NETWORK PROJECT ON BUFFALO IMPROVEMENT

ANNUAL REPORT 2018 - 2019

AND

PROJECT CO-ORDINATOR'S OBSERVATIONS

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

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HISAR – 125 001 (HARYANA)

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NETWORK PROJECT ON BUFFALO IMPROVEMENT

Annual Report 2018-19

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 14000 artificial inseminations were carried out in 2018-19 at farmer's door in the village to produce daughters. The milk yields of daughters are being recorded for use in sire evaluation.

1067 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 2018 to 31st December 2018 semen of XVII set is being used at the Murrah centres while semen of XVIII to be used from January 2019. There are 16 superior bulls (10 bulls from CIRB Hisar, 4 bulls from GADVASU Ludhiana and 2 bulls from NDRI Karnal are in the XVII set. It will continue till December 2018. So far, 234 superior bulls have been test mated in 17 sets and 15 bulls of XVIII set are under test mating.

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 669 (Nili-Ravi-366, Jaffarabadi-190, Surti-62 and Bhadawari-51) is being maintained at the above four breeds. A total of 260659 semen doses produced and 189530 semen doses were sold/use and at the end of 2018-19 closing balance was 777709 of Murrah breed. In other breed produced 58481semen doses and sold/use/experiment 63647 during the report period. Balance stock of frozen semen of buffalo bulls, other than Murrah breed, is 213094 doses.

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 of funds for Network Project on Buffalo Improvement for the financial year 2017-18 (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 Requi-rement	ICAR Share	State Share
ICAR based centres																	
Coordinating Unit, Hisar	0.00	0.00	25.50	25.50	0.00	0.00	4.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	29.50	**29.50**	0.00
CIRB, Hisar, Main Unit	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
NDRI Karnal, Main Unit	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
IVRI, Izatnagar Main Unit	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
IGFRI Jhansi	0.00	0.00	30.00	30.00	0.00	0.00	9.00	9.00	0.00	0.00	2.50	2.50	0.00	0.00	41.50	**41.50**	0.00
ICAR Res. Comp. ER Patna	0.00	0.00	10.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	5.00	0.00	0.00	15.00	**15.00**	0.00
CIRB Sub Campus, Nabha	0.00	0.00	7.35	7.35	0.00	0.00	11.50	11.50	0.00	0.00	0.00	0.00	0.00	0.00	18.85	**18.85**	0.00
CIRB, Hisar FPT	0.00	0.00	18.00	18.00	0.00	0.00	4.50	4.50	0.00	0.00	0.00	0.00	0.00	0.00	22.50	**22.50**	0.00
NDRI, Karnal, FPT	0.00	0.00	18.00	18.00	0.00	0.00	4.50	4.50	0.00	0.00	0.00	0.00	0.00	0.00	22.50	**22.50**	0.00
PPP mode centre FPT	0.00	0.00	2.25	2.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.25	**2.25**	0.00
SAU's based centres																	
GADVASU, Ludhiana (Murrah)	46.00	34.50	40.00	30.00	1.00	0.75	12.00	9.00	0.00	0.00	4.00	3.00	0.00	0.00	103.00	**77.25**	25.75
GADVASU, Ludhiana (FPT)	48.00	36.00	20.00	15.00	1.80	1.35	6.00	4.50	0.00	0.00	0.00	0.00	0.00	0.00	75.80	**56.85**	18.95
LUVAS, Hisar	0.00	0.00	60.00	45.00	1.00	0.75	14.00	10.50	0.00	0.00	12.00	9.00	0.00	0.00	87.00	**65.25**	21.75
JAU, Junagadh	16.00	12.00	40.00	30.00	1.00	0.75	12.00	9.00	0.00	0.00	0.00	0.00	0.00	0.00	69.00	**51.75**	17.25
RAJVASU, Bikaner	20.00	15.00	30.00	22.50	1.00	0.75	18.00	13.50	0.00	0.00	6.00	4.50	0.00	0.00	75.00	**56.25**	18.75
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	6.00	4.50	0.60	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.60	**4.95**	1.65
Total	186.00	139.50	366.30	302.50	8.00	6.00	95.50	80.00	0.00	0.00	33.50	27.00	0.00	0.00	689.30	**555.00**	134.30
ICAR Share	**139.50**		**302.50**		**6.00**		**80.00**		**0.00**		**27.00**		**0.00**		**555.00**		
State Share	46.50		63.80		2.00		15.50		0.00		6.50		0.00		134.30		

Centre wise and Headwise release of funds (ICAR Share)for Network Project on Buffalo Improvement during financial year 2017-18 (Rs. In lakh)

Name of the centre	Salary	Rec. contigency	TA	Equipment	Works	Livestock	Fur. Fixt.	ICAR Share released
ICAR based centres								
Coordinating Unit, Hisar	0.00	25.50	0.00	4.00	0.00	0.00	0.00	**29.50**
CIRB, Hisar, Main Unit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
NDRI Karnal, Main Unit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
IVRI, Izatnagar Main Unit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
IGFRI Jhansi	0.00	30.00	0.00	9.00	0.00	2.50	0.00	**41.50**
ICAR Res. Comp. ER Patna	0.00	10.00	0.00	0.00	0.00	5.00	0.00	**15.00**
CIRB Sub Campus, Nabha	0.00	7.35	0.00	11.50	0.00	0.00	0.00	**18.85**
CIRB, Hisar FPT	0.00	18.00	0.00	4.50	0.00	0.00	0.00	**22.50**
NDRI, Karnal, FPT	0.00	18.00	0.00	4.50	0.00	0.00	0.00	**22.50**
PPP mode centre FPT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
SAU's based centres								
GADVASU, Ludhiana (Murrah)	34.50	30.00	0.75	9.00	0.00	3.00	0.00	**77.25**
GADVASU, Ludhiana (FPT)	36.00	15.00	1.35	4.50	0.00	0.00	0.00	**56.85**
LUVAS, Hisar	0.00	45.00	0.75	10.50	0.00	9.00	0.00	**65.25**
JAU, Junagadh	12.00	30.00	0.75	9.00	0.00	0.00	0.00	**51.75**
RAJVASU, Bikaner	15.00	22.50	0.75	13.50	0.00	4.50	0.00	**56.25**
MPKV, Kolhapur	21.00	12.00	0.60	0.00	0.00	0.00	0.00	**33.60**
AAU Khanapara	21.00	32.40	0.60	0.00	0.00	3.00	0.00	**57.00**
GADVASU, Ludhiana (Nili Ravi)	0.00	4.50	0.45	0.00	0.00	0.00	0.00	**4.95**
Total	**139.50**	**302.50**	**6.00**	**80.00**	**0.00**	**27.00**	**0.00**	**552.75**

Centre wise and Headwise allocation of funds for Network Project on Buffalo Improvement of financial year as per R E 2018-19 (Rs. In lakh)

	SALARY		General					Capital									Total		
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	5.50	5.50	**0.00**	0.00	0.00	8.65	8.65		0.00	0.00	0.00	0.00	0.00	0.00	14.15	**14.15**	0.00
CIRB, Hisar, Main Unit	0.00	0.00	5.00	5.00	**0.00**	0.00	0.00	1.13	1.13		0.00	0.00	0.00	0.00	0.00	0.00	6.13	**6.13**	0.00
NDRI Karnal, Main Unit	0.00	0.00	16.00	15.00	**1.00**	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.30	0.30	16.30	**16.30**	0.00
IVRI, Izatnagar Main Unit	0.00	0.00	10.00	9.00	**1.00**	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.20	0.20	10.20	**10.20**	0.00
IGFRI Jhansi	0.00	0.00	36.00	34.00	**2.00**	0.00	0.00	0.00	0.00		4.00	4.00	3.50	3.50	0.60	0.60	44.10	**44.10**	0.00
ICAR Res. Comp. ER Patna	0.00	0.00	16.00	15.00	**1.00**	0.00	0.00	0.00	0.00		4.00	4.00	7.00	7.00	0.00	0.00	27.00	**27.00**	0.00
CIRB Sub Campus, Nabha	0.00	0.00	10.00	10.00	**0.00**	0.00	0.00	0.00	0.00		8.00	8.00	0.00	0.00	0.00	0.00	18.00	**18.00**	0.00
CIRB, Hisar FPT	0.00	0.00	12.00	12.00	**0.00**	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.32	0.32	12.32	**12.32**	0.00
NDRI, Karnal, FPT	0.00	0.00	15.00	14.00	**1.00**	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.60	0.60	15.60	**15.60**	0.00
PPP mode centre FPT	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**	0.00
Trabil Sub Plan (TSP)	0.00	0.00	10.00	10.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	10.00	10.00	0.00
SAU's based centres																			
GADVASU, Ludhiana (Murrah)	52.00	39.00	56.00	39.00	**3.00**	1.00	0.75	0.00	0.00		4.00	3.00	4.00	3.00	0.60	0.45	117.60	**88.20**	29.40
GADVASU, Ludhiana (FPT)	28.00	21.00	26.00	18.50	**1.00**	1.40	1.05	0.00	0.00		0.00	0.00	0.00	0.00	0.60	0.45	56.00	**42.00**	14.00
LUVAS, Hisar	0.00	0.00	66.00	46.50	**3.00**	1.00	0.75	0.00	0.00		4.00	3.00	4.00	3.00	0.60	0.45	75.60	**56.70**	18.90
JAU, Junagadh	20.00	15.00	48.00	33.00	**3.00**	1.00	0.75	0.00	0.00		4.00	3.00	4.00	3.00	0.60	0.45	77.60	**58.20**	19.40
RAJVASU, Bikaner	0.00	0.00	50.00	34.50	**3.00**	1.00	0.75	0.00	0.00		2.00	1.50	0.00	0.00	0.60	0.45	53.60	**40.20**	13.40
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**	0.00
AAU Khanapara (NEH)	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**	0.00
GADVASU, Ludhiana (Nili Ravi)	0.00	0.00	34.00	24.50	**1.00**	0.60	0.45	0.00	0.00		0.00	0.00	6.00	4.50	0.60	0.45	41.20	**30.90**	10.30
Total	100.00	**75.00**	415.50	**325.50**	**20.00**	6.00	**4.50**	9.78	**9.78**	**0.00**	30.00	**26.50**	28.50	**24.00**	5.62	**4.72**	595.40	**490.00**	105.40
ICAR Share	**75.00**		**345.50**			**4.50**		**9.78**			**26.50**		**24.00**		**4.72**		**490.00**		
State Share	25.00		70.00			1.50		0.00			3.50		4.50		0.90		105.40		

Total Rs. 490.00 Lakhs (ICAR Share) includes (Rs. 10.00 lakhs TSP + Rs. 20.00 lakhs SCSP (General) + (Rs. 320.00 Lakhs General + Rs. 65.00 lakhs Capital + Rs. 75.00 Lakhs Salary Non TSP & SCSP))

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

	SALARY		General					Capital									Total		
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 Requ irement	ICAR Share	State Share
ICAR based centres																			
Coordinating Unit, Hisar	0.00	0.00	24.00	24.00		0.00	0.00	6.00	6.00		0.00	0.00	0.00	0.00	0.50	0.50	30.50	**30.50**	0.00
CIRB, Hisar, Main Unit	0.00	0.00	30.00	30.00		0.00	0.00	6.00	6.00		0.00	0.00	0.00	0.00	0.40	0.40	36.40	**36.40**	0.00
NDRI Karnal, Main Unit	0.00	0.00	21.50	21.50		0.00	0.00	6.00	6.00		0.00	0.00	0.00	0.00	0.20	0.20	27.70	**27.70**	0.00
IVRI, Izatnagar Main Unit	0.00	0.00	18.00	18.00		0.00	0.00	4.00	4.00		0.00	0.00	0.00	0.00	0.20	0.20	22.20	**22.20**	0.00
IGFRI Jhansi	0.00	0.00	40.00	40.00		0.00	0.00	1.00	1.00		0.00	0.00	4.00	4.00	0.00	0.00	45.00	**45.00**	0.00
ICAR Res. Comp. ER Patna	0.00	0.00	24.00	24.00		0.00	0.00	6.00	6.00		0.00	0.00	0.00	0.00	0.40	0.40	30.40	**30.40**	0.00
CIRB Sub Campus, Nabha	0.00	0.00	30.00	30.00		0.00	0.00	7.00	7.00		0.00	0.00	6.90	6.90	0.40	0.40	44.30	**44.30**	0.00
CIRB, Hisar 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	0.20	0.20	22.20	**22.20**	0.00
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
SCSP Funds	0.00	0.00	0.00	0.00	*40.00*	0.00	0.00	0.00	0.00	*10.00*	0.00	0.00	0.00	0.00	0.00	0.00	50.00	50.00	0.00
SAU's based centres																			
GADVASU, Ludhiana (Murrah)	12.00	9.00	62.00	46.50		1.00	0.75	2.00	1.50		0.00	0.00	4.00	3.00	0.40	0.30	81.40	**61.05**	20.35
GADVASU, Ludhiana (FPT)	23.09	17.32	30.00	22.50		1.40	1.05	0.00	0.00		0.00	0.00	0.00	0.00	0.40	0.30	54.89	**41.17**	13.72
LUVAS, Hisar	0.00	0.00	70.00	52.50		1.00	0.75	2.00	1.50		0.00	0.00	4.00	3.00	0.40	0.30	77.40	**58.05**	19.35
JAU, Junagadh	21.00	15.75	52.00	39.00		1.00	0.75	2.00	1.50		4.00	3.00	4.00	3.00	0.40	0.30	84.40	**63.30**	21.10
RAJVASU, Bikaner	21.00	15.75	54.00	40.50		1.00	0.75	0.00	0.00		4.00	3.00	4.00	3.00	0.40	0.30	84.40	**63.30**	21.10
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
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
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
Total	77.09	57.82	535.50	458.50	*40.00*	6.00	4.50	46.00	44.50	*10.00*	8.00	6.00	36.90	30.40	4.70	4.10	764.19	**655.82**	108.37
ICAR Share	**57.82**		**458.50**		***40.00***	**4.50**		**44.50**		***10.00***	**6.00**		**30.40**		**4.10**		**655.82**		
State Share	19.27		77.00			1.50		1.50			2.00		6.50		0.60		108.37		

