/4th	-	-
9	710	25-07-2017	398	252	3395/2nd	-	-

9.21 Target achieved during the year 2019-20

Trait	**Target**	**Achieved (year)**
Av. Age at first calving (months)	40	**41.78 (42)**
Av. Service period (days)	130	**157 (94)**
Calf mortality (0-3 months)	≤ 4 %	**4.57**
Wet average (kg)	≥8.5 kg	**9.18**
Herd average (kg)	≥5.5 kg	**6.25**

10. Salient Research Achievements:

A total of 152 (76 female & 76 male) calves of high genetic merit were born during this period. Test mating (374 inseminations) were carried out during this period resulting in 174 pregnancies. During this period, 50 daughters of 13 bulls under progeny testing programme completed 1st lactation. The wet average (9.18 kg, highest ever), herd average (6.25 Kg), 305 days lactation milk yield (2597 kg), total lactation milk yield (2688 kg), peak yield (13.38 kg) and lactation length (304 days) were achieved in Nili-Ravi herd. The reproductive traits viz., service period (157 days), calving interval (466 days), dry period (157 days) were achieved during the year 2019-20. Herd Life Production (up to 4th or more Lactation completed) of 24 buffaloes was estimated. The average productive days were 1430 and average milk yield per day of herd life was 3.99 litres. A total of 21,806 semen doses were produced at the Sub Campus or procured from semen station Nabha. Out of which, 1566 doses were used at farm for insemination and 2225 doses were sold to field inseminators. Overall motility of 2.69% and calf motility of 4.57% was recorded during this period. The overall conception rate of 46.52% was recorded. Milk production of 349240.6 kg was recorded during this year, and 281603.0 kg (Highest ever) was sold. Total 120 animals have been sold through public auction and on book value to farmers, universities and various developmental agencies.

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.
- Jan, M.H., Kumar, H., Sharma, R.K., Kumar, S. and Gupta, A., 2019. Prevalence, Risk Factors and Impact of Subclinical Endometritis on Reproductive Performance of Nili-Ravi Buffalo. *Journal of Animal Research*, 9 (2): 351–357.

Presentation in workshops/ seminars/ Symposia/ conferences:

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

Teaching/Training/Conducting programmes/Workshops/seminars	Venue	Participants	Date
Training on Introduction of Nili-Ravi Buffalo & its Management" under SCSP	CIRB, Sub-Campus, Nabha	Farmers	217-23 September, 2019
Training on "Scientific Buffalo Husbandry Practices" under SCSP	CIRB, Sub-Campus, Nabha	Farmers	19-26 February, 2020

13. Constraints if any : No

14. Focus of work in the coming year

1. Exploration of methods (hormonal, managemental) to increase conception rate in buffaloes.
2. Improvement of production and reproduction performance indicators through breeding, nutritional, hormonal and managemental interventions.
3. Selection of bulls of IXth set for progeny testing programme.

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	
40.90	40.90	40.90	40.90	0.00	Nil

Herd Performance

Herd strength at the centre was 534 including 257 breedable buffaloes (>2.0 years). Number of young males and breeding bulls was 68 and 8 respectively. Total 152 calves added due to birth during the year out of which 76 were male and 76 were female. Calf mortality (0-3 months) was 4.55%. Conception rate was 46.52 % increased from last year (40.61 %). 21806 semen doses produced during 2019-20 and the centre has used for AI/Exp./sold 3791 frozen semen doses to developmental agencies and farmers. Average lactation milk yield (kg) and 305 or less day lactation milk yield was 2688 kg (105) and 2597 kg (105) respectively decreased from last year 2797 kg and 22679 kg respectively. Average lactation length reported 304 days (105). Reproductive performance viz. Age at first calving, Service Period, Dry Period and Calving Interval were 41.78 (42) months, 157 (94) days, 157 (94) days and 466 (94) days, respectively. The wet and herd averages were 9.18 kg and 6.25 kg with 68 % animals in milk.

Accomplishment and Targets Achieved:

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

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
- 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 4^{th} 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
Lab Tech	A.P.Patel	

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

Financial Statement: **Budget Head: 2305/03 Year: 2019-20** **(Rs.)**

Item / Head	**Allotted**	**Expenditure**	**Balance**
A. Recurring			
Pay & Allowances	2100000	1454017	645983
TA	100000	2084	97916
Contingency	6000000	5630788	369212
Anim. Purch.	400000	110000	290000
Sub Total	**8600000**	**7196889**	**1403111**
B. Non-recurring	790000	500221	289779
Sub Total	**790000**	**500221**	**289779**
Total (A+B)	**9390000**	**7697110**	**1692890**

9.1 Herd Strength during the Period 1st April 2019 to 31st March, 2020

Sr. No.	Category	Addition			Disposal				CB
		OB	B / P	T	D	T	S	E	CB
	Female								
1.	Below 3 months	11	35		3	36			7
2.	3-12 months	20		36		31			25
3.	1-2 years	44		31	3	41			31
	Above 2 years	73		41	2	24			88
4.	Buffaloes in Milk	63		75	2	56			80
5.	Buffaloes Dry P /NP	54		56	3	51	11		45
	Sub Total	**265**	**35**	**209**	**13**	**209**	**11**	**0**	**276**
	Males								
1.	Below 3 months	5	40		2	39			4
2.	3-12 months	16		39	2	20	1		32
3.	1-2 years	21		20		0	21		20
	Above 2 years	23		0			22		1
4.	Breeding bulls	15	2						17
5.	Bullocks / Teasers / others	1							1
	Sub Total	**81**	**42**	**76**	**4**	**76**	**44**		**75**
	Grand Total	**346**	**77**	**285**	**17**	**285**	**55**	**0**	**351**

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	0	1	0	0				1
May	1	1	0	1				3
June	2	1	0	0				3
July	4	2	1	0				7
August	8	6	0	0				14
September	4	2	0	1				7
October	10	6	0	1				17
November	3	4	1	0				8
December	4	5	0	0				9
January	4	4	0	0				8
February	0	1	0	0				1
March	0	2	0	0				2
Overall	**40**	**35**	**2**	**3**				**80**

Sex ratio Male : Female (53.30 : 46.70) SB% = 2.70 Abortion % = 4.00

9.3. Disposal of Animals during the Period 1st April 19 to 31st March 20

Female	Primary cause of disposal							
Category	Surplus	Below farm prod. standard	Reprod. Problem	Weak & Old	Udder Health	Death	Experimental purposes	Total
Calves								
0 to 3 months								
3-12 months						3		3
Heifers								
1-2 years						3		3
> 2 years						2		2
Buffaloes								
Milch								
Dry	11					5		16
Sub Total	11					13		**24**

Males	**Primary cause of disposal**							
Calves 0 to 3 months 3-12 months	 1					 2 2		 2 3
1 to 2 year	25							25
. >2 year	18							18
Breeding bulls								
Bullock+Teaser+ Others								
Sub Total	**44**					**4**		**48**
Grand Total	**55**					**17**		**72**

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

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.	11	20	44	73	117	265	5	16	21	39	81	346
	Died						0					0	0
	%	0	0	0	0	0	0	0	0	0	0	0	0
May	No.	8	21	47	73	117	266	1	20	28	32	81	347
	Died						0					0	0
	%	0	0	0	0	0	0	0	0	0	0	0	0
June	No.	3	27	47	73	117	267	2	20	28	32	82	349
	Died					1	1					0	1
	%	0.0	0.0	0.0	0.0	0.9	0.4	0.0	0.0	0.0	0.0	0.0	0.3
July	No.	3	28	47	71	118	267	3	21	5	18	47	314
	Died			1			1					0	1
	%	0.0	0.0	2.1	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.3
Aug.	No.	4	29	46	67	122	268	7	20	3	17	47	315
	Died	1				1	2					0	2
	%	25.0	0.0	0.0	0.0	0.8	0.7	0.0	0.0	0.0	0.0	0.0	0.6
Sep.	No.	8	25	49	59	131	272	14	20	2	17	53	325
	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
Oct.	No.	9	24	50	55	136	274	16	18	6	17	57	331
	Died			1	1	1	3					0	3
	%	0.0	0.0	2.0	1.8	0.7	1.1	0.0	0.0	0.0	0.0	0.0	0.9
Nov.	No.	14	20	54	51	138	277	22	17	11	17	67	344
	Died	1				1	2	1				1	3
	%	7.1	0.0	0.0	0.0	0.7	0.7	4.5	0.0	0.0	0.0	1.5	0.9
Dec.	No.	12	23	55	52	137	279	16	23	13	17	69	348
	Died			1			1					0	1
	%	0.0	0.0	1.8	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.3
Jan.	No.	15	22	44	65	126	272	17	23	16	17	73	345
	Died	1					1	1	1			2	3
	%	6.7	0.0	0.0	0.0	0.0	0.4	5.9	4.3	0.0	0.0	2.7	0.9
Feb.	No.	12	24	32	81	126	275	10	28	20	17	75	350
	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
March	No.	9	22	31	88	126	276	7	31	20	17	75	351
	Died				1	1	2		1			1	3
	%	0.0	0.0	0.0	1.1	0.8	0.7	0.0	3.2	0.0	0.0	1.3	0.9
Overall Av.	No.	**46**	**22**	**31**	**88**	**126**	**313**	**45**	**31**	**20**	**17**	**113**	**426**
	Died	**3**	**0**	**3**	**2**	**5**	**13**	**2**	**2**	**0**	**0**	**4**	**17**
	%	**6.5**	**0.0**	**9.7**	**2.3**	**4.0**	**4.2**	**4.4**	**6.5**	**0.0**	**0.0**	**3.5**	**4.0**

9.5. Causes of Mortality (quarter wise) during the period April 19 to March 2020

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

JD/TB					
Milk Fever / metabolic diseases					
TRP / TP					
Parasitism					
Accidental death		1		1	2
Peri-parturient disorders					
Miscellaneous	2	1	2	1	6
Old Age Senility		1	1		2
Total	**1**	**3**	**7**	**6**	**17**

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	March 2020/ 309			21/04/2019
HS	June 2019/ 306			
BQ	June 2019/ 306			11/08/2018
Brucellosis	44 Female Calf			304 Animals 25/11/2019
JD		269	0	
TB		269	0	
IBR				
Mastitis				12/02/2020

9.7 Female Conception Rate During the Period January to December 2019

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	19	15	78.95	10	7	70.00	6	2	33.33	0	0	0	35	24	68.57
Adults	65	18	27.69	46	13	28.26	19	10	52.63	6	2	33.33	136	43	31.62
Overall	**84**	**33**	**39.29**	**56**	**20**	**35.71**	**25**	**12**	**48.00**	**6**	**2**	**33.33**	**171**	**67**	**39.18**

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)	55	22	40.00
April - June	39	12	30.77
July - September	37	14	37.84
October- December	40	19	47.50
Overall	**171**	**67**	**39.18**

9.9. Bull-wise Conception Rate During the period January to December, 2018

Sr. No.	Bull No.	SET No.	Total Number of AI	Total Conceived	CR%
1.	Alok	III	28	9	32.14
2.	Madhav	III	24	10	41.67
3.	Girish	III	30	14	46.67
4.	Raghu	III	33	15	45.45
5.	Chaman	III	43	17	39.53
6.	Babbar	III	13	2	15.38
Over all			**171**	**67**	**39.18**

9.10 Bull Wise Semen Stock 2019-20

Sr.No	Set No	Bull No	O.B.	Doses produced / received	Doses used /disseminated				Balance
					Supply		Sold	Exp.	
					field	farm			
1.	I	Nagraj(45/02)	3339	0	0	0	80		3259

2.	I	Bhagro	6845	0	0	0	0		6845
3.	I	Laxman(14/03)	3417	0	0	0	0		3417
4.	II	Haresh(06/04)	1790	0	0	0	0		1790
5.	II	Moti	7728	0	0	0	0		7728
6.	II	Raja (25/04)	5785	0	0	0	0		5785
7.	II	Sunder(13/05)	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 (07/10)	6537	0	0	0	0		6537
11.	III	Madhav (37/10)	6729	0	0	40	0		6689
12.	III	Abhijeet (A1/10)	5916	0	0	0	0		5916
13.	III	Alok(10376)	5420	2615	0	40	300		7695
14.	III	Ronak (09/11)	5140	0	0	0	0		5140
15.	III	Girish (11/13)	4596	0	0	40	0		4556
16.	III	Raghu(11082)	5157	0	0	40	370		4747
17.	III	Babar(11083)	9275	0	0	0	0		9275
18.	III	Chaman(3050)	3430	7555	0	40	4265		6680
19.	IV	Badal (3665)	3360	4425	0	0	1000		6785
20.	IV	Kamlesh (11081)	1165	265	650	0	15		765
21.	IV	Mayur (27/15)	955	1305	0	0	0		2260
22.	IV	Balo (43/15)	1125	6130	190	0	45		7020
23	IV	Janak (11084)	115	2860	0	0	0		2975
24	IV	Hamir	0	4725	2125	0	315		2285
25	IV	Sango	0	1370	0	0	0		1370
26	IV	Nayak	0	670	0	0	0		670
Grand Total			**99868**	**31920**	2965	200	6390		**122233**

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**	**504.1**
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**

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)
1st	14	2386.9 ± 202.2	349.5 ± 30.8	2132.7 ± 131.2	13.7 ± 0.6
2nd	15	2358.9 ± 123.6	264.1 ± 19.5	2330.7 ± 119.3	15.3 ± 0.6
3rd	13	2428.2 ± 245.7	296.0 ± 24.8	2270.8 ± 157.2	14.5 ± 0.6
4th	09	2658.1 ± 349.2	358.2 ± 48.6	2420.1 ± 323.5	14.9 ± 1.7
5th & above	05	2241.5 ± 247.5	296.8 ± 20.7	2203.2 ± 227.9	13.3 ± 0.6
Overall	**56**	**2408.5 ± 105.7**	**315.6 ± 14.4**	**2245.1 ± 76.3**	**14.3 ± 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)**

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

Animal No.	DOB	Date of completion of 4th or more lact. or disposal	HLF (days) up to 4th or more lactation or disposal (d)	LTMY (kg)	Productive Days	Unproductive Days	MY/day HLF
31/07	14/11/2007	08/01/2019	4073	11341.1	1654	1057	2.8
15/07	06/07/2007	21/11/2019	4521	11309.3	1883	1129	2.5
42/08	07/10/2008	03/10/2018	3648	11283.5	1294	944	3.1
45/08	14/10/2008	27/06/2018	3543	7797.4	1190	909	2.2
08/08	17/07/2008	20/06/2019	3990	9671.9	1593	839	2.4
39/08	03/10/2008	11/08/2019	3964	7589.0	1598	856	1.9
08/09	26/01/2009	20/01/2019	3646	8874.1	996	1034	2.4
36/09	15/09/2009	28/06/2018	3208	3995.9	846	931	1.2
55/08	15/12/2008	18/11/2019	3990	13519.4	1640	636	3.4

22/10	20/08/2010	18/04/2018	2798	3679.8	754	939	1.3
27/09	26/08/2009	20/02/2019	3465	11746.6	1335	664	3.4
49/09	03/10/2009	15/12/2019	3725	14276.9	1707	585	3.8
28/10	09/09/2010	21/05/2019	3176	5819.4	978	1102	1.8
14/09	18/07/2009	16/12/2019	3803	8106.5	1432	771	2.1
57/09	16/10/2009	13/09/2018	3254	4493.2	1091	603	1.4
23/10	20/08/2010	07/03/2020	3487	9425.6	980	1167	2.7
23/09	15/08/2009	18/04/2019	3533	12356.2	1292	449	3.5
33/09	10/09/2009	18/11/2019	3721	7336.9	1137	816	2.0
50/10	20/10/2010	02/10/2019	3269	7676.8	1085	788	2.3
41/09	21/09/2009	18/12/2018	3375	6657.6	1149	419	2.0
21/11	10/08/2011	31/12/2018	2700	4513.3	921	283	1.7
52/11	01/12/2011	29/12/2019	2950	3350.9	503	892	1.1

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 2019 to March 2020

Month	**N**	**Fat**	**SNF**	**Protein**	**Lactose**	**SCC**
April	61	7.78	10.69	4.70	6.17	
May	55	8.12	11.89	4.17	5.38	
June	46	7.82	12.67	4.21	6.07	
July	49	7.50	10.80	4.05	5.60	
August	56	8.38	11.68	4.21	6.47	
September	55	8.12	11.39	4.10	5.62	
October	70	8.45	11.67	4.86	6.37	
November	69	8.17	11.05	4.42	6.94	
December	75	7.92	11.12	3.90	5.92	
January	79	7.95	10.46	4.57	6.36	
February	78	7.24	11.07	3.81	6.82	
March	80	7.43	10.50	3.70	5.74	
Overall	**64.4**	**7.91**	**11.25**	**4.23**	**6.12**	

9.14: Reproductive Performance

Lactation / Parity	AFC (Months) (N)	N →	SP (Days)	Days Open	DP (Days)	CI (Days)
1	46.1 ± 1.4(24)					
2		22	140.1 ± 23.3	163.3 ± 9.9	453.6 ± 23.2	526.31±26.99
3		08	173.4 ± 47.3	193.8 ± 34.8	479.9 ± 48.2	580.75±41.44
4		06	182.5 ± 41.6	204.5 ± 45.6	493.2 ± 44.2	517.14±40.53
5th& above		07	216.1 ± 62.6	269.7 ± 61.2	535.6 ± 61.4	489.57±39.39
Over all	**46.1 ± 1.4(24)**	**43**	**164.6 ± 18.6**	**192.0 ± 14.8**	**477.3 ± 18.7**	**530.94±15.8**

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)**

9.15 Milk Production and Disposal

Month	Total milk produced (kg)	Disposal (Kg)		
		Milk sold	Calf feeding	Expt.
April-19	10296	10290	6	
May	9669.5	9657.5	12	
June	8090.5	8066.5	24	
July	7878.5	7834.5	44	
August	8576.5	8458.5	118	
September	9165.5	9129.5	36	
October	9686.5	9584.5	102	
November	10532	10464	68	
December	13548.5	13489.5	59	
January-20	15736.5	15691.5	45	
February	15307	15294	13	
March	16419.5	16407.5	12	
Total	**134906.5**	**134367.5**	**539**	

9.16.1 Feed and fodder (Quintals) availability 2019-20

Quarter	Qty. Produced at Farm (kg)	Qty. Purchased (kg)	Actually fed (Quintals)	Balance (Kg)
I (April – June)	Green		5610	
	Dry	255	676	
	Silage			
	Concentrate	1165	1165	
II (July – September)	Green		3946	
	Dry	506	1056	
	Silage			
	Concentrate	1295	1295	
III (October –December)	Green		5322	
	Dry	235	586	
	Silage			
	Concentrate	1160	1160	
IV (January-March)	Green		5581	
	Dry	480	662	
	Silage			
	Concentrate	1176	1176	
Total	Green		**20459**	
	Dry	**1476**	**2980**	
	Silage			
	Concentrate	**4796**	**4796**	

9.17: Milk performance during April 19 to March 20

Month	Buffaloes in Milk	Dry buffaloes	Total	% in Milk	Wet Av. (kg)	Herd Av. (kg)

April -19	61	56	117	52.1	6.2	3.2
May	55	62	117	47.0	6.2	2.9
June	46	72	118	39.0	6.4	2.5
July	49	73	122	40.2	5.7	2.3
August	56	75	131	42.7	5.4	2.3
September	55	81	136	40.4	6.1	2.5
October	70	68	138	50.7	4.9	2.5
November	69	68	137	50.4	5.6	2.8
December	75	51	126	59.5	6.4	3.8
January-20	79	47	126	62.7	7.1	4.4
February	78	48	126	61.9	7.7	4.8
March	80	45	125	64.0	7.3	4.7
Overall	**64.4**	**62.2**	**126.6**	**50.9**	**6.3**	**3.2**

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**

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			1
Moti	II		5	3
Sundar	II		4	3
Ashok				
Laxman	I		2	
Bholenath	II		4	5
Haresh	II		1	
Dhingalo	II		4	2
Nayan	III		3	
Madhav	III	8		

Ronak	III	0		
Alok	III	3		
Abhijit	III	0		
Raghu	III	4		
Chaman	III	11		
Girish	III	7		
Babar	III	2		
Total		**35**	**23**	**14**

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
Sundar	42/13	29/09/2013	20/09/2018	59.8	353	1585.5	1446.3	10.2
Sundar	07/13	02/05/2013	03/02/2018	57.2	439	1598.5	1263.1	9.7
Bholenath	28/14	15/11/2014	29/10/2018	47.5	232	1737.0	1737.0	11.9
Moti	06/15	26/01/2015	15/09/2018	43.7	262	1769.1	1769.1	12.4
Moti	26/14	07/11/2014	19/12/2018	49.4	244	1890.7	1890.7	16.2
Bholenath	38/14	18/12/2014	10/10/2018	45.8	257	1957.1	1957.1	12.2
Dhingalo	20/14	05/10/2014	23/12/2018	50.7	225	2070.2	2070.2	14.0
Sundar	45/12	15/11/2012	01/11/2018	71.6	269	2197.0	2197.0	14.7
Moti	09/15	13/02/2015	18/10/2018	44.2	273	2284.4	2284.4	15.3
Bholenath	18/13	27/08/2013	24/12/2018	64.0	375	2782.0	2585.7	13.4
Bholenath	20/13	29/08/2013	22/03/2018	54.8	421	2833.9	2547.2	15.9
Bholenath	29/13	07/09/2013	06/02/2018	53.1	494	3229.3	2434.2	14.4
Dhingalo	47/13	07/10/2013	06/02/2018	52.1	461	3561.3	2711.7	15.0
Nagraj	51/12	27/12/2012	28/12/2017	60.1	588	3920.6	2964.5	16.3
			AV.	**53.8**	**349.5**	**2386.9**	**2132.7**	**13.7**
			SE	**2.1**	**30.8**	**202.2**	**131.2**	**0.6**

9.20 Breeding bulls Selected for current set

Sr. No.	Set	Bull No.	Date of Birth	Dam No.	Sire No.	Dam's best SLMY	Remarks
1	IV	Badal (3665)	Purchased	--	--	>3000	
2	IV	Kamlesh (11081)	Purchased	--	--	>3000	
3	IV	Mayur (27/15)	17/07/2015	Mina(AM 12/11)	Haresh	3181	
4	IV	Balo (43/15)	29/09/2015	Babli (53/09)	Nayan	3201	
5	IV	Janak (11084)	Purchased	--	--	>3000	
6	IV	Hamir (37/15)	05/09/2015	Hedi (AM 04/11)	Bholenath	3616	
7	IV	11086	Purchased	--	--	>3000	
8	IV	11087	Purchased	--	--	>3000	
9	IV	11088	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	

9.20.1 List of Future breeding bulls Set - V

Sr. No.	Bull No.	Date of Birth	Dam No.	Sire No.	Dams best SLMY (kg) / Parity	Semen doses available	Expected predicted Difference (EPD)
1	Badal (3665)	Purchased	--	--	>3000	3360	

2	Kamlesh (11081)	Purchased	--	--	>3000	1165	
3	Mayur (27/15)	17/07/2015	Mina (AM 12/11)	Haresh	3181	955	
4	Balo (43/15)	29/09/2015	Babli (53/09)	Nayan	3201	1125	
5	Janak (11084)	Purchased	--	--	>3000	115	
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		

9.20.2 List of breeding / young bulls as on 31-3-2020

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 year 2019-20

Trait	Target	Achieved (year) (2017-18)	Achieved (year) (2018-19)	**Achieved (year) (2019-20)**
Av. Age at first calving (months)	40	54.05	49.9	**46.1**
Av. Service period (days)	130	217.46	180.4	**164.6**
Calf mortality (0-3 months)	≤ 4 %	4.5	7.9	**5.45**
Wet average (kg)	≥8.5 kg	6.7	5.8	**6.3**
Herd average (kg)	≥5.5 kg	3.0	3.6	**3.2**

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.

14. 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 2019-2020

Sr No.	Centres/ Village	OB	Addition			Deduction		
			New Reg.	Birth	Purchase	Sold	Death	CB
1	Shedhaya	2015	33	9				2057
2	Pipali	2848	165	39				3052
3	Loej	12889	566	87				13542
4	Surva	3582	203	40				3825
5	Mand likpur	4188	364	46				4598
6	Hadmdiya	1002	101	23				1126
7	Khorasa	1041	109	21				1171
8	Odadar	2584	349	27				2960
9	Gondal	182	72	16				270
	Total	**30331**	**1962**	**308**	**0**	**0**	**0**	**32601**

F 2. Status of Breedable Females at Different Field Unit Centres during 2019-2020

Centres/ Village	Heifers > 3 years		Buffalo	
	Total	Pregnant	In Milk	Dry
Shedhaya	404			0
Pipali	315			50
Loej	1812			185
Surva	564			14
Movana	0			16
Mand likpur	545			47
Hadmdiya	104			13
Sherdi	0			11
Khorasa	103			0
Chanchakvad	0			0
Gondal	0			0
Odadar	208			0
Total	**4055**			**336**

F 3. Monthly AI at Different Field Unit Centres during Period 4/2019 to 3/2020

Month	TOTAL									
	Shedhaya	Pipali	Hadmadiya	Loej	Surva	Mandlikpur	Odadar	Khorasa	Gondal	Total
April, 19	0	14	7	36	12	30	32	7	5	143
May	0	13	9	31	9	26	24	7	6	125
June	0	13	10	24	9	15	14	7	0	92
July	0	14	8	30	15	30	20	6	7	130
August	2	14	6	53	10	22	25	10	6	148
September	4	14	7	30	4	31	24	10	4	128
October	8	14	10	42	21	42	34	10	6	187
November	0	14	10	44	26	22	36	15	14	181
December	6	14	8	71	28	46	36	14	6	229
January, 20	7	14	8	75	32	40	48	7	8	239
February	4	14	9	69	22	29	40	7	6	200
March	2	13	9	61	15	31	16	9	4	160
TOTAL	**33**	**165**	**101**	**566**	**203**	**364**	**349**	**109**	**72**	**1962**

F 4. Bull-wise AI at Different Field Unit Centres during the Period 4/2019 to 3/2020

Months	Kamlesh	Hamir	Balo	Total
April, 19	143	0	0	143
May	125	0	0	125
June	92	0	0	92
July	122	8	0	130
August	57	91	0	148
September	37	91	0	128
October	1	186	0	187
November	0	181	0	181
December	0	229	0	229
January,20	0	239	0	239
February	0	200	0	200
March	0	117	43	160
Total	577	1342	43	1962

F 5. Month wise Conception at Different Field Unit Centres during the Period 4/2019 to 3/2020

Month	Village / Centre									
	Shedhaya		Pipali		Hadmadiya		Loej		Surva	
	P	E	P	E	P	E	P	E	P	E
April, 19	5	6	7	7	4	3	24	28	10	13
May	2	1	8	6	3	5	22	35	8	10
June	0	0	7	7	3	3	20	24	9	12
July	0	0	6	8	4	3	18	18	6	6
August	0	0	7	6	4	5	12	19	3	6
September	0	0	6	7	5	5	10	14	4	5
October	0	0	6	8	5	3	11	19	9	6
November	1	1	7	7	4	2	21	32	4	6
December	2	2	7	7	3	4	14	16	3	1
January,20	5	3	6	8	6	4	21	21	9	12
February	0	0	9	5	4	6	19	25	11	15
March	3	3	5	9	5	3	33	38	13	15
Total	18	16	81	85	50	46	225	289	89	107

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Month	Village / Centre									
	Mandlikpur		Odadar		Khorasa		Gondal		Total	
	P	E	P	E	P	E	P	E	P	E
April, 19	18	29	6	13	3	7	7	3	**84**	**109**
May	8	22	5	16	5	3	8	9	**69**	**107**
June	12	27	9	25	4	5	5	4	**69**	**107**
July	10	20	9	23	3	4	3	2	**59**	**84**
August	9	17	7	17	3	4	3	3	**48**	**77**
September	6	9	5	9	3	4	0	0	**39**	**53**
October	8	22	5	15	2	4	4	3	**50**	**80**
November	10	12	6	19	4	6	2	4	**59**	**89**
December	12	19	7	17	4	6	3	1	**55**	**73**
January,20	15	27	11	23	3	7	3	3	**79**	**108**
February	9	13	8	28	6	9	7	7	**73**	**108**
March	20	26	5	17	5	9	3	3	**92**	**123**
Total	137	243	83	222	45	68	48	42	**776**	**1118**

F 6. Month wise Calving at Different Field Unit Centres during the Period 4/2019 to 3/2020

Month	Village / Centre											
	Pipali		Hadmadiya		Loej		Surva		Mandlikpur		Odadar	
	M	F	M	F	M	F	M	F	M	F	M	F
April, 19	4	3	2	2	8	7	3	1	2	1	3	1
May	4	2	1	3	7	4	3	1	4	3	7	3
June	3	3	2	1	7	5	3	2	5	5	8	4
July	3	3	1	2	3	7	5	4	4	2	3	1
August	3	5	2	1	16	7	4	3	4	5	5	2
September	5	3	1	3	9	8	5	5	6	4	3	2
October	5	3	1	2	18	13	6	7	8	7	5	2
November	3	4	2	2	13	11	4	5	9	6	4	2
December	5	3	1	2	11	9	3	4	5	0	2	3
January,20	4	3	1	2	11	7	5	4	5	6	3	3
February	3	3	2	2	11	5	3	3	5	4	4	3
March	3	4	3	1	7	4	2	1	4	3	1	1
Total	**45**	**39**	**19**	**23**	**121**	**87**	**46**	**40**	**61**	**46**	**48**	**27**

Conti...

Month	Village / Centre						**Total**	
	Shedhaya		**Khorasa**		**Gondal**			
	M	F	M	F	M	F	**M**	**F**
April, 19	0	0	2	1	1	1	25	17
May	1	1	3	1	2	1	32	19
June	2	1	3	3	1	0	34	24
July	3	1	3	3	1	0	26	23
August	0	0	2	1	1	0	37	24
September	0	0	3	2	1	0	33	27
October	5	3	2	2	1	1	51	40
November	3	2	1	2	3	4	42	38
December	1	1	3	2	3	5	34	29
January,20	0	0	2	2	3	2	34	29
February	0	0	2	1	2	1	32	22
March	0	0	2	1	2	1	24	16
Total	**15**	**9**	**28**	**21**	**21**	**16**	**404**	**308**

M= Male F= Female

F 7. Bull-wise Conception at Different Field Unit Centres during the Period 4/2019 to 3/2020

Month	**Bull Name**								**Total**	
	Hamir		**Kamlesh**		**Badal**		**Alok**			
	P	**E**	**P**	**E**	**P**	**E**	**P**	**E**	**P**	**E**
April, 19	0	0	0	0	9	20	75	89	84	109
May	0	0	36	54	5	16	28	37	69	107
June	0	0	68	101	0	0	1	6	69	107
July	0	0	59	84	0	0	0	0	59	84
August	0	0	48	77	0	0	0	0	48	77
September	0	0	39	53	0	0	0	0	39	53
October	5	3	45	77	0	0	0	0	50	80
November	39	52	20	37	0	0	0	0	59	89
December	39	52	16	21	0	0	0	0	55	73
January,20	79	107	0	1	0	0	0	0	79	108
February	73	108	0	0	0	0	0	0	73	108
March	92	123	0	0	0	0	0	0	92	123
Total	**327**	**445**	**331**	**505**	**14**	**36**	**104**	**132**	**776**	**1118**

F 8. Bull-wise Calving at Different Field Unit Centres during the Period 4/2019 to 3/2020

Month	Bull Name									
	Badal		Alok		Babar		Kamlesh		Total	
	M	F	M	F	M	F	M	F	M	F
April, 19	25	17	0	0	0	0	0	0	25	17
May	32	19	0	0	0	0	0	0	32	19
June	31	21	0	0	3	3	0	0	34	24
July	23	20	0	0	3	3	0	0	26	23
August	36	24	0	0	1	0	0	0	37	24
September	32	27	0	0	1	0	0	0	33	27
October	13	11	35	26	3	3	0	0	51	40
November	5	4	37	34	0	0	0	0	42	38
December	2	3	15	9	0	0	17	17	34	29
January,20	0	0	0	1	0	0	34	28	34	29
February	0	0	0	0	0	0	32	22	32	22
March	0	0	0	0	0	0	24	16	24	16
Total	199	146	87	70	11	9	107	83	404	308

F 9. Bull-wise Live Female Progeny at Different Field Unit Centres (0-6 month) as on 3/2020

Centres	Kamlesh	Alok	Badal	Babar	Total
Shedhaya	0	6	0	0	**6**
Pipali	10	10	0	0	**20**
Hadmdiya	5	4	2	0	**11**
Loej	22	25	0	2	**49**
Surva	12	12	0	0	**24**
Movana	0	0	0	0	**0**
Mandlimpur	12	9	5	0	**26**
Sheradi	0	0	0	0	**0**
Odadar	7	0	7	0	**14**
Chanchakvad	0	0	0	0	**0**
Khorasa	6	0	4	0	**10**
Gonadal	9	4	0	1	**14**
Total	**83**	**70**	**18**	**3**	**174**

F 10. Bull-wise Live Female Progeny at Different Field Unit Centres (6-12 month) as on 3/2020

Centres	Badal	Babar	Total
Shedhaya	3	0	**3**
Pipali	19	0	**19**
Hadmdiya	12	0	**12**
Loej	38	0	**38**
Surva	16	0	**16**
Movana	0	0	**0**
Mandlimpur	20	0	**20**
Sheradi	0	0	**0**
Odadar	13	0	**13**
Chanchakvad	0	0	**0**
Khorasa	5	6	**11**
Gonadal	2	0	**2**
Total	**128**	**6**	**134**

F 11. Bull-wise Live Female Progeny at Different Field Unit Centres (1-3 years) as on 3/2020

Centres	**Ronak**	**Alok**	**Girish**	**Badal**	**Babar**	**Chaman**	**Raghu**	**Abhijit**	**Nayan**	**Madhav**	Total
Shedhaya	8	0	0	0	0	0	0	8	2	0	18
Pipali	11	7	13	2	19	4	12	5	0	5	78
Hadmdiya	6	8	8	2	7	2	2	1	0	1	37
Loej	21	19	29	0	71	0	17	17	0	3	177
Surva	26	5	4	3	7	19	3	8	0	4	79
Mandlikpur	10	4	11	0	23	4	19	1	0	5	77
Odadar	21	9	36	3	17	2	27	21	0	0	136
Khorasa	10	4	12	3	19	2	5	7	0	3	65
Gonadal	0	0	6	0	3	0	4	0	0	0	13
Total	**113**	**56**	**119**	**13**	**166**	**33**	**89**	**68**	**2**	**21**	**680**

F 12. Bull-wise Live Female Progeny at Different Field Unit Centres (> 3years) as on 3/2020

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	**Nayan**	**Madhav**	**Total**
Shedhaya	12	0	12
Pipali	14	12	26
Loej	30	15	45
Surva	0	6	6
Mandlikpur	13	2	15
Hadmdiya	13	2	15
Khorasa	16	2	18
Odadar	35	14	49
Total	**133**	**53**	**186**

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	HARMADIYA	MORVAD	GOVIND BHAI CHANDERA	9696	26/08/2010	BHAGARO	I	10/09/2015	60.5	7.6	17/07/2016
2	HARMADIYA	ALIDAR	MAYURBHAI GOHIL	9686	10/12/2010	BHAGARO	I	02/07/2015	54.7	6.8	19/06/2016
3	HARMADIYA	ALIDAR	NIRMITBHAI BHAGATBHAI	9603	17/11/2011	BHAGARO	I	27/09/2015	46.4	7.8	12/07/2016
4	HARMADIYA	HARMADIYA	BHARATBHAI KHASIYA	A582	10/12/2011	BHAGARO	I	03/08/2015	43.8	12.3	20/07/2016
5	LOEJ	MANKHETRA	VANARAJ UKA	4216	15/06/2009	BHAGARO	I	08/11/2014	64.8	8.2	15/08/2015
6	LOEJ	RAHIJ	NATHA UKA	13066	12/07/2009	BHAGARO	I	27/05/2013	46.5	8.9	08/05/2014
7	LOEJ	ATROLI	RAM KARA	7437	10/08/2010	BHAGARO	I	06/08/2015	59.9	6.6	30/06/2016
8	LOEJ	NAGICHANA	BHAYA PARABAT	13002	24/08/2010	BHAGARO	I	28/11/2014	51.2	10.0	30/06/2015
9	LOEJ	GOREJ	VIRABHAN JINA	249	14/09/2010	BHAGARO	I	08/08/2014	46.8	8.0	05/06/2015
10	MANDLIKPUR	KHADIYA	BHIMA KALA	A087	29/11/2011	BHAGARO	I	17/08/2015	44.6	12.8	19/06/2016
11	MANDLIKPUR	PRATAPPUR	KAMLESH BHANJIBHAI	1910	15/12/2011	BHAGARO	I	14/04/2016	52.0	7.7	14/02/2017
12	MANDLIKPUR	CHORAVADI	DHIRU DEVRAJ SORATHIYA	2383	05/03/2012	BHAGARO	I	13/05/2016	50.3	8.0	14/03/2017
13	MANDLIKPUR	NAGALPUR	HAKA CHAGAN HARKANI	2394	29/03/2012	BHAGARO	I	12/08/2016	52.5	8.0	10/06/2018
14	MANDLIKPUR	TORANIYA	NARAN PARBAT TILVA	9629	17/04/2012	BHAGARO	I	20/08/2016	52.1	6.5	14/07/2017
15	MANDLIKPUR	ANANDPUR	KHIMA VAGMAN	A936	22/05/2012	BHAGARO	I	15/04/2016	46.8	9.5	15/02/2017
16	MANDLIKPUR	VIRPUR	VITTHAL RANCHOD VORA	1935	27/06/2012	BHAGARO	I	13/09/2016	50.6	11.9	15/07/2018
17	MANDLIKPUR	CHORAVADI	ARVIND GORDHAN	1913	18/10/2012	BHAGARO	I	24/11/2016	49.2	11.4	24/09/2017
18	MANDLIKPUR	BANDHALA	BALA NANJI	10781	10/03/2010	BHAGARO	I	25/04/2015	61.5	11.6	01/04/2016
19	MANDLIKPUR	ETALA	BHAGVAN HARDASHBHAI	A917	08/09/2010	BHAGARO	I	26/07/2015	58.6	6.1	23/06/2016
20	MANDLIKPUR	ANATHA	BHIKHA LAKHABHAI	12850	12/11/2010	BHAGARO	I	10/10/2015	58.9	9.1	11/09/2016
21	MANDLIKPUR	CHORVADI	BUDHDHABHAI VALLABHABHAI	953	30/07/2011	BHAGARO	I	27/10/2015	51.0	9.9	06/09/2016
22	MANDLIKPUR	BILKHA	NATUNATHA VIRANI	10757	22/12/2010	BHAGARO	I	10/10/2015	57.6	9.1	18/09/2016
23	MANDLIKPUR	TORNIYA	BHAGVANJI KHIMJI	1931	27/01/2011	BHAGARO	I	26/06/2015	53.0	9.6	10/06/2016
24	MANDLIKPUR	ANADPUR	JAMAN UKA DOBARIYA	12861	25/02/2011	BHAGARO	I	15/10/2015	55.7	9.7	15/09/2016
25	MANDLIKPUR	MEVASA	RASIKBHAI GORDHANBHAI	12829	15/04/2011	BHAGARO	I	05/11/2015	54.7	8.8	08/10/2016
26	MANDLIKPUR	CHORVADI	GOVINDBHAI HARIBHAI KOTADIYA	966	20/04/2011	BHAGARO	I	16/11/2016	67.0	8.4	16/10/2017
27	MANDLIKPUR	ITALA	JETHA KARSANBHAI	12838	22/06/2011	BHAGARO	I	22/11/2015	53.1	10.1	10/10/2016
28	MANDLIKPUR	NAGLPUR	HARSUKHBHAI DAYABHAI	1970	20/07/2011	BHAGARO	I	15/08/2016	60.9	8.0	14/07/2017
29	PIPALI	ECHAD	MEANSIBHAI DANABHAI	9458	04/02/2010	BHAGARO	I	21/02/2015	60.6	9.4	15/12/2015
30	PIPALI	DUDANA	KUMARBHAI RATHOD	9457	27/02/2010	BHAGARO	I	08/03/2015	60.3	8.6	26/12/2015
31	PIPALI	RONAJ	DEVSIBHAI RAVLIYA	9456	18/04/2010	BHAGARO	I	28/03/2015	59.3	9.2	15/02/2016
32	PIPALI	ARNEJ	ARJANBHAI DHIRUBHAI	9452	11/06/2010	BHAGARO	I	19/04/2015	58.3	9.2	30/01/2016
33	PIPALI	SONPARA	KANABHAI DODIYA	9451	18/07/2010	BHAGARO	I	03/05/2015	57.5	8.7	20/02/2016
34	PIPALI	RAJPARA	MANSINHBHAI CHAVADA	9453	06/05/2010	BHAGARO	I	10/04/2015	59.2	8.3	21/02/2016
35	SHERDI	VELAVA	MADHAVJI PARBAT VIROJA	10615	20/11/2011	BHAGARO	I	05/08/2015	44.5	11.0	12/07/2016
36	SHERDI	MANAVADAR	GOKAR UKA DEDIVADIYA	10617	27/11/2011	BHAGARO	I	24/09/2015	45.9	9.3	04/09/2016
37	SHERDI	SHERADI	KARA KARSHAN	10618	30/11/2011	BHAGARO	I	28/09/2015	46.0	9.9	03/09/2016
38	SHERDI	VEKRI	AJIT VELJI KARAVADIYA	10620	12/04/2011	BHAGARO	I	06/07/2015	50.8	9.7	12/07/2016
39	SHERDI	BURI	RAVJI HIRA SURAJA	10623	12/10/2011	BHAGARO	I	13/09/2015	47.1	10.9	03/09/2016
40	SHERDI	RONKI	KANTILAL MAVAJI	10626	16/12/2011	BHAGARO	I	11/08/2015	43.9	9.8	13/07/2016
41	SHERDI	JILANA	PRAVIN LALJI MENDAPARA	1591	26/12/2011	BHAGARO	I	12/10/2015	45.6	9.0	18/10/2016
42	SHERDI	LIMBUDA	MANSHUKH NATHA SUREJA	10640	15/01/2012	BHAGARO	I	12/12/2015	46.9	9.7	02/11/2016
43	SHERDI	BURI	KANA PUNA	10651	18/02/2012	BHAGARO	I	03/02/2016	47.5	9.3	03/02/2017
44	SHERDI	SHERADI	JETHA KANA MORI	10654	27/02/2012	BHAGARO	I	19/02/2016	47.8	10.1	28/01/2017
45	SHERDI	RANKI	RAVJIDAYA R.	10658	13/03/2012	BHAGARO	I	24/03/2016	48.4	8.7	19/03/2017
46	HARMADIYA	AALIDAR	KANABHAI ZALA	1222	25/03/2012	LAXMAN	I	16/10/2015	42.7	7.9	10/07/2016
47	HARMADIYA	MORVAD	GOVINDBHAI CHANDISH	B2668	30/04/2012	LAXMAN	I	12/06/2018	73.4	8.1	02/01/2019
48	LOEJ	NAGICHANA	HARADASH PARABAT	366	05/10/2010	LAXMAN	I	24/08/2016	70.7	10.2	30/06/2017
49	LOEJ	DIVASA	MOHAN KUMBHA	4234	05/10/2010	LAXMAN	I	23/08/2015	58.6	9.3	29/03/2016
50	LOEJ	NAGICHANA	HARADASH PARABAT	7264	27/10/2010	LAXMAN	I	14/02/2017	75.7	9.4	15/12/2017
51	LOEJ	DIVASA	MOHAN MULA	7416	10/11/2010	LAXMAN	I	22/01/2017	74.5	8.9	30/11/2017
52	LOEJ	RAHIJ	SOMAT MERAMAN	A-344	19/11/2010	LAXMAN	I	20/09/2016	70.1	9.5	28/07/2017
53	LOEJ	KANKASHA	DEVANAND MASARI	375	13/11/2010	LAXMAN	I	07/08/2016	68.8	9.0	02/03/2017
54	LOEJ	SANGAVADA	RAJU HIRA	5712	04/12/2010	LAXMAN	I	14/12/2016	72.4	9.8	18/10/2017
55	LOEJ	RAHIJ	RAM VEJA	351	07/12/2010	LAXMAN	I	16/11/2016	71.4	7.5	16/11/2016
56	LOEJ	NAGICHANA	ARAJAN VAJASI	896	12/12/2010	LAXMAN	I	10/03/2017	75.0	9.2	09/02/2018
57	LOEJ	RAHIJ	BHAYA MERAMAN	592	02/09/2011	LAXMAN	I	03/09/2017	72.1	9.4	23/07/2018
58	LOEJ	LOEJ	KISHOR RANA	4240	15/02/2011	LAXMAN	I	11/12/2015	57.9	8.8	16/07/2016
59	LOEJ	MENEJ	KHUMANSIH PARABATJI	13108	03/03/2011	LAXMAN	I	28/10/2015	55.9	8.8	30/06/2016
60	LOEJ	MANAKHETRA	SUBHASH KARASHAN	7232	30/08/2011	LAXMAN	I	17/10/2015	49.6	9.1	12/12/2016
61	LOEJ	NAGICHANA	VAJASI BHOJA	1912	25/08/2011	LAXMAN	I	23/05/2017	69.0	9.7	09/06/2018
62	LOEJ	BAMANAVADA	ARAJAN NATHA	372	08/09/2011	LAXMAN	I	09/02/2017	65.1	9.9	06/02/2018
63	LOEJ	MANAKHETRA	JAGADISH KACHELA	1753	13/09/2011	LAXMAN	I	17/01/2017	64.2	8.4	28/10/2017
64	LOEJ	BAMANAVADA	GOVIND KESUR	394	11/10/2011	LAXMAN	I	29/07/2016	57.6	8.5	01/03/2017
65	LOEJ	LOEJ	LAXAMAN RANA	5842	10/10/2011	LAXMAN	I	08/11/2015	49.0	8.6	15/08/2016
66	LOEJ	LOEJ	NARAN SOMAT	6697	22/10/2011	LAXMAN	I	28/05/2016	55.2	8.0	16/05/2017
67	LOEJ	KANKASHA	BACHU OGHAD	7457	06/10/2011	LAXMAN	I	20/01/2017	63.6	10.0	29/12/2017
68	LOEJ	NAGICHANA	VANU VARAJANG	354	04/10/2011	LAXMAN	I	30/08/2016	58.9	8.9	30/04/2017
69	LOEJ	NAGICHANA	ALA KANA	A-2384	15/10/2011	LAXMAN	I	02/09/2017	70.7	10.1	30/06/2018
70	LOEJ	BAMANAVADA	MULU DEVARAKHI	309	14/10/2011	LAXMAN	I	20/12/2015	50.2	9.4	15/06/2016
71	LOEJ	KANKASHA	BHUPAT KARASHAN	398	20/11/2011	LAXMAN	I	31/07/2016	56.4	8.4	13/06/2017
72	LOEJ	KANKASHA	UKA MALADE	2220	12/11/2011	LAXMAN	I	30/06/2016	55.6	7.2	15/02/2017
73	LOEJ	RAHIJ	MANDA MENASI	283	10/01/2013	LAXMAN	I	03/03/2017	49.7	8.8	08/01/2018
74	LOEJ	NAGICHANA	ARAJAN BHIMASI	7273	13/01/2012	LAXMAN	I	16/04/2016	51.1	12.0	13/03/2017
75	LOEJ	MANGROL	BHAVESH KARASHAN	5763	15/02/2012	LAXMAN	I	03/12/2017	69.6	9.1	12/12/2018
76	LOEJ	ZARIYAVADA	RANA DEVA	1791	25/02/2012	LAXMAN	I	18/01/2017	58.8	7.9	29/10/2017
77	LOEJ	LOEJ	VEJANAND DEVASI	1928	28/03/2012	LAXMAN	I	05/06/2017	62.3	11.3	23/06/2018
78	LOEJ	KANKASHA	GOVIND KARASHAN	5707	05/04/2012	LAXMAN	I	23/02/2017	58.7	8.5	31/12/2017
79	LOEJ	NAGICHANA	HARADASH PARABAT	7425	22/04/2012	LAXMAN	I	03/10/2016	53.4	8.4	25/08/2017
80	LOEJ	MAKATUPUR	SAMAT KARAMATA	242	23/04/2012	LAXMAN	I	25/08/2016	52.1	8.5	25/06/2017
81	LOEJ	KANKASHA	ARAJAN GOVIND	392	14/05/2012	LAXMAN	I	20/11/2016	54.3	8.5	26/10/2017
82	LOEJ	RAHIJ	NAGA VIRA	7446	11/05/2012	LAXMAN	I	30/04/2016	47.7	7.1	30/01/2017
83	LOEJ	NAGICHANA	PUNJA VIRA	326	15/05/2012	LAXMAN	I	14/10/2016	53.0	8.2	13/08/2017
84	LOEJ	SANGAVADA	BACHU DEVA	5767	22/05/2012	LAXMAN	I	13/11/2017	65.8	9.9	17/08/2018
85	LOEJ	RAHIJ	DEVASI ARASI	317	28/5/2012	LAXMAN	I	04/01/2017	55.3	7.3	29/10/2017
86	LOEJ	BAMANAVADA	MERAMAN KESUR	389	19/06/2012	LAXMAN	I	09/07/2016	48.7	8.3	15/02/2017
87	LOEJ	MANKHETRA	RAMASING BHAMA	5779	08/07/2012	LAXMAN	I	23/09/2017	62.6	10.2	03/09/2018
88	LOEJ	KANKASHA	JADAV MASARI	2244	09/08/2012	LAXMAN	I	29/10/2016	50.7	7.4	29/08/2017
89	LOEJ	RAHIJ	NATHA UKA	897	02/09/2012	LAXMAN	I	13/02/2018	65.4	9.3	14/12/2018

90	LOEJ	NAGICHANA	HAJA KABA	2278	16/09/2012	LAXMAN	I	23/06/2017	57.2	10.1	08/07/2018
91	LOEJ	MENEJ	SANJAY KANAJI	295	08/10/2012	LAXMAN	I	28/09/2016	47.7	10.4	09/09/2017
92	LOEJ	RAHIJ	ARAJAN LAXAMAN	2228	12/11/2012	LAXMAN	I	15/07/2016	44.1	8.6	14/02/2017
93	LOEJ	KANKASHA	SARAMAN VAJASI	3105	28/11/2012	LAXMAN	I	18/12/2016	48.7	9.8	15/07/2017
94	LOEJ	NAGICHANA	HAMIR RAJA	289	16/09/2013	LAXMAN	I	09/11/2017	49.8	9.6	15/09/2018
95	LOEJ	BAMANAVADA	ARASI HAJA	285	20/09/2013	LAXMAN	I	10/03/2018	53.7	8.7	16/01/2019
96	LOEJ	NAGICHANA	KARA KANA	383	28/09/2013	LAXMAN	I	03/01/2018	51.2	8.8	10/09/2018
97	LOEJ	MANKHETRA	KARASHAN AMARA	3108	10/10/2013	LAXMAN	I	09/11/2017	49.0	9.3	15/09/2018
98	LOEJ	MANKHETRA	VIJAY PUNJA	287	09/10/2013	LAXMAN	I	08/12/2017	50.0	9.2	07/10/2018
99	LOEJ	BAMANAVADA	NARAN KARA	2588	22/09/2011	LAXMAN	I	18/10/2015	48.9	9.6	20/07/2016
100	LOEJ	LOEJ	RAM MARAKHI	263	31/10/2012	LAXMAN	I	02/08/2016	45.1	8.5	30/05/2017
101	LOEJ	BAMANAVADA	RAM DEVASI	4214	23/10/2012	LAXMAN	I	15/05/2017	54.7	9.2	15/03/2018
102	LOEJ	SANGAVADA	VIJAYDAS MOHANDAS	665	25/09/2012	LAXMAN	I	09/12/2017	62.5	9.9	12/10/2018
103	LOEJ	BAMANAVADA	LAKHA DEVARAKHI	2250	19/02/2012	LAXMAN	I	18/06/2017	64.0	9.2	25/04/2018
104	LOEJ	LOEJ	BHIMA ARASI	1779	30/10/2012	LAXMAN	I	30/01/2017	51.1	8.8	30/11/2017
105	MANDLIKPUR	NANI MONPARI	PRAVIN DEVERSY	10782	19/07/2012	LAXMAN	I	23/10/2016	51.2	9.8	25/08/2017
106	MANDLIKPUR	BANDHALA	DHIRU RAMANI	2395	29/07/2012	LAXMAN	I	15/11/2016	51.6	9.6	16/09/2017
107	MANDLIKPUR	CHORAVADI	DHIRU SATASIYTA	A873	21/08/2012	LAXMAN	I	05/09/2016	48.5	9.8	15/07/2017
108	MANDLIKPUR	NAVA PIPLIYA	JASHSUKH HARIBHAI	2387	25/09/2012	LAXMAN	I	13/11/2016	49.6	10.2	15/09/2017
109	MANDLIKPUR	BILKHA	DHRMENDAR AANAD TILVA	10729	01/10/2012	LAXMAN	I	26/01/2018	63.9	8.6	26/11/2018
110	MANDLIKPUR	KHADIYA	MALDE GOVIND	2345	14/10/2012	LAXMAN	I	10/12/2016	49.9	8.3	12/10/2017
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	PIPALI	KAJ	KARSAM DODIYA	11805	18/06/2012	LAXMAN	I	08/04/2016	45.7	7.9	28/01/2017
122	PIPALI	MORADIYA	BHANA BADAI	11806	09/06/2012	LAXMAN	I	10/08/2016	50.1	6.1	03/05/2017
123	PIPALI	MORVAD	NATUBHAI VALA	11817	24/10/2012	LAXMAN	I	14/06/2016	43.7	8.2	09/03/2017
124	SURVA	MATHASUTIYA	VASING KANA	A-12637	29/07/2012	LAXMAN	I	05/04/2016	44.3	8.5	05/02/2017
125	SURVA	KHANDHERI	DENESH RAJA	3410	01/08/2012	LAXMAN	I	22/09/2017	61.7	8.7	20/07/2018
126	SURVA	KHANDHERI	DANA ARSHI	4211	20/08/2012	LAXMAN	I	18/05/2017	56.9	10.6	18/03/2018
127	SURVA	AMBLAS	PRAVIN PADALIYA	4282	28/08/2012	LAXMAN	I	25/06/2017	57.9	17.5	25/04/2018
128	LOEJ	KANKASHA	GOVIND HARADAS	209	22/06/2014	NAGRAJ	I	10/08/2018	49.6	9.7	15/06/2019
129	HARMADIYA	ALIDAR	PARMAR JAGDISH	B2938	27.03.2014	NAGRAJ	I	14/05/2018	49.6	7.0	23/03/2019
130	HARMADIYA	ALIDAR	GOHIL BHAGAVANBHAI	B2662	05.12.2013	NAGRAJ	I	25/06/2018	54.7	5.7	13/05/2019
131	LOEJ	MANKHETRA	PITHABHAI MORI	4213	10/08/2013	NAGRAJ	I	01/05/2017	44.7	9.0	27/02/2018
132	LOEJ	NAGICHANA	RAM NAGA	1784	17/08/2013	NAGRAJ	I	20/01/2017	41.2	8.6	20/12/2017
133	LOEJ	MANKHETRA	SUBHASH KESHAR	5743	27/08/2013	NAGRAJ	I	03/02/2017	41.3	11.1	08/12/2017
134	LOEJ	ATEOLI	VISA LAXAMAN	7451	08/09/2013	NAGRAJ	I	25/12/2016	39.6	8.2	29/10/2017
135	LOEJ	KANKASHA	HAMIR RAJA	2298	30/10/2013	NAGRAJ	I	02/10/2016	35.1	9.2	19/08/2017
136	LOEJ	RAHIJ	VIRAM KESAR	1781	20/11/2013	NAGRAJ	I	12/02/2017	38.8	9.3	15/12/2017
137	LOEJ	NAGICHANA	BHAYA PARABAT	246	24/11/2013	NAGRAJ	I	06/01/2018	49.4	10.6	17/10/2018
138	LOEJ	SANGAVADA	VIJAY BAPU	5764	22/11/2013	NAGRAJ	I	08/12/2017	48.6	10.0	13/12/2018
139	LOEJ	DIVASA	RAMESH RAJA	312	9/01/2014	NAGRAJ	I	08/02/2018	49.0	8.5	15/12/2018
140	LOEJ	KANKASHA	BHIKHAN VALA	251	25/01/2014	NAGRAJ	I	10/04/2018	50.5	8.5	10/04/2018
141	LOEJ	LOEJ	RAM KARASHAN	254	5/01/2013	NAGRAJ	I	03/01/2018	60.0	9.3	30/10/2018
142	LOEJ	MENEJ	KHUMANSIH PARABATJI	258	4/02/2014	NAGRAJ	I	12/03/2018	49.2	9.2	15/01/2019
143	LOEJ	FARANGATA	NARAN VAJASI	4043	14/09/2013	NAGRAJ	I	27/05/2018	56.4	9.4	28/03/2019
144	LOEJ	KANKASHA	BHIKHUBHA JALUBHA	6698	20/10/2013	NAGRAJ	I	03/04/2018	53.5	8.6	30/01/2019
145	LOEJ	KANKASHA	NAGA ARJAN	7212	19/04/2014	NAGRAJ	I	15/07/2018	50.9	9.3	15/05/2019
146	LOEJ	NAGICHANA	RAMESH VEJA	1800	18/12/2013	NAGRAJ	I	03/09/2018	56.5	10.2	30/06/2019
147	LOEJ	CHANDAVANA	DEVA GOVIND	1930	11/04/2014	NAGRAJ	I	10/09/2018	53.0	9.5	16/07/2019
148	LOEJ	MANGROL	MUSA MAMAD	234	23/03/2014	NAGRAJ	I	05/06/2018	50.5	10.1	07/04/2019
149	LOEJ	LOEJ	ARAJA NARAN	239	20/03/2014	NAGRAJ	I	03/09/2018	53.5	9.2	30/06/2019
150	LOEJ	MANKHETRA	RAMA DHANA	2273	08/11/2013	NAGRAJ	I	11/10/2018	59.1	10.3	14/08/2019
151	LOEJ	KANKASHA	NAGA ARAJAN	7484	26/02/2014	NAGRAJ	I	03/11/2018	56.3	8.9	30/08/2019
152	LOEJ	MENEJ	RAMASI NANDANIYA	2300	10/03/2014	NAGRAJ	I	13/11/2018	56.2	10.2	15/09/2019
153	LOEJ	RAHIJ	PARABAT VEJA	203	22/10/2013	NAGRAJ	I	22/10/2017	48.0	8.9	31/08/2018
154	LOEJ	MADHAVPUR	JIVA MITHA	233	08/02/2014	NAGRAJ	I	13/03/2018	49.1	10.4	17/01/2019
155	LOEJ	LOEJ	DEVASI MENASI	2321	22/07/2014	NAGRAJ	I	12/03/2019	55.7	9.8	14/01/2020
156	LOEJ	KANKASHA	RANA SAJAN	2279	05/09/2013	NAGRAJ	I	22/03/2017	42.5	10.3	26/01/2018
157	MANDLIKPUR	MANDALIKPUR	JIVARAJ GOKAL	B3318	02/01/2014	NAGRAJ	I	06/05/2018	52.1	7.7	07/03/2019
158	MANDLIKPUR	BANDHALA	BHAGVAN RAVJI	10741	15/06/2014	NAGRAJ	I	12/08/2018	49.9	8.5	11/06/2019
159	MOVANA	FAGRI	BHANA NATHA	A732	01/10/2013	NAGRAJ	I	18/08/2016	34.6	10.8	30/05/2017
160	PIPALI	HARMADIYA	NAVJIT DOBARIYA	B0151	21/01/2014	NAGRAJ	I	16/07/2018	53.8	16.0	27/04/2019
161	PIPALI	MITIYAJ	BHARAT CHOHAN	A2155	06/02/2014	NAGRAJ	I	08/04/2018	50.0	7.4	24/02/2019
162	PIPALI	ERAVAD	DEVASI KAMBLIYA	A2156	07/03/2014	NAGRAJ	I	05/09/2017	42.0	7.1	26/08/2018
163	PIPALI	LODHAVA	GOPAL BHIMA	A2158	02/04/2014	NAGRAJ	I	05/08/2017	40.1	6.7	22/06/2018
164	PIPALI	PIPLI	PRAVINBHAI CHOHAN	A2178	24/12/2013	NAGRAJ	I	07/12/2017	47.5	7.2	18/10/2018
165	SURVA	GUNDARADA	NATHA UKA	11470	28/11/2013	NAGRAJ	I	22/03/2017	39.8	8.9	22/01/2018
166	SURVA	GUNDARADA	NARAN BERA	16700	07/05/2014	NAGRAJ	I	15/08/2018	51.3	6.6	15/06/2019
167	SURVA	RAMPARA	ASHOKBHAI	A1162	10/06/2014	NAGRAJ	I	20/09/2018	51.4	9.6	20/07/2019
168	HARMADIYA	MORAVAD	CHNDERA LKAKHAN BHAI	2668	11.08.2014	BHOLENATH	II	12/06/2018	46.1	7.9	15/01/2019
169	LOEJ	BAMANAVADA	ARAJAN BHIMASI	1705	15/10/2014	BHOLENATH	II	10/02/2018	39.9	11.8	15/12/2018
170	LOEJ	MANKHETRA	KANA KHIMA	13320	9/12/2014	BHOLENATH	II	02/06/2018	41.8	9.0	15/03/2019
171	LOEJ	NAGICHANA	BHARAT BHIMASI	5742	28/08/2014	BHOLENATH	II	12/09/2018	48.5	8.0	14/07/2019
172	LOEJ	MENEJ	KHUMANSIH PARABATJI	594	30/10/2014	BHOLENATH	II	02/09/2018	46.1	9.4	30/06/2019
173	LOEJ	SHIL	GOVIND HAMA	13175	12/11/2014	BHOLENATH	II	08/09/2018	45.9	7.8	13/07/2019
174	LOEJ	ATROLI	RAM KARA	231	02/10/2014	BHOLENATH	II	03/11/2018	49.1	10.4	30/08/2019
175	LOEJ	KANKASHA	GOVIND MARAKHI		03/09/2014	BHOLENATH	II	08/12/2018	51.2	15.0	10/10/2019
176	LOEJ	RAHIJ	ARAJAN LAXAMAN	266	29/10/2014	BHOLENATH	II	03/10/2018	47.2	9.6	16/08/2019
177	LOEJ	LOEJ	KISHOR RANA	2285	16/10/2014	BHOLENATH	II	03/11/2018	48.6	8.7	07/09/2019
178	LOEJ	RAHIJ	PARABAT NATHA	2288	08/06/2015	BHOLENATH	II	31/12/2018	42.8	9.4	30/10/2019
179	LOEJ	NAGICHANA	HARADASH PARABAT	7466	29/09/2014	BHOLENATH	II	10/12/2018	50.4	11.1	17/10/2019
180	LOEJ	KANKASHA	LAXAMAN DEVASI	7279	09/09/2014	BHOLENATH	II	25/11/2018	50.6	10.7	30/09/2019
181	LOEJ	DIVASA	JINA RAMASI	666	29/10/2014	BHOLENATH	II	22/02/2019	51.8	9.0	27/12/2019
182	LOEJ	RAHIJ	RAMA MARASI	662	28/10/2014	BHOLENATH	II	02/01/2019	50.2	9.7	30/10/2019
183	LOEJ	MANKHETRA	PITHA BARAD	670	24/10/2014	BHOLENATH	II	23/12/2018	50.0	10.1	26/10/2019
184	LOEJ	RAHIJ	RAM DEVASI	667	22/10/2014	BHOLENATH	II	02/03/2019	52.3	10.0	30/12/2019

185	LOEJ	ATROLI	VISA LAXAMAN	2292	26/10/2014	BHOLENATH	II	31/01/2019	51.2	11.1	30/10/2019
186	LOEJ	MANKHETRA	KARASHAN NARAN	13392	11/12/2014	BHOLENATH	II	03/01/2019	48.8	10.0	07/11/2019
187	MANDLIKPUR	BILAKHA	JENTI RAMJI	12603	04/12/2014	BHOLENATH	II	12/08/2018	44.3	9.1	11/06/2019
188	MANDLIKPUR	NAGALPUR	POPAT VAGASHIYA	3874/A5616	29/12/2014	BHOLENATH	II	02/10/2018	45.1	8.3	03/08/2019
189	PIPALI	VELAVA	GIRISH VALA	151	07/07/2014	BHOLENATH	II	16/11/2017	40.4	7.2	22/09/2018
190	PIPALI	RAKHEJ	DIPU PARBAT	164	13/08/2014	BHOLENATH	II	03/11/2017	38.7	6.3	20/08/2018
191	PIPALI	KANAJDI	KALU PARMAR	188	23/08/2014	BHOLENATH	II	13/10/2017	37.7	7.0	28/07/2018
192	PIPALI	KAJ	ZALA SUBHASH	111	18/12/2014	BHOLENATH	II	27/01/2018	37.3	7.3	24/11/2018
193	PIPALI	PANADAR	RAM BHAI	117	19/02/2015	BHOLENATH	II	16/12/2017	33.9	9.1	20/10/2018
194	PIPALI	PIPLI	GOHIL RAGHU	115/11992	28/01/2015	BHOLENATH	II	09/06/2018	40.4	7.8	06/04/2019
195	PIPALI	KHERA	BALVANT KHER	144	18/07/2014	BHOLENATH	II	05/05/2018	45.6	6.2	23/02/2019
196	PIPALI	SOMPARA	RASHING MORI	155	12/07/2014	BHOLENATH	II	04/03/2018	43.8	7.2	22/01/2019
197	PIPALI	VELAVA	VADHEL ARJAN BHAI	136	14/10/2014	BHOLENATH	II	12/04/2018	42.0	7.2	10/02/2019
198	PIPALI	THORADI	IKABAL BHAI	190/A2154	23/11/2014	BHOLENATH	II	05/06/2018	42.4	7.0	28/03/2019
199	PIPALI	RONAJ	PARSHOTAM BHAI	181	13/09/2014	BHOLENATH	II	03/09/2018	47.7	6.0	10/07/2019
200	PIPALI	DOLASA	BHART BHAI	105	29/08/2014	BHOLENATH	II	06/08/2018	47.3	5.2	21/06/2019
201	PIPALI	ADVI	DODIYA KANA BHAI	199	14/12/2014	BHOLENATH	II	18/07/2018	43.1	7.6	20/06/2019
202	PIPALI	VELVA	NATHA BHAI	192	18/01/2015	BHOLENATH	II	02/11/2018	45.5	7.5	31/08/2019
203	SURVA	SURVA	RAJU GANDA	671	22/12/2014	BHOLENATH	II	15/06/2018	41.8	7.5	30/03/2019
204	LOEJ	KANKASHA	VAJASI MALADE	13124	19/11/2014	BHOLENATH	II	20/12/2018	49.1	9.6	23/10/2019
205	LOEJ	MAKTUPUR	VEJA MARAKHI	13196	25/11/2014	BHOLENATH	II	10/02/2019	50.6	9.4	13/12/2019
206	LOEJ	MANKHETRA	BHARAT BHAMA	13106	30/11/2014	BHOLENATH	II	03/02/2019	50.2	9.7	07/12/2019
207	LOEJ	BAMANAVADA	BHIMASI RANA	13384	26/12/2014	BHOLENATH	II	01/04/2019	51.2	9.1	30/01/2020
208	LOEJ	SANGAVADA	BACHU BABU	13182	11/11/2014	BHOLENATH	II	08/11/2018	47.9	9.4	18/09/2019
209	LOEJ	ATROLI	MALADE KANA	13149	09/11/2014	BHOLENATH	II	27/12/2018	49.6	9.0	30/10/2019
210	LOEJ	BAMANAVADA	JETHA LAXAMAN	13146	20/11/2014	BHOLENATH	II	08/11/2018	47.6	9.2	08/09/2019
211	LOEJ	KAREJ	MALADE DAYA	13336	01/12/2014	BHOLENATH	II	16/03/2019	51.5	9.5	18/12/2019
212	LOEJ	LOEJ	LAXAMAN DEVAT	13343	11/12/2014	BHOLENATH	II	03/01/2019	48.8	9.1	30/10/2019
213	LOEJ	NAGICHANA	GOVIND HARADASH	13368	23/12/2014	BHOLENATH	II	10/04/2019	51.6	9.8	11/02/2020
214	LOEJ	BAMANAVADA	LAXAMAN DOSA	13244	21/10/2014	BHOLENATH	II	23/11/2018	49.1	9.8	31/08/2019
215	LOEJ	KANKASHA	ARAJAN TAPU	13170	02/12/2014	BHOLENATH	II	30/12/2018	49.0	7.8	30/10/2019
216	LOEJ	RAHIJ	DEVASI VEJA	13305	08/12/2014	BHOLENATH	II	10/02/2019	50.1	9.2	15/12/2019
217	LOEJ	SANGAVADA	JENTI DAYA	13130	25/11/2014	BHOLENATH	II	09/02/2019	50.5	9.6	16/12/2019
218	LOEJ	MANKHETRA	BHIKHU MERAG	13173	19/11/2014	BHOLENATH	II	27/12/2019	61.3	9.3	30/12/2019
219	LOEJ	KANKASHA	NARAN VIRA	13185	20/11/2014	BHOLENATH	II	13/01/2019	49.8	9.2	15/11/2019
220	LOEJ	ZARIYAVADA	MANDA DAYA	13314	26/12/2014	BHOLENATH	II	16/11/2018	46.7	8.3	16/09/2019
221	LOEJ	LOEJ	JAGAMAL MULU	13326	08/01/2015	BHOLENATH	II	10/02/2019	49.1	9.0	10/12/2019
222	LOEJ	SHIL	RAMU JINA	13400	01/01/2015	BHOLENATH	II	06/01/2019	48.2	9.6	07/11/2019
223	LOEJ	BAMANAVADA	HAMIR MALADE	13346	26/12/2014	BHOLENATH	II	06/05/2019	52.3	9.2	20/02/2020
224	LOEJ	NAGICHANA	HARADASH PARABAT	13330	02/01/2015	BHOLENATH	II	08/01/2019	48.2	8.5	15/11/2019
225	LOEJ	ATROLI	DEVA ALA	13307	08/01/2015	BHOLENATH	II	30/12/2018	47.7	9.2	30/10/2019
226	LOEJ	NAGICHANA	ARAJAN MASARI	13195/3166	29/10/2014	BHOLENATH	II	10/05/2019	54.4	10.2	17/03/2020
227	LOEJ	KANKASHA	ARAJAN KARASHAN	13324	18/12/2014	BHOLENATH	II	15/06/2019	53.9	8.5	15/04/2020
228	PIPALI	KAJ	PARMAR ARJAN	9494	14/08/2015	DHINGALO	II	03/12/2017	27.7	8.3	20/09/2018
229	PIPALI	ADVI	DODIYA DINESH BHAI	2986	08/05/2015	DHINGALO	II	10/07/2018	38.1	7.5	20/05/2019
230	PIPALI	ADVI	PARMAR JESHING	2966/B0178	15/07/2015	DHINGALO	II	02/12/2018	40.6	6.6	28/09/2019
231	PIPALI	VELVA	MAKVANA MANU BHAI	2981	18/05/2015	DHINGALO	II	07/01/2019	43.7	5.5	02/11/2019
232	LOEJ	MANAKHETRA	JAGADISH KACHELA	7445	20/12/2010	HARESH	II	08/05/2015	52.6	7.7	15/12/2015
233	LOEJ	KANKASHA	MENASI KANA	1751	21/12/2010	HARESH	II	27/01/2017	73.3	8.4	29/08/2017
234	LOEJ	LOEJ	RAM KARASHAN	1755	16/12/2010	HARESH	II	28/01/2017	73.5	8.3	15/12/2017
235	LOEJ	BAMANAVADA	ARASI HAJA	1783	27/12/2010	HARESH	II	19/01/2017	72.8	8.3	29/11/2017
236	LOEJ	RAHIJ	NATHA UKA	13005	01/12/2011	HARESH	II	03/05/2016	53.1	8.8	30/11/2016
237	LOEJ	MANAKHETRA	PITHABHAI MORI	3103	22/03/2011	HARESH	II	24/12/2016	69.2	8.0	22/10/2017
238	LOEJ	NAGICHANA	ARAJAN MASARI	890	12/05/2011	HARESH	II	15/07/2017	74.2	9.2	15/05/2018
239	LOEJ	CHANDAVANA	MASARI DABHI	1916	21/5/2011	HARESH	II	03/07/2017	73.5	8.9	16/05/2018
240	LOEJ	MANAKHETRA	BHARAT HAMIR	391	28/07/2011	HARESH	II	30/07/2016	60.1	9.0	02/03/2017
241	LOEJ	RAHIJ	DEVASI OGHAD	13000	19/08/2011	HARESH	II	29/11/2014	39.4	11.1	16/05/2015
242	LOEJ	KANKASHA	VIRA LAXAMAN	316	15/11/2011	HARESH	II	12/11/2016	60.0	9.7	14/06/2017
243	LOEJ	RAHIJ	BHIKHUBHA RUPSING	2295	09/12/2012	HARESH	II	12/01/2016	37.1	9.3	15/08/2016
244	LOEJ	MAKATUPUR	ARAJAN DEVA	1976	28/03/2011	HARESH	II	19/06/2018	86.8	8.7	29/04/2019
245	LOEJ	LOEJ	SOMAT KARA	327	11/25/2011	HARESH	II	08/10/2015	46.5	10.1	15/08/2016
246	LOEJ	RAHIJ	KARASHAN RAJA	1971	28/08/2011	HARESH	II	09/07/2018	82.4	9.8	15/05/2019
247	LOEJ	BAMANAVADA	KARA DEVANAND	393	20/08/2011	HARESH	II	26/10/2018	86.3	10.1	11/09/2019
248	MOVANA	BADODAR	MANU KANA BHEDA	A171	25/11/2011	HARESH	II	21/08/2015	44.9	7.3	15/06/2016
249	PIPALI	SONPARA	SURABHAI BAPU	11820	06/02/2011	HARESH	II	11/07/2016	65.2	6.8	03/05/2017
250	PIPALI	PIPALI	BHIKHABHAI KUBHABHAI GOHIL	9416	26/11/2011	HARESH	II	07/11/2015	47.4	7.9	07/09/2016
251	PIPALI	DEVALPUR	MANUBHAI MEPABHAI	9418	29/11/2011	HARESH	II	01/11/2015	47.1	8.5	05/09/2016
252	PIPALI	FAFNI	BODHABHAI PAMAK	9419	23/11/2011	HARESH	II	07/10/2015	46.5	8.2	20/08/2016
253	PIPALI	VITALPUR	VALJIBHAI PARSOTAMBHAI	9415	14/11/2011	HARESH	II	13/09/2015	46.0	7.8	23/08/2016
254	PIPALI	ADVI	RAMSINH MERAMANBHAI MORI	9420	08/11/2011	HARESH	II	07/09/2015	46.0	9.5	28/08/2016
255	PIPALI	VELAN	SOLANKI LAKHAMAN	11839	30/12/2011	HARESH	II	04/03/2016	50.2	6.1	07/01/2017
256	PIPALI	FAFNI	NAJA RAMU	11801	16/01/2012	HARESH	II	19/03/2016	50.1	6.4	11/02/2017
257	PIPALI	AALIDAR	RANBIR BHAGVAN	11810	24/03/2012	HARESH	II	21/07/2016	51.9	7.5	03/05/2017
258	LOEJ	LOEJ	VIMAL NARAN	1938	12/05/2011	HARESH	II	03/08/2018	86.8	8.8	10/06/2019
259	HARMADIYA	AALIDAR	AMBHU BHAI	2957	30.04.2013	MOTI	II	30/04/2017	48.0	7.0	15/01/2019
260	HARMADIYA	AALIDAR	KARSHAN VEISH	B2653	29.03.2013	MOTI	II	29/08/2018	65.1	5.6	10/07/2019
261	HARMADIYA	AALIDAR	BHIKHU CHAUHAN	B2957	02.07.2013	MOTI	II	19/07/2018	60.6	6.4	23/02/2019
262	HARMADIYA	AALIDAR	HAMEER RABARI	2938	29.05.2013	MOTI	II	14/05/2018	59.5	6.8	28/03/2019
263	LOEJ	RAHIJ	VEJA BHIMA	374	25/08/2012	MOTI	II	02/08/2016	47.3	8.9	03/06/2017
264	LOEJ	SHAPUR	BAVAN RANA	883	16/08/2012	MOTI	II	20/07/2017	59.1	10.7	31/05/2018
265	LOEJ	LOEJ	BHIMA NATHU	347	08/12/2012	MOTI	II	11/09/2016	45.1	9.1	03/07/2017
266	LOEJ	KANKASHA	HARADASH GOVIND	335	12/12/2012	MOTI	II	08/12/2016	47.9	9.2	18/07/2017
267	LOEJ	RAHIJ	RAM KARA	892	11/12/2012	MOTI	II	22/07/2017	55.4	10.0	20/06/2018
268	LOEJ	LOEJ	MALADE LUMBHA	7406	12/12/2012	MOTI	II	12/12/2015	36.0	10.4	10/01/2017
269	LOEJ	SHIL	VARAJANG KARASHAN	2283	10/12/2012	MOTI	II	08/04/2016	39.9	9.2	08/05/2017
270	LOEJ	NAGICHANA	SARAMAN ARAJAN	2695	10/02/2013	MOTI	II	05/08/2016	41.8	7.6	05/06/2017
271	LOEJ	KANKASHA	VIRA ARASI	1929/3106	17/05/2013	MOTI	II	10/12/2016	42.8	8.7	08/10/2017
272	LOEJ	KANKASHA	VIRA ARASI	1929	17/05/2013	MOTI	II	02/11/2018	65.6	11.2	30/08/2019
273	LOEJ	MENEJ	NARAN HARADASH	2294	28/01/2013	MOTI	II	22/08/2018	66.8	8.9	30/06/2019
274	MANDLIKPUR	BILKHA	FULA VIRA KUMBHANI	2392	12/01/2012	MOTI	II	16/03/2016	50.1	10.5	15/02/2017
275	MANDLIKPUR	BILKHA	NATU NATHA VIRALI	10724	25/01/2012	MOTI	II	20/03/2016	49.8	8.9	19/01/2017
276	MANDLIKPUR	ANANDPUR	KAMLESH JAMAN	3341	25/11/2012	MOTI	II	16/03/2017	51.7	9.9	16/01/2018
277	MANDLIKPUR	HADMATIYA	PARBAT BHANU	10753	04/12/2012	MOTI	II	22/03/2017	51.6	10.2	21/01/2018
278	MANDLIKPUR	CHORVADI	ARAVIND GORDHAN	2384	14/01/2013	MOTI	II	11/03/2017	49.9	8.4	10/01/2018