PARTICIPATING CENTRES (As on 31.03.2019)

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

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

Objective: The objective of the project is to envisage and undertake progeny testing for improvement of various breeds of buffaloes through variouscentres in different parts of the country. Priority and emphasis to be on performance recording and improvement of Murrah, Nili Ravi, Jaffarabadi, Surti and Bhadawari breeds and on semen quality testing laboratory.

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)	= ≤4%
vii.	Wet average	= ≥ 8.5 kg
viii.	Herd average	= ≥5.5 kg

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

Report Period : 2018- 19

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 :

Sanctioned as per R E 2018-19		Released ICAR Share as per R E	Expenditure as per AUC		Balance
Total	ICAR Share		ICAR Share	State Share	
6.13	6.13	6.13	6.13	0.00	Nil

8. Staff Position : Reademployment

9. **Herd Performance**

9.1 Herd Strength during the Period 1st April 2018 to 31st March, 2019

Sr. No.	Category	Addition			Disposal				CB
		OB	**B / P**	**T**	**D**	**T**	**S**	**E**	**CB**
	Female								
1.	Below 3 months	14	61	--	7+6*	46	-	--	16
2.	3-12 months	53	--	46	3	60	-	--	36
3.	1-2 years	56	--	60	-	58	1	--	63
	Above 2 years	105	--	58	-	33	12	--	118
4.	Buffaloes in Milk	127	--	33	-	137	23	--	112
5.	Buffaloes Dry P /NP	53	--	137	3+2*	109	31	--	45
	Sub Total	408	--	334	13+8*	443	67	--	390
	Males								
1.	Below 3 months	22	69		10+5*	51	1	--	24
2.	3-12 months	56	--	51	4	67	7	--	29
3.	1-2 years	28	--	67	-	20	21	--	54
	Above 2 years	15	--	20	2	4	17	--	12
4.	Breeding bulls	15	--	4	-	6	11	--	13
5.	Bullocks / Teasers / others	--	--	--	-	--	-	--	-
	Sub Total	136	--	142	17+5*	148	57	--	132
	Grand Total	544	--	475	30+13*	591	124	--	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 2018 – March 2019

Month	Male	Female	Still Birth	Overall
April-2018	0	2	1	3
May	2	3	0	5
June	0	4	0	4
July	13	7	1	21
August	5	10	0	15
September	12	1	0	13
October	3	8	1	12
November	6	4	0	10
December	2	5	0	7
January-2019	7	5	0	12
February	10	5	1	16
March	9	7	0	16
Overall	69	61	4	134

9.3. Disposal of Animals (1st April 2018 to 31st March 2019)

Female	Primary cause of disposal							
Category	Surplus	Low Producers	Reprod. Problem	Weak & Old	Udder Health	Death	Exptl.	Total
Calves								
0 to 3 months	--	--	--	--	--	12	1	13
3-12 months	--	--	--	--	--	3	--	3
Heifers								
1-2 years	1	--	--	--	--	--	---	1
> 2 years	1	--	8	3	--	--	1	13
Buffaloes								
Milch	5	9	4	3	2	--	--	23
Dry	6	13	7	4	1	3	2	36
Sub Total	13	22	19	10	3	18	4	89
Males	**Primary cause of disposal**							
Calves								
0 to 3 months	1	--	--	--	--	13	2	16
3-12 months	3	--	--	--	--	4	--	7
Young bull								
1-2 years	11	--	1	1	--	--	--	13
>2 years	8	--	--	--	--	2	--	10
Breeding bulls	2	--	--	--	--	--	--	--
Bullock+Teaser etc	1	--	--	--	--	--	--	--
Sub Total	26	--	1	1	--	19	2	49
Grand Total	39	22	20	11	3	37	6	138

9.4 Mortality during the Period 1st April 2018 to 31st March, 2019

	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.	75	46	60	58	173	390	91	51	67	20	132	522
Died	12	03	-	-	03	18	13	04	--	2	20	38
%	16.00	10.8	0.0	0.0	1.73	4.61	14.28	11.6	0.0	10.0	15.15	5.36

9.5. Causes of Mortality (quarter wise) during the period April 18 to March 19

Particulars	1st quarter (April-June)	2nd quarter (July-Sept)	3rd quarter (Oct-Dec.)	4th quarter (Jan.-March)	Total
Enteritis	--	--	1	2	3
Pheumonities	2	--	6	1	9
Peritonitis	--	--	--	1	1
TRP / TP	--	--	--	-	-
Miscellaneous	5	6	14	5	30
Total	7	6	21	9	43

9.6 Prophylactic Measures undertaken during 2018-19

Disease	Vaccination: Month / No. of animals	No. of animals Tested / Positive		Month and No. of animals treated for Parasitism
FMD	07/2018 = 550 01/2019 = 646 03/2019 = 045	-	-	04/2018= 115 05/2018= 104 06/2018= 54 07/2018= 65 08/2018= 84 09/2018= 108 10/2018= 108 11/2018= 154 12/2018= 506 01/2019= 58 02/2019= 42 03/2019= 65
HS	07/2018 = 550 01/2019 = 646 03/2019 = 045	-	-	
BQ	07/2018 = 550 01/2019 = 646 03/2019 = 045	-	-	
Brucellosis		514	All -ve	
JD		407	All -ve	
TB		407	All -ve	
IBR		--	--	
Mastitis		--	--	
Trichomnas		--	--	
Campylobacter		--	--	

9.7 Female Conception Rate During the Period January to December 2018

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	88	41	46.49	26	11	42.31	22	9	40.91	12	5	41.67	148	66	**44.59**
Adults	133	68	51.13	76	39	51.31	31	16	51.61	21	7	33.33	261	130	**49.81**
Overall	221	109	49.32	102	50	49.02	53	25	47.17	33	12	36.36	409	196	**47.92**

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 Previous year	88	44	50.00
April - June	77	35	45.45
July - September	60	29	48.33
October- December	184	88	47.83
Overall	**409**	**196**	**47.92**

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

Sr. No.	Bull No.	SET No.	Total AI	Conceived	CR%
1.	2594	17th	27	15	55.55
2.	2558	17Th	27	16	59.26
3.	2607	17Th	34	18	52.94
4.	2565	17Th	26	14	53.85
5.	29 M	17Th	18	6	33.33
6.	330 BI	17Th	38	14	36.84
7.	4733	17th	10	7	70.00
8.	4687	17th	22	13	59.09
9.	4715	17th	13	7	53.85
10.	4837	17th	19	9	47.37
11.	7010	17th	21	10	47.62
12.	Dara	17th	22	12	54.54
13.	Sikander	17th	6	2	33.33
14.	3267	11th PT	6	3	50.00
15.	1354	3rd PT	1	0	00
16.	183	2nd PT	3	2	66.66
17.	2185	12th PT	12	4	33.33
18.	220	12th PT	15	5	33.33
19.	6942	17th	11	5	45.45
20.	1148	17th	18	10	55.55
21.	2568	--	2	0	00
22.	Dhanna	Non-set	7	6	85.71
23.	Heera	Non-set	14	3	21.43
24.	Kohinoor	Non-set	13	5	38.46
25.	R-24	Non-set	4	1	25.00
26.	R-25	Non-set	15	6	40.00
27.	R-14	Non-set	27	15	55.55
Over all			**409**	**196**	**47.92**

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

Proven (progeny tested) bulls									
Sr. No.	**Bull No / Set**	**O.B.**	**Received**	**Sold**	**Supp.**	**Exp.**	**Balance**	**% superiority**	**Dam's best lactation**
1.	M-1875-VIII GAD	42	0	0	0	0	42	24.89	2714(3)
2.	392-I CIRB	113	0	0	0	0	113	22.8	2594
3.	M-1506- IV GAD	337	0	0	0	0	337	18.81	3018
4.	1796-VII- GAD	9	0	0	0	0	9	15.81	3170
5.	4915-VII NDRI	21	0	0	0	0	21	17.26	3437
6.	M-1717–VI GAD	68	0	0	0	0	68	15.32	2775
7.	4371–V NDRI	253	0	0	0	0	253	14.9	3258
8.	1153-HAU-VI CIRB	2138	0	0	0	0	2138	13.31	2675
9.	4813–VIII NDRI	18	0	0	0	0	18	12.59	3016(1)
10.	1153-III CIRB	2767	0	0	0	0	2767	12.27	2540
11.	M-1994- IX GAD	1253	0	0	0	0	1253	11.73	2938
12.	M-1451-IV GAD	446	0	0	0	0	446	10.44	3401
13.	1061-III CIRB	209	0	0	0	0	209	9.5	2846

14.	2422-VIII CIRB	3343	0	0	0	0	3343	9.41	3369(4)
15.	761- II CIRB	577	0	301	0	0	276	9.37	2578
16.	4506-VI NDRI	123	0	0	0	0	123	9.29	3512
17.	1165-III CIRB	740	0	100	0	0	640	8.5	2627
18.	M-1437–IV GAD	423	0	0	0	0	423	8.11	3127
19.	4245–V NDRI	398	0	0	0	0	398	7.96	3215
20.	1319-IV CIRB	2968	0	0	0	0	2968	6.99	2538
21.	1933-VI CIRB	4117	0	0	0	0	4117	6.92	2650
22.	3567-I NDRI	497	0	0	0	0	497	6.4	2877
23.	896-I CIRB	142	0	0	0	0	142	5.5	3003
24.	4395–V	116	0	0	0	0	116	5.48	3344
25.	3930–III NDRI	1038	0	0	0	0	1038	5.42	2912
26.	2331-VII CIRB	364	0	0	0	0	364	4.85	2664
27.	1131-III CIRB	98	0	0	0	0	98	4.56	2827
28.	2308-VIII CIRB	660	0	0	0	0	660	4.51	2655(3)
29.	4807-VII NDRI	68	0	0	0	0	68	3.98	3437
30.	93-II CIRB	88	0	0	0	0	88	3.96	22kg PY
31.	1798- V CIRB	597	0	0	0	0	597	3.85	2753
32.	5197-IX NDRI	354	0	0	0	0	354	3.76	-
33.	829- II CIRB	860	0	500	0	0	360	3.53	2626
34.	3966–III NDRI	258	0	0	0	0	258	3.31	3700
35.	2250-VIII CIRB	100	0	0	0	0	100	2.94	2748(5)
36.	759- II CIRB	198	0	0	0	0	198	2.8	2650
37.	2582-IX CIRB	111	0	0	0	0	111	2.8	2836
38.	3638–II NDRI	863	0	0	0	0	863	2.41	3278
39.	1023-III CIRB	252	0	0	0	0	252	2.33	2710
40.	5112- IX NDRI	719	0	0	0	0	719	2.23	2831
41.	2720-IX	162	0	0	0	0	162	1.91	2664
42.	5049–VIII NDRI	68	0	0	0	0	68	1.87	2912
43.	3551–II NDRI	136	0	0	0	0	136	1.49	3898
44.	1641-V CIRB	34	0	0	0	0	34	1.29	2753
45.	M-1253 –II GAD	36	0	0	0	0	36	1.29	3348
46.	M-1867-VIII GAD	434	0	0	0	0	434	0.9	2709(1)
47.	M-1903-IX GAD	136	0	0	0	0	136	0.68	2718
48.	1575-IX CIRB	100	0	0	0	0	100	0.09	3194
49.	2990-X CIRB	1692	0	0	0	0	1692	1.06	2655
50.	3103-X CIRB	2437	0	0	0	0	2437	1.18	2942
51.	1693-X CIRB	810	0	0	0	0	810	1.23	3194
52.	507-X CIRB	4344	0	0	0	0	4344	0.19	2572
53	3267-XI CIRB	3173	0	0	0	0	3173	0.2	2489
54	3591-XI CIRB	3760	0	0	0	0	3760	0.14	2598
55	M-2045-X GAD	1183	0	0	0	0	1183	1.23	3369
56	M-2062-X GAD	846	0	0	0	0	846	1.13	2672
57	M-2073-X GAD	442	0	0	0	0	442	2.32	2717
58	M-2074-X GAD	525	0	0	0	0	525	0.94	3050
59	M-2083-X GAD	375	0	0	0	0	375	1.84	3063
60	M-2133-XI GAD	904	0	0	0	0	904	0.09	2844
61	M-2148-XI GAD	118	0	0	0	0	118	-0.19	3008
63	M-2154-XI GAD	98	0	0	0	0	98	0.05	2593
64	M-2185-XII GAD	146	0	0	0	0	146	0.94	3423
65	183-HAU-XII	5438	0	0	0	0	5438	0.75	2824
66	M-2176-XII GAD	208	0	0	0	0	208	0.17	2754
67	M-2177-XII GAD	291	0	0	0	0	291	0.35	3024
Total		**55642**	**0**	**901**	**0**	**0**	**54741**		