279	MANDLIKPUR	RAMESHVAR	BACHU MANJI	1932	14/02/2013	MOTI	II	25/03/2017	49.3	8.3	24/12/2017
280	MANDLIKPUR	TORANIYA	JAYNTI VALA	B094	29/04/2013	MOTI	II	21/10/2017	53.8	8.1	21/08/2018
281	MANDLIKPUR	BILKHA	VITHALBHAI NATHA	7075	26/06/2013	MOTI	II	10/07/2017	48.5	8.7	11/05/2018
282	MANDLIKPUR	KARIYA	DOSA DEVSI	A099	28/06/2013	MOTI	II	12/08/2017	49.5	9.6	12/06/2018
283	MANDLIKPUR	PRABHATPUR	KISHOR KACHARA SUVAGIYA	10738	23/08/2013	MOTI	II	21/11/2017	51.0	8.7	22/09/2018
284	MANDLIKPUR	ANANDPUR	KAMLESH JAMAN DOBARIYA	A023	12/11/2013	MOTI	II	13/01/2018	50.1	8.3	15/11/2018
285	MANDLIKPUR	BHALGAM	LALIT MANSUKH HIRAPARA	10746	20/11/2013	MOTI	II	10/11/2017	47.7	8.0	11/09/2018
286	MANDLIKPUR	TORANIYA	DAYA BHAGVANJI KUMBHANI	10743	28/11/2013	MOTI	II	12/12/2017	48.5	9.1	12/10/2018
287	MANDLIKPUR	KHADIYA	KARSHAN NARAYAN KADORIYA	10796	15/12/2013	MOTI	II	03/04/2017	39.6	9.9	03/02/2018
288	MANDLIKPUR	TORANIYA	NARAYAN GANGDAS	A095	20/12/2013	MOTI	II	05/11/2017	46.6	9.1	06/09/2018
289	MANDLIKPUR	ITALA	BHAGVAN HARDAS	B0921	23/06/2013	MOTI	II	20/09/2018	63.0	5.5	21/07/2019
290	MANDLIKPUR	BILKHA	BABU SANBHU VEKARIYA	B5897	05/10/2013	MOTI	II	04/11/2018	61.0	8.7	06/09/2019
291	MANDLIKPUR	BILKHA	RAMESH BHIKHA	B5505	13/08/2013	MOTI	II	16/02/2019	66.2	7.6	17/12/2019
292	MOVANA	CHANDIGADH	BHIKHA LAKHA MODHA	A180	01/03/2012	MOTI	II	11/04/2015	37.3	8.4	15/02/2016
293	MOVANA	CHITRI	JIVA KARSHAN SIHAR	A483	04/03/2012	MOTI	II	15/09/2015	42.4	8.8	15/07/2016
294	MOVANA	GHANSARI	GOPAL RAVJI	10053	04/05/2013	MOTI	II	04/08/2016	39.1	9.4	30/05/2017
295	MOVANA	MOVANA	MANSUKH DEVAJI	10854	01/07/2012	MOTI	II	01/06/2016	47.0	8.1	28/03/2017
296	PIPALI	RONAJ	BHIKHA SAVLIYA	A2157	28/03/2013	MOTI	II	03/01/2018	57.3	7.2	05/11/2018
297	PIPALI	DHAMLEJ	BHUPAT BARAD	A2174	08/03/2013	MOTI	II	08/10/2017	55.1	7.2	22/08/2018
298	PIPALI	DHAMLEJ	RANJIT CHUHAN	A2153	17/03/2013	MOTI	II	09/11/2017	55.8	7.3	28/09/2018
299	PIPALI	FAFNI	HARIBHAI GODHANI	A2179	14/11/2013	MOTI	II	10/10/2017	46.9	7.7	22/08/2018
300	PIPALI	DUDANA	BHAGVAN RATHOD	9412	26/12/2012	MOTI	II	03/05/2018	64.2	7.7	07/03/2019
301	SURVA	GUNDARADA	BHIKHABHAI VARU	12637	24/01/2012	MOTI	II	10/04/2016	50.6	9.0	05/02/2017
302	SURVA	KHANDHERI	PITHA KANA	699	26/01/2012	MOTI	II	09/01/2016	47.5	11.5	10/11/2016
303	SURVA	GUNDARADA	HERA RANA	3490	02/02/2012	MOTI	II	17/06/2017	64.5	9.6	17/04/2018
304	SURVA	GUNDARADA	GOVIND BHADRKA	9831	20/02/2012	MOTI	II	24/04/2016	50.1	8.2	15/03/2017
305	SURVA	KHANDHERI	PITHA KANA	9916	28/02/2012	MOTI	II	15/02/2017	59.6	11.4	15/12/2017
306	SURVA	MADHUPUR	PRAFUL JESIYA	12595	21/04/2012	MOTI	II	21/04/2016	48.0	6.8	22/02/2017
307	LOEJ	LOEJ	RAM MERAMAN	6613	18/10/2015	RAJA	II	02/06/2018	31.5	9.4	30/03/2019
308	LOEJ	KANKASHA	JADAV MASARI	1759	12/10/2015	RAJA	II	15/11/2018	37.2	9.3	15/09/2019
309	LOEJ	RAHIJ	KARASHAN RAJA	878	23/11/2015	RAJA	II	19/12/2018	36.9	8.2	20/10/2019
310	PIPALI	MITIYAJ	BARAD KISHAN	2924	07/10/2015	RAJA	II	14/01/2018	27.3	6.7	20/11/2018
311	LOEJ	MANKHETRA	KACHARA NARASING	241	21/02/2013	SUNDAR	II	08/03/2017	48.5	7.6	08/01/2018
312	LOEJ	MANKHETRA	JAGADISH BACHU	248	30/03/2013	SUNDAR	II	07/09/2017	53.3	10.0	06/07/2018
313	LOEJ	LOEJ	ARAJAN MALADE	247	06/04/2013	SUNDAR	II	08/10/2017	54.1	9.1	15/08/2018
314	LOEJ	RAHIJ	BHOJA GOVIND	319	09/04/2013	SUNDAR	II	03/01/2018	56.9	8.0	30/10/2018
315	LOEJ	NAGICHANA	HARADASH PARABAT	4454	07/05/2013	SUNDAR	II	09/09/2016	40.1	9.6	08/08/2017
316	LOEJ	MANKHETRA	MANSING ARAJAN	286	11/05/2013	SUNDAR	II	03/12/2017	54.8	8.7	30/10/2018
317	LOEJ	KANKASHA	BHIKHA BHAYA	2281	24/05/2013	SUNDAR	II	24/11/2017	54.1	9.5	30/11/2018
318	LOEJ	KANKASHA	ARAJAN DEVASI	7453	03/06/2013	SUNDAR	II	12/10/2017	52.3	9.5	17/08/2018
319	LOEJ	NAGICHANA	RAM HAJA	5747	20/06/2013	SUNDAR	II	10/11/2016	40.7	8.5	08/10/2017
320	LOEJ	LOEJ	NARAN SOMAT	267	11/02/2013	SUNDAR	II	10/05/2018	62.9	9.3	15/03/2019
321	LOEJ	KANKASHA	SUDA RAMA	1438	15/04/2013	SUNDAR	II	10/06/2018	61.9	8.4	10/04/2019
322	LOEJ	RUDALPUR	JAYESH PARABAT	253	22/06/2013	SUNDAR	II	28/12/2017	54.2	8.6	30/10/2018
323	LOEJ	BAMANAVADA	RAM JIVA	259	7/06/2013	SUNDAR	II	07/06/2017	48.0	9.0	31/12/2018
324	LOEJ	KANKASHA	BHAYA DEVASI	591	25/06/2013	SUNDAR	II	03/07/2018	60.3	8.6	29/04/2019
325	LOEJ	LOEJ	JETHA VIRA	2219	2/07/2014	SUNDAR	II	20/07/2017	36.6	7.7	26/05/2018
326	LOEJ	SANGAVADA	LALA VIRA	13243	12/07/2014	SUNDAR	II	08/06/2018	46.9	9.0	10/03/2019
327	LOEJ	DIVASA	NATHA BHADARAKA	5744	23/07/2013	SUNDAR	II	10/07/2018	59.6	8.9	16/05/2019
328	LOEJ	LOEJ	RAJU MALADE	237	30/04/2014	SUNDAR	II	08/08/2018	51.3	9.5	06/06/2019
329	LOEJ	MADHAVPUR	MOHAN SAVADAS	235	10/05/2014	SUNDAR	II	17/07/2018	50.3	8.8	20/05/2019
330	LOEJ	ZARIYAVADA	HAMIDKHA ABIBKHA	232	22/05/2014	SUNDAR	II	06/08/2018	50.5	8.5	16/06/2019
331	LOEJ	KANKASHA	GOVIND KARASHAN	1924	20/02/2013	SUNDAR	II	03/11/2018	68.4	11.7	05/09/2019
332	LOEJ	SANGAVADA	BACHU LAXAMAN	252	14/07/2014	SUNDAR	II	08/11/2018	51.9	8.8	16/09/2019
333	PIPALI	KAJ	RAM BHAI	187	05/06/2014	SUNDAR	II	07/09/2017	39.1	7.3	29/06/2018
334	PIPALI	DHAMLEJ	DINA BAPU	112	21/06/2014	SUNDAR	II	03/01/2018	42.5	8.1	20/10/2018
335	LOEJ	BAMANAVADA	LAXAMAN ALA	205	10/07/2014	SUNDAR	II	20/11/2018	52.4	9.8	25/09/2019
336	PIPALI	PANDAR	KAMLIYA BABU	2944	21/11/2015	NAYAN	III	19/09/2017	22.0	7.6	03/07/2018
								AV.	**51.7**	**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				
						Total		Female		1 year	2 year	3 year	Calving	Complete Recording
		Pro.	Cur.year (19-20)	Pro.	Cur.year (19-20)	Pro.	Cur.year (19-20)	Pro.	Cur.year (19-20)					
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					0	0
Nagraj	I	4016		1822(2452)		799		768					40	40
Laxman	I	5343		2735(4556)		2735		1349					82	82
A		**18916**	**0**	**8606(14234)**	**0**	**7274**	**0**	**3917**	**0**				**167**	**167**
Haresh	II	1245		660(1082)		437		211					27	27
Moti	II	2459		1041(2129)		1007		472					48	48

Sunder	II	719		377(702)		329		151					25	25
Raja	II	1443		724(1378)		594		277					4	4
Dhinglo	II	1089		552(1064)		552		259					4	4
Bholenath	II	2557		1235(1988)		843		404					60	60
B		**9512**	**0**	**4589(8343)**	**0**	**3762**	**0**	**1774**	**0**				**168**	**168**
Nayan (07/10)	III	1061		503(1000)		391		164				2	1	1
Abhijit (A1/10)	III	619		279(619)		254		98				68		
Madhav(37/10)	III	692		295(639)		239		105				21		
Alok	III	1169		371(926)	104(236)	276	157	132	70		56	36		
Ronak(09/11)	III	1737		752(1736)		670		386			12	188		
Girish	III	1601		612(1565)		464		210		7	119	64		
Babar	III	1520		609(1380)		411	20	178	9	99	84	0		
Raghu	III	1312		491(1163)		427		191		66	29	0		
Chaman	III	870		352(836)		263		110		18	17	0		
C		**10581**	**0**	**4264(9864)**	**104(236)**	**3395**	**177**	**1574**	**79**	**190**	**317**	**379**	**1**	**1**
Badal	IV	963		394(978)	14(50)	31	345	13	146	13	0	0		
Kamalesh	IV	259	577	0	331(836)	0	190	0	83		0	0		
Hamir	IV		1342		327(772)									
Balo	IV		43											
D		**1222**	**1962**	**394(978)**	**672(1658)**	**31**	**535**	**13**	**229**	**13**	**0**	**0**	**0**	**0**
Gr.Total (A+B+C+D)		**40231**	**1962**	**17853(33419)**	**776(1894)**	**14462**	**712**	**7278**	**308**	**203**	**317**	**379**	**336**	**336**

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	2	39.6	10.8	
2014-15	4781	2150(4271)	50.34	1564	731	1	46.5	8.9	
2015-16	3375	1719(3691)	46.57	1892	867	21	51.2	9.2	
2016-17	2971	1228(3041)	40.38	1256	537	77	50.9	9.1	
2017-18	2462	1032(2436)	42.36	815	365	44	53.0	8.9	
2018-19	2013	840(1971)	42.62	803	347	87	51.6	8.7	
2019-20	1962	776(1894)	40.97	712	308	87	52.8	9.1	
Overall	**42128**	**18594(37169)**	**50.03**	**16126**	**7533**	**336**	**50.7**	**9**	

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		40	82	**167**

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	27	48	25	4	4	60	**168**

Set - III	Nayan	Abhijit	Madhav	Alok	Ronak	Girish	Babar	Raghu	Chaman	Total
AI	1061	619	692	794	1737	1601	1142	1289	**855**	**9790**
Pregnancies	503	279	295	419	752	612	299	442	**321**	**3922**
Daughters Born	164	98	105	202	386	210	102	34	**18**	**1319**
Daughters Calved	1	0	0	0	0	0	0	0	0	**1**

Set - IV	Badal	Kamlesh	Hamir	Balo	Total
AI	963	836	1342	43	**3184**
Pregnancies	408	331	327		**1066**
Daughters Born	159	83			**242**
Daughters Calved					

Cattle Breeding Farm, JAU, Junagadh.

List of elite Jaffrabadi buffaloes producing >3000 kg milk/305 days

Sr.no.	Name of buffalo	Brand no.	Total lac.yld	Lact. Days	305d. Lac. Yld	Peak yld	Parity
1	MANDIRA	23/09	4854.3	462	3707.9	17.5	2
2	LADLI	27/09	4158.0	409	3674.2	18.5	2
3	BARAFI	23/10	3640.3	312	3617.9	17.9	3
4	RUTVA	49/09	3747.3	343	3608.3	20.0	3
5	BABLI	53/09	4033.7	384	3601.0	18.8	2
6	RITA	07/05	3508.3	318	3490.2	23.0	6
7	DIMPAL	35/08	3565.9	375	3397.3	27.6	5
8	SONERI	17/13	3554.5	343	3301.3	16.4	1
9	KARINA	08/09	3506.6	371	3262.2	16.0	2
10	KUNTA	05/08	3432.5	388	3067.9	16.6	3
11	SAVITRI	55/08	3025.3	303	3024.1	16.8	4
12	SHIVA	51/12	3920.6	588	3005.2	16.3	1
13	LUMIA	39/12	3357.6	353	3000.7	15.6	2
14	SHILPA	42/08	3002.0	304	3000.0	16.3	4
			3664.8		**3339.9**	**18.4**	

Project Co-ordinator's observations on centre performance

Financial Statement for the year 2019-20 (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	
93.90	63.30+9.50 (SCSP)	72.80	5203902+ 7.58574 (SCSP	17.34634	11.26098+1.91426 (SCSP)

Herd Performance

Herd strength was 351 heads comprising of 213 breedable buffaloes (> 2 years) and 17 breeding bulls. 75 calving reported during the report period out of which 40 male, 35 female, two still birth and three abortion. Calf mortality (0-3 months) was 5.49 percent and conception rate was 39.18 %. During the year 31920 doses of semen were produced and 9555 doses were used for farm/field herd /sold to the farmers and other developmental agencies. 122233 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 2408.5 kg (56) and 2245.1 kg (56) decreased from last year (2500.6 kg and 2359.8 kg) respectively. The reproductive traits viz. AFC, SP, DP and calving interval were 46.1 months (24), 164.6 days (43), 192.0 days (43) and 477.3 days (43) respectively. The wet and herd average increased from 5.80 kg to 6.30 kg and herd average decreased from 3.60 kg to 3.20 kg., marked significant reduction over 2015-16 performance (wet Av. 8.10 and herd Av. 3.5 kg). 50.90 percent buffaloes were in milk during the report period.

Field Unit:

1962 AI's were performed utilization from the semen of 3 bulls of IV set in 9 centers/villages. Total 776 conceptions reported with conception rate of 39.55 %. 308 female progenies born and 87 daughters completed lactation in 2019-20.

Accomplishment and Targets Achieved:

Sr. No.	Trait	Target	Achieved 2016-17	Achieved 2017-18	Achieved 2018-19	Achieved 2019-20
1	Av. AFC (Months)	40.0 months	49.80 (12)	54.05 (21)	49.9 (22)	**46.1 (24)**
2	Av. service period (Days)	130 days	190 (33)	150 (48)	180.4 (35)	**164.6 (43)**
3	Calf mortality (0-3 months)	≤ 4 %	6.94 %	10.64 %	5.82 %	**5.49**
4	Wet average (Kg)	≥ 8.50 kg	7.4 kg	6.7 kg	5.80	**6.30**
5	Herd average (Kg)	≥ 5.50 kg	3.2 kg	3.0 kg	3.60	**3.20**

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: 2019-20

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** : 1. Performance recording and improvement of Surti buffalo
   2. Progeny testing of Surti bulls under field conditions

1. **Technical Programme :**

- Establishment and maintenance of an elite herd of Surti with herd strength of 150.
- 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 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 4^{th} 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)**	**Total Expenditure**
A. Recurring		
1. Pay & Allow.	21,00,000.00	-
2. T.A.	1,00,000.00	-
3. Recurring cont.	54,00,000.00	53,92,338.00
4. Recurring cont **(SCSP)**	10,000,00.00	10,000,00.00
Total	**86,00,000.00**	**63,92,338.00**
A. **Non-recurring Conti**.		
1. Furniture	40,000.00	39,672.00
2. Works	4,00,000.00	4,00,000.00
3. Livestock	4,00,000.00	4,00,000.00
4. Equipment **(SCSP)**	2,00,000.00	2,00,000.00
Total	**10,40,000.00**	**10,39,672.00**
G. Total	**96,40,000.00**	**74,32,010.00**

Revenue generated: Total receipt generated during the year: Rs. 19,23,990/-

8. 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 2019 to 31st March, 2020

Sr. No.	Category	Addition			Disposal				CB
		OB	B / P	T	D	T	S	E	
	Female								
1.	Below 3 months	02	12	00	06	07	00	00	**01**
2.	3-12 months	09	00	07	00	11	00	00	**05**
3.	1-2 years	16	00	11	00	15	00	00	**12**
	Above 2 years	21	00	15	01	08	00	00	**27**
4.	Buffaloes in Milk	28	00	9	00	00	03	00	**34**
5.	Buffaloes Dry P /NP	13	00	00	03	01	04	00	**05**
	Sub Total	89	12	42	10	42	07	00	84
	Males								
1.	Below 3 months	01	23	00	06	13	02	00	**01**
2.	3-12 months	10	00	13	02	10	00	00	**11**
3.	1-2 years	07	00	10	01	06	00	00	**10**
	Above 2 years	13	00	06	02	02	08	00	**09**
4.	Breeding bulls	07	00	00	00	00	00	00	**07**
5.	Bullocks / Teasers / others	02	00	00	00	00	00	00	**02**
	Sub Total	40	23	29	11	29	10	00	**42**
	Grand Total	**129**	**35**	**71**	**21**	**71**	**17**	**00**	**126**

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 19	0	0	-	-	-	-	-	0
May	0	0	-	-	-	-	-	0
June	1	0	-	-	-	-	-	1
July	1	0	-	1	-	-	-	2
August	4	3	1	-	-	-	-	**8**
September	9	3	-	-	-	-	-	**12**
October	2	1	-	1	-	-	-	4
November	1	3	1	-	-	-	-	5
December	5	2	-	-	-	-	-	7

January 20	0	0	-	-	-	-	-	0
February	0	0	-	-	-	-	-	0
March	0	0	-	-	-	-	-	0
Overall	**23**	**12**	**2**	**2**	**0**	**0**	**0**	**39**

Sex ratio **Male : Female (1.92:1)** Abortion % = 0.05 %

9.3. Disposal of Animals during the Period 1st April 19 to 31st March 20

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	0	0	0	0	0	6	0	**6**
3-12 months	0	0	0	0	0	0	0	**0**
Heifers								
1-2 years	0	0	0	0	0	0	0	**0**
> 2 years	0	0	0	0	0	1	0	**1**
Buffaloes								
Milch	0	0	0	2	1	0	0	**3**
Dry	0	3	1	0	0	3	0	**7**
Sub Total	**0**	**3**	**1**	**2**	**1**	**10**	**0**	**17**
Males	**Primary cause of disposal**							
Calves								
0 to 3 months	2	0	0	0	0	6	0	**8**
3-12 months	0	0	0	0	0	2	0	**2**
1 to 2 year	0	0	0	0	0	1	0	**1**
>2 year	8	0	0	0	0	2	0	**10**
Breeding bulls	0	0	0	0	0	0	0	**0**
Bullock+Teaser+Others	0	0	0	0	0	0	0	**0**
Sub Total	**10**	**0**	**0**	**0**	**0**	**11**	**0**	**21**
Grand Total	**10**	**3**	**1**	**2**	**1**	**21**	**0**	**38**

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

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.	14	16	27	36	50	143	24	23	17	28	92	235
Died	6	0	0	1	3	10	6	2	1	2	11	21
%	**42.9**	**0.0**	**0.0**	**2.8**	**6.0**	**6.99**	**25.0**	**8.7**	**5.9**	**7.1**	**11.96**	**8.94**

9.5. Causes of Mortality (quarter wise) during the period April 19 to March 20

Particulars	1st quarter (April-June)	2nd quarter (July-Sept)	3rd quarter (Oct-Dec.)	4th quarter (Jan.-March)	**Total**
Enteritis	1	3	4	-	**8**
Pneumonitis	-	2	2	2	**6**
Septicemia / Toxemia	-	-	-	-	**0**
Peritonitis	-	-	-	-	**0**
JD/TB	-	-	-	-	**0**
Milk Fever/metabolic diseases	-	-	-	-	**0**

TRP / TP	-	-	-	-	**0**
Parasitism	-	-	-	-	**0**
Accidental death	-	-	-	-	**0**
Peri-parturient disorders	-	-	-	-	**0**
Miscellaneous	-	3	3	1	**7**
Total	**1**	**8**	**9**	**3**	**21**

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	07-07-2019	120			April	24
					May	22
HS	07-07-2019	120			June	21
					July	135
BQ	07-07-2019	120			August	45
					September	35
Brucellosis	27-04-19, 19-05-19, 30-08-19	11			October	24
					November	21
JD			8	0	December	20
TB			8	0	January	26
IBR					February	23
Mastitis					March	21

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

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	10	5	50.00	4	0	0.00	4	1	25.00	6	0	0.00	24	6	25.00
Adults	28	17	60.71	7	2	28.57	5	3	60.00	1	0	0.00	41	22	53.66
Overall	**38**	**22**	**57.89**	**11**	**4**	**36.36**	**9**	**4**	**44.44**	**7**	**0**	**0.00**	**65**	**28**	**43.08**

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	23	13	56.52
April - June	6	0	0.00
July - September	7	0	0.00
October- December	29	15	51.72
Overall	**65**	**28**	**43.08**

9.9. Bull-wise Conception Rate During the period January to December, 2019

Sr. No.	Bull No.	SET No.	Total Number of AI	Total Conceived	CR%
1.	1948	1	3	2	66.67
2.	1950	2	16	8	50.00
3.	1952	2	2	1	50.00
4.	1955	3	3	2	66.67
5.	1961	3	2	2	100.00
6.	1963	4	5	1	20.00
7.	1968	4	10	6	60.00
8.	4529	8	1	1	100.00
9.	4542	8	12	0	0.00
10.	4567	8	5	3	60.00
11.	4578	8	6	2	33.33
Over all			**65**	**28**	**43.08**
No. of services per conception					**2.32**

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	6		-	-	6	213
I	1949	2	0			-	-	0	2
II	1950	285	0	32		-	-	32	253
II	1951	15	0			-	-	0	15
II	1952	199	0	4		-	-	4	195
II	1953	95	0			-	-	0	95
III	1955	525	0	6		-	10	16	509
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	4		-	-	4	463
IV	1962	85	0			-	-	0	85
IV	1963	962	0	10		-	-	10	952
IV	1964	500	0			-	2	2	498
IV	1965	350	0			-	-	0	350
IV	1966	1152	0			-	50	50	1102
IV	1967	2435	0			-	60	60	2375
IV	1968	1636	0	20		-		20	1616
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	5703	0			-	10	10	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			-	-	0	3073
VII	4392	1996	0			-	-	0	1996
VII	4429	2406	0			-	-	0	2406
VII	4413	1164	0			-	-	0	1164
VII	4458	123	0			-	-	0	123
VIII	4464	2041	0		384	-	-	384	1657
VIII	4529	3409	0	2	625	-	5	632	2777
VIII	4542	1657	437	24	100	-	-	124	1970
VIII	4548	1610	0		0	-	-	0	1610
VIII	4567	1983	0	10	160	-	-	170	1813
VIII	4578	3407	0	14	765	-	10	789	2618
IX	**4611**	1846	1288			-	-	0	3134
IX	**4612**	671	805			-	-	0	1476
IX	**4633**	2580	1560			-	-	0	4140
IX	**4647**	1128	1165			-	-	0	2293
IX	**4648**	1342	1545			-	-	0	2887
Total		**65714**	**6800**	**132**	**2034**	**0**	**147**	**2313**	**70201**

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
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	**-**	**-**

ADULT Buffaloes: 459.80 ± 11.70 Breeding Bulls: 510.50 ± 8.42

9.12 Average Production Performance of Buffaloes Completing their Lactation

Lact. No.	N	TLMY (kg)	Lact Length (days)	SLMY (kg)	Peak Yield (kg)
1st	7	1641.30 ± 42.77	341.33 ± 16.82	1586.73 ± 51.77	8.75 ± 0.39
2nd	0	0	0	0	0
3rd	3	1614.90 ± 28.39	268.50 ± 13.24	1614.9 ± 28.39	10.95 ± 0.61
4th	6	1642.85 ± 62.64	287.60 ± 7.98	1642.85 ± 62.64	9.71 ± 0.43
5th & above	9	1857.94 ± 195.08	306.86 ± 33.22	1746.72 ± 90.45	10.20 ± 0.36
Overall	**25**	**1604.18 ± 117.29**	**291.65 ± 17.89**	**1558.62 ± 103.17**	**9.49 ± 0.49**

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**

9.12.2 Herd Life Production (up to 4th Lactation) during 2018-19

Ani. No.	DOB	Date of completion of 4th or more lact. or disposal	HLF (days) up to 4th or more lactation or disposal (d)	LTMY (kg)	Productive Days	Unproductive Days	MY/ day HLF
4582	29-09-2011	25-04-2019	2765	4188.9	697	636	1.51
4537	22-08-2010	06-06-2019	3210	6008.4	1108	730	1.87
4555	23-02-2008	12-06-2019	4127	5010.9	1048	1819	1.21
4494	10-04-2009	22-06-2019	3725	6675.7	1314	665	1.79
4557	25-12-2010	11-07-2019	3120	3841.2	953	816	1.23
4501	02-08-2009	15-05-2019	3573	8086.1	1535	466	2.26
4627	16-03-2013	15-05-2019	2251	5313.9	1121	1130	2.36
4482	01-12-2008	24-05-2019	3826	9706.1	1449	622	2.54
4430	15-08-2007	06-06-2019	4313	8061.3	1415	956	1.87
4549	26-09-2010	31-07-2019	3230	6114.5	1270	762	1.89
4528	05-08-2010	17-12-2019	3421	6012.3	1276	889	1.76
4466	28-08-2008	11-05-2019	3908	7097.6	1497	976	1.82
4434	29-08-2007	26-06-2019	4319	9362.6	1733	746	2.17
4455	23-02-2008	24-01-2020	4353	10908	2112	981	2.51

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 2019 to March 2020

Month	N	Fat	SNF	Protein	Lactose	SCC
April 19	26	7.8	-	-	-	-
May	18	7.6	-	-	-	-
June	13	7.7	-	-	-	-
July	9	7.5	-	-	-	-
August	10	7.1	-	-	-	-
September	22	6.4	-	-	-	-
October	24	5.6	-	-	-	-
November	25	5.8	-	-	-	-
December	25	5.8	-	-	-	-
January 20	34	6.7	-	-	-	-
February	33	7.7	-	-	-	-
March	31	7.6	-	-	-	-
Overall		**6.94**	-	-	-	-

9.14: Reproductive Performance

Lactation / Parity	AFC (Months) (N)	SP (Days)	Days Open	DP (Days)	CI (Days)
1	45.29 ± 4.66 (8)	140.50± 19.36(8)	185.57 ± 24.36 (7)		
2		63.66 ± 10.4(3)	210.00 ± 145.0(2)	162.00 ± 25.37(6)	469.86 ± 28.63(7)
3		91 ± 38(3)	91 ± 38 (3)	235.50 ± 72.5(2)	471.67 ± 67.55(3)
4		124.25± 12.58(4)	124.25 ± 12.58(4)	221.50 ± 58.4(6)	381.00 ± 21.19(6)
5th& above		95.55 ± 10.07 (9)	114.833 ± 16.94(6)	123.33 ± 8.91(15)	390.00 ± 9.93(15)
Over all	**45.29 ± 4.66(8)**	**109.77± 8.86(27)**	**147.0 ± 16.42(22)**	**159.38± 15.81(29)**	**417.43 ± 13.06(31)**

9.14.1 Reproduction Performance Since inception of Network.

Years	AFC (Days/Months)	AFC months	Service Period (days)	Days Open	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)	±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)	130.70±16.45(23)	193.3 ±13.47 (31)	456.44± 21.45 (31)
2018-19	42.41 ± 2.71 (7)	42.41	91.60 ± 4.64 (30)	133.85 ±14.36 (23)	181.62 ± 18.46 (26)	423.69 ± 16.31 (26)
2019-20	**45.29 ± 4.66 (8)**	**45.29**	**109.77 ± 8.86 (27)**	**147.00 ± 16.42 (22)**	**159.38 ± 15.81 (29)**	**417.43 ± 13.06 (31)**

9.15 Milk Production and Disposal

Month	Total milk produced (kg)	Disposal (Kg)		
		Milk sold	Calf feeding	Expt.
April 19	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 20	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. Purchased	Actually fed	Balance (Qt)
I (April - June)	Green	0	141	141	0
	Dry	0	184.5	460.2	47.5
	Silage	0	0	0	0
	Concentrate	0	236.8	240.1	-3.2
II (July - September)	Green	0	336.9	336.9	0
	Dry	0	461.4	464.4	-3
	Silage	0	0	0	0
	Concentrate	0	255.9	230.4	25.5
III (October – Dec.)	Green	0	248.1	248.1	0
	Dry	0	683.1	454.3	228.8
	Silage	0	0	0	0
	Concentrate	0	324.000	231.8	92.10
IV (January - March)	Green	0	608.8	608.8	0
	Dry	0	160	367.6	-207.6
	Silage	0	0	0	0
	Concentrate	0	286.7	267	19.70
TOTAL	Green	**0**	**1334.7**	**1334.7**	**0**
	Dry	**0**	**1489**	**1746.5**	**65.7**
	Silage	**0**	**0**	**0**	**0**
	Concentrate	**0**	**1103.4**	**969.3**	**134.1**

9.17: Milk performance during April 2019 to March 2020

Month	**Buffaloes in milk**	**Buffaloes dry**	**Total**	**% in milk**	**Wt. Avg.(kg)**	**Herd Avg.(kg)**
Apr-19	811	396	1207	67.19	4.26	2.86
May-19	590	552	1142	51.66	4.19	2.17
Jun-19	341	746	1087	31.37	4.71	1.48
Jul-19	282	895	1177	23.96	4.87	1.17
Aug-19	352	848	1200	29.33	5.27	1.55
Sep-19	719	539	1258	57.15	5.99	3.42

Oct-19	752	395	1147	65.56	6.52	4.28
Nov-19	784	230	1014	77.32	5.81	4.49
Dec-19	1002	150	1152	86.98	5.14	4.47
Jan-20	1077	132	1209	89.08	5.40	4.81
Feb-20	986	145	1131	87.18	4.92	4.29
Mar-20	1054	155	1209	87.18	4.10	3.58
Overall	**8750**	**5183**	**13933**	**62.80**	**5.11**	**3.21**

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**

9.18: Bull wise daughters born (only numbers)

Bull No.	Set No.	Daughters born	Daughters Calved	Daughters completing 1st Lactation
1948	1	3	0	1
1950	2	3	2	1
1952	2	0	2	0
1955	3	1	0	1
1956	3	0	1	0
1957	3	0	1	0
1961	3	0	0	0
1963	4	0	0	0
1968	4	2	0	0
4229	6	0	1	1
4299	6	0	0	1
4321	6	0	0	1
4403	7	0	1	1
4529	8	1	0	0
4578	8	1	0	0

4567	8	1	0	0
Total		**12**	**8**	**7**

9.19 Bull wise daughters completing 1st lactation Farm (2019-20)

Bull No.	Daughter No.	Date of birth	Date of calving	AFC (months)	Lact. Length (days)	TLMY (kg)	SLMY (kg)
1948	4632	30-03-13	11-08-18	1960	64.26	325	1706.2
1950	4672	09-07-14	05-09-18	1519	49.80	318	1515.4
1955	4600	28-08-12	28-07-18	2160	70.82	308	1668.1
4229	4660	14-02-14	31-12-18	1781	58.39	348	1318.6
4299	4659	07-02-14	25-07-18	1629	53.41	328	1269.6
4321	4634	26-08-13	26-10-18	1887	61.87	421	1675.5
4403	4654	12-01-14	09-07-18	1639	53.74	366	1111.4

9.20 Breeding bulls Selected for current set (IX Set)

Sr. No.	Bull No.	Date of Birth	Dam No.	Sire No.	Dam's best SLMY
1	4611	28-09-2012	3908	1948	1996.5
2	4612	05-10-2012	4176	1957	1964.7
3	4617	26-10-2012	4330	1957	2055.0
4	4633	08-04-2013	4194	1952	1895.0
5	4647	17-11-2013	4446	4264	2091.6
6	4648	20-11-2013	4434	4264	1897.0

9.20.1 PT Bulls for nominated mating

Bull No.	Set No.	Centre	Dams' Best yield	Sire Index	Breeding Value	% Superiority
1948	1	Livestock Research Station, Vallabhnagar	2435.0	1		19.00
1950	2		1822.0	1	1359.38	4.07
1952	2		2070.0	2	1343.27	3.35
1955	3		2062.0	1	1309.15	6.07
1961	3		2264.0	2	1265.33	3.74
1963	4		2534.0	1	1486.29	16.20
1968	4		2395.0	2	1301.86	3.78
1976	5			2	1468.63	8.88
1977	5			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	4712	31-10-2015	4446	1950	2091.6/III	-	54.57
2	4715	22-12-2015	4409	1950	2209.2/III	-	48.69
3	4728	09-09-2016	4430	1948	1742.6/III	-	12.46
4	4765	11-10-2017	4520	1963	1954.0/III	-	27.94
5	4772	23-11-2017	4482	1950	2070.8/IV	-	71.70
6	4809	06-08-2019	4599	1952	1822.7/I	-	23.83
7	4825	16-09-2019	4632	1963	1685.2/I	-	12.14
8	4829	14-10-2019	4537	1955	1853.4/II	-	35.43
9	4839	22-12-2019	4520	1963	1954.0/III	-	27.94

9.21 Target achieved during the year 2019-20

Trait	Target	Achieved 2018-19	Achieved 2019-20
Av. Age at first calving (months)	40	42.41	**45.29**
Av. Service period (days)	130	133.85	**109.77**
Calf mortality (0-3 months)	≤ 5 %	26.47 %	**31.58**
Wet average (kg)	≥8.5 kg	5.38	**5.11**
Herd average (kg)	≥5.5 kg	3.42	**3.21**

10. Salient Research Achievements:

- **Five Set** of bulls **complete**ly evaluated with 7424 doses of Proven Surti Bulls.
- Test mating from VII set completed.
- Test mating of VIII 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

- 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 e.g. animal fare.
- 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 **IX set** of bulls.
- To preserve doses of X 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 4/2019 to 3/2020

Center	Opening balance	Addition			Deduction			Closing balance
		Birth	Purchased	New Reg.	Sold	Death	Reg. Cancelled	
Menar	474	51	0	0	12	6	0	507
Rundera	462	23	5		23	18		449
Navania	612	50	13		28	30		617
Tarawat	343	36	3		22	13		347
Dhamania	564	69			14	9		610
Total	**2455**	**229**	**21**	**0**	**99**	**76**	**0**	2530

F 2. Status of Breedable Females at Different Field Unit Centers during 4/2019 to 3/2020

Center	Heifers >3 years		Buffalo Non Pregnant		Buffalo Pregnant	
	Total	Pregnant	In milk	Dry	In milk	Dry
Menar	91	14	121	26	5	62
Rundera	83	32	97	18	34	80
Navania	67	29	124	3	47	44
Tarawat	45	20	104	13	30	44
Dhamania	103	46	127	9	62	101
Total	**389**	**141**	**573**	**69**	**178**	**331**

F 3. Monthly AI (Center-wise) at Different Field Unit Centers during 4/2019 to 3/2020

Month	**Centre**						**Total**
	Menar	**Rundera**	**Navania**	**Tarawat**	**Dhamania**	**Wana**	
Apr-19	10	30	13	7	0	0	**60**
May	9	4	7	7	4	0	**31**
June	9	20	8	6	6	0	**49**
July	18	45	22	12	17	0	**114**
August	27	76	23	14	28	0	**168**
September	36	86	46	20	32	0	**220**
October	33	78	65	23	48	0	**247**
November	38	42	58	21	61	0	**220**
December	26	56	56	11	17	0	**166**
January-20	9	46	35	9	8	0	**107**
February	31	20	23	5	0	0	**79**
March	13	24	27	4	9	0	**77**
Total	**259**	**527**	**383**	**139**	**230**	**0**	**1538**

F 4. Bull-wise AI at Different Field Unit Centers during the Period 4/2019 to 3/2020

Month	**Bull No.**							**Total**
	4464	**4497**	**4529**	**4542**	**4548**	**4567**	**4578**	
April-19	60	0	0	0	0	0	0	**60**
May	31	0	0	0	0	0	0	**31**
June	20	0	0	0	0	0	29	**49**
July	71	0	0	0	0	12	31	**114**

August	53	0	54	0	0	28	33	**168**
September	46	0	164	0	0	10	0	**220**
October	10	0	131	0	0	0	106	**247**
November	0	0	103	0	0	0	117	**220**
December	0	0	17	0	0	0	149	**166**
January-20	4	0	13	5	0	0	85	**107**
February	0	0	23	31	0	0	25	**79**
March	9	0	27	0	0	0	41	**77**
Total	**304**	**0**	**532**	**36**	**0**	**50**	**616**	**1538**

F 5. Month-wise Conception at Field Unit Centres during the period 4/2019 to 3/2020

Month	**Centre**					**Total**
	Menar	**Rundera**	**Navania**	**Tarawat**	**Dhamania**	
January-19	**Menar**	**Rundera**	**Navania**	**Tarawat**	**Dhamania**	
February	8	14	20	3	**11**	56
March	4	24	10	4	0	42
April	4	14	8	4	0	30
May	3	8	4	2	1	18
June	**3**	2	1	3	5	14
July	**3**	5	1	2	3	14
August	**5**	18	3	3	3	32
September	**8**	31	4	4	9	56
October	**7**	32	13	7	12	71
November	**9**	23	27	7	18	84
December	**10**	15	16	7	23	71
Total	**7**	21	14	3	6	51
	71	**207**	**121**	**49**	**91**	**539**

F 6. Month-wise Calving at Different Field Unit Centres during the Period 4/2019 to 3/2020

Month	Centre										Total	
	Menar		Rundera		Navania		Tarawat		Dhamania			
	M	F	M	F	M	F	M	F	M	F	M	F
April-19	1	1	2	2	1	1	2	0	1	1	**7**	**5**
May	3	2	5	4	5	1	1	0	5	4	**19**	**11**
June	3	2	8	6	6	3	3	4	8	4	**28**	**19**
July	2	2	6	5	4	6	2	2	6	2	**20**	**17**
August	5	2	7	6	12	8	4	3	4	7	**32**	**26**
September	4	4	7	5	12	6	2	2	6	4	**31**	**21**
October	3	3	5	6	3	5	3	1	7	4	**21**	**19**
November	3	4	4	5	7	10	1	2	6	4	**21**	**25**
December	2	2	6	8	5	5	2	1	4	3	**19**	**19**
January-20	2	2	7	6	4	2	1	1	0	0	**14**	**11**
February	2	1	3	4	2	0	1	0	0	0	**8**	**5**
March	2	1	1	1	0	0	1	0	2	3	**6**	**5**
Total	**32**	**26**	**61**	**58**	**61**	**47**	**23**	**16**	**49**	**36**	**226**	**183**