Tested bulls									
Sr. #	**Bull # (-Set)**	**O.B.**	**Received**	**Sold**	**Supp.**	**Exp.**	**Balance**	**% sup.**	**Dam's best LMY**
1.	1944-VI CIRB	148	0	0	0	0	148	-11.11	5752
2.	M-1536–V GAD	274	0	0	0	0	274	-1.14	3786
3.	1509-VIIICIRB	112	0	0	0	0	112	-14.84	3690(4)
4.	4865–VIII NDRI	38	0	0	0	0	38	-4.41	3392(2)
5.	2592-IX CIRB	173	0	0	0	0	173	-10.53	3336
6.	5218-IX NDRI	170	0	0	0	0	170	-5.38	3333
7.	1135 -VI CIRB	132	0	0	0	0	132	-10.59	3250
8.	M-1749-VII GAD	68	0	0	0	0	68	-4.98	3182
9.	3098-I NDRI	453	0	0	0	0	453	-8.2	3164
10.	1491-V CIRB	893	0	0	0	0	893	-4.19	3148
11.	M-1727-VII GAD	47	0	0	0	0	47	-4.78	3098
12.	2910-IX CIRB	147	0	0	0	0	147	-0.03	3062
13.	1419–VII CIRB	267	0	0	0	0	267	-1.08	3042
14.	1363-IV CIRB	98	0	0	0	0	98	-11.53	3031
15.	1084-III CIRB	98	0	0	0	0	98	-14.4	3007
16.	1171-III CIRB	256	0	0	0	0	256	-10.41	3007
17.	M-1667-VI GAD	58	0	0	0	0	58	-5.39	2988
18.	993-III CIRB	100	0	0	0	0	100	-4.19	2976
19.	M-1555–V GAD	175	0	0	0	0	175	-3.39	2948
20.	1341-IV CIRB	98	0	0	0	0	98	-7.08	2878
21.	M-1315-III GAD	266	0	0	0	0	266	-0.62	2808
22.	1749-V CIRB	173	0	0	0	0	173	-15.54	2796
23.	1538-IV CIRB	98	0	0	0	0	98	-12.04	2786
24.	M-1940- IX GAD	292	0	0	0	0	292	-2.29	2775
25.	M-1893-VIII GAD	150	0	0	0	0	150	-10.48	2753(1)
26.	1836-VI CIRB	133	0	0	0	0	133	-0.25	2744
27.	M-1913- IX GAD	401	0	0	0	0	401	-1.21	2740
28.	M-1746-VII GAD	40	0	0	0	0	40	-7.08	2718
29.	2028-VI CIRB	142	0	0	0	0	142	-1.44	2689
30.	1922-VI CIRB	98	0	0	0	0	98	-4.49	2684
31.	M-1964- IX GAD	13	0	0	0	0	13	-6.23	2672
32.	2363-VII CIRB	153	0	0	0	0	153	-6.18	2654
33.	M-1434-IV GAD	6	0	0	0	0	6	-11	2640
34.	M-1290–II GAD	482	0	0	0	0	482	-6.92	2628
35.	M-1868-VIII GAD	160	0	0	0	0	160	-10.05	2591(3)
36.	2184-VII CIRB	188	0	0	0	0	188	-4.11	2574
37.	2522-VIIICIRB	98	0	0	0	0	98	-12.04	2567(5)
38.	1360-IV CIRB	365	0	0	0	0	365	-0.31	2537
39.	1485- V CIRB	246	0	0	0	0	246	-19.43	2523
40.	2479-VIIICIRB	100	0	0	0	0	100	-4.59	2519(5)
41.	M-1573-V GAD	179	0	0	0	0	179	-5.99	1866
42.	M-1268–II GAD	265	0	0	0	0	265		
43.	3631-X CIRB	4636	0	0	0	0	4636	-1.16	18 kg PY
44	3226-XI CIRB	4076	0	0	0	0	4076	0.03	2655
45	3255-XI CIRB	2838	0	0	0	0	2838	-0.05	3051
46	HAU-12-XI CIRB	4782	0	0	0	0	4782	0.07	2858
47	5489-XI NDRI	663	0	0	0	0	663	0.06	3031
48	5496-XI NDRI	408	0	0	0	0	408	-0.05	2780
49	5516-XI NDRI	658	0	0	0	0	658	-0.21	2765
50	ND2-X NDAUT	135	0	0	0	0	135		2583
51	ND6-XI NDAUT	360	0	0	0	0	360		2702
52	ND8-XI NDAUT	340	0	0	0	0	340		

53	220 XII HAU	1373	0	0	0	0	1373	-0.88	2631
54	3598-XII CIRB	5184	0	0	0	0	5184	-0.44	2655
55	R-10-XII CIRB	592	0	5	0	0	587	-0.29	5192
56	R-11-XII CIRB	650	0	0	0	0	650	-0.51	4000
	Total	**34548**	**0**	**5**	**0**	**0**	**34543**		

Test bulls from set XIII- XVI

Sr. No.	Bull No. / Set	O.B.	Doses prod / receive	Sold	Supp/ share.	Exp.	Balance	Dam's best LMY	Dam's Av. yield
1	4059-XIII CIRB	6104	0	0	0	0	6104	2510	2078/2
2	3964-XIII CIRB	4625	0	0	0	0	4625	3369	2563/9
3	4440 XIII CIRB	13271	0	0	0	0	13271	2850	2746/3
4	4441 XIII CIRB	12689	0	0	0	0	12689	3805	3077/6
5	4442-XIII CIRB	13277	0	0	0	0	13277	2882	2449/7
6	5943-XIII NDRI	83	0	0	0	0	83	3232	2792/4
7	M-2234-XIII GAD	73	0	0	0	0	73	3114	2770/4
8	M-2269-XIII GAD	91	0	0	0	0	91	3617	3138/2
9	M-2304-XIII GAD	96	0	0	0	0	96	3114	2770/4
10	4439-XIV CIRB	8446	0	0	0	0	8446	22 kg PY	
11	4093-XIV CIRB	8169	0	0	0	0	8169	3040	2692/3
12	4196-XIV CIRB	8308	0	0	0	0	8308	3304	2842/2
13	4100- XIV CIRB	9194	0	0	0	0	9194	2971	2530/3
14	6014-XIV NDRI	988	0	0	0	0	988	3072	2939/2
15	6044-XIV NDRI	378	0	0	0	0	378	3567	3338/2
16	6136-XIV NDRI	1158	0	0	0	0	1158	4341	4135/3
17	M-2369-XIV GAD	4398	0	0	0	0	4398	3114	2779/5
18	M-2357-XIV GAD	2198	0	0	0	0	2198	3559	2952/3
19	4354-XV CIRB	7402	0	0	0	0	7402	3605	3600/2
20	4324-XV CIRB	6484	0	0	0	0	6484	3528	3179/2
21	4438-XV CIRB	7613	0	0	0	0	7613	3222	3222/3
22	4363-XV CIRB	7059	0	0	0	0	7059	3068	2357/4
23	4403-XV CIRB	7075	0	0	0	0	7075	3059	
24	4328-XV CIRB	7182	0	250	0	0	6932	3228	
25	2371-XV GAD	2055	0	0	0	0	2055	3053	2616/12
26	2412 -XV GAD	5418	0	0	0	0	5418	2998	2998/1
27	2417-XV GAD	1218	0	0	0	0	1218	3565	3287/3
28	2429-XV GAD	5886	0	0	0	0	5886	3435	2779/4
29	2459-XV GAD	5011	0	0	0	0	5011	4636	3267/4
30	6007-XV NDRI	668	0	0	0	0	668	3260	3260
31	6139-XV NDRI	418	0	0	0	0	418	2828	2828/1
32	4889 XVI CIRB	10645	0	152	0	0	10493	4120	
33	4705 XVI CIRB	4301	1817	600	0	0	5518	3990	
34	4592 XVI CIRB	6176	0	0	0	0	6176	3528	
36	M-29 XVI CIRB	8967	0	920	0	0	8047	4600	
37	1027 XVI LUVAS	8766	0	0	0	0	8766	3763	
38	1053 XVI LUVAS	6798	0	0	0	0	6798		
39	1064 XVI LUVAS	8976	0	0	0	0	8976		
40	2467 XVI GAD	2026	0	0	0	0	2026		
41	2501 XVI GAD	2838	0	0	0	0	2838		
42	2383 XVI GAD	1986	0	0	0	0	1986		
43	6379 XVI NDRI	448	0	0	0	0	448	3505	
44	6409 XVI NDRI	1923	0	0	0	0	1923	4090	
45	6646 XVI NDRI	423	0	0	0	0	423	3533	
46	6753XVI NDRI	8	0	0	0	0	8		
	Total	**221316**	**1817**	**1922**	**0**	**0**	**221211**		

Non set bulls									
Sr. No.	**Bull No. / set**	**O.B.**	**Production**	**Sold**	**Supp/ Share**	**Exp.**	**Balance**	**Dam's best LMY**	**Sup/Exp**
1	1908 NDRI	20	0	0	0	0	20		
2	2321 NDRI	60	0	0	0	0	60		
3	2583- NDRI	35	0	0	0	0	35		
4	3570 NDRI	215	0	0	0	0	215	2820	
5	5031 NDRI	100	0	0	0	0	100		
6	4719 NDRI	100	0	0	0	0	100	3333(2)	
7	M-82 GAD	446	0	0	0	0	446		
8	M-610 GAD	210	0	0	0	0	210		
9	M-888 GAD	228	0	0	0	0	228		
10	M-1292GAD	433	0	0	0	0	433		
11	3904 CIRB	102	0	0	0	0	102		
12	2085 CIRB	100	0	0	0	0	100		
13	3882 CIRB	204	0	0	0	0	204		
14	M-188 CIRB	655	0	0	0	0	655		
15	4531 CIRB	311	0	0	0	0	311		
16	4512 CIRB	478	0	0	0	0	478		
17	4590 CIRB	156	0	0	0	0	156		
18	4654 CIRB	135	0	0	0	0	135		
19	1052 LUVAS	145	0	0	0	0	145		
20	4677 CIRB	1143	0	0	0	0	1143		
21	1148 LUVAS	8756	0	0	0	0	8756		
22	HISAR GAURAV	6945	1121	0	0	40	8026		
23	4905	4916	1457	0	1250	0	5123		GADVASU
24	5147	149	831	0	0	0	980		
25	1209	81	723	0	0	0	804		
Total		**26123**	**4132**	**0**	**1250**	**40**	**28965**		