M:F:: 1.24:1

F 7. Bull-wise Conception at Different Field Unit Centres during the Period 4/2019 to 3/20

Month	**Bull No.**							**Total**
	4464	4497	4529	4542	4548	4567	4578	
January-19	0	0	0	54	2	0	0	**56**
February	11	0	0	31	0	0	0	**42**
March	26	0	0	4	0	0	0	**30**
April	17	0	0	1	0	0	0	**18**
May	14	0	0	0	0	0	0	**14**
June	5	0	0	0	0	0	9	**14**
July	22	0	0	0	0	3	7	**32**
August	13	0	19	0	0	9	15	**56**
September	20	0	47	0	0	4	0	**71**
October	4	0	42	0	0	0	38	**84**
November	0	0	38	0	0	0	33	**71**
December	0	0	6	0	0	0	45	**51**
Total	**132**	**0**	**152**	**90**	**2**	**16**	**147**	**539**

F 8. Bull-wise Calving at Different Field Unit Centres during the period 4/2019 to 3/2020

Month	**Bull No.**												Total	
	4464		4529		4542		4548		4567		4578			
	M	F	M	F	M	F	M	F	M	F			M	F
April-19	0	0	0	0	3	2	0	0	2	1	2	2	7	5
May	0	0	0	0	10	8	0	0	9	3	0	0	19	11
June	0	0	4	3	8	4	7	6	9	6	0	0	28	19
July	0	0	0	0	2	0	5	11	13	6	0	0	20	17
August	0	0	0	0	4	3	19	14	2	3	7	6	32	26
September	0	0	0	0	4	0	18	11	9	10	0	0	31	21
October	0	0	0	0	3	5	6	2	12	12	0	0	21	19
November	0	0	0	0	18	20	0	1	3	4	0	0	21	25
December	2	3	0	0	17	16	0	0	0	0	0	0	19	19
Jan.,2020	13	9	0	0	0	1	0	0	1	1	0	0	14	11
February	7	5	0	0	0	0	0	0	1	0	0	0	8	5
March	5	5	0	0	0	0	0	0	1	0	0	0	6	5
Total	**27**	**22**	**4**	**3**	**69**	**59**	**55**	**45**	**62**	**46**	**9**	**8**	**226**	**183**

M:F::1.23:1

F 9. Bull-wise Live Female Progeny at Different Field Unit Centres (0-6M) as on 3/2020

Centre	**Bull No.**					**Total**
	4464	4497	4542	4548	4567	
Menar	3	0	6	0	5	**14**
Rundera	14	0	11	0	7	**32**
Navania	0	0	12	1	0	**13**
Tarawat	1	0	1	2	0	**4**
Dhamania	0	1	8	1	3	**13**
Total	**18**	**1**	**38**	**4**	**15**	**76**

F 10. Bull-wise Live Female Progeny at Different Field Unit Centres (6-12M) as on 3/2020

Center	Bull No.					Total
	4529	4542	4548	4567	4578	
Menar	2	0	4	5	0	**11**
Rundera	0	9	6	9	8	**32**
Navania	0	1	13	5	0	**19**
Tarawat	0	2	4	2	0	**8**
Dhamania	0	5	8	11	0	**24**
Total	**2**	**17**	**35**	**32**	**8**	**94**

F 11. Bull-wise Live Female Progeny at Different Field Unit Centres (1-3 yrs) as on 3/2020

Center	Bull No.								Total
	4373	4429	4464	4529	4542	4548	4567	4578	
Menar	1	0	5	3	5	7	10	8	39
Rundera	0	0	3	14	7	7	8	12	51
Navania	0	0	3	9	3	15	29	2	61
Tarawat	0	0	2	3	0	7	12	4	28
Dhamania	0	2	2	22	2	9	10	13	60
Total	**1**	**2**	**15**	**51**	**17**	**45**	**69**	**39**	**239**

F 12. Bull-wise Live Female Progeny at Different Field Unit Centres (>3 yrs) as on 3/2020

Centre	Bull No.										Total
	4229	4264	4299	4373	4392	4403	4413	4429	4458	4497	
Menar	0	0	1	3	2	1	4	9	3	2	25
Rundera	2	3	2	4	9	0	19	4	3	1	47
Navania	0	1	1	0	0	4	5	2	8	3	24
Tarawat	0	0	0	1	1	1	4	0	3	1	11
Dhamania	0	0	1	7	4	5	0	14	7	5	43
Total	**2**	**4**	**5**	**15**	**16**	**11**	**32**	**29**	**24**	**12**	**150**

F 12.1. Center and Age-wise Live female Progeny as on 3/2020

Center	Age				Total
	0-6M	6-12M	1-3yr	>3yr	
Menar	14	11	39	25	89
Rundera	32	32	51	47	162
Navania	13	19	61	24	117
Tarawat	4	8	28	11	51
Dhamania	13	24	60	43	140
Total	**76**	**94**	**239**	**150**	**559**

F 13. Bull-wise Daughters Calved at Different Field Unit Centers during 2019-20

Bull No.	Center					Total
	Menar	Rundera	Navania	Tarawat	Dhamania	
4203	0	0	0	2	0	**2**
4229	0	0	1	0	0	**1**
4264	0	0	1	0	0	**1**
4299	3	0	0	1	0	**4**
4302	0	0	0	0	0	**0**
4373	1	1	0	0	0	**2**
4392	0	1	0	2	0	**3**
4403	2	0	1	0	2	**5**
4413	3	2	0	0	0	**5**
4429	1	2	0	1	3	**7**
4497	0	1	2	1	0	**4**
Total	**10**	**7**	**5**	**7**	**5**	**34**

F 14. Bull-wise Daughters Recorded at Different Field Unit Centres during 2019-20

Bull No	Daughters recorded				Total
	Menar	Rundera	Tarawat	Dhamania	
4203	1	1	-	-	2
4229	2	3	-	1	6
4299	2	2	1	-	5
4392	1	2	-	-	3
4264	-	5	-	2	7
4403	-	4	4	1	9
4373	-	-	2	1	3
4429	-	-	3	-	3
Total	**6**	**17**	**10**	**5**	**38**

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	15
4229/VI	1776	571	418	180	164	139	120	26	25
4264/VI	1579	514	396	174	149	125	116	26	22
4299/VI	1477	466	343	153	127	105	84	24	17
4302/VI	543	176	129	57	49	46	35	6	5
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	5	3
4392/VII	623	189	148	58	39	31	25	4	3
4403/VII	1130	362	267	92	65	44	37	18	13

4413/VII	869	289	227	91	75	45	34	4	1
4429/VII	640	197	148	66	54	44	35	8	3
4458/VII	574	170	134	51	40	17	9	0	0
4497/VII	451	126	88	33	25	12	3	3	0
4464/VIII	775	231	110	50	24	16	2	0	0
4529/VIII	1340	393	197	79	45	0	0	0	0
4542/VIII	775	212	190	82	8	0	0	0	0
4548/VIII	999	326	271	119	12	0	0	0	0
4567/VIII	1331	421	336	147	32	0	0	0	0
4578/VIII	1345	365	146	64	24	0	0	0	0
TOTAL	**34,654**	**10,332**	**7,788**	**3,292**	**1,782**	**1,340**	**1,072**	**516**	**418**

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	17	57.45	5.43	
2012-13	1897	583	30.73	497	198	19	51.13	5.54	6
2013-14	1591	555	34.88	410	158	13	48.46	5.34	22
2014-15	1534	455	29.66	409	156	4	36.57	5.44	50
2015-16	1986	556	27.99	345	145	1	27.44	4.06	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
Overall	**34674**	**10332**	29.80	**8180**	**3,444**	380			**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 – 3nd 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 VI	4229 VI	4264 VI	4299 VI	4302 VI	4321 VI	4323 VI	
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	15	25	22	17	5	2	3	89
Daughters Available		2(1)	4(1)	5(3)	0	0	0	11(7)

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

Particular	Bull No							Total
	4373 VII	4392 VII	4403 VII	4413 VII	4429 VII	4458 VII	4497 VII	
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	6	5	18	6	10	-	4	**49**
Complete Recording	3	3	13	1	3	-	-	**23**
Daughters Available	16 (2)	16 (3)	11 (5)	32 (5)	31 (7)	24	13 (4)	**143 (26)**

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

Particulars	Bull No.						Total
	4464 VIII	4529 VIII	4542 VIII	4548 VIII	4567 VIII	4578 VIII	
AI	775	1340	775	999	1331	1345	**6565**
Pregnancies	231	393	212	326	421	365	1948
Daughters Born	50	79	82	119	147	64	541
Daughters Calved	-	-	-	-	--	-	0
Complete Recording	-	-	-	-	-	-	0
Daughters Available	**33**	**53**	**72**	**84**	**116**	**47**	405

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	69	56.83/84	5.35	11(7)
7	7	4874	1528	1161	451	340	215	159	5	47.68/46	5.17	143 (26)
8	6	6565	1948	1250	541	145	16	2	0	0	0	405

Project Co-ordinator's observations on centre performance

Financial Statement for the year 2019-20 (Rs in Lakhs)

Allocation as per R E 2019 – 20		Released ICAR Share	Refund ICAR Share under Salary head	Expenditure as AUC		Closing Balance (ICAR Share)
Total	ICAR Share			ICAR Share	State Share	
96.40	63.30+12.0 (SCSP)	63.30+12.0 (SCSP)	13.15	58.74008	15.58002	(+) 3.40992

Herd Performance

Herd strength was 126 heads comprising 66 breedable buffaloes (> 2.0 years) 35 calves were born, two still births and two abortion during the period, 0 – 3 months calf mortality was 31.58%. The female conception rate was 43.08 % at the farm is almost same as previous year. During the report period 6800 semen doses were produced, 2313 doses were used in NPBI and 70201 frozen semen doses is available in stock.

Means for total lactation milk yield 1604.18 kg (25), 305 or less day lactation milk yield 1558.62 (25) decreased from the previous year 1649.35 (22) kg and 1565.95 kg respectively. Age at first calving, Service Period, Dry Period and calving Interval were 45.28 months, 147 days (22), 159.38 days (29) and 417.43 days (31), respectively. Wet average 5.11 kg and herd average 3.21 kg decreased from the previous year 5.38 kg and 3.42 kg respectively 62.80 percent animal were in milk during the report period.

Field Unit

Total 1538 AI's were performed in field centers. Total 539 buffaloes conceived, 409 calving took place out of them 183 female calves. Live female progenies of 0-6 month 76, 6-12 months 94, 1-3 years 239 and > 3 years 150 were available at field unit centers. 38 daughters completed milk recording during the 2019-20.

A. Accomplishment and Targets Achieved:

Sr. No.	Trait	Target	Achieved 2015-16	Achieved 2016-17	Achieved 2017-18	Achieved 2018-19	Achieved 2019-20
1	Av. AFC (Months)	40.0	46.29 (1)	46.21 (4)	50.97 (2)	42.41 (7)	45.29 (8)
2	Av. service period (Days)	130 days	169 (19)	141 (33)	131 (23)	91.6 (30)	107.77 (27)
3	Calf mortality (0-3 months)	≤ 4 %	9.09 %	29.03 %	24.32%	26.47 %	31.58 %
4	Wet average (Kg)	≥ 6.5 kg	5.13	5.22	5.55	5.38	5.11
5	Herd average (Kg)	≥ 4.0 kg	2.43	2.83	3.43	3.42	3.21

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.
- Calf mortality is very high and need efforts to improve calf health management at farm.
- Needs to increased production of frozen semen doses and A I in field.
- Ensure field recording of daughters by tagaging 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 4^{th} 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
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 dur financial year 2019-20	Balance
Recurring		40.00	35.36280	4.63720
Sub Total		40.00	35.36280	4.63720
Non recurring				
	Livestock	4.00	0.00	4.00
	Equipment	1.00	0.95196	0.04804
Sub Total		5.00	0.95196	4.04804
Grand Total		45.00	36.31476 (Rupees Thirty Six lakhs Thirty One Thousand Four Hundred Seventy Six only)	8.68524

Revenue generation during 2019-20

S.No.	**Item**	**Revenue generated (Rs.)**
1	Animal sale	186900.00
2	Milk Sale	699680.60
3	Frozen semen sale	0.00
	Total	**886580.60**

9.1 Herd Strength during the Period 1st April 2019 to 31st March, 2020

Sr. No.	Category	**Addition**			**Disposal**				**CB**
		OB	**B / P**	**T**	**D**	**T**	**S**	**E**	**CB**
	Female								
1.	Below 3 months	-	10			5	1		4
2.	3-12 months	11		5		9	2		5
3.	1-2 years Above 2 years	8 20		9 8		8 12			9 16
4.	Buffaloes in Milk	20		12		15	3		14
5.	Buffaloes Dry P /NP	11		15			8		18
	Sub Total	70	10	49		49	14		66
	Males								
1.	Below 3 months	-	7			3	2		2
2.	3-12 months	9		3		6	3		3
3.	1-2 years Above 2 years	4 2		6 2		2	3 3		5 1
4.	Breeding bulls	4							4
5.	Bullocks / Teasers / others	2							2
	Sub Total	21	7	11		11	11		17
	Grand Total	91	17	60		60	25		83

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 19 to 31st March 20

Month	Male	Female	Still Birth	Abortion	Dystokia	ROP	Prolapse	Overall
April								
May								
June								
July	1	1						2
August	2	2						4
September								
October	1	2	1					4
November		1						1
December	1							1
January	2	3						5
February		1						1
March								
Overall	**7**	**10**	**1**					**18**

Sex ratio Male : Female (41:59) SB% = 5.55 Abortion % = Nil

9.3. Disposal of Animals during the Period 1st April 19 to 31st March 20

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	 1 2**							 1 2
Heifers 1-2 years > 2 years								
Buffaloes Milch Dry		 2 3	 1 1	 1	 3			 3 8
Sub Total	3	5	2	1	3			14
Males	**Primary cause of disposal**							
Calves 0 to 3 months 3-12 months	 2 3							 2 3
1 to 2 year	3							3
. >2 year	3							3
Breeding bulls								
Bullock+Teaser+Others								
Sub Total	11							11
Grand Total	14	5	2	1	3			25

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

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 %	Nil											

9.5. Causes of Mortality (quarter wise) during the period April 19 to March 20

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

9.8 Prophylactic Measures undertaken

Disease	**Vaccination Date / No. of animals**	**No. of animals** Tested / Positive		**Dates and No. of animals treated for Parasitism**
FMD	May 2019 : 91 animals			APR - 02 MAY- JUN -05 JUL- AUG- 02 SEP- 20 OCT- 05 NOV- 12 DEC- 32 JAN- 05 FEB – 07 MAR- 10
HS	May 2019 : 91 animals			
BQ	May 2019 : 91 animals			
Brucellosis				
JD				
TB				
IBR				
Mastitis				

9.7. 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	9	6	66.6	3	2	66.6							12	8	66.6
Adults	24	15	62.5	5	2	40.0							29	17	58.6
Overall	33	21	63.6	8	4	50.0							41	25	60.9

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	13	10	76.9
April - June	2	1	50.0
July - September	2	2	100.0
October- December	24	12	50.0
Overall	41	25	60.9

9.9. Bull-wise Conception Rate During the period January to December, 2018

Sr. No.	Bull No.	SET No.	Total Number of AI	Total Conceived	CR%
1.	B354	III	25	15	60.0
2.	B366	III	16	10	62.5
Overall			41	25	60.9
No. of services per conception					1.64

9.10 Bull Wise Semen Stock

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	3722		2650			1072
18	B244	3105		2000			1105
19	B331	12507		2850			9657
20	B333	5532		2750			2782
21	B354	4271	256	2230			2297
22	B366	5158	448	1270			4336
23	B393	348	228				576
24	B428	-	240				240
Grand Total		**39958**	**1172**	**13750**			**27380**

*11250 doses transferred to ICAR- NBAGR , Karnal
2500 doses distributed for AI in field and used in project herd

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)
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)

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)
1st	10	1559.10	373.80	1301.24	6.73
2nd	1	1230.90	288.00	1230.90	6.50
3rd	2	1280.80	364.00	1152.50	6.15
4th	1	1352.80	297.00	1352.80	6.90
5th & above	4	1416.88	346.75	1309.80	7.05
Overall	**18**	**1466.88**	**357**	**1285.57**	**6.73**

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

*Within parenthesis are number of observations

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

Animal No.	DOB	Date of completion of 4th or more lact. or disposal	HLF (days) up to 4th or more lactation or disposal (d)	LTMY (kg)	Productive Days	Unproductive Days	MY/day HLF
B-195	31.10.06	26.08.19	4682	8511.20	1969	2713	1.82
B-235	25.11.07	26.04.19	4170	6966.30	1587	2583	1.67
B-258	20.09.08	30.04.19	3874	4844.70	1468	2406	1.74
B-287	14.10.09	22.04.19	3477	6222.50	1489	1988	1.79
B-293	10.12.09	13.01.20	3686	8550.20	1814	1872	2.31
B-295	17.12.09	01.06.19	3453	6990.10	1440	2013	2.02
B-308	22.08.10	08.07.19	3242	5575.70	1221	2021	1.72
B-258	20.09.08	11.02.18	3431	4844.7	1071	2360	1.41
B-265	21.04.09	25.07.18	3382	4691.2	1025	2357	1.39
B-293	10.12.09	27.08.18	3182	6964.9	1414	1768	2.1
B-295	17.12.09	22.06.18	3109	5989.0	1195	1914	1.93

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 2019 to March 2020

Month	N	Fat	SNF	Protein	Lactose	SCC
April 2019	29	8.68	9.95	3.60	5.40	
May	30	8.71	9.43	3.42	5.12	
June	30	8.44	9.89	3.57	5.36	
July	27	8.07	9.92	3.58	5.41	
August	16	8.03	10.23	3.73	5.58	
September	22	8.52	9.73	3.55	5.33	
October	37	8.40	10.05	3.66	5.49	
November	18	8.25	10.07	3.64	5.47	
December	32	8.39	10.02	3.64	5.45	
January 2020	24	7.75	9.92	3.58	5.38	
February	22	7.80	9.72	3.55	5.31	
March	22	7.24	9.66	3.47	5.22	
Overall	309	8.23	9.88	3.58	5.37	

9.14: Reproductive Performance

Lactation / Parity	AFC (Months) (N)	N →	SP (Days)	Days Open	DP (Days)	CI (Days)
1	48.23±2.9 (3)					
2		6	222.6±58.7	222.6±58.7	200.8±32.8	523.2±58.4
3		1	47	101	119	407
4		4	128.5±41.7	161.0±62.6	141.5±42.0	462.5±71.49
5th and above	48.23±2.9(3)	11	172.3±38.4	189.1±39.0	171.8±24.3	490.5±40.49
Over all	47.28±1.64	22	180.6±38.9	181.7±39.3	173.1±30.4	486.8±42.7

*Service Period (days)= Date of 1 st 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)

9.15 Milk Production and Disposal

Month	Total milk produced (kg)	Disposal (Kg)		
		Milk sold	Calf feeding	Expt.
April 19	2405.70	1926.40	479.30	
May	1750.90	1587.80	345.90	
June	1669.40	1490.10	258.50	
July	1722.30	1435.80	286.50	
August	1859.90	1508.90	351.00	
September	1428.50	1184.10	244.40	
October	1731.10	1292.60	438.50	
November	1736.10	1295.00	441.10	
December	1656.60	1231.90	424.70	
January 20	2069.90	1492.40	577.90	
February	2387.30	1760.40	626.90	
March	2780.80	2035.56	744.44	
Total	23198.50	18240.96	5219.14	

Note: Mention sale price of milk (range during the year): Rs. 38 per kg up to 01-04-2019, Rs. 40 per kg w.e.f. 10.02.2020.

9.16 Feed and fodder (Quintals) availabilityApril 2019 to March 2020

Quarter		Qty. Produced at Farm (Qt.)	Qty. Purchased (Qt.	Actually fed (Qt)	Balance (Qt.)
I (April – June)	Green	406		406	
	Dry	368.3		350	18.3
	Silage	130		130	
	Concentrate	67.85		177	-48.1
II (July – September)	Green	704		704	
	Dry	341.7		360	
	Silage	95		95	
	Concentrate			160	-208.1
III (October – December)	Green	518		518	
	Dry	286		381	95
	Silage	31		31	
	Concentrate		157.8	127	-177.3
IV (January-March)	Green	1146		1146	
	Dry	129	400 (Bhoosa)	327	297
	Silage	94		94	

	Concentrate		340	144.6	18.1
Total	Green	2774		2774	
	Dry	1125	400	1418	107
	Silage	350		350	
	Concentrate	67.85	497.8	608.6	18.1

*Balance from previous year, conc 61 quintal.

9.17: Milk performance during April 19 to March 20

Month	Buffaloes in milk	Dry buffaloes	Total	% in Milk	Wet Av. (kg)	Herd Av. (kg)
April, 19	19	12	31	61.29	4.30	2.58
May	16	16	32	50.00	3.53	1.76
June	16	17	33	48.48	3.59	1.68
July	17	16	33	51.51	4.04	1.74
August	18	15	33	54.54	3.76	1.82
September	15	7	22	68.18	4.02	2.16
October	15	11	26	57.69	3.93	2.15
November	15	14	29	51.72	4.10	1.99
December	13	18	31	41.90	4.51	1.72
January, 20	17	14	31	54.83	4.90	2.15
February	14	17	31	45.16	6.25	2.65
March	14	18	32	43.75	6.40	2.80
Overall	**15.8**	**14.5**	**30.3**	**52.42**	**4.44**	**2.10**

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**

9.18: Bull wise daughters born (only numbers)

Bull No.	Set No.	Daughters born	Daughters Calved	Daughters completing 1st 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	9	9
B244	3	15	7	4
B331	3	19		
B333	3	7		
B354	3	8		
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)
244	387	30.07.14	09.02.18	49.38	357	1287.3	1185.0
240	408	21.02.15	28.12.18	46.22	247	1120.5	1120.5
240	415	09.08.15	19.11.18	39.38	294	853.3	853.3
240	395	14.10.14	09.09.18	46.88	437	1903.9	1420.0
244	364	16.09.13	27.08.18	59.37	460	1822.3	1305.0
228	391	14.08.14	12.09.18	48.98	444	2187.6	1625.0
240	402	24.11.14	02.12.18	48.29	382	1505.7	1306.0
240	416	14.08.15	29.12.018	40.53	382	1993.0	1730.0
240	424	23.09.15	10.12.18	38.59	402	1466.5	1172.6
240	411	30.03.15	25.12.18	44.90	387	1450.9	1295.0

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-331	03/09/2011	88	182	2000
2	B-333	12/10/2011	55	170	1866
3	B-354	02/02/2013	107	170	1932
4	B-366	25/09/2013	193	244	2235
5	B-393	18/09/2014	88	244	2000
6	B-452	24/09/2016	88	240	2000

9.22 Target achieved during the year 2019-20

Trait	**Target**	**Achieved (2017-18)**	**Achieved (2018-19)**	**Achieved (2019-20)**
Av. Age at first calving (months)	40	46.2	47.28	48.23
Av. Service period (days)	90	172.6	180.6	189
Av. days open	140	190.5	181.7	172.3
Calf mortality (0-3 months)	≤ 5 %	4.1	4.16	0.0
Wet average (kg)	≥5 kg	4.16	3.67	4.44
Herd average (kg)	≥3 kg	**2.39**	2.34	2.10

Conservation in the breeding Tract

a) Germ Plasm Dissemination (during 2019-20)

- 11 males and 14 females were sold to farmers through auction

b) Artificial Insemination in field (2018-19)

AI performed	2281
Buffalo sold before Pd	47
Died	3
Buffalo pregnant	1018
Conception rate (%)	45.6
Abortion	26
Pregnant buffalo sold	107
Calvings recorded	817 (403 Males+ 414 Females)

Artificial Insemination in field (2019-20)

Month	**No. of AI**
APR 19	108
MAY	108
JUN	105
JUL	122
AUG	153
SEP	141
OCT	243
NOV	230
DEC	254
JAN 20	206
FEB	141
MAR	122
TOTAL	**1933**

Purchase of Animals: To avoid inbreeding in the project herd, introduction of animals from field was planned during the year. Money was provided for the purpose. Survey was conducted in the field to identify suitable true to breed animals for purchase. It was observed that the true to breed animals which were available in the field were the progenies of semen from the Bhadawari project bulls (We have started in the field since the year 2013). Hence, we could not purchase the animals. We also tried to purchase animals from Bhadawari Breeding from Etawah, but there also it was observed that most of the animals are related with the bulls from the project herd. Hence introduction of these animals may not serve the purpose of avoiding inbreeding in the project herd.

It is also to be mention that since beginning of the project we have supplied Bhadawari bulls to different agencies (i.e. UP and MP livestock development boards, BAIF, NDDB, Mathura Veterinary University and farmers) for semen freezing. These agencies are freezing semen from these bulls and supplying in the field for AI. So, we can say that whatever Bhadawari semen available in the country, is from the bulls produced in the Bhadawari project herd.

10. Salient Research Achievements:

- Average lactation milk yield, 305 days or less milk yield and wet average were recorded as 1466.88 kg, 1285.57 kg and 4.44 kg, respectively.
- Average age at first calving, average service period and conception rate were 48.23 months, 189 days and 60.9 percent, respectively.
- There was no calf mortality during the year.
- 11 males and 14 females were sold through auction

- 817 calvings were recorded from the AI done during the year 2018-19. Conception rate in the field was recorded as 45.6 percent.
- Artificial insemination in the Bhadawarti breeding tract was continued during the year 2019-20. A total of 1933 artificial inseminations were performed.

11. Publications

Research papers in journals

- B. P. Kushwaha, Deepak Upadhyay, Sultan Singh, S. B. Maity, K. K. Singh and A. K. Misra (2020). Fatty acid composition of Murrah Buffalo Milk fat. Submitted for publication in Buffalo bulletin.

Presentation in Conference/symposis/seminars/other for a etc.

- B P Kushwaha, Sultan Singh, S B Maity, A K Misra, D Upadhjyay, K P Singh (2019). Coservation of Bhadawari buffaloes. In: World 12th Buffalo Congress, Istambul, Turkey, September, 18-20 2019.

- B.P. Kushwaha, Deepak Upadhyay, S.B.Maity, Sultan Singh, K.K.Singh & A.K. Misra (2020) Conservation of Bhadawari buffaloes : Present status. In: National Symposium on Ënhancement of farmers income through management of Animal Genetic resources"10-11 February, 2020, Veterinary college, Mhow (MP)

Book Chapter:

- Bhainso ki vividh naslen by B P Kushwaha in: Kishan ki Aajivika evam aai ka Uttam Sadhan: Unnat Bhains Palan 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 t he 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 2019-20 (Rs in Lakhs)

Sanctioned as per R E 2019-20		Released ICAR Share as per R E	Expenditure as per AUC		Closing balance
Total	ICAR Share		ICAR Share	State Share	
45.00	45.00	45.00	36.31476	0.00	8.68524

Herd Performance

The Herd strength was 83 head, which comprises of 48 breeding buffaloes (>2.0 years), 17 calving took place during the period out of which 7 were male and 10 were female. 0-3-month calf mortality was reported as nill and conception rate was 60.9 percent increased from last year 55.8 percent. 1172 doses of frozen semen were produced and 13750 doses were used/ supplied for AI purpose in the field.

Average lactation yield increased from 1373.9 kg (17) to 1466.88 kg (18), lactation length 332 days (17) to 357 days (18) and 305 or less day milk yield was 1285.57 kg (18) during the report period. Milk yield was significantly decreased during the report period. Age at first calving, average service period, average dry period and average calving interval was 48.23 month (3), 172.3 days (11), 171.8 days (11 and 490.5 days (11 respectively. 52.42% animals were in the milk with wet average 4.44 kg and herd average 2.10 kg. A total 1933 A I's were performed in field, 817 calving recorded from the AI's of 2018-19 and conception rate recorded in the field was 45.6 percent.

Accomplishment and Targets Achieved:

Sr. No.	Trait	Target	Achieved 2015-16	Achieved 2016-17	Achieved 2017-18	Achieved 2018-19	Achieved 2019-20
1	Av. AFC (Months)	40.0	47.25 (5)	50.6 (4)	46.26 (7)	47.28 (13)	48.23 (3)
2	Av. service period (Days)	140	212.3 (24)	176.2 (18)	173 (15)	181 (22)	172 (11)
3	Calf mortality (0-3 months)	≤ 4 %	16.12	3.7 %	4.00 %	4.16	0.0
4	Wet average (Kg)	≥ 4.0 kg	4.49 kg	4.62 kg	4.16 kg	3.67	4.44
5	Herd average (Kg)	≥ 3.0 kg	2.64 kg	2.97 kg	2.39 kg	2.34	2.10

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	4000000/-	3999965/-	35.00
TA/POL	60,000/-	59710/-	290.00
Non Recurring Contigencies			
Livestock	1000000/-	931000/-	69000.00
Furniture	40,000/-	39884/-	116.00
Total	5100000/-	5030559/-	69441.00

9.1 Herd Strength during the Period 1st April 2019 to 31st March, 2020

Sr. No.	Category	Addition			Disposal				CB
		OB	**B / P**	**T**	**D**	**T**	**S**	**E**	**CB**
	Female								
1.	Below 3 months	7	25		3	24	-	-	5
2.	3-12 months	11	-	24	1	19	-	-	15
3.	1-2 years	22	-	19	1	20	-	-	20
	Above 2 years	27	4	20	-	18	3	-	30
4.	Buffaloes in Milk	36	3	18	-	9	7		41
5.	Buffaloes Dry P /NP	41	2	9	1	-	24		27
	Sub Total	144	34	90	6	90	34		138
	Males								
1.	Below 3 months	7	24+1	-	3	20	-	-	9
2.	3-12 months	4	1	20	-	11	8	-	6
3.	1-2 years	3	-	11	-	3	10	-	1
	Above 2 years	1	-	3	-	0	4	-	-
4.	Breeding bulls	2	-	0	-	0	-	-	2
5.	Bullocks / Teasers / others	-	-	-	-	-	-	-	-
	Sub Total	17	26	34	3	34	22	-	18
	Grand Total	161	60	124	9	124	56	-	156

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 19	0	1	0	0	0	0	0	1
May	2	2	0	1	0	0	0	5
June	1	0	0	0	0	0	0	1
July	4	1	0	1	0	0	0	6
August	3	6	1	0	0	0	0	10
September	1	3	0	0	0	0	0	4
October	3	2	0	0	0	0	0	5
November	2	0	0	0	0	0	0	2
December	1	4	0	0	0	0	0	5
January 20	1	1	0	0	0	0	0	2
February	3	2	0	0	0	0	0	5
March	3	3	1	0	1	1	0	7
Overall	24	25	2	2	1	1	0	53

Sex ratio Male: Female 0.96**:** 1.00 SB% = 3.77% Abortion = 3.77%

9.3. Disposal of Animals during the Period 1st April 19 to 31st March 20

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	-	3
3-12 months						1		1
Heifers	-	-						
1-2 years			-	-		1	-	1
> 2 years			2	1		-		3
Buffaloes	-	-			-			
Milch			2	5		-	-	7

Dry			20	4		1	-	25
Sub Total	-	-	24	10	-	6	-	40
Males								
Calves 0 to 3 months 3-12 months	- 7	-	-	- 1	- -	3 -		3 8
1 to 2 year	10	-	-	-	-	-	-	10
.>2 year	4	-	-	-	-	-	-	4
Breeding bulls	-	-	-	-	-	-	-	-
Bullock+Teaser +Others	-	-	-	-	-	-	-	-
Sub Total	21	-	-	1	-	3	-	25
Grand Total	21	-	24	11		9	-	65

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

	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	3	1	1	0	1	6	3	0	0	0	3	9
%	9.37	2.85	2.43	0	1.92	3.37	9.37	0	0	0	6.97	4.07

9.5. Causes of Mortality (quarter wise) during the period April 19 to March 20

Particulars	**1st quarter (April-June)**	**2nd quarter (July-Sept)**	**3rd quarter (Oct-Dec.)**	**4th quarter (Jan.-March)**	**Total**
Enteritis	-	-	3		3
Pheumo Enteritis	-	1	-	1	2
Broncho-Pheumonia	-	-	1	-	1
Septicamia / Toxaemia	-	-	-	-	-
Peritonitis	-	-	2	-	2
JD/TB	-	-	-	-	-
Milk Fever / metabolic diseases	-	-	-	-	-
TRP / TP	-	-	-	-	-
Parasitism	-	-	-	-	-
Accidental death	-	-	-	1	1
Peri-parturient disorders	-	-	-	-	-
Miscellaneous	-	-	-	-	-
Total	NIL	1	6	2	9

10.6 Prophylactic Measures undertaken

Disease	**Vaccination No. of animals**	**No. of animals** Tested	Positive	**Dates and No. of animals treated for Parasitism**
FMD	141(Twice a year)	-		No clinical case of parasitic infestation was observed during the year. All the animals were dewormed as per normal schedule
HS	133(Thrice a year)	-		
BQ	124	-		
Brucelloses	38	110	No clinical case	
JD	-	-		
TB	-	110	05	
IBR	-	-		
Mastitis	-	-		

9.7. Female Conception Rate during the Period January 2019 to December 2020

AI →	1st			2ND			3RD			4TH & above			Over all		
Parity↓	AIs	C	CR %	AIs	C	CR %	AIs	C	CR%	AIs	C	CR %	AIs	C	CR %
Heifers	11	6	54.54	6	5	83.33	3	1	33.33	6	2	33.33	26	14	53.84
Adults	47	26	55.31	25	13	52.0	14	4	28.57	29	8	27.58	115	51	44.34
Overall	58	32	55.17	31	18	58.06	17	5	29.41	35	10	28.57	141	65	**46.09%**

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	42	16	38.09 %
April - June	33	18	54.54 %
July - September	31	12	38.70 %
October- December	35	19	54.28 %
Overall	141	65	46.09 %

9.9. Bull-wise Conception Rate During the period January to December, 2019

Sr. No.	Bull No.	Total Number of AI	Total Conceived	CR%
1.	NR27	15	7	46.66
2.	NR298	17	5	29.41
3.	NR352	14	6	42.85
4.	NR359	9	2	22.22
5.	NR507	15	13	86.66
6.	NR702	19	10	52.63
7.	NR1359	2	1	50.0
8.	NR2563	5	0	0
9	NR2591	13	7	53.84
10	NR7094	2	1	50.00
11	NR7147	2	0	0
12	DIAMOND	17	8	47.05
13	NRNAAG-2	3	2	66.66
14	NRNANDU	7	2	28.57
15	NR RAJA	1	1	100
Total		**141**	**65**	**46.09**

9.10 Bull Wise Semen Stock: -

Sr. No	Bull No	O.B.	Doses produced/received	Doses used /disseminated				
				Dairy Farm	Sold	Exp.	Total Supply	Balance
1.	NR2563	642	5622	0	4479	0	4479	1785
2.	NR2591	1351	9510	20	8223	0	8243	2618
Grand Total	-	1993	15132	20	12702	0	12722	4403

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							
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							

9.11.1(a) Average Body weight in kg (no. observations) since inception

Year	Birth	3 Months	6 Months	12 Months	18 Months	24 Months	At AFC
Female							
	32.34 (25)	63.37 (20)	104.99 (17)	181.17 (16)	309.96 (16)	397.81 (22	561.64 (16)
Male						**ADULT**	
	34.13 (24)	69.45 (12)	113.81 (9)	235.24 (5)	350.0	540.09 (2)	

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)
1st	11	2587.41±113.08	317.82±17.38	2506.31±97.4	13.04±0.6
2nd	13	2754.58±117.25	311.23±14.89	2661.71±97.46	14.39±0.66
3rd	9	2448.87±88.95	285.56±19.96	2396.39±71.22	14.71±0.34
4th	3	2433.13±77.36	299±11.05	2404.13±82.8	13.93±0.31
5th & above	8	2320.41±113.51	284.75±21.23	2258.99±102.77	12.34±0.27
Overall	**44**	**2549.4±57.96**	**301.98±8.65**	**2477.8±49.84**	**13.71±0.29**

9.12.1 Average production performance of Buffaloes since Inception of Network

Year	Lact. Length (days)	TLMY (kg)	SLMY (kg)	Peak yield (kg)
2017-18	278	2248.77	2187.60	12.36
2018-19	300	2543	2458	13.54
2019-20	302	2549	2478	13.71

9.13 Average Milk Composition from April 2019 to March 2020

Month	N	Fat	SNF	Protein	Lactose
April 19	32	8.56	9.73	3.39	5.47
May	33	7.86	9.87	3.57	5.66
June	27	8.05	9.77	3.61	5.53
July	28	7.99	9.81	3.51	5.72
August	34	8.03	9.65	3.49	5.61
September	36	7.54	9.92	3.64	5.56
October	36	8.13	9.76	3.67	5.66
November	33	7.96	9.89	3.44	5.67
December	34	8.01	9.95	3.52	5.71
January 20	33	7.99	9.86	3.61	5.56
February	35	8.06	9.72	3.41	5.62
March	41	7.97	9.84	3.55	5.6
Overall	**34**	**8.01**	**9.81**	**3.53**	**5.61**

9.14: Reproductive Performance

Lactation / Parity	N	AFC (Months)	SP (Days)	DP (Days)	CI (Days)
1	**18**	40.9±1.21	-	-	-
2	6	-	163±34.89	204.5±23.65	482.33±34.6
3	11	-	148.27±15.17	162.55±19.33	438±18.56
4	5	-	158±22.52	247.2±27.65	464.6±23.41
5th and above	13	-	143.46±22.35	257.23±46.2	445.85±23.44

Over all	**53**	**-**	**150.4±11.8**	**217±20.29**	**452.31±12.79**

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)

9.15. Month-wise milk production and disposal during the period 4/2019 to 3/2020

	Production	**Disposal**			
Month	**Total milk produced (kg)**	**Liquid milk (kg)**	**Calf feeding (kg)**	**Experimental purposes (kg)**	**Milk lost in handling (kg)**
April 2019					
May					
June					
July					
August					
September					
October					
November					
December					
January 2020					
February					
March					
Total	**95304.7**	**82319**	**12659**	**0**	**326.7**

9.16 Feed and Fodder (Quintals) availability April 2019 – March 2020)

Quarter	**Feed/fodder**	**Quantity produced at farm**	**Quantity purchased**	**Actually fed**
I (April – June)	Green	1909		1909
	Dry	400		400
	Silage	660		660
	Concentrate	904.225	904.225	904.225
II (July – September)	Green	2412		2412
	Dry	213		213
	Silage	1624		1624
	Concentrate	836	836	836
III (October – December)	Green	1917.5		1917.5
	Dry	191		191
	Silage	343		343
	Concentrate	839.5	839.5	839.5
IV (January-March)	Green	2037.17		2037.17
	Dry	180		180
	Silage	286.9		286.9
	Concentrate	858.5	858.5	858.5
Total	Green	8275.22		8275.22
	Dry	984		984
	Silage	2913.9		2913.9
	Concentrate	3438.225	3438.225	3438.225

9.17: Milk performance during April 19 to March 2020

Month	Buffaloes in Milk	Dry buffaloes	Total	% in Milk	Wet Av. (kg)	Herd Av. (kg)
April 2019	32	45	77	41.56	8.03	3.34
May	33	46	79	41.77	7.26	3.03
June	27	29	56	48.21	7.45	3.59
July	28	32	60	46.67	6.94	3.24
August	34	29	63	53.97	6.70	3.61
September	36	26	62	58.06	7.56	4.39
October	36	28	64	56.25	7.90	4.44
November	33	32	65	50.77	8.63	4.38
December	34	25	59	57.63	8.76	4.90
January 2020	33	29	62	53.23	9.82	4.77
February	35	27	62	56.45	9.68	4.98
March	41	26	67	61.19	7.14	4.06
Overall	**34**	**31**	**65**	**52.15**	**7.99**	**4.06**

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

9.18: Bull wise daughters born (only numbers)

Bull No.	Daughters born	Daughters Calved	Daughters completing 1st Lactation
NR NAAG-2	5	0	0
NR 1359	4	0	0
NR 27	4	0	0
NR 2591	1	0	0
DIAMOND	2	0	0
NR 2563	1	0	1
NR 2565	1	0	1
NR 2591	1	0	0
NR 507	2	0	0
NR 674	2	0	0
NR NANDU	1	0	0
NR RAJA	1	0	0
NR6139	0	1	0
NR19022	0	3	7
NR2459	0	1	0
NR2463	0	5	1
NR991	0	4	1
OVERALL	**25**	**14**	**11**

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)
NR507	2835	20.8.13	03.07.18	58.0	301	2977.2	2977.2
NR19022	2901	18.01.15	06.09.18	43.5	305	2331.6	2331.6
NR 19022	2904	06.02.15	28-2-19	48.6	260	1932.4	1932.4
NR 19022	2909	24.02.15	15-10-18	43.6	270	2671.1	2671.1

NR 19022	2923	10.04.15	3-5-19	48.7	227	2422.1	2422.1
NR 19022	2932	22.06.15	20-11-18	40.9	374	2151.4	1975
NR674	2936	07.07.15	26.09.18	38.6	427	3224.2	2778
NR 19022	2941	03.10.15	12-10-18	36.2	383	2902.7	2745.2
NR 19022	2942	11.10.15	5-2-19	39.8	360	2948	2836
NR 991	3001	23.03.16	04.01.19	33.3	297	2495.2	2495.2
NR2463	3023	24.09.16	30.05.19	32.1	292	2405.8	2405.8

9.20 Breeding bulls Selected for current set : **Nil**

9.20.1 PT Bulls for nominated mating : **702**

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
1.	NM2720	07.04.2017	2811	NR27	2981 KG / 5	-
2.	NM2732	12.07.2017	2593	NR2591	2894 KG / 5	-
3.	NM2778	01.03.2018	3044	NR2591	2966 KG / 3	-

9.21 Target achieved during the year :

Trait	Target	2017-18	2018-19	2019-20
Av. Age at first calving (months)	40	42.4	40.3 (15)	40.9 (18)
Av. Service period (days)	130	180	168 (40)	150.4(53)
Calf mortality (0-3 months)	≤ 5 %	13.0 %	15.87%	9.37%
Wet average (kg)	≥8.5 kg	7.85	7.97	7.99
Herd average (kg)	≥5.5 kg	4.2	4.12	4.06

10. Salient Research Achievements:

A considerable progress has been made in achieving the targets of reduction in AFC and the service period. Also, the wet average improved significantly, and 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 2019-20 (Rs in Lakhs)

Sanctioned as per R E 2019-20		Released ICAR Share as per R E	Expenditure as per AUC		Closing balance
Total	ICAR Share		ICAR Share	State Share	
51.00	38.25	38.25	37.72219	1257640	(+) 0.52081

Herd Performance

The herd strength of Nili-Ravi was 156, included 98 breedable buffaloes (> 2 years). Total 49 calves (24 male and 25 female) 2 still birth during 2019-20. The calf mortality (0-3 months) was 9.38 percent which higher than the target. Conception rate was reported 47.89 percent. Mean for lactation milk yield, lactation length and 305 or less day lactation milk yield were 2549 kg (44), 300 days and 2478 kg (44), respectively. Milk yield increased during the year. The reproductive traits viz: age at first calving, service period, dry period and calving interval were 40.9 months (18), 150 days (35), 217 days (35) and 452 days (35), respectively. The wet average and herd average reported 7.99 kg and 4.06 kg, respectively.

Accomplishment and Targets Achieved

Sr. No.	Trait	Target	2017-18	2018-19	2019-20
1	Av. AFC (Months)	40.0	42.43 (18)	40.3 (15)	40.9 (18)
2	Av. service period (Days)	130 days	180 (31)	168 (40)	150 (35)
3	Calf mortality (0-3 months)	≤ 4 %	13.11 %	15.87%	9.37%
4	Wet average (Kg)	≥ 8.50 kg	7.85 kg	7.97	7.99
5	Herd average (Kg)	≥ 5.50 kg	4.20 kg	4.12	4.06

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 2019– March 2020): 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 2019 to March 2020, 3957 artificial inseminations were performed using test bulls of 18^{th} set. The use 18^{th} set was initiated from January 2019. The conception rate in the field was worked out to be 53.90%. In this period 2225 pregnancies were confirmed and 1754 calving (males 953, females 801) were recorded. In addition 172 progenies, 6 of 14^{th}, 144 of 15^{th}, and 22 of 16^{th} set were also calved and monthly test day milk yield were/ being recorded. The average age at first calving for these 172 daughters was 40.44 months. During the year 301 daughters were recorded, out of which 140 daughters completed the lactation, 60 daughters sold before the lactation was completed and recording of 101 daughters are in progress. The physical

identification using ear tagging has been done in all female progenies born in the field till March 2020. As on 31st March 2020, 1207 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 2019-20

Name of Village	OB	*Addition*	*Deduction*		CB
		New Reg. (Birth/ Purchase)	Sold	Death	
	--				

F 2. Status of Breedable females under field unit during 2019-20

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 2019-20

Months	Centre/ Village										Total
	Beed	Juglan	Dhiktana	Kheri	Jewra	Kirara	Sarsod	Bichpari	Bado	Bugana	
April 19	22	26	19	23	9	2	36	19	18	21	**195**
May	18	37	25	26	34	5	51	36	20	20	**272**
June	22	31	30	27	48	3	38	48	19	20	**286**
July	18	35	24	29	33	7	40	25	23	30	**264**
Aug	26	43	27	40	28	4	50	34	25	30	**307**
Sept	45	67	27	45	26	3	78	40	34	47	**412**
Oct	61	73	44	42	38	4	67	47	31	33	**440**
Nov	94	74	31	37	64	4	100	58	34	27	**523**
Dec	100	67	34	2	45	25	77	52	7	40	**449**
Jan 20	68	60	39	9	28	12	45	29	19	25	**334**
Feb	66	61	26	9	37	7	31	31	11	20	**299**
March	23	31	18	6	17	10	32	18	11	10	**176**
Total	**563**	**605**	**344**	**295**	**407**	**86**	**645**	**437**	**252**	**323**	**3957**

F 4. Bull-wise AI at Different Field Unit Centres during the Period 4/2019 to 3/2020

Month	Bull No.																
	2645 XVIII	2676 XVIII	2677 XVIII	2689 XVIII	4905 XVIII	4995 XVIII	5147 XVIII	1150 XVIII	1198 XVIII	1208 XVIII	1209 XVIII	1219 XVIII	7094 XVIII	7147 XVIII	7227 XVIII	7263 XVIII	Total
April 19	60	23	44	-	1	1	-	18	48	-	-	-	-	-	-	-	195
May	21	4	10	-	2	-	-	1	28	-	98	-	1	47	60	-	272
June	80	1	1	18	-	-	62	1	1	-	73	6	-	43	-	-	286
July	1	54	-	56	-	-	88	-	-	-	-	65	-	-	-	-	264
Aug	-	6	12	2	-	62	73	1	-	-	-	66	-	-	-	85	307
Sept	-	76	72	-	-	2	8	-	-	64	2	2	77	-	49	60	412
Oct	139	4	75	-	-	-	-	-	-	148	-	61	-	2	8	3	440
Nov	69	149	1	-	-	43	-	-	-	4	-	-	58	119	79	1	523
Dec	-	1	-	89	-	116	90	8	-	-	-	-	82	1	62	-	449
Jan 20	-	-	-	111	-	-	53	139	-	26	-	-	1	-	4	-	334
Feb	-	-	60	38	75	-	1	7	-	118	-	-	-	-	-	-	299
March	-	-	78	-	51	-	-	-	-	6	24	-	-	-	-	17	176
Total	370	318	353	314	129	224	375	175	77	366	197	200	219	212	262	166	3957

F 5. Month-wise Conception at Different Field Unit Centres during 2019-20

Months	**Centre/ Village**										**Total**
	Beed	**Juglan**	**Dhiktana**	**Kheri**	**Jewra**	**Kirara**	**Sarsod**	**Bichpari**	**Baado**	**Bugana**	
April 19	39	41	14	23	22	3	50	16	12	9	**229**
May	19	25	14	12	16	3	22	19	15	9	**154**
June	26	18	10	18	10	3	25	13	13	9	**145**
July	11	17	10	13	5	2	19	10	10	14	**111**
Aug	12	22	14	13	17	2	29	20	9	10	**148**
Sept	11	18	14	13	33	2	22	24	8	8	**153**
Oct	12	20	10	12	20	5	23	14	10	12	**138**
Nov	13	23	14	19	15	3	28	20	9	15	**159**
Dec	25	37	16	18	15	1	50	19	11	23	**215**
Jan 20	35	44	21	13	12	2	38	28	11	19	**223**
Feb	59	40	17	12	30	2	60	35	10	15	**280**
March	62	44	19	1	23	19	42	30	5	25	**270**
Total	**324**	**349**	**173**	**167**	**218**	**47**	**408**	**248**	**123**	**168**	**2225**

F 6. Bull-wise Conception at Different Field Unit Centres during the Period 4/2019 to 3/2020

Months	Bull No.								
	2558 XVII	**1148 XVII**	**2565 XVII**	**2607XVII**	**6942 XVII**	**53M XVII**	**7010 XVII**	**Sikander**	**Dara XVII**
April 19	9	26	1	7	11	12	16	6	10
May	-	3	-	-	-	-	-	4	1
June	-	-	-	-	-	-	-	1	-
July	-	-	-	-	-	-	-	-	-
Aug	-	-	-	-	-	-	-	-	-
Sept	-	-	-	-	-	-	-	-	-
Oct	-	-	-	-	-	-	-	-	-
Nov	-	-	-	-	-	-	-	-	-
Dec	-	-	-	-	-	-	-	-	-
Jan 20	-	-	-	-	-	-	-	-	-
Feb	-	-	-	-	-	-	-	-	-
March	-	-	-	-	-	-	-	-	-
Total	**9**	**29**	**1**	**7**	**11**	**12**	**16**	**11**	**11**

Cont..

Months		Bull No.															
	2645 XVIII	2676 XVIII	2677 XVIII	2689 XVIII	4905 XVIII	4995 XVIII	5147 XVIII	1150 XVIII	1198 XVIII	1208 XVIII	1209 XVIII	1219 XVIII	7094 XVIII	7147 XVIII	7227 XVIII	7263 XVIII	**Total**
April 19	-	-	-	-	75	2	-	54	-	-	-	-	-	-	-	-	**229**
May	-	-	-	-	17	60	-	27	-	-	-	-	24	18	-	-	**154**
June	12	14	-	-	49	-	-	42	-	-	-	-	12	15	-	-	**145**
July	33	15	24	-	-	1	-	12	26	-	-	-	-	-	-	-	**111**
Aug	10	1	2	-	-	-	-	1	17	-	57	-	-	22	38	-	**148**
Sept	42	1	1	9	-	-	36	-	-	-	38	4	-	22	-	-	**153**
Oct	-	28	-	30	-	-	44	-	-	-	-	36	-	-	-	-	**138**
Nov	-	4	9	1	-	28	41	1	-	-	-	39	-	-	-	36	**159**
Dec	-	32	36	-	-	2	5	-	-	31	1	1	50	-	29	28	**215**
Jan 20	59	1	39	-	-	-	-	-	-	82	-	33	-	2	5	2	**223**
Feb	37	78	1	-	-	24	-	-	-	1	-	-	28	63	48	-	**280**
March	-	-	-	48	-	67	55	7	-	-	-	-	54	1	38	-	**270**
Total	**193**	**174**	**112**	**88**	**141**	**184**	**181**	**144**	**43**	**114**	**96**	**113**	**168**	**143**	**158**	**66**	**2225**

F 7. Month-wise Calving at Different Field Unit Centres during 2019-20

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 19	5	7	3	5	6	7	7	3	7	4	3	2	6	8	7	5	3	3	2	3	**49**	**47**
May	6	6	5	6	6	9	8	6	13	4	1	0	7	6	9	5	6	4	2	2	**63**	**48**
June	5	9	9	11	4	6	10	5	11	5	2	1	9	8	8	8	7	4	3	4	**68**	**61**
July	11	12	20	16	9	13	7	6	10	2	1	1	9	11	8	10	5	4	4	6	**84**	**81**
Aug	11	18	10	18	10	7	9	7	12	12	4	2	17	19	7	11	6	4	9	6	**95**	**104**
Sept	22	18	24	18	6	4	9	5	15	3	2	2	21	25	17	13	7	4	5	3	**128**	**95**
Oct	22	20	17	17	9	9	13	8	10	12	2	1	30	24	12	19	7	7	6	4	**128**	**121**
Nov	19	14	19	16	7	4	14	4	7	11	2	1	26	18	8	5	5	4	5	2	**112**	**79**
Dec	11	7	12	11	8	4	6	2	3	5	1	1	12	6	10	9	8	1	4	3	**75**	**49**
Jan 20	13	9	7	8	3	5	3	2	4	2	1	1	10	8	6	4	3	0	5	4	**55**	**43**
Feb	7	4	7	7	5	4	2	0	2	1	1	1	10	7	5	4	1	0	5	5	**45**	**33**
March	5	6	9	7	7	5	0	1	2	3	0	1	15	7	9	7	1	0	3	3	**51**	**40**
Total	**137**	**130**	**142**	**140**	**80**	**77**	**88**	**49**	**96**	**64**	**20**	**14**	**172**	**147**	**106**	**100**	**59**	**35**	**53**	**45**	**953**	**801**

F 8. Bull-wise Calving at Different Field Unit Centres during the Period 4/2019 to 3/2020

Months	Bull No.																					
	2558 XVII		2565 XVII		2594 XVII		2607 XVII		4715 XVII		4733 XVII		4837 XVII		53M XVII		6942 XVII		7010 XVII		Sikander		Dara XVII	
	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 19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17	15	-	-	14	14	4	4	2	0
May	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	13	-	-	4	1	8	8	13	11
June	-	-	-	-	1	0	-	-	0	1	-	-	-	-	1	1	28	19	-	-	9	6	9	10
July	-	-	-	-	-	-	-	-	-	-	1	0	-	-	-	-	29	22	-	-	6	7	1	7
Aug	-	-	16	15	-	-	-	-	-	-	1	2	4	4	-	-	28	27	13	24	7	16	12	10
Sept	9	9	10	4	27	23	-	-	-	-	-	-	35	21	8	17	-	-	9	4	20	12	10	5
Oct	21	12	25	19	6	10	3	13	-	-	1	2	9	9	7	5	3	4	1	1	29	20	22	26
Nov	4	3	0	1	-	-	5	2	-	-	-	-	-	-	9	3	3	6	6	8	3	1	2	3
Dec	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	1	0	1
Jan 20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	-	-
Feb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
March	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**34**	**24**	**51**	**39**	**34**	**33**	**8**	**15**	**0**	**1**	**3**	**4**	**48**	**34**	**58**	**54**	**91**	**78**	**47**	**52**	**90**	**75**	**71**	**73**

Cont..

Month	Bull No.																								Total	
	B1/330 XVII		1148 XVII		2645 XVIII		2676 XVIII		2677 XVIII		4905 XVIII		4995 XVIII		1150 XVIII		1198 XVIII		1209 XVIII		7094 XVIII		7147 XVIII		7227 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		
April 19	12	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**49**	**47**
May	22	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**63**	**48**
June	20	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**68**	**61**
July	28	16	19	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**84**	**81**
Aug	8	6	6	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**95**	**104**
Sept	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**128**	**95**
Oct	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**128**	**121**
Nov	-	-	14	6	-	-	-	-	-	-	34	30	1	0	31	16	-	-	-	-	-	-	-	-	-		**112**	**79**
Dec	-	-	2	0	-	-	-	-	-	-	8	4	32	18	9	12	-	-	-	-	12	9	9	4	-	-	**75**	**49**
Jan 20	-	-	-	-	3	7	4	6	-	-	19	7	-	-	15	13	-	-	-	-	4	6	9	4	-	-	**55**	**43**
Feb	-	-	-	-	17	9	7	5	8	7	1	0	-	-	3	5	9	7	-	-	-	-	-	-	-	-	**45**	**33**
March	-	-	-	-	-	-	-	-	2	0	-	-	-	-	1	0	5	5	21	18	-	-	5	4	17	13	**51**	**40**
Total	**90**	**75**	**42**	**35**	**20**	**16**	**11**	**11**	**10**	**7**	**62**	**41**	**33**	**18**	**59**	**46**	**14**	**12**	**21**	**18**	**16**	**15**	**23**	**12**	**17**	**13**	**953**	**801**

F 9. Bull-wise Live Female Progeny at Different Field Unit Centers (0-6month) as on 3/2020

Bull No. Centres	2558 XVII	2565 XVII	2594 XVII	2607X VII	4733X VII	4837 XVII	1148 XVII	53M XVII	6942 XVII	7010 XVII	Sikander	Dara XVII	2645 XVIII	2676 XVIII	2677 XVIII
Beed	2	2	1	2	-	2	-	-	-	2	-	1	2	1	1
Juglan	-	1	-	2	-	2	-	1	1	2	1	5	4	-	2
Dhiktana	-	1	1	-	-	2	-	2	-	-	1	2	3	1	-
Kheri	1	1	-	-	-	-	-	-	1	-	-	-	-	-	-
Jewra	-	-	2	2	-	2	1	-	-	-	1	2	-	1	-
Kirara	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-
Sarsod	1	5	-	-	2	-	1	4	1	1	2	4	3	2	-
Bichpari	-	-	1	3	-	-	-	2	-	-	2	3	-	3	1
Bado Patti	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
Bugana	-	-	1	-	-	-	-	-	-	-	-	1	2	1	-
Total	**4**	**10**	**6**	**9**	**2**	**8**	**2**	**9**	**5**	**6**	**7**	**18**	**14**	**10**	**4**

Cont.. 9

Bull No. Centres	**4905 XVIII**	**4995 XVIII**	**1150 XVIII**	**1198 XVIII**	**1209 XVIII**	**7094 XVIII**	**7147 XVIII**	**7227 XVIII**	**Total**
Beed	6	1	7	1	1	3	-	4	**39**
Juglan	6	5	6	1	5	1	-	1	**46**
Dhiktana	-	1	3	2	1	-	3	3	**26**
Kheri	-	-	2	-	-	-	2	-	**7**
Jewra	4	2	3	-	-	-	2	-	**22**
Kirara	-	-	1	-	-	1	-	1	**5**
Sarsod	2	-	5	1	3	3	2	1	**43**
Bichpari	2	3	1	-	2	2	1	-	**26**
Bado Patti	1	-	-	-	-	-	-	-	**3**
Bugana	1	2	5	2	1	-	2	1	**19**
Total	**22**	**14**	**33**	**7**	**13**	**10**	**12**	**11**	**236**

F 10. Bull-wise Live Female Progeny at Different Field Unit Centers (6-12month) as on 3/2020

Bull No. Centres	**2558 XVII**	**2565 XVII**	**2594 XVII**	**4733X VII**	**4837 XVII**	**1148 XVII**	**53M XVII**	**B1/330 XVII**	**6942 XVII**	**7010 XVII**	**Sikand er**	**Dara XVII**	**Total**
Beed	1	4	2	-	-	2	1	8	7	4	5	2	**36**
Juglan	1	3	1	1	5	-	-	8	6	3	2	5	**35**
Dhiktana	-	-	-	-	3	2	4	5	2	-	-	5	**21**
Kheri	-	-	1	-	-	-	-	5	3	1	1	-	**11**
Jewra	-	-	-	-	-	1	3	1	2	4	2	1	**14**
Kirara	-	-	-	-	-	-	-	-	1	-	1	-	**2**
Sarsod	-	2	6	-	2	3	5	6	5	7	7	3	**46**
Bichpari	-	-	3	-	2	2	3	5	2	1	4	3	**25**
Bado Patti	-	-	-	-	-	-	2	4	1	-	1	-	**8**
Bugana	-	-	-	-	1	1	-	1	2	3	1	2	**11**
Total	**2**	**9**	**13**	**1**	**13**	**11**	**18**	**43**	**31**	**23**	**24**	**21**	**209**

F 11. Bull-wise Live Female Progeny at Different Field Unit Centers (1-3 years) as on 3/2020

Bull No. Centres	1027 XVI	1053 XVI	1064 XVI	2383 XVI	2467 XVI	2501 XVI	4592 XVI	4705 XVI	4889 XVI	M29 XVI	M51 XVI	6379 XVI	6409 XVI	6646 XVI	6753 XVI
Beed	4	6	9	4	2	1	4	4	4	2	7	4	-	3	10
Juglan	2	6	5	1	3	2	2	-	-	8	5	9	3	6	7
Dhiktana	6	-	1	6	-	3	3	2	1	2	7	-	1	2	1
Kheri	1	4	1	-	3	-	11	4	-	3	1	-	-	-	-
Jewra	9	3	3	-	3	-	2	1	2	4	9	-	4	2	3
Kirara-	1	2	-	1	-	-	1	-	-	1	1	-	-	2	5
Sarsod	3	3	1	3	3	2	4	-	5	2	12	2	1	6	2
Bichpari	3	5	2	6	1	3	3	5	2	3	8	1	7	5	2
Bado Patti	3	2	-	1	3	1	3	-	-	-	1	3	-	1	1
Bugana	1	-	-	-	1	2	4	-	-	1	3	-	-	2	1
Total	**33**	**31**	**22**	**22**	**19**	**14**	**37**	**16**	**14**	**26**	**54**	**19**	**16**	**29**	**32**

Cont..11

Bull No. Centres	2558 XVII	2565 XVII	2594 XVII	2607X VII	4687X VII	4715X VII	4733X VII	4837 XVII	1148 XVII	53M XVII	B1/330 XVII	7010 XVII	Sikander	Dara XVII	**Total**
Beed	4	6	3	3	12	7	10	4	5	3	2	4	1	-	**128**
Juglan	4	4	4	1	8	7	5	5	5	3	1	2	-	1	**109**
Dhiktana	1	4	3	5	-	5	4	-	3	-	-	1	2	1	**64**
Kheri	6	-	2	5	1	-	4	1	2	-	-	-	-	-	**49**
Jewra	1	3	1	-	5	3	7	5	1	2	-	3	-	3	**79**
Kirara	2	-	-	-	-	-	1	-	-	-	-	1	-	-	**18**
Sarsod	7	3	5	6	8	7	7	11	2	2	-	3	-	1	**111**
Bichpari	3	4	5	4	-	6	4	2	3	-	-	3	-	2	**92**
Bado Patti	2	-	2	1	1	-	2	-	1	-	-	-	-	-	**28**
Bugana	3	-	1	1	2	1	-	1	-	-	1	1	1	-	**27**
Total	**33**	**24**	**26**	**26**	**37**	**36**	**44**	**29**	**22**	**10**	**4**	**18**	**4**	**8**	**705**

F 12. Bull-wise Live Female Progeny at Different Field Unit Centers (> 3 years) as on 3/2019

Bull No.	**2412 XV**	**2417 XV**	**2429 XV**	**2459 XV**	**4324 XV**	**4328 XV**	**4354 XV**	**4363 XV**	**4403 XV**	**4438 XV**	**6007 XV**	**6139 XV**	**6290 XV**	**6405 XV**	4324 XV
Beed	-	1	-	1	-	2	-	-	1	1	-	3	3	5	2
Juglan	-	-	-	-	1	1	-	1	-	-	-	2	-	3	2
Dhiktana	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Kheri	-	-	-	-	-	-	-	-	-	1	-	-	-	1	1
Jewra	-	1	-	-	-	3	3	3	1	1	-	1	2	1	1
Kirara	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-
Sarsod	1	-	-	3	2	3	1	1	-	-	-	1	-	-	-
Bichpari	-	-	2	-	-	-	1	-	-	2	-	-	1	-	-
Bado	-	2	1	-	-	1	-	-	-	-	1	-	-	-	1
Bugana	-	1	-	-	1	-	-	1	-	-	-	-	-	2	-
Total	**1**	**6**	**3**	**4**	**4**	**10**	**5**	**6**	**2**	**5**	**1**	**7**	**7**	**13**	**7**

Cont..

Bull No.	**2467 XVI**	**2501 XVI**	**4592 XVI**	**4705 XVI**	**4889 XVI**	**M29 XVI**	**6379 XVI**	**6409 XVI**	**6646 XVI**	**Total**	**Total**
Beed	1	1	-	2	-	1	1	5	3	**31**	**26**
Juglan	2	-	-	-	1	-	-	1	1	**13**	**39**
Dhiktana	-	-	-	-	1	-	-	-	-	**2**	**7**
Kheri	-	-	-	1	-	-	1	-	-	**4**	**2**
Jewra	-	-	-	2	2	3	-	-	1	**24**	**17**
Kirara	-	-	-	-	-	-	-	-	-	**2**	**8**
Sarsod	-	-	-	1	-	1	-	2	1	**17**	**5**
Bichpari	-	2	1	2	2	-	-	-	-	**13**	**11**
Bado	-	-	-	-	1	1	1	-	-	**8**	**4**
Bugana	-	-	-	-	-	-	-	-	-	**5**	**4**
Total	**3**	**3**	**1**	**8**	**7**	**6**	**3**	**8**	**6**	**119**	**123**

F 13. Bull-wise Daughters Calved at Different Field Units during 2019-2020

Bull No. Centres	4093 XIV	4100 XIV	4196 XIV	4439 XIV	2371 XV	2412 XV	2417 XV	2429 XV	2459 XV	4324 XV	4328 XV	4354 XV	4363 XV	4403 XV	4438 XV	6007 XV	6139 XV	6290 XV	6405 XV
Beed	-	1	2	1	2	-	2	-	2	1	1	1	-	1	-	3	2	-	4
Juglan	1	-	-	-	4	-	-	-	2	1	3	1	1	1	3	5	2	2	5
Dhiktana	-	-	-	-	1	1	-	-	1	-	-	1	1	-	1	-	2	-	2
Kheri	-	-	-	-	-	-	1	-	-	1	-	-	-	-	1	-	-	1	1
Jewra	-	-	-	1	-	2	-	1	1	3	3	1	2	1	-	-	1	3	5
Kirara	-	-	-	-	2	1	-	-	-	1	2	-	1	-	-	-	1	1	-
Sarsod	-	-	-	-	-	2	2	2	-	-	-	1	2	1	1	-	1	-	2
Bichpari	-	-	-	-	-	2	2	4	2	1	5	3	3	-	2	2	-	-	2
Bado	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-
Bugana	-	-	-	-	-	-	-	1	-	-	-	2	-	-	-	-	-	-	1
Total	**1**	**1**	**2**	**2**	**9**	**9**	**7**	**8**	**8**	**9**	**14**	**10**	**10**	**4**	**8**	**10**	**9**	**7**	**22**

Cont..

Bull No. Centres	2467 XVI	2501 XVI	4592 XVI	4705 XVI	4889 XVI	M29 XVI	M51 XVI	6379 XVI	6409 XVI	6646 XVI	**Total**
Beed	1	-	-	-	-	-	1	-	1	1	**27**
Juglan	1	-	-	-	1	1	-	1	2	-	**37**
Dhiktana	-	1	-	-	-	-	-	-	-	-	**11**
Kheri	-	1	-	1	-	-	-	-	-	-	**7**
Jewra	1	-	-	-	-	-	-	-	-	-	**25**
Kirara	-	-	1	2	1	-	-	-	-	-	**13**
Sarsod	-	-	-	2	-	-	1	-	-	-	**17**
Bichpari	1	-	-	-	-	-	-	-	-	-	**29**
Bado	-	-	-	-	-	-	-	-	-	-	**2**
Bugana	-	-	-	-	-	-	-	-	-	-	**4**
Total	**4**	**2**	**1**	**5**	**2**	**1**	**2**	**1**	**3**	**1**	**172**

F 14. Bull-wise Daughters Recorded at Different Field Units Centres during the Period 4/2019 to 3/2020

Field Units	Bull No.	Dgtr 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																								
	4324 XV	444	02/08/15	22/06/18	4.5	4.5	5.5	5.5	5.5	5.5	5.0	5.0	4.5	4.5	3.5	3.5	3.0	3.0	4.0	x	4.0	x	4.0	x
	4196 XIV	411	26/02/15	11/07/18	4.0	4.0	5.0	5.0	5.3	5.2	5.5	5.5	5.0	5.0	4.0	4.0	4.0	3.8	3.0	3.0	5.0	x	4.0	x
	2357 XIV	413	19/03/15	08/07/18	3.0	3.0	4.8	4.7	5.0	5.0	6.0	6.0	5.8	5.7	4.5	4.5	4.5	4.5	4.0	4.0	3.5	3.7	3.0	3
	6044 XIV	377	24/09/14	21/08/18	4.0	4.0	5.0	5.0	5.3	5.2	5.0	5.0	4.8	4.7	4.3	4.2	4.0	4.0	4.0	4.0	3.0	3.0	4.0	x
	2357 XIV	387	18/10/14	29/08/18	3.5	3.5	4.5	4.5	5.0	5.0	5.3	5.2	5.0	5.0	4.5	4.5	4.3	4.2	3.8	3.7	3.5	3.5	2.5	2.5
	2371 XV	477	28/10/15	03/09/18	4.5	4.5	5.0	5.0	5.5	5.5	5.0	5.0	4.8	4.7	4.0	4.0	3.8	3.7	3.5	3.5	3.0	3.0	2.3	2.2
	2357 XIV	388	24/10/14	12/09/18	3.5	3.5	4.3	4.2	4.5	4.5	4.3	4.2	4.0	4.0	3.5	3.5	3.5	3.5	3.3	3.2	3.0	3.0	2.0	2.0
	6044 XIV	378	26/09/14	12/09/18	3.0	3.0	4.0	4.0	4.3	4.2	4.5	4.5	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0	3.8	3.7	3.5	3.5
	2412 XV	427	06/06/15	03/10/18	4.0	4.0	4.5	4.5	4.0	4.0	4.0	4.0	3.5	3.5	3.8	3.7	3.0	3.0	3.0	3.0	3.0	3.0	3.5	0.0
	4324 XV	460	15/09/15	20/10/18	4.5	4.5	5.5	5.5	6.0	6.0	6.0	6.0	5.5	5.5	5.5	5.5	5.0	5.0	4.0	4.0	4.0	4.0	3.5	3.5
	6044 XIV	360	17/08/14	05/12/18	3.5	3.5	4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.0	3.8	3.7	2.5	3.5	3.0	3.0	4.0	x	4.0	x
	4196 XIV	405	17/01/15	07/03/19	4.0	4.0	4.5	4.5	4.0	4.0	4.0	4.0	4.3	4.2	3.0	3.0	3.0	3.0	5.0	x	5.0	x	4.0	x
	4100 XIV	403	24/12/14	6/05/19	3.5	3.5	4.0	4.0	4.5	4.5	4.5	4.5	4.0	4.0	4.3	4.2	4.0	4.0	4.0	x	3.0	3.0	4.0	x
	4196 XIV	410	23/02/15	02/06/19	5.5	5.5	6.0	6.0	4.5	4.5	4.5	4.5	4.2	4.3	4.0	4.0	3.8	3.7	Sold	x	x	x	x	x
	6007 XV	473	18/10/15	06/06/19	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.0	5.0	5.0	5.3	5.2	4.5	4.5	4.0	4.0	3.0	3.0
	4354 XV	434	07/07/15	13/06/19	4.0	4.0	3.8	3.7	4.5	4.5	4.3	4.2	4.5	4.5	4.3	4.2	4.0	4.0	3.5	3.5	3.5	3.5	2.5	2.5
	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		
	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		
	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						
	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						
	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						
	2459 XV	510	10/02/16	19/09/19	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	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						
	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								
	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								
	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								
	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								
	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								
	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										
	6405 XV	578	22/09/16	05/11/19	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	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												
	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												
	2467 XVI	606	18/11/16	27/11/19	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	2417 XV	563	08/08/16	24/12/19	4.0	4.0	4.8	4.7	5.0	5.0														
	6646 XVI	621	18/12/16	24/12/19	4.3	4.2	6.0	6.0	4.0	4.0														
	2371 XV	433	04/07/15	28/12/19	4.0	4.0	4.5	4.5	3.5	3.5														
	6405 XV	527	09/05/16	14/01/20	4.3	4.2	4.0	4.0	4.5	4.5														
	M-51 XVI	720	29/09/17	25/01/20	4.0	4.0	4.3	4.2																
	6409 XVI	637	29/01/17	28/01/20	4.3	4.2	4.5	4.5																
Juglan																								
	4324 XV	998	12/08/15	15/07/18	4.3	4.2	4.5	4.5	4.5	4.5	5.0	5.0	4.5	4.5	4.0	4.0	4.3	4.2	4.0	4.0	3.3	3.2	3.0	3.0
	4196 XIV	921	22/01/15	20/07/18	3.5	3.0	4.0	4.0	4.3	4.2	4.5	4.5	4.8	4.7	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0	3.5	3.5
	2357 XIV	864	13/10/14	22/07/18	5.5	4.5	5.0	5.0	5.0	5.0	5.0	5.0	4.8	4.7	4.5	4.5	4.3	4.2	4.3	4.0	3.8	3.7	4.0	X
	6007 XV	967	24/06/15	25/07/18	4.3	4.2	4.3	4.2	4.5	4.5	5.3	5.2	5.0	5.0	4.8	4.7	4.5	4.5	4.3	4.2	4.0	4.0	2.5	2.5

	2357 XIV	908	11/12/14	10/08/18	5.0	5.0	5.0	5.0	4.5	4.5	4.3	4.2	4.0	4.0	4.3	4.2	4.0	4.0	3.8	3.7	3.0	3.0	3.0	X
	6007 XV	966	22/06/15	23/08/18	4.5	4.5	6.0	6.0	6.0	6.0	6.0	6.0	5.5	5.5	5.0	5.0	5.0	5.0	4.0	4.0	3.3	3.2	5.0	x
	4324 XV	1014	06/09/15	24/08/18	5.0	5.0	5.3	5.2	5.0	5.0	4.8	4.7	4.5	4.5	4.0	4.0	4.0	4.0	3.8	3.7	3.0	3.0	4.0	x
	6007 XV	1030	20/09/15	24/08/18	5.5	5.5	5.5	5.3	5.5	5.5	5.8	5.7	5.0	5.0	4.5	4.5	4.3	4.2	4.0	4.0	2.7	2.5	2.5	2.5
	4093 XIV	831	24/08/14	28/08/18	5.3	5.2	5.8	5.7	6.0	6.0	6.3	6.2	6.0	6.0	5.0	5.0	5.0	5.0	4.3	4.2	4.0	4.0	3.5	3.5
	4324 XV	990	30/07/15	10/09/18	4.0	4.0	4.5	4.5	5.0	5.0	5.3	5.2	6.0	6.0	4.5	4.5	4.5	4.5	4.0	4.0	3.8	3.7	3.0	3.0
	2371 XV	971	02/07/15	06/09/18	3.5	3.5	4.5	4.5	5.3	5.2	5.5	5.5	5.0	5.0	5.0	5.0	4.8	4.7	Sold	x	x	x	x	x
	2369 XIV	769	19/01/14	08/09/18	3.8	3.5	4.8	4.7	4.5	4.5	4.0	4.0	2.5	4.5	4.0	4.0	4.0	4.0	3.8	3.7	3.0	3.0	3.0	3.0
	2357 XIV	944	09/04/15	10/09/18	3.0	3.0	4.3	4.2	4.5	4.5	5.0	5.0	5.8	5.7	4.8	4.7	4.5	4.5	4.0	4.0	3.0	3.0	2.5	2.5
	4196 XIV	943	04/04/15	12/09/18	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.8	3.7	3.5	3.5	Sold	x	x	x	x	x
	6136 XIV	903	05/12/14	27/09/18	4.0	4.0	4.3	4.2	5.0	5.0	6.0	6.0	5.3	5.2	5.0	5.0	4.5	4.5	3.8	3.5	3.5	3.5	4.0	0.0
	4324 XV	989	29/07/15	27/10/18	3.8	3.7	4.0	4.0	5.0	5.0	4.5	4.5	4.5	4.5	4.0	4.0	3.8	3.7	3.3	3.2	3.0	3.0	4.0	x
	2371 XV	981	16/07/15	08/11/18	4.3	4.2	5.0	5.0	5.5	5.5	5.5	5.5	5.3	5.2	4.8	4.7	4.0	4.0	4.0	4.0	3.0	2.5	2.5	2.5
	2417 XV	999	15/08/15	09/11/18	4.0	4.0	4.5	4.5	5.5	5.5	5.0	5.0	5.5	5.5	5.0	5.0	4.0	4.0	3.8	3.7	3.5	3.5	3.0	3.0
	4093 XIV	839	07/09/14	24/11/18	4.0	4.0	5.0	5.0	4.5	4.5	4.5	4.5	4.5	4.5	3.8	3.5	4.0	4.0	3.5	3.5	5.0	x	4.0	x
	4439 XIV	809	18/07/14	10/12/18	3.8	3.7	4.5	4.5	4.0	4.0	4.5	4.5	4.0	4.0	3.5	3.5	3.0	3.0	3.0	3.0	Sol	x	x	x
	2429 XV	980	15/07/15	03/01/19	4.0	4.0	4.0	4.0	4.5	4.5	4.0	4.0	Sold	x	x	x	x	x	x	x	x	x	x	x
	6007 XV	1061	16/11/15	10/01/19	3.8	3.7	4.3	4.2	4.8	4.7	5.0	5.0	4.3	4.2	4.0	4.0	Sold	x	x	x	x	x	x	x
	2417 XV	1017	08/09/15	25/03/19	3.0	3.0	3.3	3.2	3.5	3.5	3.5	3.5	3.0	3.0	3.0	3.0	5.0	x	4.0	x	3.0	x	3.0	x
	2417 XV	1057	09/11/15	28/03/19	3.8	3.7	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	5.0	x
	2467 XVI	1202	20/11/16	19/05/19	4.0	4.0	4.5	4.5	4.5	4.5	Died	x	x	x	x	x	x	x	x	x	x	x	x	x
	4438 XV	1100	22/01/16	20/05/19	3.5	3.5	4.3	4.2	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0
	6405 XV	1139	10/06/16	24/06/19	4.5	4.5	4.5	4.5	5.0	5.0	4.5	4.5	Sold	x	x	x	x	x	x	x	x	x	x	x
	4324 XV	1070	29/11/15	02/07/19	4.3	4.2	5.0	5.0	5.5	5.5	5.0	5.0	4.8	4.7	4.5	4.5	3.8	3.7	3.5	3.5	5.0	0		
	4363 XV	1050	25/10/15	15/07/19	4.0	4.0	4.5	4.5	5.0	5.0	5.5	5.5	6.0	6.0	5.5	5.5	5.0	5.0	4.5	4.5	4.3	4.5		
	2371 XV	977	13/07/15	18/07/19	3.8	3.7	4.5	4.5	4.0	4.0	4.5	4.5	5.5	5.5	5.3	5.2	4.5	4.5	4.0	4.0	3.5	3.5		
	6290 XV	1155	20/07/16	25/07/19	4.5	4.5	5.0	5.0	5.0	5.0	4.5	4.5	4.5	4.5	4.3	4.2	3.8	3.7	3.0	3.0				
	4328 XV	1195	29/10/16	25/07/19	2.5	2.5	3.5	3.5	4.0	4.0	4.0	4.0	4.0	4.0	3.8	3.7	3.3	3.2	3.0	3.0				
	6405 XV	1168	29/08/16	26/07/19	4.0	4.0	4.0	4.0	4.3	4.2	4.3	4.2	4.5	4.5	4.3	4.2	4.0	4.0	4.0	4.0				
	6007 XV	960	09/06/15	28/07/19	3.0	3.0	4.0	4.0	4.3	4.2	4.5	4.5	4.3	4.2	4.0	4.0	4.0	4.0	3.8	3.9				
	6007 XV	1060	19/11/15	01/08/19	3.5	3.5	3.0	3.0	3.5	3.5	4.5	4.5	4.8	4.7	4.3	4.2	4.3	4.2	4.0	4.0				
	6007 XV	963	12/06/15	03/08/19	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	4403 XV	1092	10/01/16	04/08/19	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	4093 XIV	846	14/09/14	08/08/19	4.3	4.2	4.5	4.5	5.0	5.0	5.3	5.2	5.0	5.0	4.8	4.7	4.5	4.5	4.0	4.0				
	4328 XV	1166	23/08/16	15/08/19	4.0	4.0	4.5	4.5	5.0	5.0	5.0	5.0	4.5	4.5	4.3	4.2	3.8	3.7	3.2	3.3				
	2467 XVI	1203	22/11/16	02/08/19	4.3	4.2	4.0	4.0	4.5	4.5	5.0	5.0	5.0	5.0	4.5	4.5	4.0	4.0	4.0	4.0				
	2459 XV	1105	12/02/16	17/08/19	3.5	3.5	4.0	4.0	5.0	5.0	4.8	4.7	5.3	5.2	5.0	5.0	4.5	4.5	4.5	4.5				
	2371 XV	1037	28/09/15	20/08/19	4.0	4.0	4.3	4.2	5.3	5.2	5.5	5.5	6.0	6.0	6.0	6.0	5.0	5.0	4.8	4.7				
	2371 XV	1041	07/10/15	28/08/19	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	4438 XV	1099	21/01/16	05/09/19	3.0	3.0	4.0	4.0	4.5	4.5	5.0	5.0	4.8	4.7	4.5	4.5	4.3	4.2						
	6405 XV	1174	12/09/16	10/09/19	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	6379 XVI	1227	20/01/17	10/09/19	3.5	3.5	4.0	4.0	5.0	5.0	5.0	5.0	4.5	4.5	4.5	4.5	4.5	4.5						
	6139 XV	1137	04/06/16	12/09/19	4.0	4.0	4.0	4.0	5.3	5.2	5.5	5.5	5.3	5.2	5.0	5.0	4.8	4.7						
	4889 XVI	1200	16/11/16	15/09/19	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	6409 XVI	1230	06/02/17	16/09/19	5.0	5.0	4.5	4.5	5.5	5.5	5.5	5.5	6.0	6.0	6.0	6.0	3.5	5.5						
	4438 XV	1003	20/08/15	18/09/19	4.0	4.0	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	6405 XV	1141	08/06/16	19/09/19	3.5	3.5	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	6409 XVI	1232	13/02/17	26/09/19	4.0	4.0	5.5	5.5	5.8	5.7	5.5	5.5	5.0	5.0	4.5	4.5								
	6405 XV	1144	28/06/16	24/09/19	4.3	4.2	5.0	5.0	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