XVII set bulls									
Sr. No.	**Bull No / Set**	**O.B.**	**Doses prod**	**Received**	**Sold**	**Supp/ share**	**Exp.**	**Balance**	**Dam's best LMY**
1.	M-51 XVII CIRB	26072	0	0	2530	0	0	23542	4668
2.	4715 XVII CIRB	6634	0	0	160	0	0	6474	3059
3.	4733 XVII CIRB	6501	0	0	0	0	0	6501	2851 (1)
4.	4687 XVII CIRB	5523	0	0	690	0	0	4833	3309
5	M-53 XVII CIRB	12259	0	0	796	0	0	11463	4100
6	Sikander	12880	222	0	0	0	0	13102	
7	Daara	5760	145	0	0	15	0	5890	
8	1354 GAD	108	0	0	0	0	0	108	
9	2565 GAD	535	0	0	0	0	0	535	
10	2594 GAD	865	0	0	0	0	0	865	
11	MU-7010	2205	0	0	0	0	0	2205	
12	4837 CIRB	7584	0	0	0	0	0	7584	
13	2558 GAD	1210	0	0	0	0	0	1210	
14	B-1-330	11549	0	0	433	0	0	11116	
15	4906 CIRB	2567	0	0	0	0	0	2567	
16	1150 CIRB	3550	377	0	0	1250	0	2677	
17	6942 NDRI	2625	0	0	0	0	0	2625	
18	2607 GAD	375	0	0	0	0	0	375	
19	4995	148	424	0	0	0	0	572	
20	MU-7094	600	0	0	0	250	0	350	
21	MU-7227	750	0	0	0	250	0	500	
22	MU-7147	850	0	0	0	300	0	550	

23	1198	435	375	0	0	0	0	810	
24	MU-2676 GAD	0	0	1500	0	170	0	1330	
25	MU-2677 GAD	0	0	1500	0	20	0	1480	
26	MU 2645 GAD	0	0	1500	0	170	0	1330	
Total		**111585**	**1543**	**4500**	**4609**	**2425**	**0**	**103672**	

Field bulls									
Sr. No.	**Field bulls**	**O.B.**	**Doses produce**	**Sold**	**Supp/ share**	**Exp.**	**Balance**	**Sup/Exp**	
1.	Golu-Didwadi	92	0	0	0	0	92		
2.	Jr Golu	375	0	0	0	0	375		
3.	Raka-Bamla	126	0	0	0	0	126		
4.	Kalu-Kaul	93	0	0	0	0	93		
5.	R-12	179	0	0	0	0	179		
6.	Ramlal	60	0	0	0	0	60		
7.	Khali-K	98	0	0	0	0	98		
8.	Obama-K	577	0	0	0	0	577		
9.	Khali-T	65	0	4	0	0	61		
10.	Raka-2	206	0	0	0	0	206		
11.	Fortune	274	0	0	0	0	274		
12.	Matroo	196	0	0	0	0	196		
13.	Vikky	402	0	0	0	0	402		
14.	Virat	657	0	0	0	0	657		
15.	Yuvraj	17	0	0	0	0	17		
16.	Yograj	484	0	0	0	0	484		
17.	Sheru (Kaul)	2087	0	20	0	0	2067		
18.	Dharamraj (Mujadpur)	448	0	0	0	0	448		
19.	Sheru (Umra)	157	0	0	0	0	157		
20.	Sheru 1Rohtak	70	0	0	0	0	70		
21.	Sheru 2Rohtak	522	0	0	0	0	522		
22.	Smarat	243	0	0	0	0	243		
23.	Sher Singh	235	0	0	0	0	235		
24.	R-14	424	0	0	0	0	424		
25.	R-19	250	0	0	0	0	250		
26.	R-21	229	0	0	0	0	229		
27.	R-22	250	0	0	0	0	250		
28.	R-24	488	0	0	0	0	488		
29.	R-25	257	0	0	0	0	257		
30	R-30	20	0	0	0	0	20		
31	Heera	6107	0	15	5157	0	935		OWNER
32	Dhanna	200	0	0	0	0	200		
33	R-3249	50	0	0	0	0	50		
34	Kohinoor	6948	0	0	0	0	6948		OWNER
35	Sartaj (talu)	250	0	0	0	0	250		
36	Birla	258	0	2	0	0	256		
37	Ramu Hariana cow bull	829	0	4	0	0	825		
	Total	**24223**	**0**	**45**	**5157**	**0**	**19021**		

Summary of semen freezing and dissemination during 2018-19.

Sr. No.	Semen Freezing details	**2015-16**	**2016-17**	**2017-18**	**2018-19**
1	Opening balance on 31st March	302137	355675	413887	473437
2	Semen Freezing up to 31st March	95267	125508	136341	173840
3	Semen doses received	22698	16660	12570	4500
4	Semen doses supplied	28793	28703	43856	8832
5	Semen doses sold	34808	54077	76704	97657
6	Semen doses used for Experiment	826	1176	992	40
7	**Balance / Grand Total**	**355675**	**413887**	**441246**	**462153**

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

9.12 Production Performance during April 2018 to March 2019

Lact. No.	No. of obs.	TLMY (kg)	Lact. Length (days)	SLMY (kg)	Peak yield (kg)
1st	45	2377.60	312.22	2302.95	11.19
2nd	22	2826.50	306.38	2732.36	14.41
3rd	28	2934.89	307.28	2834.00	14.99
4th	12	2636.67	288.67	2579.83	14.81
5th & above	16	2612.31	286.62	2602.25	14.09
Overall	**123**	**2640.56**	**304.63**	**2566.96**	**13.36**

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)

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

Sr. No.	Traits	2017-18	2018-19
1	Herd Life (days)	3619 (47)	2727 (28)
2	Productive Life (days)	2117 (47)	1518 (28)
3	Productive Days	1582 (47)	1209 (28)
4	Life time milk Yield (kg)	12771 (47)	12886 (28)
5	Milk yield / day HLF (kg)	3.53 (47)	4.72
6	Milk yield / day PLF (kg)	6.04 (47)	8.48
7	Milk Yield / day productive days	8.07 (47)	10.65

9.13 Average Milk Composition from April 2018 to March 2019 : NA

9.14: Reproductive Performance

Lactation / Parity	N	AFC (Months)	SP (Days)	DP (Days)	CI (Days)
1st	31	45.76±0.80	--	--	--
2nd	38	--	149.29 (38)	160.87	459.08
3rd	13	--	101.08 (13)	119.08	407.31
4th	20	--	133.45 (20)	150.00	445.05
≥5th	26	--	137.31 (26)	154.77	447.88
Over all	154	45.76±0.80 (31)	136.35±6.98 (97)	151.39±6.41 (97)	446.25±7.08 (97)

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)**

9.15 Month wise Milk Production and Disposal during the Period 01/04/2018 to 31/03/2019

Month	Total milk produced (kg)	Disposal(Kg)		
		Milk Sold	Calf feeding	Expt.
April, 2018	30944.4	27261.5	3682.9	--
May	28691.1	25483.0	3208.1	--
June	25857.4	22864.0	2993.4	--
July	26083.5	23101.5	2982.0	--
August	27677.4	25141.5	2535.9	--
September	27557.9	24110.5	3447.4	--
October	26948.5	24702.5	2246.0	--
November	26288.1	24501.0	1787.1	--
December	26756.1	24430.5	2325.6	--
January, 2019	27202.6	24077.5	3125.1	--
February	25734.8	23159.5	2575.3	
March	28843.2	26040.5	2802.7	
Total	**328585.0**	**294873.5**	**33711.5**	**--**

9.16 Feed and Fodder purchased and offered to animals during the year 2018-19

Quarter	Type of Fodder	OB	Produced at CIRB	Qty. Purchased	Actually Fed.	Balance
I	Green	-	3733.25	-	3733.25	--
	Dry	1121.00	1923.20*	**2107.25	1360.00	3791.45
	Silage	1855.40	--	-	1855.40	-
	Sugar beet pulp	299.20	--	--	299.20	-
	Concentrate	--			1869.80	
II	Green	-	10274.95	--	10274.95	-
	Dry	3791.45	-	-	788.45	3003
	Silage	-	-	--	-	-
	Sugar beet pulp	-	-	453.70	--	453.70
	Concentrate	--	-	--	1848.80	
III	Green	-	5379.25	-	5379.25	-
	Dry	3003	-	-	2250	753
	Silage	-	-	-	-	-
	Sugar beet pulp	453.70	--	458.60	607.1	305.2
	Concentrate	-	--	--	1886.21	
IV	Green	-	12278.95	-	12278.95	--
	Dry	753	-	1586.64	1646.64	693
	Silage	-	--	-	-	--
	Sugar beet pulp	305.2	-	-	305.2	-
	Concentrate	--			1945.14	

Total	Green	-	**31666.40**	--	**31666.40**	--
	Dry	**1121.00**	**1923.20**	**3693.89**	**6045.09**	**693.00**
	Silage	**1855.40**	--	-	**1855.40**	--
	Sugar beet pulp	-	-	**912.30**	**1211.5**	--
	Concentrate	--	--	--	**6809.12**	--

* 537.60 (CIRB) + 1102.20 CIRB (Nabha) + 283.40 DWR ;

** 1899.30 qtls (RDS Farm CCS HAU) + 207.95 qtls (NRCE),

9.17 Milking performance April 2018 to March 2019

Month	Buffaloes in Milk	Dry Buffaloes	Total	% in Milk	Wet Av. (kg)	Herd Av. (kg)
April 2018	110	45	155	71	8.93	6.38
May2018	105	50	155	69	8.76	6.01
June2018	95	61	156	64	8.73	5.60
July2018	103	57	160	61	8.94	5.40
August2018	110	55	165	64	8.71	5.57
September2087	105	44	149	67	8.92	5.96
October2018	104	51	155	69	8.49	5.83
November2018	103	55	158	65	8.67	5.66
December2018	99	59	158	63	8.75	5.51
January2019	95	69	164	59	9.33	5.52
February2019	101	50	151	63	9.62	6.10
March 2019	110	43	153	66	9.30	6.18
Overall	101	54	155	65	8.92	5.80

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**

9.18: Bull wise daughters born during 2018-19

Sr. No.	Bull No.	Daughter born
1	R-12	1
2	6753	3
3	5715	8
4	1148	1
5	Sikander	9
6	M 51	2
7	4733	6
8	4687	1
9	4837	1
10	7010	2
11	4998	4
12	R 24	2
13	R 14	4
14	2594	2
15	2558	7
16	R 25	1
17	2607	2
18	2565	3
19	Dara	2
20	183	2
21	3267	1
Total		54

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.	2422	4572	4/21/2013	8/1/2017	51.30	297	2427	2427
2.	R-10	4586	6/10/2013	2/5/2018	55.83	256	1367	1367
3.	4059	4588	6/13/2013	8/15/2017	50.02	304	2082	2082
4.	1875	4593	7/2/2013	8/27/2017	49.79	313	2741	2708
5.	2269	4605	8/8/2013	8/3/2017	47.79	400	3699	3175
6.	5943	4613	8/18/2013	9/6/2017	48.58	268	2475	2475
7.	5943	4614	8/19/2013	3/20/2018	54.95	304	2181	2181
8.	5943	4619	8/23/2013	8/23/2017	47.95	303	2349	2349
9.	2422	4620	8/29/2013	11/29/2017	50.97	317	2100	2062