	6139 XV	984	24/07/15	30/09/19	4.3	4.2	5.3	5.2	5.5	5.5	5.3	5.2	5.5	5.5	5.0	5.0								
	6007 XV	1031	21/09/15	03/10/19	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	6007 XV	1022	16/09/15	20/10/19	4.0	4.0	5.0	5.0	5.5	5.5	5.0	5.0	4.8	4.7	4.5	4.5								
	2371 XV	1080	12/12/15	25/10/19	4.5	4.5	5.0	5.0	5.3	5.2	5.5	5.5	5.5	5.5										
	4354 XV	1160	09/08/16	08/11/19	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	4328 XV	1165	22/08/16	12/12/19	4.5	4.5	5.0	5.0	6.0	6.0	6.0	6.0												
	2459 XV	1121	03/04/16	20/01/19	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	6290 XV	1149	05/07/16	03/02/20	4.5	4.5	5.0	5.0																
Dhiktana																								
	4438 XV	740	24/01/16	03/07/18	3.9	3.5	4.4	3.9	4.8	4.5	4.9	4.5	4.7	4.4	4.5	4.1	4.3	3.9	3.1	2.8	3.0	2.7	2.8	2.4
	6136 XIV	663	18/01/15	14/07/18	3.3	3.0	3.8	3.5	4.6	4.2	5.1	4.7	5.8	5.3	5.7	5.3	5.5	5.1	4.4	4.0	4.0	3.5	3.5	3.0
	2429 XV	679	12/06/15	17/07/18	3.5	3.1	4.6	4.2	5.8	5.4	5.9	5.6	5.7	5.4	5.4	5.1	5.3	5.0	4.2	3.9	3.8	3.5	3.5	3.1
	6014 XIV	656	09/12/14	25/07/18	3.8	3.4	5.3	5.0	5.6	5.2	5.5	5.1	5.6	5.2	5.1	4.8	4.3	4.0	3.6	3.2	x	3.5	x	2.4
	6405 XV	737	10/01/16	10/08/18	3.8	3.5	4.5	4.2	4.8	4.4	4.6	4.3	4.7	4.2	4.8	4.4	4.5	4.0	4.1	3.8	3.3	3.0	2.5	2.0
	2429 XV	742	29/01/16	27/08/18	4.1	3.8	4.6	4.3	4.7	4.4	4.9	4.4	5.0	4.6	4.8	4.4	4.3	3.8	3.6	3.2	2.7	2.4	2.5	x
	4354 XV	710	01/10/15	30/08/18	3.8	3.4	5.2	4.8	5.4	5.1	5.6	5.2	5.5	5.1	4.7	4.2	4.2	3.7	3.7	3.2	2.5	2.1	2.6	x
	4196 XIV	670	25/03/15	03/09/18	3.7	3.2	4.8	4.5	5.3	5.00	5.6	5.2	5.8	5.5	5.1	4.8	4.7	4.3	4.3	4.0	3.4	3.0	3.1	2.8
	6136 XIV	615	04/07/14	16/09/18	3.8	3.4	4.5	4.1	5.4	5.0	5.2	5.2	5.7	5.4	4.6	4.2	4.3	4.0	3.8	3.4	3.5	3.0	3.2	2.7
	6044 XIV	621	12/09/14	16/09/18	4.7	4.4	5.4	5.1	5.5	5.2	5.7	5.2	5.9	5.5	4.5	4.0	4.1	3.7	3.7	3.4	3.4	3.1	3.0	2.6
	2417 XV	700	30/08/15	25/11/18	4.3	4.0	5.6	5.3	5.9	5.5	5.5	5.0	5.2	4.7	5.0	4.7	4.8	4.4	2.6	2.2	2.5	x	1.8	x
	2371 XV	677	30/05/15	25/01/19	4.4	4.0	5.6	5.1	5.8	5.4	5.1	4.7	4.9	4.4	3.8	3.3	3.5	3.2	2.4	2.0	3.3	x	2.1	x
	6139 XV	689	24/07/15	19/04/19	3.4	3.0	5.2	4.7	5.7	5.3	5.9	5.5	5.7	5.3	5.7	5.4	4.7	4.4	2.6	2.2	2.4	2.0	3.2	x
	4354 XV	707	19/09/15	28/05/19	4.3	3.8	5.6	5.2	5.9	5.4	5.5	5.1	4.9	4.5	4.4	4.0	3.3	3.0	2.9	2.5	2.4	x	1.9	0
	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		
	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		
	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				
	6139 XV	732	09/12/15	07/09/18	3.9	3.6	4.5	4.2	5.2	4.7	5.4	5.0	5.5	5.1	4.6	4.2	Sold	x	x	x	x	x	x	x
	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						
	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								
	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								
	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										
	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										
Kheri																								
	6007 XV	566	03/11/15	09/07/18	4.8	5.2	5.2	4.8	5.4	5.0	5.2	5.0	4.8	4.4	4.8	4.3	3.9	3.5	3.3	3.0	3.5	3.0	2.5	2.0
	2371 XV	549	27/05/15	26/07/18	4.4	4.0	4.7	4.4	4.5	4.3	4.4	4.0	4.6	4.1	3.4	3.0	4.0	3.5	3.1	3.0	3.1	2.9	x	1.5
	2357 XIV	535	18/11/14	19/08/18	5.5	4.9	5.5	5.1	5.2	5.0	4.8	4.3	4.5	4.1	4.2	3.8	4.0	3.5	3.7	3.3	3.2	3.0	2.0	1.5
	6007 XV	569	16/11/15	18/08/18	4.9	4.3	4.7	4.3	4.5	4.2	4.9	4.5	4.7	4.4	4.6	4.1	4.6	4.0	4.5	4.4	4.3	4.0	2.1	1.7
	4196 XIV	547	28/04/15	14/09/18	5.5	5.0	5.5	5.0	4.2	4.0	4.4	4.0	5.2	4.8	4.0	3.5	3.7	3.3	3.3	2.9	x	3.0	x	2.0
	4328 XV	559	18/09/15	21/09/18	3.5	3.4	5.1	4.7	5.2	4.6	4.7	4.2	4.8	4.1	4.3	4.0	4.5	3.9	3.5	3.0	1.5	x	2.0	x
	2371 XV	568	13/11/15	21/09/18	4.0	4.0	5.5	5.1	5.4	5.0	4.8	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.0	3.5	2.3	2.5	1.6	1.1
	2429 XV	550	18/06/15	30/09/18	4.5	4.4	4.4	4.0	4.7	4.1	4.1	3.6	3.5	3.0	3.3	3.0	3.1	2.8	3.8	3.4	2.7	3.0	2.2	2.0
	2417 XV	587	19/03/16	06/11/18	4.5	4.2	5.1	4.7	5.1	4.8	5.0	4.4	5.3	4.3	4.8	4.3	4.2	3.9	2.9	3.1	4.1	3.5	3.8	3.5
	6007 XV	613	25/07/16	23/12/18	4.8	4.5	4.7	4.4	4.8	4.3	5.0	4.4	4.3	3.6	3.5	3.2	4.2	3.7	4.0	3.5	x	1.5	x	1.5
	6139 XV	551	03/07/15	28/01/19	5.3	4.7	5.2	4.5	5.2	4.8	4.6	4.3	3.7	3.0	4.6	4.3	4.0	3.8	3.1	3.3	3.1	3.0	x	1.5
	4328 XV	636	16/10/16	15/03/19	5.0	4.3	4.8	4.3	3.9	3.5	4.0	4.2	4.4	4.1	4.5	3.8	Sold	x	x	x	x	x	x	x
	6405 XV	603	08/06/16	18/04/19	5.1	4.7	4.7	4.3	4.6	4.9	5.1	4.7	4.8	4.4	4.5	4.0	4.1	3.9	2.5	2.2	2.8	2.4	4.6	4.2
	2501 XVI	641	07/11/16	12/05/19	4.6	4.2	5.1	5.3	5.3	4.8	4.8	4.2	4.7	4.1	4.3	4.0	2.8	2.6	4.2	3.9	5.7	5.2	5.2	4.3
	2417 XV	630	26/09/16	15/05/19	4.5	4.0	5.2	5.5	4.6	4.2	4.3	3.8	4.2	4.4	4.2	4.5	3.0	3.8	Sold	x	x	x	x	x
	4324 XV	554	16/08/15	03/06/19	4.5	4.9	4.7	4.4	4.4	4.0	4.4	4.2	4.6	4.2	32	3.0	3.4	3.2	3.4	3.2	4.0	4.0	2.4	2.1

	6290 XV	598	10/05/16	14/06/19	5.0	5.4	5.2	4.8	4.8	4.2	4.7	4.3	4.4	4.6	3.1	2.8	4.6	4.2	Sold	x	x	x	x	x
	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						
	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										
Jewra																								
	4093 XIV	688	10/02/15	26/06/18	4.7	4.2	4.8	4.6	4.8	4.1	4.4	4.1	4.2	4.0	3.7	3.2	3.5	3.2	3.7	3.4	3.6	3.2	3.3	3.1
	4354 XV	709	10/06/15	20/07/18	3.2	3.0	4.3	4.5	6.1	6.0	6.2	6.0	6.2	6.0	5.8	5.4	5.6	5.2	5.2	4.9	5.1	4.7	4.7	4.2
	4439 XIV	702	20/05/15	03/08/18	6.3	6.0	7.1	6.5	5.1	4.7	4.7	4.5	4.5	3.2	4.2	3.9	4.4	3.8	4.1	3.7	4.3	3.6	4.2	3.9
	6405 XV	750	19/09/15	10/08/18	4.1	4.0	4.9	4.5	4.8	4.6	4.6	4.4	4.7	4.5	4.4	4.2	4.5	4.3	4.3	4.1	4.4	3.8	4.7	4.2
	2357 XIV	696	14/04/15	19/08/18	4.3	4.0	4.7	4.2	4.5	4.3	4.4	4.2	4.5	4.2	4.6	4.3	4.3	4.1	4.1	3.8	3.8	3.3	3.6	3.2
	6139 XV	790	12/12/15	20/08/18	4.5	4.5	4.5	5.0	5.0	5.0	5.0	5.0	5.6	5.2	4.9	4.4	5.2	4.9	5.1	4.8	4.8	4.5	4.7	4.2
	4324 XV	738	25/08/15	02/09/18	4.1	3.9	4.6	4.3	5.2	5.0	5.4	5.2	5.4	5.1	5.6	5.2	5.4	5.1	5.2	4.9	4.9	4.3	Dry	x
	6014 XIV	680	25/10/14	03/09/18	4.3	4.0	4.2	4.0	4.3	4.1	4.8	4.4	4.4	4.2	4.7	4.2	4.4	4.1	4.2	3.7	4.3	3.8	Sold	x
	6136 XIV	654	22/06/14	16/09/18	4.7	4.5	5.2	5.0	5.3	5.1	5.6	4.6	4.5	4.2	4.4	4.2	4.1	3.8	3.8	3.4	3.9	3.4	2.0	2.1
	6139 XV	716	21/06/15	16/09/18	5.1	4.7	4.2	4.0	4.2	4.0	4.4	4.1	4.3	4.1	4.7	4.2	4.5	4.2	4.3	4.1	4.1	3.8	5.9	5.3
	4093 XIV	670	15/09/14	19/09/18	6.1	5.9	4.7	4.5	4.7	4.5	4.8	4.5	4.6	4.2	4.5	4.3	4.4	4.1	4.1	3.8	3.9	3.6	Sold	x
	4196 XIV	699	23/04/15	21/09/18	5.4	5.1	5.3	5.1	5.7	5.4	5.4	5.1	5.6	5.2	5.1	4.8	4.6	4.2	4.4	4.2	4.6	4.2	Died	x
	4324 XV	736	05/09/15	22/09/18	3.5	4.0	4.0	4.0	4.4	4.2	4.5	4.3	4.8	4.3	4.6	4.2	4.4	4.1	4.3	4.1	3.8	3.6	Sold	x
	4438 XV	734	29/08/15	28/09/18	5.1	4.9	4.5	4.2	4.6	4.1	5.9	4.3	5.2	5.4	5.4	5.1	5.1	4.7	4.7	4.4	4.3	4.1	3.4	3.2
	4354 XV	753	08/10/15	22/09/18	5.3	5.1	4.2	4.0	4.8	4.6	4.9	4.2	4.6	4.2	4.5	4.3	4.3	4.1	4.5	4.1	5.1	4.8	4.2	3.9
	2371 XV	704	21/05/15	28/09/18	4.4	4.2	4.5	4.3	5.4	5.2	5.2	4.9	4.9	4.4	4.7	4.2	4.8	4.3	4.6	4.2	5.3	5.1	4.7	3.9
	2371 XV	780	25/11/15	14/10/18	4.0	3.8	5.3	5.1	5.6	5.3	5.6	5.2	5.1	4.8	5.3	5.1	5.1	4.7	4.8	4.4	4.5	4.3	2.4	2.2
	6007 XV	766	25/10/15	26/10/18	4.2	4.0	4.7	4.2	5.4	5.1	5.4	5.2	5.4	5.2	4.7	4.4	4.4	4.1	4.4	4.2	3.6	3.2	3.2	2.9
	4328 XV	759	19/10/15	27/11/18	4.4	4.2	4.5	4.2	4.6	4.2	4.4	4.2	4.3	4.1	4.4	4.2	Dry	x	x	x	x	x	x	x
	4354 XV	764	25/10/15	27/11/18	3.8	3.6	4.6	4.2	4.5	4.1	4.3	4.1	4.1	3.7	4.5	4.1	5.6	5.2	4.3	4.1	4.4	3.8	4.2	3.9
	4324 XV	726	21/07/15	08/04/19	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	2412 XV	816	05/03/16	16/05/19	4.7	4.4	4.1	3.7	4.8	4.8	4.9	4.6	4.9	4.6	3.6	3.2	3.8	3.3	5.0	3.0	5.0	5.0	5.0	4.0
	6405 XV	877	07/09/16	28/05/19	5.4	5.2	5.3	5.1	5.6	5.2	4.8	4.4	7.2	6.7	6.6	6.2	5.0	4.5	4.3	4.0	Dry	x	x	x
	4439 XIV	703	20/05/15	03/06/19	4.2	3.7	4.6	4.2	4.2	3.9	3.6	2.8	3.7	3.2	4.4	4.2	3.0	2.0	4.0	3.0	3.0	2.0	2.0	1.0
	6139 XV	728	31/07/15	16/06/19	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	4324 XV	725	21/07/15	18/06/19	4.4	4.2	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	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				
	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				
	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				
	4354 XV	724	14/07/15	19/08/19	4.3	4.1	3.6	2.9	4.7	4.1	4.5	4.1	4.0	3.0	4.0	4.0	Dry	x	x	x	x	x	x	x
	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				
	2459 XV	860	02/08/16	25/08/19	4.2	3.9	4.4	4.2	4.6	4.3	5.0	4.0	3.0	3.0	Dry	x	x	x	x	x	x	x	x	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						
	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						
	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	3.0						
	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						
	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								
	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								
	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								
	4324 XV	881	12/09/16	17/10/19	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	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										
	6405 XV	844	29/06/16	03/11/19	4.6	4.2	6.0	4.0	Sold	x	x	x	x	x	x	x	x	x	x	x	x	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										
	4328 XV	904	31/10/16	08/01/20	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	4328 XV	910	05/11/16	02-02-20	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Kirara																								
	6405 XV	394	26/09/15	20/08/18	3.3	3.0	4.3	4.2	3.2	3.0	3.6	3.4	5.2	4.4	3.7	3.4	5.9	4.4	4.6	4.2	2.6	2.2	2.4	2.2
	4354 XV	402	11/11/15	27/08/18	5.1	4.7	5.2	5.0	6.2	6.0	5.8	4.3	5.2	4.6	4.9	4.3	4.7	4.1	4.2	3.7	4.1	3.4	3.6	3.2
	6290 XV	415	28/01/16	02/09/18	4.6	4.1	4.7	4.5	4.3	4.1	4.9	3.6	4.2	3.9	5.2	4.7	5.1	4.6	4.6	4.2	4.3	4.1	4.6	4.2
	4324 XV	389	25/07/15	21/09/18	4.5	4.5	3.4	3.2	5.2	4.6	4.5	4.1	5.4	5.1	5.2	4.7	4.7	4.4	4.2	3.5	2.4	2.1	1.9	1.4
	2269 XIII	348	11/01/13	5/10/18	4.3	4.7	4.8	4.6	3.5	3.1	3.2	2.9	4.3	3.9	4.2	3.6	4.1	3.5	2.2	1.7	Sold	x	x	x
	6139 XV	392	24/08/15	26/10/18	3.2	3.9	4.1	4.3	4.4	4.1	4.6	4.2	4.4	4.1	4.3	4.1	4.1	3.7	4.5	4.1	4.2	3.9	3.4	3.2
	6290 XV	412	06/01/16	06/04/19	4.2	3.9	5.1	4.6	4.2	3.7	3.6	2.8	2.7	2.4	4.2	3.9	3.6	3.2	3.6	3.2	Dry	x	x	x
	2371 XV	387	07/07/15	03/07/19	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	4328 XV	395	21/09/15	26/07/19	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	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						
	4363 XV	433	20/10/16	20/09/19	3.6	3.2	4.5	4.1	4.5	4.1	4.0	4.0	4.0	3.0	3.0	3.0	Dry	x	x	x	x	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								
	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								
	4592 XVI	446	20/01/17	14/10/19	4.7	4.3	4.7	4.3	5.0	4.0	5.0	4.0	Sold	x	x	x	x	x	x	x	x	x	x	x
	2412 XV	399	19/10/15	18/10/19	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	6139 XV	408	12/12/15	03/11/19	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	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												
	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												
	4324 XV	429	09/09/16	20/01/20	5.0	5.0	5.0	5.0	5.0	4.0														
Sarsod																								
	2412 XV	279	19/05/15	25/06/18	5.3	5.1	3.8	3.6	4.2	4.0	4.0	3.8	3.5	3.3	2.7	2.5	2.6	2.4	2.8	2.5	2.8	2.6	2.0	00
	4354 XV	283	02/07/15	25/06/18	5.8	5.6	5.8	5.3	5.3	5.1	4.9	4.7	5.0	4.8	4.5	4.3	3.8	3.6	3.9	3.7	1.5	1.0	1.5	00
	2429 XV	287	26/07/15	09/07/18	4.3	4.1	4.9	4.7	6.0	5.8	5.7	5.5	5.2	5.0	4.9	4.7	4.2	4.8	3.5	3.2	3.8	3.6	2.9	2.7
	4363 XV	301	25/08/15	20/07/18	4.1	3.9	5.4	5.2	5.8	5.6	5.2	5.0	5.9	5.7	5.3	5.1	4.4	4.2	3.4	3.2	3.9	3.7	2.3	2.1
	4363 XV	316	28/10/15	13/08/18	2.8	2.6	3.8	3.6	3.8	3.6	4.2	4.0	3.9	3.7	4.1	3.9	3.7	3.5	2.9	2.7	2.7	2.5	1.5	1.3
	4100 XIV	259	16/10/14	25/08/18	4.2	4.0	4.8	4.6	5.2	5.0	4.6	4.4	3.9	3.7	3.9	3.7	4.2	4.0	Died	x	x	x	x	x
	6139 XV	295	08/08/15	05/09/18	5.0	4.8	5.3	5.1	4.8	4.6	5.2	5.0	5.3	5.1	5.0	4.5	4.8	4.6	3.1	2.9	3.8	3.6	2.5	2.3
	2459 XV	345	04/04/16	14/09/18	5.0	4.8	5.7	5.5	6.0	5.8	6.4	6.2	6.3	6.1	5.8	5.6	5.3	5.1	4.8	4.6	4.7	4.5	3.9	3.7
	6007 XV	246	21/09/15	17/09/18	2.8	2.6	3.2	3.0	3.2	3.0	3.2	3.0	3.3	3.1	2.9	2.7	2.8	2.6	2.6	2.4	2.7	2.5	2.8	2.6
	4438 XV	342	08/03/16	22/10/18	5.2	5.0	5.2	5.0	4.2	4.0	4.8	4.6	4.2	4.0	3.2	3.0	3.4	3.2	1.5	1.3	1.0	x	1.0	x
	2417 XV	321	16/11/15	27/10/18	4.2	4.6	5.4	5.2	4.3	4.1	4.3	4.1	4.1	3.9	2.3	2.1	3.7	3.5	3.2	3.0	2.1	1.8	2.8	2.6
	6139 XV	293	26/07/15	24/11/18	3.8	3.6	3.8	3.6	4.7	4.5	3.5	3.3	3.8	3.6	2.8	2.6	3.3	3.1	3.9	3.7	2.2	2.0	1.4	1.2
	6139 XV	324	28/11/15	01/12/18	4.2	4.0	3.7	3.5	5.1	4.8	5.3	5.1	4.3	4.1	3.2	3.0	2.6	2.4	3.8	3.6	2.4	2.2	2.0	1.8
	2357 XIV	274	06/04/15	04/12/18	4.7	4.5	4.9	4.7	5.2	5.0	5.5	5.3	2.9	2.7	3.9	3.7	4.8	4.6	4.3	4.1	4.7	4.5	3.2	3.0
	2429 XV	286	17/07/15	07/01/19	5.2	5.0	5.6	5.4	6.2	6.0	6.1	5.9	5.8	5.6	5.9	5.7	5.8	5.6	4.8	4.6	4.2	4.0	3.6	3.4
	2459 XV	331	24/12/15	23/03/19	6.4	6.2	5.4	5.2	7.2	7.0	5.2	5.0	6.2	6.0	5.9	5.7	5.2	5.0	4.2	4.0	4.0	3.8	2.8	2.6
	4354 XV	352	15/05/16	10/04/19	5.2	5.0	5.2	5.2	4.8	4.6	4.8	4.6	5.2	5.0	5.7	5.5	3.4	3.2	4.8	4.6	5.8	5.6	3.2	3.0
	2412 XV	317	28/10/15	17/04/19	sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	4438 XV	341	14/02/16	25/07/19	5.9	5.7	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	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						
	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						
	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						
	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						
	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								
	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								
	4363 XV	387	17/09/16	10/10/19	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	4363 XV	388	19/09/16	15/10/19	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	6405 XV	378	02/09/16	28/10/19	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

	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										
	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										
	2417 XV	389	21/09/16	17/11/19	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	4705 XVI	418	16/11/16	28/12/19	5.3	5.1	4.7	4.5	4.7	4.5														
	M-51 XVI	469	18/08/17	10/01/20	4.2	4.0	5.6	5.4	4.9	4.7														
Bichpari																								
	4363 XV	232	23/08/15	02/08/18	5.2	5.0	4.8	4.6	5.0	4.8	4.7	4.5	5.2	5.0	5.2	5.0	2.9	2.7	2.7	2.5	1.5	1.3	3.0	x
	4324 XV	248	16/09/15	12/08/18	4.3	4.1	2.9	2.7	2.2	2.0	2.2	2.0	2.8	2.5	2.3	2.1	2.8	2.6	2.3	2.1	1.9	1.7	1.3	x
	6139 XV	221	24/06/15	07/09/18	5.2	5.0	6.2	6.0	5.7	5.5	2.3	2.1	4.2	4.0	3.7	3.5	3.2	3.0	3.6	3.4	3.9	3.6	2.0	x
	2371 XV	256	10/10/15	14/09/18	3.8	3.6	4.6	4.4	4.2	4.0	4.2	4.0	4.0	3.8	4.7	4.5	2.9	2.7	3.8	3.6	2.4	2.2	2.3	2.1
	2412 XV	261	25/10/15	11/09/18	5.2	5.0	5.4	5.2	4.3	4.1	4.7	4.5	4.8	4.6	5.0	4.8	4.3	4.1	3.6	3.4	3.5	3.3	2.0	1.8
	4438 XV	291	14/03/16	21/09/18	5.0	4.6	5.2	5.0	5.2	5.0	5.4	5.2	5.2	5.0	4.8	4.6	4.2	4.0	4.0	3.8	3.0	2.8	2.8	2.5
	4100 XIV	203	21/11/14	22/12/18	4.3	4.1	5.3	5.1	4.5	4.3	4.7	4.5	3.0	2.8	3.4	3.2	2.0	1.8	1.9	1.7	Dry	x	x	x
	4328 XV	315	09/07/16	20/02/19	5.2	5.0	4.6	4.4	5.8	5.6	5.8	5.6	5.8	5.6	4.7	4.5	5.2	5.0	5.7	5.5	3.6	3.3	2.0	1.8
	2412 XV	241	05/09/15	31/03/19	5.7	5.5	5.4	5.2	5.3	5.1	5.4	5.2	5.0	4.8	5.2	5.0	3.2	3.0	2.3	2.0	2.8	2.6	Sold	x
	2459 XV	331	14/08/16	10/04/19	5.3	5.1	5.2	5.0	5.1	4.9	4.7	4.5	4.6	4.4	4.8	4.6	2.7	2.5	2.7	2.5	3.3	3.1	1.2	1.0
	4354 XV	251	30/09/15	29/04/19	4.7	4.5	4.9	4.7	5.3	5.1	4.3	4.1	3.7	3.5	3.2	3.0	3.8	3.6	3.2	3.0	1.8	1.6	1.3	1.0
	4328 XV	250	27/09/15	05/05/19	5.2	5.0	4.2	4.0	4.3	4.1	4.2	4.0	4.7	4.5	4.5	4.3	4.2	4.0	3.6	3.5	2.4	2.2	2.0	x
	4363 XV	233	22/08/15	06/05/19	4.2	4.0	4.7	4.5	4.3	4.1	5.3	5.1	3.2	3.0	2.8	2.6	2.8	2.6	3.3	3.1	Sold	x	x	x
	6405 XV	336	26/08/16	03/06/19	3.9	3.7	4.2	4.0	3.9	3.7	3.7	3.5	4.5	4.3	3.8	3.6	3.7	3.5	3.0	2.8	2.3	2.1	1.5	1.3
	2417 XV	333	18/08/16	08/06/19	4.7	4.5	3.7	3.5	4.7	4.5	4.9	4.7	4.8	4.6	4.2	4.0	4.5	4.3	2.2	2.0	2.4	2.2	2.0	0
	4438 XV	314	16/07/16	08/06/19	3.5	3.7	4.2	4.3	5.3	5.1	6.2	6.0	3.8	3.6	4.9	4.7	3.2	3.0	3.4	3.2	2.3	2.1	1.8	1.6
	2429 XV	301	10/05/16	23/06/19	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	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		
	4354 XV	226	21/07/15	29/07/19	1.5	1.8	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	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				
	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				
	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				
	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				
	6405 XV	307	25/05/16	15/08/19	5.1	4.8	5.3	5.1	4.4	4.2	Sold	x	x	x	x	x	x	x	x	x	x	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				
	4354 XV	340	24/08/16	26/08/19	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	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						
	2429 XV	346	16/09/16	08/09/19	2.0	1.8	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	4328 XV	369	29/10/16	11/09/19	3.2	3.0	4.2	4.0	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	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						
	4328 XV	317	15/07/16	18/09/19	Giftd	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	2417 XV	332	11/08/16	21/09/19	4.9	4.7	4.3	4.1	4.2	4.0	6.4	6.1	Sold	x	x	x	x	x	x	x	x	x	x	x
	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										
	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										
	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												
	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												
	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												
	4363 XV	322	25/07/16	23/12/19	4.7	4.5	5.3	5.1	4.5	4.3														
Bado Patti																								
	6136 XIV	110	02/07/14	28/06/18	4.8	5.2	5.3	5.1	4.3	4.0	4.2	3.8	3.7	4.2	3.7	4.2	4.5	3.7	4.4	3.5	2.2	x	2.3	x
	2357 XIV	135	28/10/14	28/06/18	4.6	4.9	4.7	4.2	4.7	4.4	4.6	4.2	3.4	4.6	3.2	3.0	3.5	3.0	3.5	3.0	4.3	3.3	4.3	3.5
	2371 XV	156	06/07/15	30/06/18	4.2	4.7	4.9	4.7	5.5	5.1	5.2	5.0	3.5	4.7	3.7	3.3	3.2	3.0	3.3	3.0	3.5	3.0	3.5	3.0
	4196 XIV	146	18/03/15	05/07/18	5.1	5.5	5.4	5.0	4.9	4.4	4.8	4.2	3.9	4.4	4.2	3.5	4.1	3.7	4.2	3.6	3.4	3.0	3.4	3.0

	2369 XIV	115	01/08/14	18/07/18	4.7	5.0	4.8	4.5	4.2	3.7	4.1	3.6	4.2	4.6	4.5	4.2	3.6	3.1	3.6	3.0	4.0	3.5	3.7	3.0
	6007 XV	175	18/10/15	21/08/18	5.2	4.7	4.0	3.8	4.5	4.9	4.4	4.0	4.8	4.3	4.5	4.1	3.5	3.0	3.3	3.0	2.0	1.5	2.5	x
	2369 XIV	116	08/08/14	25/08/18	5.1	4.7	4.5	4.1	4.1	4.0	3.9	3.4	4.3	4.0	4.6	4.0	4.7	4.2	4.5	4.0	2.5	2.0	1.2	1.3
	4196 XIV	141	02/02/15	21/09/18	4.4	4.2	4.7	4.9	4.8	4.4	5.1	4.6	5.2	4.5	4.6	4.0	4.3	3.7	3.5	3.0	2.2	2.3	1.5	1.0
	2371 XV	152	24/05/15	21/09/18	5.0	4.8	4.4	4.6	4.5	4.2	4.7	4.3	4.7	4.3	5.1	4.5	5.1	4.4	3.3	3.0	2.0	1.5	2.5	x
	4328 XV	171	28/09/15	21/09/18	5.2	5.0	4.8	5.3	5.1	4.7	5.0	4.5	5.3	5.1	4.3	4.0	4.3	4.0	3.7	3.1	2.3	2.6	2.0	1.3
	4196 XIV	150	21/04/15	10/10/18	5.0	4.8	5.2	5.4	5.4	5.0	5.2	5.0	4.6	4.3	4.6	4.1	4.6	4.0	3.6	3.2	2.7	2.2	3.0	2.5
	4196 XIV	151	18/04/15	09/11/18	4.7	4.3	5.5	5.0	4.8	4.5	5.2	4.6	4.3	4.0	4.2	3.8	4.1	3.4	3.0	3.3	2.5	2.2	2.0	1.5
	6007 XV	176	23/10/15	30/12/18	5.1	4.5	4.7	4.4	4.8	4.4	4.4	4.0	4.5	4.0	3.2	3.7	3.5	3.4	Sold	x	x	x	x	x
	4324 XV	160	06/08/15	19/01/19	4.5	4.1	4.8	4.4	4.7	4.0	4.1	3.5	4.3	4.0	3.7	3.9	4.0	3.8	3.7	3.3	4.0	3.8	x	2.0
	4403 XV	188	19/12/15	12/02/19	4.5	4.0	4.5	4.0	4.5	4.0	4.3	3.7	4.6	4.7	4.0	3.9	3.7	3.5	3.5	3.5	2.0	1.7	Dry	x
	6007 XV	173	14/10/15	17/02/19	4.5	4.7	5.3	4.4	5.2	4.5	4.5	4.0	4.3	4.7	4.5	4.2	Sold	x	x	x	x	x	x	x
	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						
	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										
Bugana																								
	6014 XIV	95	24/06/14	09/07/18	3.8	3.4	4.7	4.4	4.9	4.6	5.3	5.0	5.1	4.8	4.7	4.3	3.8	3.5	3.6	3.2	3.2	2.8	2.4	2.0
	4328 XV	144	18/08/16	20/03/19	4.2	3.8	5.7	5.2	6.2	5.7	6.4	6.0	6.1	5.7	5.8	5.4	4.7	4.5	3.7	3.2	2.6	2.2	3.2	x
	2429 XV	135	31/01/16	22/06/19	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	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						
	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								
	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												

Milk Recording up to March 2019 & Calving till April 2020

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	6.89	-
IX	Aug 2005 to Jan 2007	14	3418	1744	1222	558	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	7.43	-
XIII	Sept 2011 to March 2013	9	6251	3197	1989	937	272	42.75	212	7.77	-
XIV	March 2013 to July 2014	10	4144	2261	1325	638	162	41.63	130	8.01	-
XV	July 2014 to Dec 2015	15	6955	3762	2732	1286	258#	38.91	190	8.40	74
XVI	Jan 2016 to June 2017	15	6116	3218	2485	1251	32#	34.10		8.87	425
XVII	July 2017 to Jan 2019	15	6053	3382	2636	1254					618
XVIII	Jan 2019 to June 2020	15	4730*	2304*	585*	250*					110
* Set XVIII - AI till April 2020; Preg reported till April 2020 (AI of Jan 2020); Calving recorded till April 2020 # Calving and milk recording of progenies of XVth and XVIth set is in progress;											1249

F 16. Performance of FPT Programme on Farmer's Buffaloes

Duration	AI	Preg-nancies	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	15	7	-	-	-	-	-
2002-03	540	236	43.70	147	73	12	42.06	11	7.35	-
2003-04	1001	356	35.56	237	129	15	46.84	12	6.84	-
2004-05	1298	566	43.61	361	173	21	39.66	18	6.65	-
2005-06	1999	1009	50.48	744	345	55	43.80	36	7.78	-
2006-07	2102	1139	54.19	650	305	48	44.40	34	8.14	-
2007-08	2132	1104	51.78	694	341	58	42.77	45	7.67	-
2008-09	2176	1086	49.91	955	477	72	41.44	52	7.15	-
2009-10	2803	1450	51.73	1276	627	90	42.95	60	7.32	-
2010-11	3433	1743	50.77	787	377	97	42.40	72	7.48	-
2011-12	3308	1756	53.08	1103	557	157	43.26	112	7.77	-
2012-13	4204	2104	50.05	1247	553	163	41.94	129	8.05	-
2013-14	3962	1903	48.03	1079	517	135	41.54	101	8.15	-
2014-15	4129	2218	53.72	1614	776	183	40.17	133	8.23	-
2015-16	4434	2326	52.46	1693	806	169	40.15	129	8.27	51
2016-17	3807	2063	54.19	1591	802	100	36.33	-	-	183
2017-18	4093	2248	54.92	1724	845	-	-	-	-	410
2018-19	3977	2214	55.67	1748	798	-	-	-	-	378
2019-20	3957	2140	54.08	1530	702	-	-	-	-	32
Overall	**53494**	**27686**	**51.76**	**17471**	**8365**	**1275**	**41.45**	**944**	**7.80**	**1054**

Project Co-ordinator's observations on field unit 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	
Total	ICAR Share		ICAR Share	Balance
20.70	20.70	20.70	20.70	Nil

- A total of 3957 artificial inseminations were performed in ten adopted villages using the semen of 18th set during 2019-20.
- The overall conception rate was reported 55.90 %.
- In this period 1754 calving (953 males, 801 females) were recorded. In addition, 172 progenies, 6 of 14th, 144 of 15th and 22 of 16th set were also calved and monthly test day milk yield were/ being recorded.
- The average age at first calving of 172 daughters calved was 40.44 months.
- Milk recording of 140 daughters completed, 60 daughters sold before the lactation was completed and recording of 101 daughters are in progress.
- The physical identification using ear tagging has been done in all female progenies born in the field till March 2020.
- As on 31st March 2020, 1207 female progenies of 15th to 18th set of different age are standing at various field unit 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, 2019 to March, 2020.

Financial Statement for the year 2019-20 (Rs in Lakhs)

	Budget Sanctioned (Rs.)	**Amount Spent (Rs.)**
Pay & allowances	30,71,666	23,63,843
T.A.	1,40,000	1,39,850
Contingencies		
Recurring	29,99,999	29,99,798
Equipments	40,000	39,913
Total	**62,51,665**	**55,43,404**

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 2019-20

Centers/ Village	OB	Addition			Deduction		Closing Birth
		New Reg.	Birth	Purchase/ Traced	Sold/	Death/ AB	
Aitiana	119	46		0	4	2	159
Barsal	145	27		0	15	1	156
Batha dhua	351	44		0	15	1	379
Bharowal kalan 1 (bharowal khurd)	34	3		0	1	0	36
Bhundri (gorahoor), bhundri dairy	331	52		0	26	5	352
Boparai kalan	9	0		0	0	0	9
Chimna	376	61		0	44	19	374
Chowkiman	125	76		0	6	0	195
Dhat	7	0		0	0	0	7
Bharowal kalan 2 (gkb)	22	27		0	3	0	46
Gurusar kaunke	101	40		0	7	5	129
Gidharpindi	0	9		0	0	0	9
Hans kalan	0	3		0	0	0	3
Jandi	30	0		0	0	0	30
Jasowal	417	96		0	21	0	492
Kailpur	384	1		0	41	4	340
Kehra bet	103	46		0	9	0	140
Khudai chak	285	48		0	26	4	303
Mandiani	24	0		0	5	0	19
Ponna	130	20		0	13	5	132
Raqba	25	10		0	0	0	35
Sadarpura	149	38		0	8	0	179
Sawaddi kalan (majri)	67	0		0	7	1	59
Sawaddi khurd	222	34		0	7	0	249
Sidhwan bet	0	5		0	0	0	5
Talwandi khurd	174	49		0	6	0	217
Walipur kalan	230	83		0	11	0	302
Walipur khurd	203	25		0	8	**0**	220
	4063	**843**		**0**	**283**	**47**	**4576**

F2. Status of breedable females at different field unit centers during 2019-20

Centers/ Village	Heifers >3 years		Buffalo (NP)		Buffalo Pregnant	
	Total	Pregnant	In milk	Dry	In milk	Dry
Aitiana	92	33	20	12	7	9
Barsal	120	30	21	17	5	10
Bhatha dhua	117	32	16	17	19	11
Bharowal kalan 1 & 2 Gkb	160	35	7	7	2	7
Bhundri 1 & 2 Gorahoor	185	90	28	30	19	10
Boparai kalan	120	38	9	4	2	5
Chimna	192	172	15	20	8	7
Dhatt	150	20	2	1	1	2
Walipur kalan	290	65	17	19	7	4
Gurusar	188	38	7	6	11	4
Jandi	252	40	8	7	4	3
Kailpur	202	135	23	30	20	13
Kehra bet	45	60	22	25	2	4
Khudai chak	90	60	6	8	10	2
Pandori	50	18	2	1	1	1
Raqba	98	50	5	2	2	1
Sawaddi khurd	172	75	37	32	6	7
Walipur khurd 1 & 2	250	98	20	19	14	7
Chowkiman	200	50	10	10	4	2
Sadarpura	205	50	12	8	11	3
Jasowal	290	135	25	30	30	8
Mandiani	90	15	4	2	6	3
Talwandi khurd	130	70	17	19	3	2
Sidhwan bet	175	60	17	15	2	6
Total	**3863**	**1469**	**350**	**341**	**196**	**131**

F3. Monthly A.I.'s at different field unit centers during the period from 4/2019 to 3/2020

Centre/ month	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Grand Total
Aitiana	20	20	20	12	30	42	22	43	30	33	35	15	322
Barsal	10	6	10	8	7	20	21	11	20	15	7	10	145
Batha dhua	8	10	10	10	10	11	9	16	13	11	25	20	153
Bharowal khurd	35	25	42	37	36	48	57	62	50	68	40	40	540
Bhundri dairy	1	1					2	6	8	4	5	5	32
Boparai kalan	15	10	8	12	5	10	13	9	7	10	10	8	117
Chimna	35	33	30	43	47	60	80	100	75	60	50	40	653
Chowkiman	8	10	10	8	16	22	33	30	18	18	17	17	207
Dhat	2	5	8	3	2	2	10	7	3	5	3	5	55
Giderpindi	22	30	21	15	20	31	15	53	20	16	22	22	287
Gkb	11	9	5	11	15	23	23	29	22	20	10	25	203
Gorahoor	30	33	20	30	28	37	28	30	30	27	35	30	358
Gurusar	28	14	35	25	10	37	20	82	40	20	15	20	346
Hans kalan	20	35	20	15	16	25	20	19	28	20	56	10	284
Jandi	40	25	25	25	17	46	31	28	10	40	50	33	370
Jasowal	56	45	59	52	59	104	107	117	110	105	60	60	934
Kailpur	60	35	25	56	45	60	80	66	99	60	60	60	706
Kehra bet	35	30	20	26	35	30	65	36	37	37	40	25	416
Khudai chak	20	23	15	20	20	50	35	43	35	40	30	35	366
Leelan/sidhwan bet	18	23	18	11	17	24	20	25	15	20	23	30	244
Ponna	12	13	15	8	19	12	22	20	20	10		5	156
Raqba	24	13	17	11	11	10	8	9	18	5		5	131
Sadarpura	11	8	10	10	13	17	16	20	28	30	25	23	211
Sawaddi kalan/majri	16		15	17	21	20	15	19	22	12	18	22	197
Sawaddi khurd	19	14	13	15	17	12	20	20	14	15	18	25	202
Talwandi khurd	29	30	15	30	21	32	31	45	40	35	40	33	381
Walipur kalan	41	35	35	34	40	30	40	40	40	30	25	40	430
Walipur khurd	17	12	15	20	15	36	17	30	20	17	20	25	244
Grand total	**643**	**547**	**536**	**564**	**592**	**851**	**860**	**1015**	**872**	**783**	**739**	**688**	**8690**

F4. Bull-wise A.I's. at different field unit centers during the period from4/2019 to 3/2020

Bull No.	Set no.	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Grand Total
1150	18	147	208	198	55	5				3				616
1208	18							44	102	114	18	8		286
1209	18			12	206	87	139	231	88					763
1219	18					155	237	7		80	15			494
2558	17	1												1
2645	18	3									227	164	315	709
2676	18	8		29	71	39			54	218	226			645
2677	18		6	167	108									281
2689	18								417	191	43			651
4905	18	312	172	99	29		3	20	149	83				867
4995	18				91	269	144	216	83					803
7094	18	75	30				83	128	40	23	65	83	45	572
7147	18	60	39				186	99		108	15	45	107	659
7227	18	27	91	29		37	59	58	76		40	150	186	753
7263	18							55		50	134	289	35	563
DARA	17	3		2	2			2	4					13
Sikander	17	7	1		2				2	2				14
Grand Total		**643**	**547**	**536**	**564**	**592**	**851**	**860**	**1015**	**872**	**783**	**739**	**688**	**8690**

F5: Month –wise Conception at different field unit centers for period from 4/2019 to 3/2020

Centre	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Gr. Total
Aitiana	10	12	11	10	10	11	11	7	15	21	12	22	152
Barsal	6	7	10	5	4	3	5	4	4	11	11	3	73
Batha dhua	8	5	5	5	3	4	3	5	5	6	4	7	60

Bharowal khurd	25	26	18	17	18	12	17	10	18	25	28	33	247
Bhundri dairy	4	3	1		1	1						3	13
Boparai kalan	3	6	6	5	7	6	5	7	3	5	7	5	65
Chimna	30	22	30	19	18	16	16	21	26	33	41	49	321
Chowkiman	14	6	7	8	4	6	6	4	8	11	17	15	106
Dhat	6	4	6	3	1	3	5	2	1	1	5	4	41
Giderpindi	15	10	22	13	9	13	12	9	12	15	8	27	165
Gkb	12	10	10	11	5	5	3	6	8	12	12	13	107
Gorahoor	36	16	23	15	12	16	11	17	16	16	16	16	210
Gurusar	7	20	10	10	13	7	18	13	6	20	11	43	178
Hans kalan			14	8	9	17	11	8	9	13	10	10	109
Jandi	31	19	18	17	20	12	13	13	9	24	12	15	203
Jasowal	43	34	35	33	25	22	31	27	30	52	53	59	444
Kailpur	41	38	30	24	26	17	12	25	22	28	37	29	329
Kehra bet	21	17	15	19	16	14	10	12	18	18	32	20	212
Khudai chak	11	17	14	17	9	12	8	10	11	28	18	23	178
Leelan/sidhwan bet	13	15	7	9	7	10	10	7	9	11	8	14	120
Ponna	13	8	9	5	6	6	8	5	11	6	12	9	98
Raqba	10	6	12	8	10	6	9	6	6	6	4	6	89
Sadarpura	9	14	3	5	5	4	6	6	7	10	10	11	90
Sawaddi kalan/ majri	14	4	2	2	6		9	10	12	11	8	10	88
Sawaddi khurd	17	13	6	10	8	7	6	8	10	7	10	11	113
Talwandi khurd	10	15	12	12	11	14	7	13	10	16	15	21	156
Walipur kalan	25	21	16	21	19	16	17	16	19	14	20	19	223
Walipur khurd	10	9	5	11	8	6	6	11	7	18	11	15	117
Grand total	**444**	**377**	**357**	**322**	**290**	**266**	**275**	**282**	**312**	**438**	**432**	**512**	**4307**

F6: Month –wise Calving at different field unit centers during the period from 4/2019 to 3/2020

Month	4/19		5/19		6/19		7/19		8/19		9/19		10/19		11/19		12/20		1/20		2/20		3/20		Total	
CENTRE	**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	5	4	3	1	5	6	6	7	5	4	6	5	7	5	5	4	5	5	4	4	5	4	4	4	60	53
Barsal	2	2	2	1	2	2	2	2	1	4	2	2	4	3	4	2	4	2	5	4	2	2	3	1	33	27
Batha dhua	2	1	1	1	2	2	2	0	4	5	3	2	4	5	4	4	2	3	2	3	2	3	1	2	29	31
Bharowal khurd											9	11	9	9	10	11	11	12	8	8	7	7	7	9	61	67
Bhundri dairy	1		0	0	1	0	1	1	1	2	1	2	1	1	1	3	2	1	1				1		11	10
Boparai kalan			1	1	1	1			2	2	1		2	2	1	1	3	2	3	2	3	2	3	3	20	16
Chimna	4	3	7	7	6	7	5	6	8	12	9	7	14	15	13	15	10	11	10	18	8	9	8	8	102	118
Chowkiman	1	2	1	0	1	0	2	2	2	2	5	5	6	5	5	5	3	2	2	3	4	3	2	2	34	31
Dhat			1	1	1	1					1	1	2	2	3	2	2	1	3	3	2	1	1		16	12
Giderpindi									4	5	2	2	2	1	5	5	4	4	8	10	4	3	4	4	33	34
Gkb	3	4	2	1	2	2	2	4	3	4	5	4	6	9	6	6	5	4	4	5	4	7	2	3	44	53
Gorahoor	5	7	6	4	4	4	5	7	8	8	8	10	9	11	11	15	5	6	8	11	5	6	4	5	78	94
Gurusar	2	3	2	2	3	3	3	4	3	4	4	5	5	9	3	3	7	9	4	5	4	5	6	5	46	57
Hans kalan																			7	6	4	3	4	3	15	12
Jandi	6	7	4	4	9	9	6	7	6	8	15	16	13	15	13	17	8	10	7	10	8	7	9	9	104	119
Jasowal	8	6	2	1	9	10	14	13	11	12	22	23	17	15	20	21	16	16	15	14	14	14	12	10	160	155
Kailpur	14	14	6	6	9	14	10	17	14	21	10	14	12	17	15	22	15	19	12	15	8	12	11	14	136	185
Kehra bet	4	4	3	1	4	4	4	6	6	4	8	7	7	6	10	11	7	10	10	5	9	10	7	9	79	77
Khudai chak	3	2	3	4	3	2	3	2	5	5	5	3	8	6	6	4	7	8	7	6	8	8	6	3	64	53
Leelan/sidhwan bet															5	6	5	7	3	3	4	3	3	3	20	22
Sawaddi kalan/majri			4	6	2	2	3	4	2	2	2	3	9	11	5	6	2	2	2		1	1	2	3	34	40
Ponna	1	1	2	1	3	3	5	5	3	3			4	5	6	6	5	3	3	5	2	3	2	3	36	38
Raqba	2	1	2	2	3	3	1	2	3	3	1	1	7	7	3	4	3	2	4	5	3	3	4	4	36	37
Sadarpura	4	2	2	1	2	1	2	3	2	3	3	4	5	4	4	4	4	5	2	1	3	1	2	2	35	31
Sawaddi khurd	3	2	5	3	6	4	4	5	2	3	3	2	5	6	5	6	5	6	3	3	4	4	3	3	48	47
Sidhwan bet	3	2	2	1			3	2	3	2	8	7	7	7											26	21
Talwandi khurd	4	4	2	2	4	6	4	5	4	5	5	7	7	6	6	4	7	8	5	6	5	7	5	6	58	66
Walipur kalan	4	4	4	6	8	10	6	8	4	5	10	16	11	14	11	13	8	12	7	8	8	12	8	8	89	116
Walipur khurd	4	4	4	1	3	4	4	4	6	8	4	4	6	10	4	6	4	5	2	3	4	5	3	4	48	58
Grand total	**85**	**79**	**71**	**58**	**93**	**100**	**97**	**116**	**112**	**136**	**152**	**163**	**189**	**206**	**184**	**206**	**159**	**175**	**151**	**166**	**135**	**145**	**127**	**130**	**1555**	**1680**

F= Female M = Male

F7: Bull–wise Conception at different field unit centers during the period from 4/2019 to 3/2020

BULL NO.	SET	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Total
330	17	3												3
1148	17	61												61
1150	18				30	68	98	99	31	3				329
1208	18											21	49	70
1209	18							7	97	46	75	119	45	389
1219	18									81	117	4		202
2558	17	41	52	1		1								95
2594	17	167	81	2										250
2607	17	54	6											60
2645	18		60	120	85	2								267
2676	18		72	135	76	4		15	37	21			27	387
2677	18		58	76	45		3	89	57					328
2689	18		24	19									206	249
4905	18				50	141	87	50	14		1	10	76	429
4995	18								44	142	76	108	45	415
6942	17	31												31
7094	18				4	31	15				40	64	23	177
7147	18				24	27	19				99	54		223
7227	18					11	43	14		19	30	24	40	181
7263	18											27		27
DARA	17	22	15	2	2	1		1	1			1		45
M51	17	14												14
M53	17	34												34
SIKANDER	17	17	9	2	6	4	1		1				1	41
Grand Total		**444**	**377**	**357**	**322**	**290**	**266**	**275**	**282**	**312**	**438**	**432**	**512**	**4307**

F8 Bull–wise calving at different field unit centers during the period from 4/2019 to 3/2020

Month		Apr-19		May-19		Jun-19		Jul-19		Aug-19		Sep-19		Oct-19		Nov-19		Dec-19		Jan-20		Feb-20		Mar-20		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
330	17											23	28	45	52	1	2									69	82
1148	17							9	11	57	72	13	15	25	30	24	29									128	157
1150	18																					13	13	29	30	42	43
2558	17					20	19	23	25	2	3					19	21	23	23	1				1		89	91
2565	17							10	13	33	40	45	49	2	1											90	103
2594	17															73	80	29	38	1	1					103	119
2607	17							19	22	12	10	54	55	8	9	24	22	2	3							119	121
2645	18																	25	29	53	55	36	37	2		116	121
2676	18																	32	32	54	63	30	34	2	2	118	131
2677	18																	25	29	31	38	20	22			76	89
2689	18																	11	9	9	7					20	16
4687	17	13	10	16	10	10	8																			39	28
4715	17	29	26	6	6	1	1	1	1	1	2	1	2													39	38
4733	17	3	3	25	20	16	18	2	2																	46	43
4837	17	23	25	18	15	6	6	3	3																	50	49
4905	18																					21	22	60	65	81	87
6942	17											11	11	54	56	11	14									76	81
7010	17	8	9																							8	9
7094	18																					2	2	13	15	15	17
7147	18																					11	10	13	9	24	19
7227	18																							5	6	5	6
DARA	17											3	2	10	9	9	9	6	9	1	1		2		1	29	33
M51	17	9	6	6	7	40	48	20	26	3	4					4	5									82	96
M53	17							10	13	4	5			43	48	14	16									71	82
SIKANDER	17											2	1	2	1	5	8	6	3	1	1	2	3	2	2	20	19
Total		85	79	71	58	93	100	97	116	112	136	152	163	189	206	184	206	159	175	151	166	135	145	127	130	1555	1680

F = Female M = Male

F9. Live female progeny at field unit centers from (0 to ≤ 6 mo.) as on 3/2020.

59 live female progeny (0 to ≤ 6month.) available in the field unit centres.

F10. Live female progeny at different field unit centers from (>6 to ≤ 12mo.) as on 3/2020.

306 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 3/2020

1337 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 3/2020

2874 live female progeny (>3 years)available in the field unit centres.

F13 : Daughters calved at different field unit centers during 2019-2020

340 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 270 daughters completed at different field unit during the period and 305 days average milk yield was 2551.25 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

Bull No.	Set No.	A.I.	P.D.	Calving		Daughters retained up to			Calving	Complete
				Total	Female	1 year	2 years	3 years		
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
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
REDHU11	12	71	23	17	9	0	0	1	1	1

Bull No.	Set No.	A.I.	P.D.	Calving		Daughters retained up to			Calving	Complete
				Total	Female	1 year	2 years	3 years		
2234	13	5060	2129	1651	749	0	0	199	178	154
2269	13	3349	1445	1158	536	0	0	102	89	78
2304	13	6134	2631	2115	985	0	0	258	220	192
3964	13	131	52	45	25	0	0	11	10	8
4059	13	214	85	69	32	0	0	13	7	4
5943	13	31	13	10	5	0	0	1	1	1
2357	14	1640	701	578	262	0	0	76	51	28
2369	14	5454	2323	2001	973	0	0	178	133	90
4093	14	253	109	91	42	0	0	20	8	6
4100	14	110	48	45	24	0	0	17	7	5
4196	14	143	60	73	50	0	0	6	6	1
4439	14	214	87	76	35	0	0	24	17	10
6014	14	146	63	60	31	0	0	19	13	8
6044	14	166	70	68	33	0	0	14	8	4
6136	14	202	89	85	42	0	0	32	17	13
2371	15	854	378	297	137	0	0	99	16	2
2412	15	820	367	304	139	0	0	73	10	2
2417	15	1605	707	592	284	0	0	162	18	1
2429	15	991	430	358	171	0	0	109	12	0
2459	15	917	383	352	158	0	0	54	12	0
4324	15	1121	505	419	193	0	0	66	14	3
4328	15	701	314	265	125	0	0	60	19	2
4354	15	1069	461	369	168	0	0	105	26	4
4363	15	588	257	202	98	0	0	59	24	7
4403	15	624	272	215	97	0	0	55	14	0
4438	15	564	257	211	96	0	0	54	28	2
6007	15	579	247	213	97	0	0	29	7	0
6139	15	407	183	147	71	0	0	40	10	0
6290	15	371	159	129	59	0	0	30	8	2
6405	15	411	180	142	63	0	0	35	7	1
1027	16	425	190	161	74	0	0	26	0	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	2	112	0	0
2467	16	856	383	306	146	0	0	71	1	0
2501	16	1161	520	419	199	0	16	114	0	0
4592	16	386	173	136	61	0	0	23	0	0
4623	16	0	0	0	0	0	0	0	0	0
4705	16	1074	476	392	188	0	68	49	0	0
4889	16	888	403	330	157	0	19	65	1	0
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	0	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	34	0	0	0	0
2558	17	1308	604	511	237	39	95	1	0	0
2565	17	1192	545	460	215	19	78	1	0	0
2594	17	1335	609	536	259	21	113	1	0	0
2607	17	1291	610	525	252	54	97	0	0	0
4687	17	857	392	328	166	24	104	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		
4715	17	741	336	288	142	6	85	0	0	0
4733	17	454	209	176	86	30	22	0	0	0
4837	17	584	237	197	98	17	48	2	0	0
7010	17	286	132	110	56	1	29	14	0	0
6942	17	381	190	157	76	8	0	0	0	0
51M	17	890	411	299	123	40	32	27	0	0
53M	17	362	173	201	119	24	0	0	0	0
B-1-330	17	368	171	151	69	33	0	0	0	0
Sikander	17	207	95	79	39	6	12	0	0	0
Dara	17	147	78	66	31	9	1	0	0	0
4905	18	977	429	168	81	0	0	0	0	0
4928	18	0	0	0	0	0	0	0	0	0
4995	18	803	415	0	0	0	0	0	0	0
5031	18	0	0	0	0	0	0	0	0	0
1150	18	689	329	85	42	0	0	0	0	0
1198	18	0	0	0	0	0	0	0	0	0
1208	18	286	70	0	0	0	0	0	0	0
1209	18	763	389	0	0	0	0	0	0	0
1219	18	494	202	0	0	0	0	0	0	0
2645	18	1259	267	237	116	0	0	0	0	0
2676	18	1258	387	249	118	0	0	0	0	0
2677	18	685	328	165	76	0	0	0	0	0
2689	18	743	249	36	20	0	0	0	0	0
7094	18	582	177	32	15	0	0	0	0	0
7147	18	708	223	43	24	0	0	0	0	0
7227	18	753	181	11	5	0	0	0	0	0
7263	18	563	27	0	0	0	0	0	0	0
		99824	**40804**	**30025**	**14121**	**365**	**821**	**3390**	**1743**	**1379**

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				
Overall	**99824**	**40804**	**40.9**	**30025**	**14121**	**1379**	**48.2**	**8.1**	**3197**

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	178	89	220	10	7	1	**505**
Complete Recording	154	78	192	8	4	1	**437**
Daughter Available	45	24	66	3	9	0	**147**

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	178	20	17	6	24	19	14	32	**386**
Daughter Calved	51	133	8	7	6	17	13	8	17	**260**
Daughters Complete Recorded	28	90	6	5	1	10	8	4	13	**165**
Daughters to be recorded	48	88	14	12	5	14	11	10	19	**221**

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	99	73	162	109	54	66	60	105	59	55	54	29	40	30	35	**1030**
Daughter Calved	16	10	18	12	12	14	19	26	24	14	28	7	10	8	7	**225**
Daughters Complete Recorded	2	2	1	0	0	3	2	4	7	0	2	0	0	2	1	**26**
Daughters to be recorded	97	71	161	109	54	63	58	101	52	55	52	29	40	28	34	**1004**

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	114	71	130	23	0	117	84	11	21	39	0	44	**698**
Daughter Calved	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	**2**
Daughters Complete Recorded	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Daughters to be recorded	26	18	0	114	71	130	23	0	117	84	11	21	39	0	44	**698**

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	95	**5119**
Daughter Born	128	237	215	259	252	166	142	86	98	76	56	123	119	69	31	39	**2096**
Daughters available	34	135	98	135	151	128	91	52	67	8	44	99	24	33	10	18	**1127**
Daughter Calved	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Daughters Complete Recorded	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Daughters to be recorded	34	135	98	135	151	128	91	52	67	8	44	99	24	33	10	18	**1127**

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	TOTAL
AI	689	0	286	763	494	1259	1258	685	743	977	0	803	0	582	708	753	563	**10563**
Pregnancies	329	0	70	389	202	267	387	328	249	429	0	415	0	177	223	181	27	**3673**
Daughter Born	42	0	0	0	0	116	118	76	20	81	0	0	0	15	24	5	0	**497**
Daughters available	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Daughter Calved	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Daughters Complete Recorded	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Daughters to be recorded	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**

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	437	47.6	8.0	147
14th	9	8328	3550	3077	1492	0	0	386	165	45.7	8.1	221
15th	15	11622	5100	4215	1956	0	0	1030	26	40.8	8.1	1004
16th	15	7453	3342	2724	1277	0	105	593	0	0	0	698
17th	16	11077	5119	4369	2096	365	716	46	0	0	0	1127
18th	17	10563	3673	1026	497	0	0	0	0	0	0	0
	161	**99824**	**40804**	**30025**	**14121**	**365**	**821**	**3390**	**1379**	**48.2**	**8.1**	**3197**

Bull- wise additional daughters completing 1st lactation from 13th set

Bull No.	Daughter No	Date of birth	Date of calving	Age at first calving (days)	Lact length	Lact. Yield
2234	B0857	15-Oct-13	25-Mar-18	1622	305	2540.8
2234	B1563	20-Aug-13	20-May-18	1734	305	2447.4
2234	B1548	3-Dec-13	15-Apr-18	1594	305	2430.3
2234	2825	24-Jan-14	1-May-18	1558	305	2626.4
2234	B1613	11-Sep-13	20-May-18	1712	305	2609.7
2234	1850	22-Dec-13	07-Jun-18	1628	305	2873.3
2234	B0275	20-Sep-13	24-Jul-18	1768	305	2673.9
2234	B1522	20-Dec-13	5-Aug-18	1689	305	2194.9
2234	2349	31-Jan-14	2-Jul-18	1613	305	2347.2
2234	2057	30-Apr-14	1-Jul-18	1523	305	2648.3
2234	2084	5-May-14	5-Jul-18	1522	305	2791.3
2234	B1841	4-Sep-13	20-Aug-18	1811	305	1798.5
2234	2226	13-Feb-14	15-Jul-18	1613	305	2742.0
2234	2251	31-Mar-14	15-Aug-18	1598	305	2232.6
2234	5543	16-Mar-15	12-09-2018	1276	305	2447.3
2234	2067	10-Jan-14	3-Sep-18	1697	305	2704.7
2234	5589	28-Feb-15	03-09-2018	1283	305	2628.0
2234	5527	12-Mar-15	13-09-2018	1281	305	2555.0
2234	2036	15-Nov-13	29-Sep-18	1779	305	2786.7
2234	2064	25-Nov-13	14-Oct-18	1784	305	2246.5
2234	2074	22-Mar-14	15-Sep-18	1638	305	2492.9
2234	B0646	25-Jul-14	20-Sep-18	1518	305	2860.0
2234	B1835	20-Aug-14	7-Oct-18	1509	305	2490.4
2234	5537	12-Jan-15	2-Oct-18	1359	305	2194.9
2234	2754	28-Feb-15	03-09-2018	1283	305	3220.1
2234	2068	20-Oct-14	18-Nov-18	1490	305	2608.1
2234	5504	4-Feb-15	07-11-2018	1372	305	2370.1
2234	2150	8-Oct-14	2-Dec-18	1516	305	2376.2
2234	2004	10-Oct-14	15-Dec-18	1527	305	2144.5
2234	B2556	18-Apr-14	5-Jan-19	1723	305	2799.8
2234	2704	16-Jan-15	5-Jan-19	1450	305	2615.9
2234	2781	20-Jan-15	7-Dec-18	1417	305	2462.3
2234	3188	28-Feb-15	20-Jan-19	1422	305	2734.0
2234	2087	15-Nov-14	15-Dec-18	1491	305	2559.2
2234	B2523	24-Jul-14	19-Feb-19	1671	305	2627.2
2234	2094	10-Aug-14	24-Feb-19	1659	305	2265.9
2234	2386	26-Aug-14	21-Mar-19	1668	305	2458.5
2234	2358	16-Nov-14	10-Feb-19	1547	305	2455.4
2234	5457	28-Dec-14	5-Mar-19	1528	305	2402.7
2269	B1564	17-Jun-13	14-Apr-18	1762	305	2524.2
2269	B1549	28-Jul-13	15-Apr-18	1722	305	2514.8
2269	B0379	5-Jan-14	1-Apr-18	1547	305	2550.6
2269	B0080	29-Nov-13	10-Jun-18	1654	305	2415.0
2269	B0869	17-Oct-13	2-Jul-18	1719	305	2775.5
2269	5138	25-Aug-14	25-Jun-18	1400	305	3040.9
2269	5140	13-Nov-14	8-Jun-18	1303	305	2802.2
2269	B0527	27-Dec-13	13-Aug-18	1690	305	2091.2
2269	B0743	6-Jul-14	9-Sep-18	1526	305	2552.4
2269	3095	9-Jan-15	5-Oct-18	1365	305	2739.2
2269	B0644	13-Jun-14	05-Nov-18	1606	305	2966.8
2269	B1634	11-Jul-14	5-Nov-18	1578	305	2362.7
2269	5114	15-Jul-14	28-Sep-18	1536	305	3262.1
2269	5180	15-Jan-15	1-Dec-18	1416	305	3131.0
2269	3104	10-Apr-15	07-12-2018	1337	305	2587.2

2269	B0947	16-Dec-13	02-Jan-19	1843	305	2829.3
2269	B0287	6-May-14	5-Jan-19	1705	305	2370.4
2269	5124	20-May-14	25-Dec-18	1680	305	3131.2
2304	B1583	26-Oct-13	20-Apr-18	1637	305	2540.9
2304	B1724	5-Dec-13	30-Mar-18	1576	305	2782.0
2304	2194	7-Mar-14	24-Apr-18	1509	305	2830.7
2304	2023	5-Jun-14	5-Apr-18	1400	305	2788.7
2304	B0828	23-Oct-13	15-Apr-18	1635	305	2569.3
2304	2213	3-Feb-14	26-Apr-18	1543	305	2267.7
2304	B0149	4-Dec-13	03-Mar-18	1550	305	2749.8
2304	B1517	2-Aug-13	01-Jul-18	1794	305	2573.7
2304	B1561	20-Nov-13	28-Jun-18	1681	305	2502.8
2304	B0253	15-Dec-13	21-Jul-18	1679	305	2333.5
2304	B0387	26-Dec-13	20-Jun-18	1637	305	2305.9
2304	2175	1-Feb-14	3-Jul-18	1613	305	2350.5
2304	B2577	12-Apr-14	13-Jul-18	1553	305	2796.3
2304	B0386	10-Dec-13	7-Aug-18	1701	305	2421.1
2304	B0842	21-May-14	2-Aug-18	1534	305	2662.0
2304	2449	12-Nov-13	09-Sep-18	1762	305	2775.5
2304	2236	5-Dec-13	5-Sep-18	1735	305	2410.7
2304	2030	25-Jan-14	25-Aug-18	1673	305	2909.4
2304	B2560	21-Feb-14	20-Aug-18	1641	305	2519.1
2304	B2596	6-Mar-14	7-Aug-18	1615	305	2552.8
2304	2323	20-Jan-14	7-Nov-18	1752	305	2420.0
2304	2149	10-Mar-14	7-Nov-18	1703	305	1967.2
2304	3199	5-Jul-14	25-Oct-18	1573	305	3403.8
2304	2383	15-Nov-14	3-Nov-18	1449	305	2685.2
2304	2086	25-Jan-14	3-Dec-18	1773	305	2912.0
2304	B1884	14-Apr-14	20-Dec-18	1711	305	2623.7
2304	2121	10-Aug-14	13-Dec-18	1586	305	2546.9
2304	B2616	22-Feb-14	26-Dec-18	1768	305	2384.4
2304	2159	5-Mar-14	25-Dec-18	1756	305	1914.9
2304	B0874	8-Aug-14	22-Dec-18	1597	305	2516.3
2304	5474	10-Jan-15	28-Dec-18	1448	305	2295.2
2304	5478	13-Jan-15	1-Dec-18	1418	305	2313.9
2304	5469	27-Jan-15	21-Dec-18	1424	305	2514.6
2304	5466	26-Jan-15	25-Dec-18	1429	305	2323.4
2304	3529	22-Jun-15	4-Feb-19	1323	305	2553.5
2304	2022	25-Apr-14	25-Dec-18	1705	305	2508.0
2304	2093	5-Aug-14	15-Feb-19	1655	305	2401.9
2304	B2507	25-Aug-14	27-Feb-19	1647	305	2123.0
3964	2987	5-Nov-14	4-Sep-18	1399	305	2274.7
3964	2906	5-Oct-14	15-Dec-18	1532	305	2436.6
3964	3498	10-Jan-15	15-11-2018	1405	305	2554.4
4059	1948	18-Jan-14	14-May-18	1577	305	2586.4
4059	2381	15-Feb-14	8-Sep-18	1666	305	2701.9
4059	3193	21-Mar-15	5-Nov-18	1325	305	2442.0
4059	2886	16-Jun-15	15-Jan-19	1309	305	2333.2

Bull- wise additional 223 daughters completing 1st lactation from 14th & 15th Set at different field unit during the period and 305 days average milk yield was 2592.18 kg

Visit of Dr. S.S. Dahiya, Director cum Project Coordinator and Dr. K P Singh Incharge Network Project to FPT Area

Observation of Ear Tagged Progeny

Mineral Mixture Distribution to Farmers

Project Co-ordinator's observations on Field Unit 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 (ICAR Share)
Total	ICAR Share		ICAR Share	State Share	
62.52	46.88750	46.88750	41.57553	13.85851	(+)5.31197

- Total 8690 AI's were performed and 4307 buffalos conceived using 3 bulls from 17th set and 15 bulls of 18th during report period. The conception rate reported 49.56 %.
- 3235 calving reported during the period out of which 1680 male and 1555 were female.
- At various centers 4576 female progenies of different age groups are standing for future recording
- 340 daughters calved during the year and 270 daughters recorded in 2019-20.

Recommendations:

- Organized milk competition in the villages for the animals participating in NPBI (Dams and their daughters).

FIELD UNIT: 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. S.M. Deb, Principal Scientist & Head 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. 22,00,000.0
5.	Previous balance (refunded)	Rs 10,56,734.0
6.	Funds Utilised	Rs. 13,94,438.0
7.	Closing Balance	Rs. 8,05,562.0

Research Achievements

A total of 4571 AI was performed in Murrah Buffaloes under field conditions during 2019-20 and as a result 46.96% conception rate was obtained. The highest conception rate was achieved in the month of November (52.38%) and the lowest was found for the month of July (42.98%), when recorded till February 2020. Across the villages, the highest conception rate was observed in Shekhpura (51.73%) village and lowest in the Rindal (42.15%), when recorded village till February 2020. A total of 1532 (885 male and 647 female) Murrah buffalo calves were born in the farmers' herds and performance data on Milk Recording 87 daughters have been recorded for evaluation of bulls under field conditions. The total herd strength of registered females and the breedable females at different centers was 6660 and 5412, respectively. As many as 15 breeding bulls of belonging to the 18th Set were used for AI during the year 2019-20.

Other Activities

- New Building of AI center under the project was constructed at Kherimansingh Village, District Karnal.

F 1. Herd Strength of Registered females under field unit as on 31-03- 2020

Name of Centre	OB	Addition	Deduction		
		New Reg. (Birth/ Purchase)	Sold	Death	CB
Darar	1897	184	117	6	1958
Kheriman Singh	1573	167	170	6	1564
Rindal	1120	119	115	12	1112
Sheikhpura	1393	136	185	9	1335
Kamalpur	549	142	-	-	691
Total	**6532**	**748**	**587**	**33**	**6660**

F2. Status of Breedable females under field unit as on 31-03- 2020

Name of Village	Heifers >3 years		Buffalo (NP)		Buffalo Pregnant	
	Total	Pregnant	In milk	Dry	In milk	Dry
Darar	287	185	373	90	190	73
Kheriman Singh	322	232	312	110	143	92
Rindal	230	164	190	58	187	60
Sheikhpura	383	187	209	73	274	92
Kamalpur	294	152	182	70	132	66
Total	**1516**	**920**	**1266**	**401**	**926**	**383**

F 3. Monthly AI under Field Unit during 01-04-2018 to 31-03-2020

Month	Centre / Village					Total
	Darar	Kheriman Singh	Rindal	Shekhpura	Kamalpur	
April 19	80	68	76	78	64	366
May	64	46	86	72	59	327
June	76	42	76	87	64	345
July	72	50	82	79	73	356
Aug.	70	66	83	89	62	370
Sept.	64	86	78	91	64	383
Oct.	69	74	75	85	70	373
Nov.	71	108	72	74	74	399
Dec.	85	97	92	95	85	454
Jan. 20	72	98	101	87	97	455
Feb.	75	92	83	85	94	429
March.	48	85	66	52	63	314
Total	**846**	**912**	**970**	**974**	**869**	**4571**

F 4 Bullwise AI at Different Field Unit Centers during the Period 1-4-2018 to 31-03-2020

Bull No/Set	April	May	June	July	Aug	Sept	Oct.	Nov.	Dec	Jan	Feb	Mrch	Total
4905	31	46	42	67	122	8							316
4995			87	62					30	114	32		325
5147					42	58	39	44	30	103			316
1150	42	50		72	111	11							286
1208							12	202	41			01	256
1209*						53	85						138
1219*						30	80						110
2645					33	86	62			146	138	115	580
2676								153	166			57	376
2677						83	26		166				275
2689				28	62	34				82	259	141	606
7094	101	48											149

7147	148	64	122	82		14							430
7227		11	64	45									120
7263	44	108	30			6	69		21	10			288
Total	366	327	345	356	370	383	373	399	454	455	429	314	**4571**

*The use was discontinued as per the directions from lead center

F 5: Month – wise Conception at Different Field Units during the period 01-4-19 to 31/03/20

Month	Village / Centre							CR %
	Darar	Kherimann Singh	Rindal	Sheik hpura	Kamalpur	Total Conce.	Total AI	
April 19	38	26	29	36	33	162	366 (Apr-19)	**44.26**
May	30	20	34	34	28	146	327 (May-19)	**44.64**
June	30	19	30	42	31	152	345 (Jun-19)	**44.05**
July	33	18	30	38	34	153	356 (Jul-19)	**42.98**
Aug.	32	29	35	45	36	177	370 (Aug-19)	**47.83**
Sept.	32	40	34	42	30	178	383 (Sep-19)	**46.48**
Oct.	35	34	30	39	33	171	373 (Oct-19)	**45.84**
Nov.	36	50	34	54	35	209	399 (Nov-19)	**52.38**
Dec	39	44	41	56	41	221	454 (Dec-19)	**48.67**
Jan. 20	34	41	42	47	42	206	455 (Jan-20)	**45.27**
Feb.	40	56	42	41	45	224	429 (Feb-20)	52.21
March	-	-	-	-	-	-	314 (Mar-20)	-
Total	**379**	**377**	**381**	**474**	**388**	**1999**	**4571**	**46.96**
AI	798	827	904	922	806			
CR%	47.49	45.59	42.15	51.41	48.14			

F 6: Monthwise Calvings at Different Field Unit Centers During the Period 01-04-2019 to 3-2020

Month	**Darar**		**Rindal**		**Kherimann Singh**		**Sheikhpura**		**Kamalpur**		**Total**	
	M	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**
Apr 19	12	7	8	6	8	6	11	8	10	8	49	35
May	10	6	9	7	9	5	12	9	7	4	47	31
June	8	7	12	10	9	7	4	3	11	8	44	35
July	21	11	14	16	8	6	15	9	13	8	71	50
Aug.	16	15	20	13	11	13	16	13	10	7	73	61
Sept.	28	11	24	14	10	8	11	10	10	7	83	50
Oct.	25	19	23	17	12	10	16	14	17	12	93	72
Nov.	37	23	26	22	13	11	15	10	16	12	107	78
Dec.	24	18	21	19	12	10	13	8	16	10	86	65
Jan 20	28	19	22	12	11	9	13	11	18	14	92	65
Feb	23	15	9	11	8	7	16	12	19	14	75	59
Mar	18	12	10	6	10	6	12	9	15	13	65	46
Total	250	163	198	153	121	98	154	116	162	117	885	647

M = Male: 885 *F = Female: 647* *Total = 1532*

F 7. Bull wise Conception at different Field Unit Centers during 1-4-2019 to 31-03-20

Set No	**Bull No**	**April 2019**	**May 2019**	**June 2019**	**July 2019**	**Aug. 2019**	**Sept. 2019**	**Oct. 2019**	**Nov. 2019**	**Dec. 2019**	**Jan. 2020**	**Feb. 2020**	**March 2020**	**Total**
18	7227	--	5	31	21	--	--	--	--	--	--	--	--	57
18	7094	47	23	--	--	--	--	--	--	--	--	--	--	70
18	7147	66	30	48	30	--	3	--	--	--	--	--	--	177
18	4905	12	20	19	26	61	2	--	--	--	--	--	--	140
18	7263	17	44	12	--	--	02	35	--	9	4	--	--	123
18	1150	20	24	--	33	46	4	--	--	--	--	--	--	127
18	4995	--	--	42	30	--	--	--	--	14	52	19	--	157
18	2689	--	--	--	13	36	16	--	--		40	138	--	243
18	5147	--	--	--	--	21	30	17	39	12	42		--	161
18	2645	--	--	--	--	13	40	27	--	--	68	67	--	215
18	1219	--	--	--	--	--	14	37	--	--	--	--	--	51

18	2677	--	--	--	--	--	40	13	--	75	--	--	--	128
18	1209	--	--	--	--	--	27	35	--	--	--	--	--	62
18	1208	--	--	--	--	--	--	7	95	27	--	--	--	129
18	2676	--	--	--	--	--	--	--	75	84	--	--	--	159

F8. Bullwise Calving at Different Field Unit Centers during 1-4-2019 to 31-3-2020