10.	4059	4622	8/30/2013	9/26/2017	48.84	318	2358	2328
11.	5943	4625	9/5/2013	3/22/2018	54.45	309	1890	1880
12.	2269	4631	9/13/2013	8/10/2017	46.84	323	2411	2330
13.	4059	4633	9/15/2013	11/8/2017	49.73	254	1898	1898
14.	851	4636	9/19/2013	7/16/2017	45.82	306	1740	1733
15.	4059	4640	9/24/2013	2/14/2018	52.65	303	2379	2379
16.	2269	4645	10/4/2013	2/5/2018	52.02	347	3080	2809
17.	838	4656	10/22/2013	12/14/2017	49.69	344	2164	2023
18.	851	4659	11/4/2013	8/11/2017	45.16	266	1726	1726
19.	2269	4660	11/9/2013	7/25/2017	44.44	339	2776	2611
20.	851	4668	12/1/2013	8/29/2017	44.87	269	2022	2022
21.	838	4672	12/12/2013	8/20/2017	44.21	292	2166	2166
22.	838	4681	1/2/2014	12/10/2017	47.20	320	2625	2559
23.	2269	4682	1/7/2014	7/29/2017	42.64	300	1938	1938
24.	1994	4692	1/28/2014	12/29/2017	46.97	280	2795	2795
25.	4439	4696	2/14/2014	10/18/2017	44.05	296	2060	2060
26.	838	4699	2/21/2014	12/12/2017	45.62	213	1266	1266
27.	4439	4702	2/23/2014	8/4/2017	41.29	263	1571	1571
28.	1994	4709	3/12/2014	10/6/2017	42.80	315	2701	2673
29.	6139	4717	4/27/2014	9/15/2017	40.60	308	2078	2070
30.	6014	4721	5/20/2014	1/16/2018	43.88	367	3496	3127
31.	6014	4724	5/24/2014	3/26/2018	46.02	368	3051	2810
32.	6014	4726	5/30/2014	12/17/2017	42.57	383	3779	3182
33.	6014	4728	6/5/2014	11/9/2017	41.13	246	1135	1135
34.	2369	4729	6/6/2014	8/5/2017	37.94	300	2160	2160
35.	6044	4730	6/8/2014	3/29/2018	45.62	344	2821	2654
36.	2369	4736	6/23/2014	8/10/2017	37.55	267	1844	1844
37.	4439	4739	6/30/2014	7/8/2017	36.24	279	1929	1929
38.	2369	4743	7/6/2014	12/15/2017	41.29	266	1791	1791
39.	2369	4755	7/23/2014	11/1/2017	39.29	317	2509	2476
40.	Yuvraj	4759	7/31/2014	12/29/2017	40.93	123	648	648
41.	Yuvraj	4760	7/31/2014	9/3/2017	37.09	397	2727	2457
42.	2369	4767	8/12/2014	2/5/2018	41.78	270	2468	2468
43.	4439	4771	8/17/2014	12/15/2017	39.91	283	623	623
44.	4439	4772	8/18/2014	7/25/2017	35.19	318	2263	2210
45.	2369	4775	8/23/2014	9/27/2017	37.12	233	1038	1038
46.	2357	4791	9/16/2014	11/7/2017	37.68	332	2540	2464
47.	339	4794	9/19/2014	3/20/2018	41.95	311	2572	2544
48.	6044	4800	9/26/2014	3/24/2018	41.85	314	2635	2612
49.	2357	4803	9/29/2014	9/19/2017	35.65	304	2062	2062
50.	2582	4806	10/1/2014	9/29/2014	-0.07	322	2276	2222
51.	3582	4814	10/10/2014	12/10/2017	37.98	306	1516	1514
52.	4100	4824	10/20/2014	8/1/2018	45.33	205	1084	1084
53.	6066	4834	11/28/2014	3/6/2018	39.19	290	1689	1689
54.	4093	4848	12/18/2014	7/7/2018	42.57	230	1385	1385
55.	4196	4885	2/24/2015	9/24/2018	42.93	25	80	80

9.20: Breeding bulls for test mating (17th set from CIRB Unit)

Sr No	Bull No	Date of Birth	Dam No	Dam's 305 best LMY (kg)	Sire No / set No	Semen Doses	Remarks
1	4687	20-01-14	3156	3309	1994 PT IX	5316	Selected
2	4715	27-03-14	3351	3059	4093 Set XIV	4323	Selected

3	4733	14-06-14	4216	2851 (1)	6044 Set XIV	4160	Selected
4	4837 ET	30-11-14	3417 Donor	3076	2422 PT VIII	---	Selected
5	4877	27-01-15	4125	3125 (1)	Yuvraj	---	Selected
6	51 M	03.02.06	22P	4668	P-274	26856	Selected
7	53 M	25-02-06	23 P	4100	FT 328	--	Selected
8	B-1-330	29-12-06	05B/900	4595	FT 326	--	Selected
9	Sikander	15.7.13	Rani	26.357 Kg, Muktsar 28.920 Kg NDDB	Pvt. Bull-1	--	Selected
10	Dara	29.9.14	Rani	-do-	Pvt. Bull-2	---	Selected

9.20.1: P T Bulls for nominated mating (2018).

Sr. No	Bull No.	Institute	DoB	Dam No.	Sire No.	Dams' Best yield	Sire Index	Superiority (%)
1	2185	GADVASU	23.11.06	1898	1354	3423	2341	0.94
2	183	LUVAS	03.06.07	1374	1354	2824	2336	0.75

9.20.2 Bulls selected for 18th set (CIRB Unit)

Sr. No.	Bull no.	D.O.B.	Dam No.	Sire No.	Dam's Best Yield / PY	Parity
1.	4905	09/06/15	3633	4324 (Set 15)	3371/13.6	4
2.	4995	07/12/15	4713 P	M 51 (Set 17)	3064/14.8	3
3.	5147	01/01/17	4384	4592 (set 16)	3057/14.8	2
4.	1150 LUVAS	01/05/15	782	6066	3127/15.9	2
5.	1208 LUVAS	16/10/15	616	2045 PT (set 10)	3437/15.1	2
6.	1209 LUVAS	17/10/15	708	2045 PT (set 10)	3593/17.2	3
7.	1219 LUVAS	24/11/15	787	6406 (set 15)	3867/17.8	3

20.2 Future Breeding Bulls (CIRB Unit)

Sr. No.	Bull no.	D.O.B.	Dam No.	Sire No.	Dam's Best Yield / PY	Parity
1.	5123	06/11/16	4219	2045 PT (set 10)	3374/17.5	3
2.	5137	28/11/16	3485	M188 HLDB	3304/17.6	5
3.	5152	14/01/17	4291	4705 (Set 16)	3090/15.1	3
4.	5181	11/04/17	4340	3591 PT (set 11)	3428/17.9	4
5.	5189	28/04/17	4344	6646 (Set 16)	3244/17.4	3
6.	5198	30/05/17	4226	1027 (set 16)	3201/16.4	5
7.	5232	06/08/17	4322	1354 PT (Set 3)	3286/16.3	3
8.	5245	19/08/17	4223	1354 PT (Set 3)	3336/14.5	3
9.	5246	20/08/17	4672	4371 PT (Set 5)	>3000 in milk	2
10.	5310	23/12/17	4545	6646 (Set 16)	3570/16.5	2
11.	5320	15/01/18	4017	1053 (Set 16)	3340/15.2	4

9.21: Accomplishment and Targets Achieved:

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

11. Achievements and summary:

Herd Strength: The overall herd strength of Murrah buffalo in March 2019 was 522, which included 275 breedable buffaloes, 105 suckling calves (< 1 year), 117 young males and females (1-2 years) and 25 breeding males (>2.0 years).

Mortality: During the period April 2018 to March 2019 calf mortality (0-3 month) was reported 13.94 percent, which is comparatively higher than the last year calf mortality.

Milk Production Performance: The overall wet average and herd average were reported **8.92 and 5.80** kg, respectively. The overall 305 days lactation milk yield and total lactation milk yield during April 2018 to March 2019 was reported **2567** and **2641** kg, respectively. During the period under report 123 buffaloes completed their lactation.

Reproductive Performance: The overall conception rate during January to December 2018 was reported 47.92 %. The other reproductive traits viz. Age at first calving, service period and calving interval were observed 45.76 months, 136 days and 446 days, respectively for buffaloes calved during April 2018 to March 2019.

Lifetime Productivity Traits: Longevity traits estimated for buffaloes completed four or more lactations during 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: 2727 days, 1518 days, 12886 kg, 4.72 kg and 8.48 kg, respectively.

Semen Production and Dissemination: A total 173840 semen doses frozen at CIRB Lab during April 2018 to March 2019. A total of 8832 doses of frozen semen were supply and 97657 frozen semen doses sold during the period under report.

12. Publications:

Book Chapters:

- **Singh, K P (2018**). Breeding programs and strategies for genetic improvement of Buffaloes. Pub. By ISAPM: Smallholders Livestock Producers in India: Opportunities and Challenges, pp: 17-24.

Paper Presented in Seminar / Conference:

- **K P Singh (2018).** Presented annual report of Network Project Murrah Buffalo: CIRB unit, during annual review meet of NPBI, held at ICAR-NDRI, Karnal during 19-20 Nov., 2018.
- **K P Singh (2018).** Presented action taken report of 15th Annual Review Meet of NPBI, at ICAR-NDRI, Karnal during 19-20 Nov., 2018.

- **Singh, K P,** Lailer and P C, Dey (2018). Banni Buffalo: The golden udder for pastoral livelihood in Kachchh, Gujarat. Abstract published in Compendium Smallholders Livestock Producers in India: Opportunities and Challenges at SDAU, Gujarat dated: 11-13.04.2018, pp: 33-34.
- **Singh, K P;** Bharadwaj, A; Dahiya, S S and Chander R (2019). Evaluation of Murrah bulls under Network Project on Buffalo Improvement. Abstract published in Souvenir & Compendium of Enhancing Rural Livelihood through Improved Buffalo Productivity and Health, at NAU, Navsari dated: 17-19.01.2019, pp: 61.
- **Singh, K P;** Lailer, P C; Dey A and Dahiya, (2019). Changes in Banni buffalo production system and impact on Maldharis livelihood. Abstract published in Souvenir & Compendium of Enhancing Rural Livelihood through Improved Buffalo Productivity and Health at NAU, Navsari dated: 17-19.01.2019. pp: 120.
- Balhara, A K; **Singh, K P** and Dahiya, S S (2019). Strategies for alleviating summer stress in buffalo production system. Abstract published in Souvenir & Compendium of Enhancing Rural Livelihood through Improved Buffalo Productivity and Health at NAU, Navsari dated: 17-19.01.2019, pp: 123.
- **Singh, K P**; Sanjay Kumar; Dahiya, S S; K L Mehrara; Ram Chander and Mehta R (2019). Sire evaluation and genetic trend of production traits in Nili-Ravi buffaloes. Abstract published in Compendium of National Symposium on Animal Genetic Resources for Food and Social Security at ICAR-NBAGR, Karnal dated: 7- 8.02.2019, pp: 116.

Contributions made in compilation/documentation:

- Dahiya S S, **K P Singh** and Ram Chander (2018). Compiled and edited-Annual Report of Network Project on Buffalo Improvement: 2017-18-PC unit, Hisar pp; 1-365.
- Dahiya S S, **K P Singh** and Ram Chander (2018). P C report for 16th annual review meet Network Project on Buffalo Improvement 2017-18, pp:1 to 46.
- **K P Singh** (Annual report-2017-18. Network Project of Genetic improvement of Murrah Buffalo, CIRB-unit, Hisar. Pp: 1 to 36.
- **K P Singh (2018).** Compiled proceeding of 16th Annual Review Meet of Network Project on Buffalo Improvement.

Project Co-ordinator's observations on centre performance

Financial Statement for the year 2018-19 (Rs in Lakhs)

Sanctioned as per R E 2018-19		Released ICAR Share as per R E	Expenditure as per AUC		Balance
Total	ICAR Share		ICAR Share	State Share	
6.13	6.13	6.13	6.13	0.00	Nil

Herd Performance

The overall herd strength at the centre was 522 head, 130 calves (69 male and 61 female) were added due to birth. The breedable buffaloes were 275. During the period of report calf mortality (0-3 months) was 13.94 %. The female conception rate of 47.92 % and AFC was reported 45.76 months (31). Total 173840 semen doses were frozen and 106489 semen doses were disseminated in NPBI and sold to different line departments and farmers.

Average lactation yield, lactation length, 305 or less days milk yield were 2640.56 ± 56.76 kg (123), 304.63 ± 3.83 days (123) and 2566.96 ± 49.21 kg (123), respectively. The production performance improve as compare to previous year performance. The reproduction parameters viz Age at first calving, Service Period, Dry Period and Calving Interval were 45.76±0.80 months (31), 136.35±6.98 days (97) 151.39±6.41 days(97) and 446.25±7.08 days (97), respectively. Wet and herd averages were 8.92 kg and 5.80 kg, respectively. Lifetime productivity traits estimated for buffaloes completed four or more lactations during 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: 2727 days, 1518 days, 12886 kg, 4.72 kg and 8.48 kg, respectively.

Accomplishment and Targets Achieved:

Sr. No.	Trait	Target	Achieved 2016-17	Achieved 2017-18	Achieved 2018-19
1	Av. AFC (Months)	40.0 months	44.91±0.81(38)	43.58±0.67 (67)	45.76±0.80 (31)
2	Av. service period (Days)	130 days	148 ± 9.01 (93)	167±9.82 (101)	136±6.98 (97)
3	Calf mortality (0-3 months)	≤ 4 %	8.88	6.96 %	13.94
4	Wet average (Kg)	≥ 8.50 kg	8.08 kg	8.71 kg	8.92 kg
5	Herd average (Kg)	≥ 5.50 kg	5.32 kg	5.90 kg	5.80 kg

Recommendations:

1. Emphasis given on heifer management at farm for improvement in age at first calving.
2. Significant improvement observed in milk production traits during the 2018-19 as compared to previous year.

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 2018 to 31st March 2019.