Month		April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan	Feb	Mrch	**Total**
6942/17	M	20	14	--	4	17	--	--	--	--	--	--	--	55
	F	13	7	--	9	12	--	--	--	--	--	--	--	41
2558/17	M	19	7	--		8	8	--	--	--	--	--	--	42
	F	14	5	--	--	6	7	--	--	--	--	--	--	32
2565/17	M	7	--	--	--	--	4	20	--	--	--	--	--	31
	F	6	--	--	--	--	3	12	--	--	--	--	--	21
4715/17	M	3	--	--	--	--	--	11	15	--	--	--	--	29
	F	2	--	--	--	--	--	9	11	--	--	--	--	22
Sikander/17	M	--	5	13	16	1	--	--	--	--	--	--	--	35
	F	--	4	12	10	0	--	--	--	--	--	--	--	26
Daara/17	M	--	2	7	27	8	--	--	--	--	--	--	--	44
	F	--	2	5	15	7	--	--	--	--	--	--	--	29
4687/17	M	--	7	11	10	--	--	--	--	--	--	--	--	28
	F	--	4	8	6	--	--	--	--	--	--	--	--	18
B-1 130/17	M	--	12	10	11	12	6	--	--	--	--	--	--	51
	F	--	9	8	8	12	4	--	--	--	--	--	--	41
2607/17	M	--	--	3	3	16	11	--	--	--	--	--	--	33
	F	--	--	2	2	15	7	--	--	--	--	--	--	26
M-53/17	M	--	--	--	--	9	37	8	--	--	--	--	--	54
	F	--	--	--	--	8	22	11	--	--	--	--	--	41
M-51/17	M	--	--	--	--	2	17	20	26	--	--	--	--	65
	F	--	--	--	--	1	7	11	16	--	--	--	--	35
4837/17	M	--	--	--	--	--	--	26	14	--	--	--	--	40
	F	--	--	--	--	--	--	22	11	--	--	--	--	33
2594/17	M	--	--	--	--	--	--	8	--	--	--	--	--	8
	F	--	--	--	--	--	--	7	--	--	--	--	--	7
7094/18	M	--	--	--	--	--	--	--	38	35	48	24	13	158
	F	--	--	--	--	--	--	--	27	26	33	19	10	115
7227/18	M	--	--	--	--	--	--	--	13	21	6	--	2	42
	F	--	--	--	--	--	--	--	12	19	3	--	3	37
7147/18	M	--	--	--	--	--	--	--	1	30	38	33	18	120
	F	--	--	--	--	--	--	--	1	20	29	22	12	84
4905/18	M	--	--	--	--	--	--	--	--	--	--	4	10	14
	F	--	--	--	--	--	--	--	--	--	--	6	6	12
7263/18	M	--	--	--	--	--	--	--	--	--	--	4	14	18
	F	--	--	--	--	--	--	--	--	--	--	4	9	13
1150/18	M	--	--	--	--	--	--	--	--	--	--	10	8	18
	F	--	--	--	--	--	--	--	--	--	--	8	6	14
Total	**84**	**78**	**79**	**121**	**134**	**133**	**165**	**185**	**151**	**157**	**134**		**111**	

M = Male:574 *F = Female:456* *Total= 1030*

F. 9 Bull wise female progeny at different Field Unit Centers (0-12 months) as on 31/3/20

Bull No	Darar	Kheriman Singh	Rindal	Sheikhpura	Kamalpur	Total
1150/18				14		14
2558/17		11		21		32
2565/17		6			15	21
2594/17				7		7

2607/17	19			7		26
4687/17					18	18
4715/17				3	19	22
4837/17		18	11	4		33
M-51/17	27	8				35
M-53/17	15	10	16			41
Dara/17	8	7		14		29
Sikander/17	14	12				26
6942/17	9	21	11			41
7094/18	44	14	16	17	24	115
7147/18	27		16	16	25	84
7227/18		34			3	37
7263/18			10	3		13
B-1-330/17			18	10	13	41
4905/18		12				12
Total	**163**	**153**	**98**	**116**	117	647

F. 10. Bull wise Live Female Progeny at different Field Unit s (1-2 yrs) as on 31/3/ 2020

Bull No	Darar	Kheriman Singh	Rindal	Sheikhpura	Total
1027/16				21	**21**
2558/17		5			**5**
2565/17				5	**5**
2594/17	10	1	10	4	**25**
2607/17		6			**6**
4687/17	25	23	10		**58**
4705/16	12				**12**
4715/17	12	4	8	23	**47**
4733/17	13	4		9	**26**
4837/17		20		7	**27**
6646/16			12	7	**19**
6753/16	10		5		**15**
6942/17			1	9	**10**
7010/17	10	17	12	9	**48**
29 M /16		8			**8**
M -51/17		7	4	9	**20**
Sikander/17				7	**7**
Total	**92**	**95**	**62**	**110**	**359**

F. 11. Bull wise Live Female Progeny at different Field Unit s (2-3 yrs) as on 31/3/ 2020

Bull No	Darar	Kheriman Singh	Rindal	Sheikhpura	Total
1027/16	21	29			**50**
1053/16			1	9	**10**
2383/16			14		**14**
2467/16			4	10	**14**
2501/16	31		6		**37**
4363/15			1		**1**
4438/15		4			**4**
4592/16	19	38		29	**86**
4623/16	7	4			**11**
4705/16	5	1		39	**45**
4889/16	10	26		9	**45**
6379/16	9	8	14		**31**
6409/16		12	20		**32**

6646/16	8				**8**
29 M/16		3	12	35	**50**
Total	**110**	**125**	**72**	**131**	**438**

F. 12. Bull wise Live Female Progeny at different Field Unit Centers (>3 Years) as on 31/3/2020

Bull No	Darar	Kheriman Singh	Rindal	Sheikhpura	Total
3591/11			2		**2**
6136/14				7	**7**
2371/15		4	6		**10**
2412/15	16		2	22	**40**
2417/15	5	3	3	25	**36**
2429/15			4		**4**
2459/15		10			**10**
4324/15	16	7	5	23	**51**
4328/15	14	6	12	12	**44**
4354/15	11	9		19	**39**
4363/15	2	12	7		**21**
4403/15			2		**2**
4438/15	12	10	6		**28**
6007/15	4	18			**22**
6139/15	3	26		23	**52**
6200/15		14			**14**
6405/15		9			**9**
4592/16		6	7		**13**
4623/16	13				**13**
6379/16	1				**1**
Total	**97**	**134**	**56**	**131**	**418**

F 13. Bull wise daughters calved at different field unit centers during2019-20

Bull No	Darar	Kheriman Singh	Rindal	Sheikhpura	Total
6044/14	1	1	-	-	**2**
6014/14	-	1	-	2	**3**
4439/14	-	1	-	-	**1**
6136/14	-	-	15	1	**16**
4100/14	-	1	-	-	**1**
2371/15	4	2	-	-	**6**
4328/15	-	-	-	-	**-**
6139/15	1	3	10	3	**17**
4354/15	3	5	8	-	**16**
4363/15	1	-	-	1	**2**
6405/15	1	1	-	-	**2**
4328/15	-	-	8	-	**8**
2417/15	-	-	9	3	**12**
2412/15	1	-	-	5	**6**
6290/15	1	2	-	-	**3**
4438/15	1	1	-	-	**2**
4324/15	1	1	-	1	**2**
4623/16	1	-	-	-	**1**
6379/16	-	1	-	-	**1**
8511/13	-	1	-	-	**1**
Total	**16**	**22**	**50**	**16**	**104**

F. 14. Bull wise daughters recorded at different field units during2019-20

Bull No	Darar	Kheriman Singh	Rindal	Sheikhpura	Total
2304/13			1		1
5943/13	1				1
4093/14		1	8		9
4439/14	2		1	2	5
4100/14			1	1	2
2369/14				4	4
6014/14	1	7	10		18
6044/14	3		1		4
6136/14		1	11	1	13
2412/15				1	1
2371/15	2	3			5
4363/15	2			6	8
4438/15		1		1	2
4354/15	1			1	2
6007/15				1	1
6139/15	1	1		2	4
6290/15		1			1
4328/15	1				1
6405/15	1	1			2
4324/15		2			2
2417/15				1	1
Total	**15**	**18**	**33**	**21**	**87**

F 15.Bull-wise AI, conception, calving and daughters retained till completion of milk recording as on 31/03/2020

Sr. no.	Set No	Bull No.	AI	Conc eptions	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	9
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	--		--	14	7
90	14	4093	648	300	217	107	--	--		15	16
91	14	4100	417	208	171	87	--	--	--	6	6
92	14	4439	670	355	300	109	--	--	--	15	18
93	14	6014	1598	705	598	293	--	--	--	34	31
94	14	6044	791	344	302	139	--	--	--	32	20
95	14	6066	67	25	16	10	--	--	--	--	--
96	14	6136	1559	873	756	382	--	--	--	40	29
97	15	2412	469	222	120	58	--	--	--	6	2
98	15	2417	435	239	129	53	--	--	--	13	1
99	15	2429	83	51	33	15	--	--	--	--	--
100	15	2459	50	36	35	18	--	--	--	--	--
101	15	4324	804	355	178	79	--	--	--	7	2
102	15	4328	582	263	171	83	--	--	--	9	1
103	15	4354	934	418	124	58	--	--	--	16	3
104	15	4363	551	122	102	49	--	--	1	5	12
105	15	4403	73	43	32	16	--	--	--		1
106	15	4438	450	200	116	53	--	--	4	3	2
107	15	6007	397	227	71	36	--	--	--	--	2
108	15	6139	742	386	144	71	--	--	--	19	5
109	15	6200	74	43	41	20	--	--	--	--	--
110	15	6290	246	93	76	37	--	--	--	3	1
111	15	6405	406	125	31	15	--	--	--	4	2
112	16	M-29	652	422	212	98	--	8	50	--	--
113	16	1027	456	248	166	86	--	21	50	--	--
114	16	2383	148	88	64	29	--	--	14	--	--
115	16	2467	222	117	60	27	--	--	14	--	--
116	16	2501	388	183	105	48	--	--	37	--	--
117	16	4592	661	386	295	134	--	--	86	--	--
118	16	4623	229	104	89	38	--	--	11	1	--
119	16	4705	451	249	161	69	--	12	45	--	--
120	16	4889	370	173	143	59	--	--	45	--	--
121	16	6379	372	179	124	60	--	--	31	1	--
122	16	6409	440	212	141	60	--	--	32	--	--
123	16	1053	112	60	31	15	--	--	10	--	--
124	16	6646	275	150	83	37	--	19	8	--	--
125	16	6753	161	87	49	20	--	15	--	--	--
126	17	2565	147	68	60	27	21	5	--	--	--
127	17	2594	324	126	92	40	7	25	--	--	--
128	17	2607	245	114	76	35	26	6	--	--	--
129	17	4687	479	208	181	82	18	58	--	--	--
130	17	4715	555	228	194	85	22	47	--	--	--
131	17	4733	202	100	93	38	--	26	--	--	--
132	17	4837	459	153	111	49	33	27	--	--	--
133	17	7010	447	201	176	78	--	48	--	--	--
134	17	Daara	253	86	73	29	29	--	--	--	--
135	17	M-51	407	187	158	62	35	20	--	--	--
136	17	6942	372	**177**	123	54	41	10	--	--	--
137	17	Sikander	235	105	78	34	26	7	--	--	--
138	17	M-53	345	163	95	41	41	--	--	--	--
139	17	2558	280	138	87	38	32	5	--	--	--
140	17	B 1 330	311	145	92	41	41	--	--	--	--
141	18	7094	757	356	273	115	115	--	--	--	--
142	18	7147	869	355	204	84	84	--	--	--	--
143	18	7227	308	144	79	37	37	--	--	--	--
144	18	4905	316	140	26	12	12	--	--	--	--

145	18	1150	286	127	32	14	14	--	--	--	--
146	18	7263	288	123	31	13	13	--	--	--	--
147	18	1208	256	129	--	--	--	--	--	--	--
148	18	1209	138	62	--	--	--	--	--	--	--
149	18	1219	110	51	--	--	--	--	--	--	--
150	18	2645	580	215	--	--	--	--	--	--	--
151	18	2676	376	159	--	--	--	--	--	--	--
152	18	2677	275	128	--	--	--	--	--	--	--
153	18	2689	606	243	--	--	--	--	--	--	--
154	18	4995	325	157	--	--	--	--	--	--	--
155	18	5147	316	161	--	--	--	--	--	--	--
Total			**52045**	**23885**	**15421**	**7259**	**647**	**359**	**438**	**1593**	**1216**

F 16. Performance of FPT Programme on Farmer's Buffaloes NDRI unit as on 31.03.2020

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				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
Overall	**51457**	**25006**	**48.60**	**19748**	**9194**	**1345**			

Conception of March. 2020 will be added in July 2020

Project Co-ordinator's observations on field 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	
22.00	22.00	22.00	13.94438		(+) 8.05562

- A total of 4571 AI were performed in adopted villages with the semen of 18th **sets** used for test mating during 2019-20.
- The conception rate was reported 46.96 %.
- Total 1532 (885 male and 647 female) calving reported in the farmers' herd.
- Total 104 daughters calved and 87 daughters recorded for complete first lactation milk yield.
- As on 31st March 2020: total 1862 daughters of various age groups (0-12 months: 647, 1-2 years: 359, 2-3 years: 438 and > 3 year: 418) are standing in field for future recording.

Recommendations:

- Action to be taken to record maximum daughters first lactation milk yield. The numder of daughters completed the recording reduce significantly as compared to previous year.
- Organized milk competition in the villages for the animals participating in NPBI (Dams and their daughters).
- 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 17 sets of bulls have been completed and test mating of 18th set is continuing from January 2019 and completed in June 2020. 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	GADVAS	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

* bulls from Deedwadi ** Two from Redhu Farm

List of bulls selected for 18th 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/ Peak yield (kg)
1.	4905	CIRB	09-06-2015	3633	4324 / XV	3371/14.0
2.	4995	CIRB	07-12-2015	4713 P	M 51 / XVII	3064/15.5
3.	5147	CIRB	01-01-2017	4384	4592 / XVI	3057/14.8
4.	1150	LUVAS	01-05-2015	782	6066 / XIV	3127/15.9
5.	1208	LUVAS	16-10-2015	616	2045 / PT X	3437/15.1
6.	1209	LUVAS	17-10-2015	708	2045 / PT X	3593/17.2
7.	1219	LUVAS	24-11-2015	787	6405 / XV	3867/17.8
8.	2645	GADVASU	20-06-2015	2530	1994 / PT 9	3394/19.0
9.	2676	GADVASU	15-03-2016	2759	2412 / XV	3023/15.5
10	2677	GADVASU	27-03-2016	2548	4324 / XV	3135/16.5
11	2689	GADVASU	03-07-2016	2436	1693 / PT X	3151/18.8
12	7094	NDRI	08-04-2015	6625	NK	3465/17.0
13	7147	NDRI	14-08-2015	6631	NK	3018/15.5
14	7227	NDRI	04-01-2016	5881	6044 / XIV	3099/16.5
15	7263	NDRI	28-05-2016	6625	6290 / XV	3465/17.0

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 XVI 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 13th set bulls (Murrah January 2010 to June 2011)

Sr. No.	Bull No.	Location	Date of Birth	Dam No.	Sire No.	Dam's best lact. 305 or less day yield (kg)	Sire Index	Rank	No of daughter recorded	% superiority
1.	838	IVRI	09-07-08	701	2990 X	2850	2143.37	VI	27	-8.97
2.	851	IVRI	17-08-08	227	2045 X	3805	1956.66	IX	44	-19.98
3.	858	IVRI	31-08-08	358	2045 X	2882	2197.74	IV	22	-6.17
4.	2234	GADVASU	06-03-08	2138	5396 X	3114	2688.44	I	117	+14.80
5.	2269	GADVASU	17-12-08	2295	3631 X	3617	2618.87	II	87	+13.86
6.	2304	GADVASU	01-08-09	2138	3226 XI	3114	2573.79	III	154	+10.80
7.	3964	CIRB	01-08-08	1194	4371 PT V	3369	2119.55	VII	37	-10.32
8.	4059	CIRB	29-05-09	3674	4393 PT V	2510	2047.38	VIII	32	-14.29
9.	5943	NDRI	19-12-07	416	2583 PT	3232	2154.96	V	60	-8.61

Mean=2340.90; No of daughter 581

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 XIII as selected from the centres are listed below. The pedigree detail, sire index and availability of frozen semen doses from each bull are under.

Centrewise frozen semen doses of progeny tested bulls (Murrah breed)

Bull no.	Set No	Name of centre	Date of Birth	Dam no.	Sire No.	Dam best lact. Yield	Sire index	% superiorty over cotemporary daughter	Semen doses available as on 31.3.2020
392	I	CIRB	06-04-86	238	PQ1	2594	2118	22.80	113
761	II	CIRB	20-11-90	474	366	2878	1967	09.37	276
93	II	CIRB	03-11-90		PQ1	22.0*	1890	03.96	88
829	II	CIRB	04-07-91	597	766	2626	1876	03.53	360
1153	III	CIRB	13-08-93	701	896	2540	1957	12.27	1392
1061	III	CIRB	24-09-92	769	896	2846	1913	09.50	209
1933	VI	CIRB	01-10-97	208	988	2650	1953	06.92	2327
1153	VI	CCS HAU	29-09-96	618	759	2675	2121	13.31	1558
2422	VIII	CIRB	19-08-00	1194	4337	3369	2057	9.40	250
1693	X	CCS HAU	27-10-03	1050	392	3194	2320.39	1.23**	440
3267	XI	CIRB	27-09-04	2263	1419	2489	2177.81	0.20**	1697
3591	XI	CIRB	29-05-06 P	3590		2598	2176.56	0.14**	2380
183	XII	LUVAS	03-06-07	1374	1354	2824	2336.77	0.75**	3188
Total									**14278**
1354	III	GADVASU	12-12-92	762	989	3088	1975	13.11	1942
1506	IV	GADVASU	25-04-95		988	3018	2089	18.81	3932
1451	IV	GADVASU	10-08-94		3567	3401	1945	10.44	1508
1437	IV	GADVASU	04-04-94	797	636	3127	1904	08.11	1573
1796	VII	GADVASU	10-02-00	1386	1506	3170	2092	15.81	603
1875	VIII	GADVASU	20-08-01	1669	558	2714	2300	24.89	2720
1994	IX	GADVASU	16-06-03	1884	392	2938	2487	11.73	1530
2045	X	GADVASU	24-02-04	1835	3567	3369	2320.29	1.23**	1435
2133	XI	GADVASU	09-11-05	2041	1354	2844	2175.40	0.09**	1186
2185	XII	GADVASU	23-11-06	1898	1354	3423	2341.35	0.94**	1665
2234	XIII	GADVASU	06-03-08	2138	5396	3114	2688.44	14.80	95
2269	XIII	GADVASU	17-12-08	2295	3631	3617	2618.87	13.86	389
Total									**18578**
									CIRB | **NDRI**
3108	I	NDRI	29-04-86	2221	368	4114	1953	07.10	0+1049
3567	I	NDRI	07-09-89	2408	2304	2877	1923	06.20	497+2178
4393	V	NDRI	10-12-95	2762	1908		2143	22.29	0+2473
4371	V	NDRI	23-10-95	2984	988	3258	1971	14.90	253+1171
4506	VI	NDRI	31-10-96	3527	3551	3512	1972	09.29	123+2100
4915	VII	NDRI	28-10-99	3521	2921	3437	2116	17.26	0+2198
4813	VIII	NDRI	17-01-99	3818	3966	3016	2101	12.59	18+959
5258	IX	NDRI	01-08-02	4066	1706	3305	2466	10.52	0+1991
Total									**891+14119**
Grand Total									**47866**

* Peak yield ** analyzed by Harvey model

Semen freezing and balance stock for bulls under test

Centre wise test bulls of Murrah breed as on 31-03-2020 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
4439	XIV	8430	5943	XIII	83+3665	2357	XIV	2198+4164
4093	XIV	7629	6066	XIV	0+58	2369	XIV	4362+5155
4100	XIV	5056	6136	XIV	1158+7106	2371	XV	2055+4407
4196	XIV	6328	6014	XIV	988+5204	2412	XV	5418+4440
4324	XV	6224	6044	XIV	378+4079	2417	XV	1218+5410
4354	XV	6420	6007	XV	1652+2636	2429	XV	5886+4144
4438	XV	5793	6139	XV	2152+5016	2459	XV	4990+3040
4363	XV	6483	6290	XV	0+5016	2383	XVI	1986+4882
4403	XV	5574	6405	XV	2207+3074	2467	XVI	2026+6822
4328	XV	6217	6379	XVI	2257+1532	2501	XVI	2788+7846
29 M	XVI	7302	6409	XVI	2207+6475	2565	XVII	494+13842
4592	XVI	5975	6646	XVI	2023+3107	2558	XVII	1194+10459
4705	XVI	6199	6753	XVI	2508+1772	2607	XVII	375+6600
4889	XVI	9768	7010	XVII	2205+5547	2594	XVII	849+7854
1027	XVI	6926	6942	XVII	2625+7500	2645	XVIII	1799+ 1958
1053	XVI	6622	7094	XVIII	968+845	2676	XVIII	2375+6085
1064	XVI	5816	7147	XVIII	918+4194	2677	XVIII	2375+2104
M 51	XVII	21311	7227	XVIII	618+570	2689	XVIII	837+250
4715	XVII	6043	7263	XVIII	1100+1078			
4733	XVII	6376						
4687	XVII	3998						
4837	XVII	7418						
M 53	XVII	10417						
Sikander	XVII	3825						
Dara	XVII	1635						
B-1-330	XVII	9458						
1148	XVII	8496						
4905	XVIII	8631						
4995	XVIII	6095						
5147	XVIII	2265						
1150	XVIII	8506						
1208	XVIII	2192						
1209	XVIII	7515						
1219	XVIII	4560			(26047+68474)			(43225+99462)
Sub Total		**231503**			**94521**			**142687**
Grand Total								**468711**

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
Total	**514**	**904169**	**295**	**400679**	**197**	**257039**

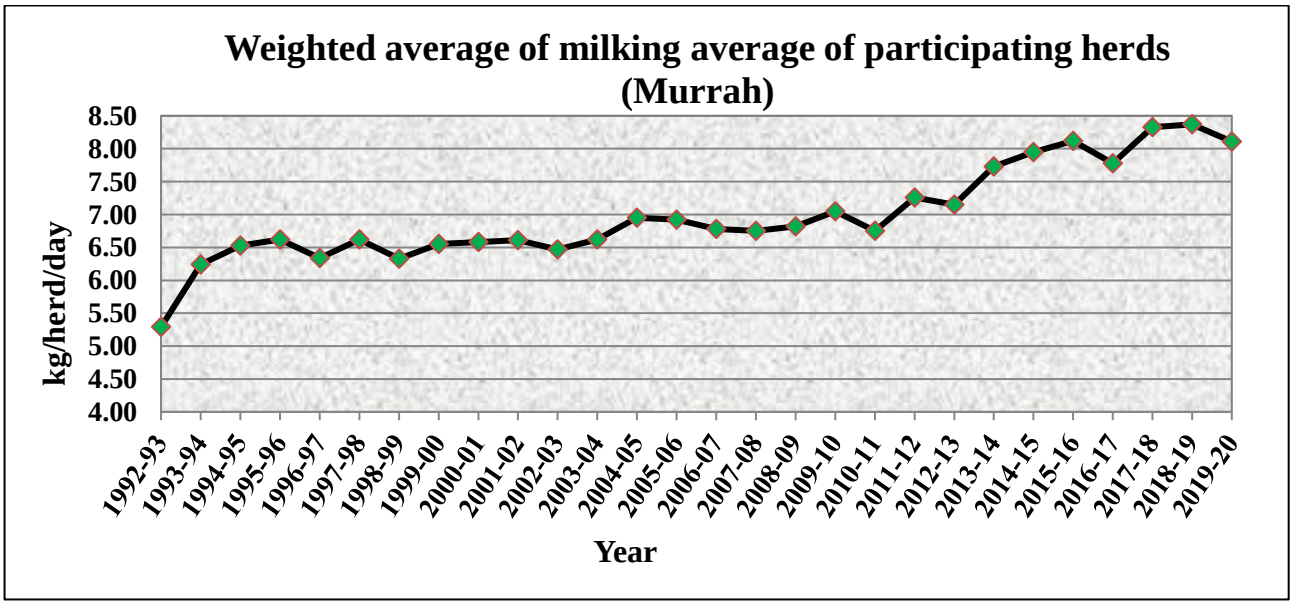
Performance Characteristics

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.

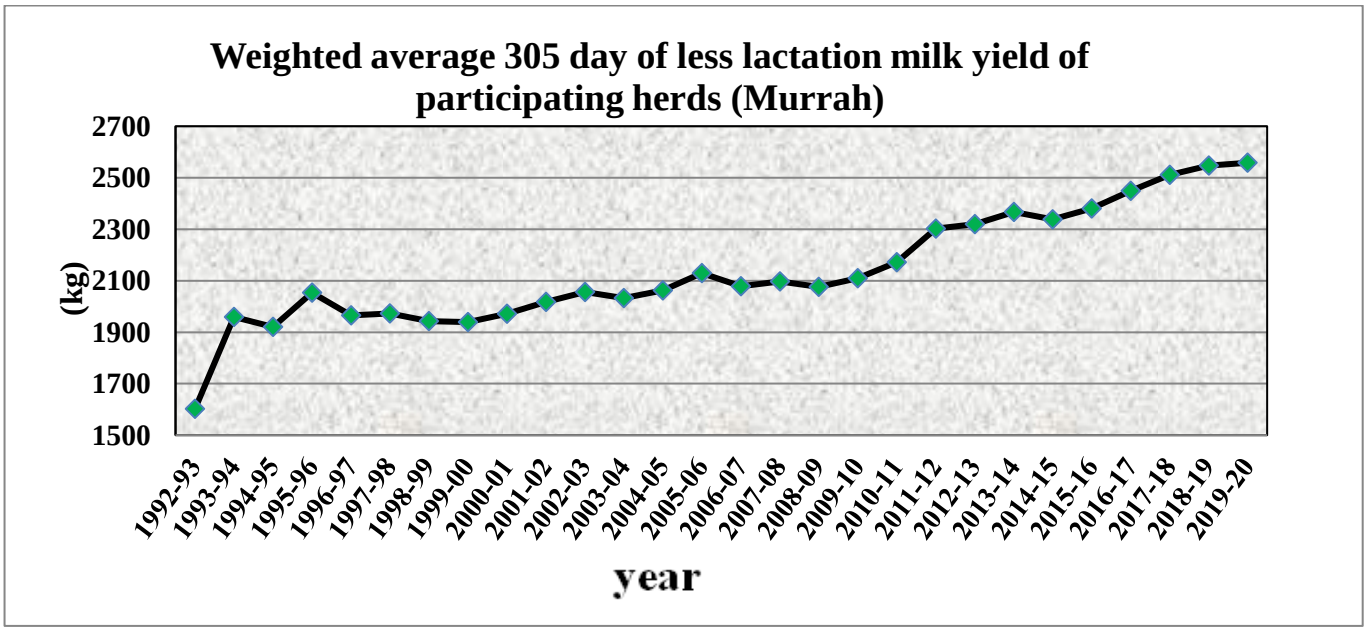
Year	CIRB	GADVASU	NDRI	LUVAS	IVRI	CCBF	NDUAT	Weighted average
1992-93	4.80 (165)	5.54 (149)			4.31 (22)	6.3 (65)		5.29 (403)
1993-94	5.65 (153)	6.20 (115)	7.80 (115)	6.3 (42)	4.62 (380	5.8 (62)		6.24 (525)
1994-95	6.09 (181)	6.09 (116)	8.39 (114)	7.2 (49)	3.90 (39)	6.3 (48)		6.53 (547)
1995-96	6.43 (1.53)	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)**



Average 305 day or less milk yield at various participating herds since 1992 – 93.

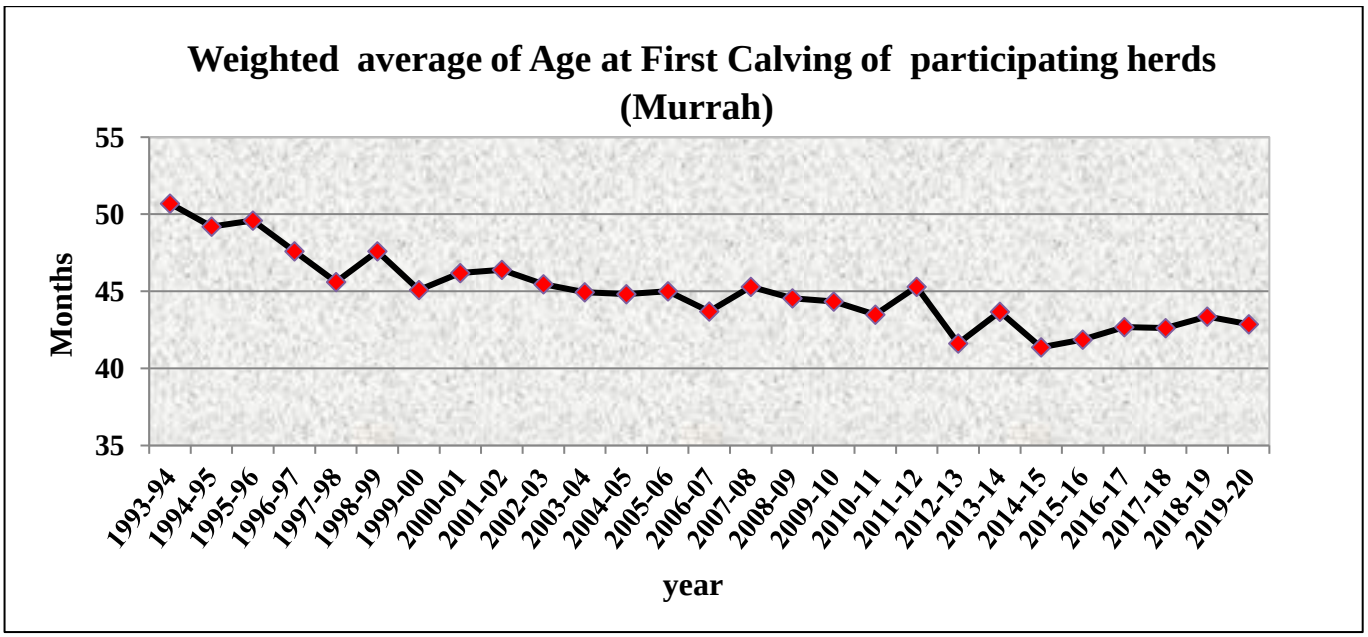
Year	CIRB	GADV ASU	NDRI	LUVAS	IVRI	CCBF/ KVASU	NDUAT/ Mamnoor	Weighted average
1992-93	1508±34 (137)	1730 (138)			1458±48 (34)	1899.1		1602 (309)
1993-94	1686±46 (148)	1948 (144)	2351.8 (137)	1818.8	1537±49 (28)	1746.0		1959 (457)
1994-95	1787±0 (206)	1877 (121)	2270.1 (128)	1912.7	1536±40 (32)	1896.7		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(22)	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)**



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)

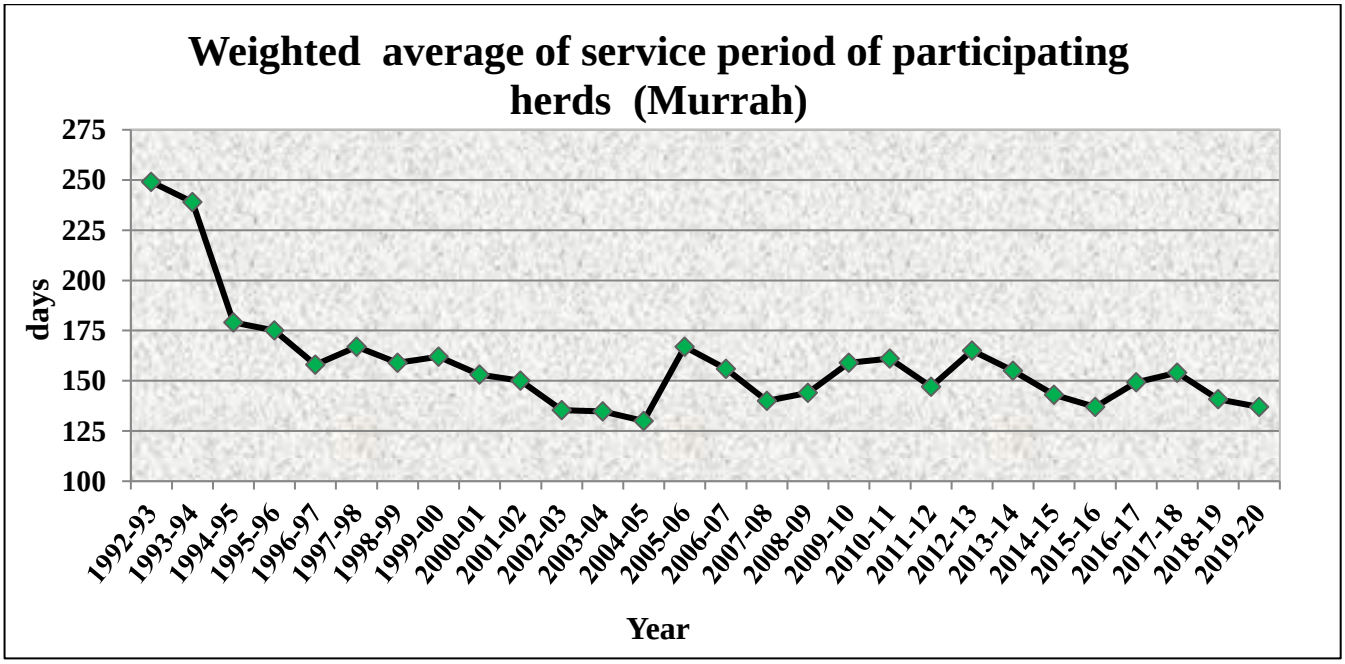
2011-12	51.9 (37)	37.4 (22)	42.13 (24)		45.6±3.2 (20)			45.30 (103)
2012-13	44.5±1.4 (37)	38.9±3.5 (34)	41.6±5.7 (29)		39.7±2.8 (7)	KVASU	LRS Mamnoor	41.62 (107)
2013-14	45.6±0.8 (37)	42.3±1.6 (12)	41.8±3.8 (36)	46.6±1.4 (33)	38.2±2.2 (18)	59.2±7.4 (7)		43.68 (143)
2014-15	42.8±0.8 (61)	38.6±0.6 (23)	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)



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 (142)	160 (107)	131.65 (117)	87.6±8.4 (42)	108±15.5 (19)	48(11)		134.7 (432)
2004-05	111±7 (100)	140 (80)	126±10 (93)	96±6.0 (52)	150±16 (30)	160 (87)		130 (442)

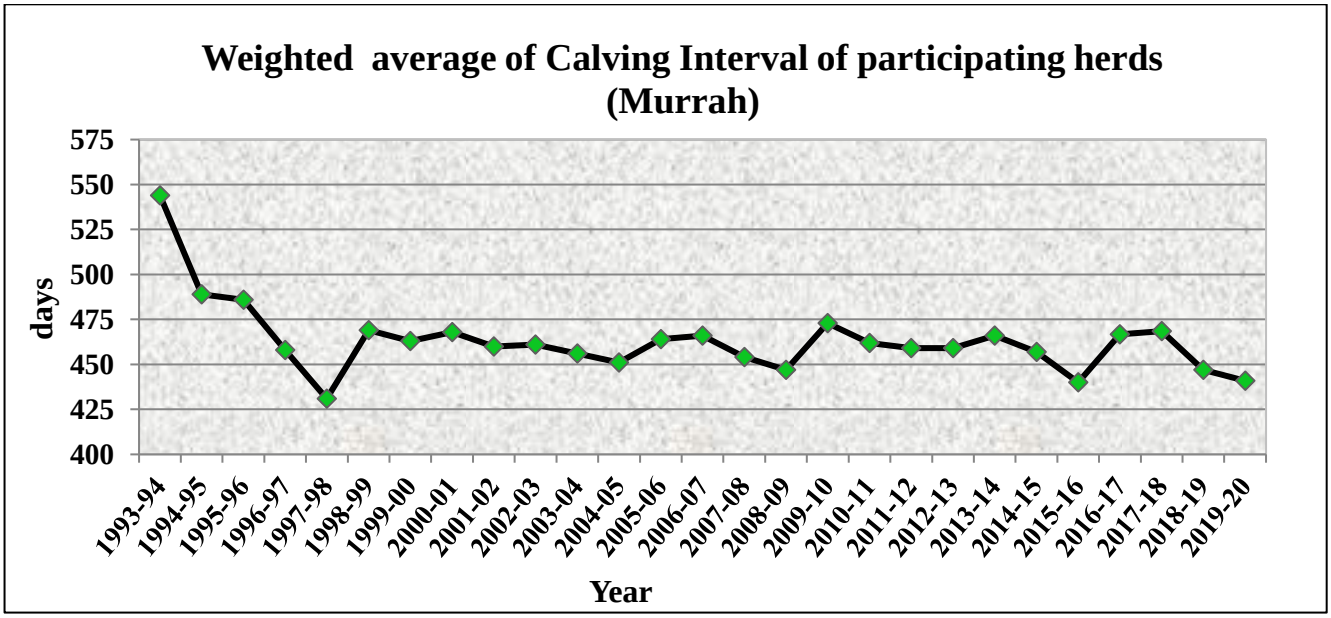
2005-06	184±12 (112)	143 (65)	149±12 (68)	148±8.5 (128)	180±28 (54)	253 (32)		167 (459)
2006-07	183±11 (113)	166±15 (69)	131±10 (80)	165±12 (60)	139±15 (40)	151 (37)	99±12.7 (22)	156 (421)
2007-08	159±11 (113)	147±12 (53)	119±11 (84)	165±16 (57)	115±7.5 (62)		109±15.6 (22)	140 (391)
2008-09	171±12 (80)	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	**Mamnoor**	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)**



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 (97)	441±10.39 (104)	446 (77)	454±11.1 (60)	495.8±19 (36)	463±22.1 (18)	--	446.97 (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)



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)**
Between breeds	**Murrah**	**Nili Ravi**	**Bhadawari**	**Jaffara badi**	**Pandhar puri**	**Surti**	**Godavari**	**Swamp**	
2006-07	7.55 (446)	6.8 (118)	7.65 (34)	8.21 (34)	8.01 (25)	7.12 (34)	7.38 (47)	8.38 (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)**	**--**	

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	
Sub Total	**99824**	**40804**	**30025**	**14121**	1379
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	101
2014-15	4129	2218	1614	776	119
2015-16	4434	2326	1693	806	
2016-17	3807	2063	1591	802	-
2017-18	4093	2248	1724	845	-
2018-19	3977	2214	1748	798	-
2019-20	3957	1697	1530	702	
Sub Total	**53494**	**27243**	**19195**	**9210**	**934**
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	--
2017-18	3241	1605	1397	640	--
2018-19	4315	1995	1030	456	--
2019-20	4571	1999	1532	647	--
Sub Total	**51457**	**25006**	**19748**	**9194**	**1345**
Grand Total	**204775**	**93053**	**67697**	**31937**	**3658**

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	**210784**	**94142**	**69957**	**32983**	**3658**

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	87
2019-20	1962	776(1894)	712	308	87
Total	**42128**	**18594(37169)**	**16126**	**7533**	**336**
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	17
2012-13	1897	583	497	198	19
2013-14	1591	555	410	158	13
2014-15	1534	455	409	156	4
2015-16	1986	556	345	145	1
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	
Total	**34674**	**10332**	**8180**	**3444**	**380**
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	**112802**	**49259**	**31434**	**13815**	**701**
Godavari, SVVU, Venkataramanngudem					
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	**193403**	**79366**	**56525**	**25158**	**1417**