	Budget Sanctioned (Rs.)	**Amount Spent (Rs.)**
Pay & Allowances	52,22,000.0	46,06,645.0
T. A.	1,00,000.0	99,790.0
Contingencies		
i) Recurring Cont.	**56, 00,000.0**	**56, 00,000.0**
ii) Non-Recurring Cont.		
Livestock	4,00,000.0	4,00,000.0
Vehicles/Building Works	4,00,000.0	4,00,000.0
Equipment's		
Furniture	60,000.0	60,000.0
Total	**1,17,82,000.0**	**1,11,66,935.0**

Receipts: The project transferred **154549** kg of milk to the College of Dairy Sciences, GADVASU for sale after processing. The department sold **17** surplus/breeding animals and 67331 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
Dr. Simarjit Kaur Asstt. Animal Geneticist In Rs. 15600-39100	01/02/12	-	-	Full Time	-	Post withdrew w.e.f. 01/04/2019
Smt. Baljit Kaur, Statistical Assistant in Rs. 10300-34800	18/02/16	-		-do-	-	-

Herd performance:-

9.1. Herd strength during the period 4/2018 to 3/2019

Sr. No	Category	Addition			Disposal			CB
		OB	B/P	T	D	T	S	
	Female							
1.	Calves 0 – 3 months	2	42/3	-	1	34	0	**12**
2.	Calves >3 – 12 months	49	0/2	34	2	49	0	**34**
3.	Heifers							
	1 – 2 years	24	0/2	49	2	21	0	**52**
	> 2 years	55	0/1	21	1	35	3	**38**
4.	Buffaloes in Milk	50	0/8	35	1	16	1	**75**
5.	Buffaloes Dry P /NP	38	-	16	2	-	9	**43**
	Sub Total	218	42/16	155	9	155	13	**254**
	Male							
1.	Calves 0 – 3 months	3	56/2	-	1	51	-	**9**
2.	Calves >3 – 12 months	20	-	51	1	19	8	**43**
3.	Male above							
	1 – 2 years	5	-	19	-	4	5	**15**
	> 2 years	7	-	4	-	0	4	**7**
4.	Breeding bulls	10	-	0	-	-	-	**10**
5.	Bullocks	-	-	-	-	-	-	**-**
6.	Teasers	-	-	-	-	-	-	**-**
	Sub Total	45	56/2	74	2	74	17	**84**
	Grand Total	263	98/18	229	11	229	30	**338**

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

9.2. Calving statistics during the period 4/2018 to 3/2019

Month	Male		Female		Dystokia		Prolapses		Still Birth		Abortion		Overall	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
April, 18	3	5.36	4	9.52	0	-	0	-	0	-	0	-	**7**	6.73
May	3	5.36	2	4.76	0	-	0	-	0	-	1	16.7	**6**	5.77
June	2	3.57	7	16.67	0	-	0	-	0	-	0	-	**9**	8.65
July	8	14.29	1	2.38	0	-	0	-	0	-	0	-	**9**	8.65
August	8	14.29	7	16.67	0	-	0	-	0	-	0	-	**15**	14.42
September	12	21.43	3	7.14	0	-	0	-	0	-	**1**	6.25	**16**	15.38
October	4	7.14	1	2.38	0	-	0	-	0	-	0	-	**5**	4.81
November	3	5.36	4	9.52	0	-	0	-	0	-	1	12.5	**8**	7.69
December	6	10.71	5	11.90	0	-	0	-	0	-	0	-	**11**	10.58
January,19	1	1.79	2	4.76	0	-	0	-	0	-	0	-	**3**	2.88
February	3	5.36	3	7.14	0	-	0	-	2	25.0	0	-	**8**	7.69
March	3	5.36	3	7.14	0	-	0	-	0	-	1	14.3	**7**	6.73
Overall	**56**	100.00	**42**	100.00	**0**	-	**0**	-	**2**	**1.92**	**4**	**3.84**	**104**	100.00

Sex ratio Male: Female = 1:0.75

9. 3 Disposal of animals during the period 4/2018 to 3/2019

Sr. No.		Surplus	Rep. Problem	Weak & Old	Death	Experimental purpose	Total
	Female						
1.	Calves 0 – 3 months	-	-	-	1	-	1
2.	Calves >3 – 12 months	-	-	-	2	-	2
3.	Heifers 1 – 2 years	-	-	-	2	-	2
	> 2 years	-	1	2	1	-	4
4.	Buffaloes in Milk	-	1	-	1	-	2
5.	Buffaloes Dry P /NP	-	3	6	2	-	11
	Sub Total	-	5	8	9	-	22
	Male						
1.	Calves 0 – 3 months	-	-	-	1	-	1
2.	Calves >3 – 12 months	8	-	-	1	-	9
3.	Male 1 – 2 years	5	-	-	-	-	5
	> 2 years	4	-	-	-	-	4
4.	Breeding bulls	-	-	-	-	-	-
5.	Bullocks	-	-	-	-	-	-
6.	Teasers	-	-	-	-	-	-
	Sub Total	17	-	-	2	-	19
	Grand Total	17*	5	8	11	-	41

*****Supplied for breeding purposes

9.4. Month-wise mortality during the period 4/2018 to 3/2019

		Female						**Male**					
Month		**0-3 (mo)**	**3-6 (mo)**	**6-12 (mo)**	**1-2 yrs**	**Abo. 2 yrs.**	**Overall female**	**0-3 (mo)**	**3-6 (m)**	**6-12 (mo)**	**Above 1 yr.**	**Oveall male**	**Overall Herd**
April	**No.**	4	9	42	24	139	218	5	10	11	22	48	266
	Died	**1**				**1**	**2**						**2**
	%	25%				0.72%	0.92%						0.75%
May	**No.**	5	4	42	29	139	219	6	7	16	22	51	270
	Died		1				1						**1**
	%		25%				0.46%						0.37%
June	No.	12	3	42	24	144	225	8	2	20	22	52	277
	Died				1		1						1
	%				4.16%		0.44%						0.36%
July	**No.**	10	4	39	29	143	225	13	4	19	23	59	284
	Died												
	%												
August	**No.**	15	5	32	36	143	231	18	6	16	25	65	296
	Died					1							**1**
	%					0.69%							0.33%
Sept.	**No.**	11	12	22	43	144	232	28	8	13	28	77	309
	Died				1	1	2						**2**
	%				2.32%	0.69%	0.86%						0.64%
October	**No.**	11	10	12	56	142	231	25	11	13	31	80	311
	Died								1				**1**
	%								9.09%				0.32
Nov.	**No.**	8	16	8	59	143	234	19	17	12	35	83	317
	Died					1							1
	%					0.69%							0.31%

Dec.	**No.**	10	11	14	59	145	239	13	29	8	35	85	324
	Died												
	%												
January	**No.**	12	11	14	55	152	244	10	25	15	34	84	328
	Died												
	%												
Feb.	**No.**	12	9	19	56	149	245	10	19	22	33	84	329
	Died			1				1					2
	%			5.26%				10.0%					0.60%
March	**No.**	12	11	23	52	156	**254**	9	**12**	31	32	84	338
	Died												
	%												
Total	**Died**	**1**	**1**	**1**	**2**	**4**	**9**	**1**	**1**	**-**	**-**	**2**	**11**

9.5. Causes of Mortality (quarter-wise) during the period 4/2018 to 3/2019

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

9.6. Prophylactic measures taken during the period 4/2018 to 3/2019

Vaccination	No. of animals		Screening	No. of animals		No. of animals treated for Parasitism etc.
	Available	Inoculated		Tested	Results	
FMD		269 twice a year	TB	131	All -ve	No clinical case of parasitic infestation was observed during the year. All the animals were dewormed as per normal schedule.
HS		269 thrice a year	Brucellosis	131	All -ve	
BQ		254 once				
Brucellosis						
TB		34				

9.7. Female conception rate during the period 4/2017 to 3/2018

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. 18	1	0	**0**	1	1	**100.0**	2	0	**0**	1	0	**0**	2	2	**100.0**	0	0	**-**	7	6	**85.71**	1	0	**0**	2	1	**50.0**	17	10	**58.82**
Feb.	0	0	**0**	1	1	**100.0**	1	1	**100.0**	4	3	**75.0**	1	0	**0**	4	3	**75.0**	2	1	**50.0**	3	1	**33.33**	4	1	**25.0**	20	11	**55.0**
March	4	3	**75.0**	0	0	**0**	2	2	**100.0**	1	1	**100.0**	0	0	**0**	0	0	**0**	3	0	**0**	1	0	**0**	1	0	**0**	12	6	**50.0**
April	3	1	**33.33**	1	1	**100.0**	1	1	**100.0**	7	2	**28.57**	1	1	**100.0**	0	0	**0**	6	4	**66.66**	0	0	**0**	3	3	**100.**	22	13	**59.09**
May	0	0	**0**	0	0	**0**	1	0	**0**	0	0	**0**	2	1	**50.0**	1	0	**0**	0	0	**0**	2	1	**50.0**	3	0	**0**	9	2	**22.22**
June	2	1	**50.00**	2	0	**0**	0	0	**0**	1	0	**0**	0	0	**0**	0	0	**0**	4	1	**25.0**	1	1	**100.0**	1	0	**0**	11	3	**27.27**
July	1	1	**100.0**	1	1	**100.0**	1	0	**0**	0	0	**0**	1	1	**100**	1	1	**100.0**	4	2	**50.0**	2	2	**100.0**	5	2	**40.0**	16	10	**62.5**
Aug.	2	0	**0**	0	0	**0**	0	0	**0**	1	0	**0**	0	0	**0**	0	0	**0**	2	0	**0**	2	1	**50.0**	3	0	**0**	10	1	**10.0**
Sep.	8	5	**62.5**	3	3	**100.0**	2	0	**0**	5	2	**40.0**	6	3	**50.0**	1	0	**0**	1	0	**0**	1	0	**0**	4	2	**50.0**	31	15	**48.38**
Oct.	1	0	**0**	1	1	**100.0**	0	0	**0**	5	3	**60.0**	2	1	**50.0**	0	0	**0**	9	4	**44.44**	2	1	**50.0**	1	0	**0**	21	10	**47.61**
Nov.	1	1	**100.0**	0	0	**0**	1	0	**0**	6	4	**66.66**	2	2	**100.0**	2	1	**50.0**	5	1	**20.0**	4	3	**75.0**	5	1	**20.0**	26	13	**50.0**
Dec. 18	4	3	**75.0**	3	2	**66.66**	0	0	**0**	4	1	**25.0**	0	0	**0**	2	2	**100.0**	12	6	**50.0**	3	0	**0**	2	2	**100.**	30	16	**53.33**
Total	27	15	**55.55**	13	10	**76.92**	11	4	**36.36**	35	16	**45.71**	17	11	**64.70**	11	7	**63.63**	55	25	**45.45**	22	10	**45.45**	34	12	**35.29**	225	110	**48.88**

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

9.8. Bull-wise conception rate during the period 4/2018to 3/2019

Sr. No.	Bull No.	Total Number of AI	Total Conceived	CR%
1.	M183	16	9	56.25
2.	1354	15	5	33.33
3.	2133	1	1	100
4.	2185	9	6	66.67
5.	2558	15	9	60
6.	2565	11	7	63.64
7.	2594	13	10	76.92
8.	2607	7	2	28.57
9.	2645	3	2	66.67
10.	2677	6	2	33.33
11.	3267	1	1	100
12.	3591	14	5	35.71
13.	4687	11	3	27.27
14.	4715	6	3	50
15.	4733	2	2	100
16.	4837	20	4	20
17.	7010	7	3	42.86
18.	SIKANDER	38	21	55.26
19.	DAARA	9	6	66.67
20.	M-29	3	0	0
21.	M-53	18	9	50
Total	---	**225**	**110**	48.88%

9.9. Bull-wise semen stock 4/2018 to 3/2019

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	1902		50			18	68	1834
12	M1451	NW4	1062							1062
13	M1437	NW4	1150							1150
14	M1506	NW4	3595							3595
15	M1749	NW6	1626					1283	1283	343
16	M1796	NW7	594							594
17	M1875	NW8	2854					10	10	2844
18	M1994	NW9	1331							1331
19	M2045	NW10	302							302
20	M2073	NW10	301					70	70	231
21	M2074	NW10	803					500	500	303
22	M2083	NW10	1508					1215	1215	293
23	M2133	NW11	359							359
24	M2148	NW11	200							200
25	M2154	NW11	1345					811	811	534
26	M2176	NW12	2806							2806
27	M2177	NW12	7580					4020	4020	3560
28	M2185	NW12	1557					38	38	1519
29	M2234	NW13	200							200
30	M2269	NW13	1014							1014
31	M2304	NW13	7070					1705	1705	5365
32	M2357	NW14	7114					2950	2950	4164

33	M2369	NW14	8518					3360	3360	5158
34	M2371	NW15	6642					2235	2235	4407
35	M2412	NW15	4475					35	35	4440
36	M2417	NW15	7365					1955	1955	5410
37	M2429	NW15	4204					60	60	4144
38	M2459	NW15	3177					62	62	3115
39	M2383	NW16	5147	1667				2345	2345	4469
40	M2467	NW16	6822							6822
41	M2489	-	725					725	725	0
42	M2501	NW16	7344	10336				11720	11720	5960
43	M2558	NW17	3235	12488		720		7949	8669	7054
44	M2565	NW17	6080	10039	30	963		6774	7767	8352
45	M2584	-	15					15	15	0
46	M2588	-	310							310
47	M2594	NW17	1985	11872		1038		4865	5903	7954
48	M2607	NW17	860	5895		1157		1038	2195	4560
49	M2645	NW18	3652	50	962	1500			2512	1140
50	M2676	NW18	4146	50	993	1500			2543	1603
51	M2677	NW18	3804	50	815	1500			2365	1439
52	M2689	NW18	585	20	175				195	390
Grand Total			**127077**	**52467**	**3025**	**8378**		**55758**	**67331**	**112043**

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

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

9.11. Production performance of buffaloes completing their lactation during the period 4/2018 to 3/2019

Lactation No.	No. of Obs.	Av. Lact. Yield (kg)	Av. Lact. Length (days)	305-day Milk Yield (kg)	Av. Peak yield (kg)
1st	25	2734.7±67.7	342.6±13.4	2585.4 ± 46.0	13.06 ±0.31
2nd	16	2924.9±151.4	338.5±20.9	2778.3±90.8	15.46 ±0.83
3rd	7	2967.1± 47.9	312.4 ± 9.9	2922.0± 29.1	16.37±1.21
4th	2	3120.7 ± 252.2	337± 39.0	3020.2± 151.7	20.5 ±0.5
5th & onwards	12	3156.3±83.0	325.3± 11.1	3023.2± 52.2	15.94±1.31
Overall	**62**	**2904.1± 53.9**	**334.6±8.03**	**2771.9±38.4**	**15.10 ±0.46**

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**

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**

9.12.3. Herd Life Productivity Traits (Buffalo completed 4 or more Lactation) during 2018-19

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) 4/2018 to 3/2019

Month	Number of Observation	Fat %	SNF	Protein	Lactose
April, 2018	46	7.62	9.26	3.54	5.42
May	42	7.53	9.46	3.56	5.70
June	50	7.44	9.63	3.45	5.46
July	59	7.29	9.58	3.44	5.57
August	66	7.35	9.66	3.36	5.52
September	73	7.23	9.23	4.24	5.26
October	74	7.16	9.28	4.23	5.27
November	74	7.35	9.40	3.42	5.68
December	79	7.29	9.16	4.12	5.41
January, 2019	84	7.18	9.44	3.68	5.36
February	91	7.28	9.40	3.47	5.53
March	75	7.46	9.58	3.78	5.72
Overall	**68**	**7.35**	**9.42**	**3.69**	**5.49**

9.14. Reproduction performance of buffaloes calving during the period 4/2018 to 3/2019

Traits/Lac	1 (39)	2 (26)	3 (19)	4 (5)	5 & Above(15)	Overall (104)
Average Age at Calving (Months)	40.74±1.43	--	--	--	--	-
Average Service Period (Days)	-	149.4±14.2	150.1±17.4	80±15.9	112.9±22.6	135.88±9.55
Average Dry Period (days)	-	131.5±7.6	137.1±10.2	140.2±13.3	114.6±11.6	129.94±5.14
Average Calving Interval (Days)	-	458.4±14.3	454.3±19.3	390.6±16.2	412.06±26.5	441.32±10.39

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)**
Figures in parenthesis indicate number of observations				

9.15. Month-wise milk production and disposal during the period 4/2018 to 3/2019

	Production	**Disposal**			
Month	Total milk produced (kg)	Liquid milk (kg)	Calf feeding (kg)	Experimental purposes (kg)	Milk lost in handling (kg)
April, 2018	10849.5	9979	846.9	-	23.6
May	10320.5	9206	1091	-	23.5
June	10194.9	8902	1263	2.0	27.9
July	11462	9316	2118.1	2.0	25.9
August	13107.8	10254	2827.7	-	26.1
September	15653	12095	3526.6	6.0	25.4
October	17930.7	14498	3399.2	5.0	28.5
November	17709.4	14995	2680.7	10.0	23.7
December	19782.2	17124	2631.7	-	26.5
January, 2019	19526.7	17374	2122	2.5	28.0
February	16938.5	15219	1691.5	3.0	25.0
March	17826.6	15587	2200	9.5	30.1
Total	**181301.8**	**154549**	**26398.4**	**40**	**314.4**

9.16. Feed and fodder purchased and offered (qtls) to animals during the period 4/2018 to 3/2019

Month	Type of fodder/feed	Qty. produced at Farm	Qty. Purchased	Actually fed	Balance
April, 18	Green	1283	-	1283	-
	Dry	381	-	381	-
	Silage	-	-	-	-
	Concentrate	-	232.10	232.10	-
May	Green	835	-	835	-
	Dry	301	-	301	-
	Silage	387	-	387	-
	Concentrate	-	252.25	252.25	-
June	Green	1006	-	1006	-
	Dry	216	-	216	-
	Silage	621	-	621	-
	Concentrate	-	250.00	250.00	-
July	Green	1588	-	1588	-
	Dry	188	-	188	-
	Silage	504	-	504	-
	Concentrate		274.27	274.27	-
August	Green	1648	-	1648	-
	Dry	60	-	60	-
	Silage	286	-	286	-
	Concentrate		281.06	281.06	-
September	Green	1405	-	1405	-
	Dry	64	-	64	-
	Silage	492	-	492	-
	Concentrate		281.90	281.90	-
October	Green	1306	-	1306	-
	Dry	108	-	108	-
	Silage	535	-	535	-
	Concentrate		310.91	310.91	-
November	Green	833	-	833	-
	Dry	625	-	625	-
	Silage	221	-	221	-
	Concentrate		292.50	292.50	-
December	Green	1244	-	1244	-
	Dry	184	-	184	-
	Silage	675	-	675	-
	Concentrate		322.37	322.37	-
January 19	Green	898	-	898	-
	Dry	338.55	-	338.55	-
	Silage	530	-	530	-
	Concentrate		329.67	329.67	-
February	Green	1465.89	-	1465.89	-
	Dry	279	-	279	-
	Silage	-	-	-	-
	Concentrate		278.17	278.17	-
March	Green	1900	-	1900	-
	Dry	238	-	238	-
	Silage	-	-	-	-
	Concentrate		299.91	299.91	-
Total	Green	15411.89		15411.89	-
	Dry	2578.55		2578.55	-
	Silage	4655.0		4655.0	-
	Concentrate		3405.11	3405.11	-

9.17. Milking performance during the period 4/2018 to 3/2019

Month	No. of Animal in milk	No. of Animal dry	Total Animal	% in Milk	Wet average (kg)	Herd average (kg)
April, 2018	46	38	84	54.8	7.67	4.43
May	42	45	87	48.3	8.08	4.12
June	50	38	88	56.8	8.06	4.09
July	59	34	93	63.4	8.4	4.34
August	66	34	100	66.0	8.5	4.71
September	73	32	105	69.5	8.6	5.5
October	74	30	104	71.2	9.1	6.13
November	74	32	106	69.8	8.32	5.88
December	79	29	108	73.1	8.49	6.17
January, 2019	84	29	113	74.3	9.0	6.29
February	91	23	114	79.8	8.39	5.91
March	75	43	118	63.6	8.22	6.93
Overall	**68**	**34**	**102**	**65.9**	**8.40**	**5.38**

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**

9.18. Bull-wise daughters born/daughters reaching A.F.C. and completing 1st lactation records during the period 4/2018 to 3/2019.

Bull No.	Total No. of daughters born	No. of daughters reaching A. F. C.	No. of daughters completing 1st Lactation	Last Lactation
1027	2			
2133	1			
2185	1			
2501	1			
2558	4			
2565	1			
2594	3			
2607	2			
3267	2			
4687	4			
4715	2			
4733	2			
6379	1			
6409	1			
6646	1			
M-BALI	3			
M-29	1			
M-53	6			
Sikander	4			
M2234	-	1	-	-
M2269	-	2		
M2369	-	6		
M2459	-	3	-	-
M2412	-	2		
Total	-	14*	-	-
M1994	-	-	1	-
M2269	-	-	5	-
M2234	-	-	5	-
M2304	-	-	1	-
M2369	-	-	5	-
M2412	-	-	2	-
MU3964	-	-	1	-
R-10	-	-	1	-
5943	-	-	1	
Total *	**42**	**14***	**22***	-

*** Set bulls only**

9.19. Bull-wise daughters completing 1st lactation during the period 4/2018 to 3/2019

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	2269	2769	23-Aug-12	17-Dec-16	2595	3385.1	414
2	5943	2788	13-Jan-13	3-May-17	2971	3100.6	345
3	2269	2863	15-Feb-14	4-Aug-17	2513.3	2513.3	298
4	2269	2815	14-Aug-13	1-Sep-17	2618.3	2618.3	282
5	1994	2897	18-Dec-14	4-Oct-17	2377.5	2407	312

6	MU3964	2813	3-Jul-13	7-Sep-17	2457	2457	299
7	M2234	2880	10-Jun-14	13-Aug-17	2391.9	2553.4	343
8	M2369	2911	6-Mar-15	10-Nov-17	2305.6	2305.6	261
9	R-10	2730	15-Mar-13	4-Jan-18	2384	2406	311
10	M2269	2859	25-Jan-14	19-Aug-17	2503.2	2555.5	323
11	M2234	2857	5-Jan-14	29-Jul-17	2321.1	2530	377
12	M2369	2898	9-Jan-15	26-Oct-17	2457	2463	308
13	M2304	2766	15-Aug-12	2-Nov-17	3074	3157.7	332
14	M2234	2879	17-May-14	27-Nov-17	2518.5	2710.3	345
15	M2269	2840	5-Dec-13	23-Jun-17	2667.5	3199	405
16	M2234	2884	2-Aug-14	27-Oct-17	2959.8	3583.5	429
17	M2234	2853	24-Dec-13	2-Apr-18	2489.7	2709	373
18	M2369	2912	9-Mar-15	4-Dec-17	2436.2	2931.8	399
19	M2369	2902	27-Jan-15	4-Jan-18	2470	2548	370
20	M2412	2937	7-Jul-15	17-Feb-18	2510.3	2619.3	348
21	M2369	2908	23-Feb-15	6-May-18	2585.9	2585.9	297
22	M2412	2931	13-Jun-15	28-Aug-18	2338.1	2338.1	283
23	Pur*	2969	22-Jul-15	8-May-18	2981.2	2981.2	295
24	Pur*	2974	15-Aug-15	8-Jul-18	2814.8	2814.8	304
25	Pur*	2979	30-Sep-15	6-Jul-18	2893.2	2893.2	292

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

9.20 List of breeding/young bulls as on 3/2019

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	2797	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	3011	4560	
8.	M2632	03.04.15	P2522	M2369	2997		
9.	M2639	13.04.15	P2470	M1994	2915		
10.	M2645	20.06.15	P2530	M1994	3394	1140	
11.	M2665	30.01.16	P2381	M2045	3120		
12.	M2674	01.03.16	P2532	M2412	3583*		
13.	M2676	15.03.16	P2759	M2412	3023*	1603	
14.	M2677	27.03.16	P2548	M4324	3135	1439	
15.	M2689	03.07.16	P2436	M1693	3151	390	
16.	M2699	12.09.16	P2530	M1693	3394		
17.	M2707	02.12.16	P2604	M6405	2902*		
18.	M2737	04.08.17	P2543	M2383	3108		
19.	M2741	23.08.17	P2718	6753	2935*		
20.	M2759	09.11.17	P2502	M2133	3340		

*** Dam's 1st Lactation.**

9.21 Target achieved during the year 4/2018 to 3/2019

Sr. No	Trait	Target	2017-18	2018-19
1.	Av. Age at first calving	40 months	41.3	40.74
2.	Av. Age for initiating of bulls (months)	18 months (350 kg. B.wt.)	19.6 Months (378 kg)	18.5 Months (362 kg)
3.	Av. Age at first collection	30 months (400 kg. B.wt.)	29.3 Months (487 kg B.Wt.)	29.2 Months (478 kg)
4.	Av. Service period	130 days	152	135.9
5.	Calf mortality (0-3 months)	Less than $\leq$4 %	8.22	1.94
6.	Wet average	More than $\geq$8.5 kg.	8.03 kg.	8.40
7.	Herd average	More than $\geq$5.5 kg.	5.25 kg.	5.38

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

- Fourteen bulls have been presented for proposed 18th set of the project.
- The average age at 1st calving is achieved to 40.74 months.
- The average age at first collection of the bulls at the institute was 29.2 months.
- The average 305-day yield of the herd was 2771 kg and wet average of 8.40 kg and herd average of 5.38 kg during the period 4/2018 to 3/2019.

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:

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

14. Focus of work in the coming year:

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

Project Co-ordinator's observations on centre performance

Financial Statement for the year 2018-19 (Rs in Lakhs)

Sanctioned as per R E 2018-19		Released ICAR Share as per R E	Expenditure as per AUC		Receipts (ICAR Share)	Balance
Total	ICAR Share		ICAR Share	State Share		
117.60	85.20+3.00 (SCSP)	88.20	83.74827	27.91608	6.96911	+ 11.42084

Herd Performance:

Herd strength at the centre was 338 animals with 156 breedable buffaloes (> 2 year). During the period 98 calving were reported with 56 male and 42 females, two still birth and 4 abortion. The calf mortality (0-3 months) during the period was 1.85 % (1/108). The female conception rate at the farm was higher (48.88 %) and compared to last year CR (47.45 %).

During the report period 52467 semen doses were produced and 55758 semen doses were sold and supplied to field unit/ other Murrah centers and other agencies. 112043 frozen semen doses from superior bulls are available at the centre. 305 day or less day milk yield was 2771 kg (n=56) with average peak yield of 15.10 kg. The average lactation lengths of 335 days and 62 buffaloes completed their lactation. The reproductive performance viz. AFC, SP, DP and C I were 40.74 months (39), 136 days (104), 130 days (104) and 441 days (104), respectively. The wet and herd averages were 8.40 kg and 5.38 kg, respectively.

Accomplishment and Targets Achieved:

Sr. No.	Trait	Target	Achieved 2015-16	Achieved 2016-17	Achieved 2017-18	Achieved 2018-19
1	Av. AFC (Months)	40.0 months	40.17 (24)	41.51 (27)	41.3 (25)	40.74±1.43 (39)
2	Av. service period (Days)	130 days	162 (26)	184 (26)	152 (41)	135.8±9.5 (104)
3	Calf mortality (0-3 months)	≤ 4 %	4.23	8.11	8.22	1.94
4	Wet average (Kg)	≥ 8.50 kg	8.04	7.92	8.03	8.40 kg
5	Herd average (Kg)	≥ 5.50 kg	5.01	5.45	5.25	5.38 kg

Recommendations:

- Production and reproduction traits improved during report period and need to be maintained.
- Efforts should be made to increase the production of frozen semen doses.

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		30000.00	1600000.00	1630000.00
Expenditure up to 31-03-2019		0.00	954966.00	954966.00
Closing Balance on 31-03-2019		30000.00	645034.00	675034.00

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); 2 (Unskilled) – 5 months	

9. Herd Performance Enclosed Tables 9.1 to 9.21

9.1 Herd Strength during the Period 1st April 2018 to 31st March, 2019

Sr. No.	Category	Addition			Disposal				CB
		OB	**B / P**	**T/E**	**D**	**T/E**	**S**	**E**	**CB**
	Female								
1	Below 3 months	11	66		14	49			14
2	3-12 months	37		49	5	66			15
3	1-2 years	53		66	4	69			46
	Above 2 years	88	70 P	69	4	135	7		81
4	Buffaloes in Milk	119		135	7	120	5		122
5	Buffaloes Dry P /NP	102		120	5	110	8		99
	Sub Total	**410**	**136**	**439**	**39**	**549**	**20**		**377**
	Males								
1	Below 3 months	20	82		20	65			17
2	3-12 months	36		65	8	57			36
3	1-2 years	16		57	1	18	1		53
	Above 2 years			18	1	2			15
4	Breeding bulls	38		4	3		3		36
5	Bullocks / Teasers	2							2
	Sub Total	**112**	**82**	**144**	**33**	**142**	**4**		**159**
	Grand Total	**522**	**218**	**583**	**72**	**691**	**24**		**536**

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

9.2 Calving Statistics including abnormalities (April 18-March 19)

Month	Male	Female	Still Birth	Abortion	Dystokia	ROP	Prolapse	Overall
April	3	5					1	9
May	6	3		1				10
June	4	1		1				6
July	6	6				1		13
August	4	7		2		1		14
September	7	6		1				14
October	9	6	1	1				17
November	12	8		2	1	1		24
December	9	6				2		17
January	9	5	1	1				16
February	9	5		1			1	16
March	4	8				3		15
Overall	**82**	**66**	**2**	**10**	**1**	**8**	**2**	**171**

Sex ratio Male : Female 1:0.81; SB% = 1.17; Abortion % = 5.85%

9.3. Disposal of Animals during the Period 1st April 18 to 31st March 19

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						14		14
3-12 months						5		5
Heifers								
1-2 years						4.		4
> 2 years			6			4	1	11
Buffaloes								
Milch			-		2	7	3	12
Dry			5		2	5	1	13
Sub Total			11		4	39	5	59
Males	**Primary cause of disposal**							
Calves								
0 to 3 months						20		20
3-12 months						8		8
1 to 2 year	1					1		2
>2 year						1		1
Breeding bulls						3		6
Bullock+Teaser+Others						0		0
Sub Total	1					33		37
Grand Total	4	0	11	0	4	72	5	96

9.4. Mortality during the Period 1st April 2018 to 31st March, 2019

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, 18	No.	11	37	53	88	210	399	20	36	16	0	72	471
	Died	0	1	0	0	0	1	0	0	0	0	0	1
	%	0.0	2.7	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.2
May, 18	No.	13	40	53	88	218	412	14	46	16	0	76	488
	Died	1	0	1	0	1	3	0	1	0	0	1	4
	%	7.7	0.0	1.9	0.0	0.5	0.7	0.0	2.2	0.0	0.0	1.3	0.8
Jun, 18	No.	10	44	54	88	217	413	16	49	16	2	83	496
	Died	0	1	0	0	1	2	0	0	0	2	2	4
	%	0.0	2.3	0.0	0.0	0.5	0.5	0.0	0.0	0.0	100.0	2.4	0.8
Jul, 18	No.	8	46	50	98	219	421	13	56	16	0	85	506
	Died	0	1	0	0	0	1	2	0	0	0	2	3
	%	0.0	2.2	0.0	0.0	0.0	0.2	15.4	0.0	0.0	0.0	2.3	0.6
Aug, 18	No.	10	46	50	96	222	424	14	55	19	1	89	513
	Died	2	0	0	0	0	2	1	0	0	0	1	3
	%	20.0	0.0	0.0	0.0	0.0	0.5	7.1	0.0	0.0	0.0	1.1	0.6
Sep, 18	No.	13	45	49	98	218	423	11	56	22	2	91	514
	Died	3	0	0	0	2	5	2	0	0	0	2	7
	%	23.1	0.0	0.0	0.0	0.9	1.2	18.2	0.0	0.0	0.0	2.2	1.4
Oct, 18	No.	13	41	44	98	208	404	13	48	25	6	92	496
	Died	2	0	0	2	3	7	1	0	0	0	1	8
	%	15.4	0.0	0.0	2.0	1.4	1.7	7.7	0.0	0.0	0.0	1.1	1.6
Nov, 18	No.	13	40	44	93	213	403	17	49	26	11	103	506
	Died	0	0	1	1	0	2	1	1	0	0	2	4
	%	0.0	0.0	2.3	1.1	0.0	0.5	5.9	2.0	0.0	0.0	1.9	0.8
Dec, 18	No.	14	36	41	95	201	387	26	37	31	15	109	496
	Died	2	2	1	0	0	5	4	2	0	0	6	11

	%	14.3	5.6	2.4	0.0	0.0	1.3	15.4	5.4	0.0	0.0	5.5	2.2
Jan, 19	No.	16	31	44	89	210	390	25	35	37	15	112	502
	Died	2	0	0	1	1	4	4	2	1	0	7	11
	%	12.5	0.0	0.0	1.1	0.5	1.0	16.0	5.7	2.7	0.0	6.3	2.2
Feb, 19	No.	14	32	45	83	219	393	22	33	44	16	115	508
	Died	2	0	0	0	2	4	5	1	0	1	7	11
	%	14.3	0.0	0.0	0.0	0.9	1.0	22.7	3.0	0.0	6.2	6.0	2.2
Mar, 19	No.	11	33	45	83	221	393	18	36	48	15	117	510
	Died	0	0	1	0	2	3	0	1	0	1	2	5
	%	0.0	0.0	2.2	0.0	0.9	0.7	0.0	2.8	0.0	6.7	1.7	1.0
Overall	%	7.65	1.06	0.73	0.35	0.46	0.80	9.03	1.3	0.22	9.4	2.65	1.15

9.5. Causes of Mortality (quarter wise) during the period April 18 to March 19

Particulars	1st quarter (April-June)	2nd quarter (July-Sept)	3rd quarter (Oct-Dec.)	4th quarter (Jan.-March)	Total
Enteritis	2	2	3	3	10
Pheumonities	-	-	3	8	11
Septicamia / Toxaemia	1	-	-	2	3
Peritonitis	-	-	-	-	-
JD/TB	-	-	-	-	-
Milk Fever / metabolic diseases	-	-	-	-	-
TRP / TP	-	-	-	-	-
Parasitism	-	-	1	-	1
Sudden death	-	-	3	3	6
Peri-parturient disorders	-	-	-	-	-
General Debility	6	10	10	10	36
Miscellaneous		1	3	1	5
Total	**9**	**13**	**23**	**27**	**72**

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	03-04-2018 to 08-04-2018/Total Herd 05-10-2018 to 10-10-2018/Total Herd			Dewormed all Calves up to 6 months and other buffaloes as required.
HS	29-05-2018 to 02-06-2018/Total Herd			
BQ	29-05-2018 to 02-06-2018 /Total Herd			
Brucellosis	-			
JD	-			
TB	-			
IBR	-			
Mastitis	-			

9.7. Female Conception Rate During the Period January to December 2018

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	60	28	46.67	38	24	63.15	12	3	25.00	20	3	15.00	130	58	44.62
1st calvers	51	27	52.94	28	12	42.86	11	7	63.63	8	3	37.50	98	49	50.00
Multiparous	110	44	40.00	46	24	52.17	21	12	57.14	48	11	22.92	225	91	40.44
Overall	**221**	**99**	**44.79**	**112**	**60**	**53.57**	**44**	**22**	**50.00**	**76**	**17**	**22.37**	**453**	**198**	**43.71**

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 2018

Quarter	No. of A I	Preg. animals	CR %
Jan – Mar	170	66	38.82
Apr- Jun	89	40	44.94
Jul- Sep	37	18	48.65
Oct- Dec	157	74	47.13
Overall	**453**	**198**	**43.71**

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	3267	16	49	12	24.49
2	6942	17	55	26	47.27
3	4837	17	50	15	30.00
4	7010	17	81	37	45.68
5	4733	17	57	28	49.12
6	2558	17	37	24	64.87
7	4715	17	20	7	35.00
8	DARA	17	10	3	30.00
9	4687	17	14	6	42.86
10	2607	17	27	11	40.74
11	2565	17	35	20	57.14
12	B-1-330	17	18	9	50.00
Overall			453	198	43.71
No. of services per conception					2.29

9.10 Bull Wise Semen Stock

S. No.	Bull No.	Centre	Opening balance on date 01.04.2018	Total semen received & produced	NPBI			Total utilization	Closing Balance on date 31.03.19
					NDRI, Karnal				
					Main Unit	Field Unit	CIRB Hisar		
17 Set									
1	4687	**CIRB**	300	300		200		200	100
2	4715		240	490		300		300	190
3	4733		250	500	120			120	380
4	4837 ET		50	300		300		300	0
5	51 M		30	280		270		270	10
6	53 M		0	500		270		270	230
7	B-1-330		0	500	40	450		490	10
8	Sikander		100	450		350		350	100
9	Dara		50	400		400		400	0
10	7010	**NDRI**	987	7497	50	600	1300	1950	5547
11	6942		5550	14900	100	600	4000	4700	10200
12	2558	**GADVASU**	123	373	45	300		345	28
13	2565		0	250	15	150		165	85
14	2594		152	402		100		100	302
15	2607		0	500		400		400	100
Total			**7832**	**27642**	**370**	**4690**	**5300**	**10360**	**17282**
18 Set									
1	4905	**CIRB**	0	250	50	200		250	0
2	4928		0						0
3	4995		0	50	50			50	0
4	5031		0						0
5	1150	**LUVAS**	0	250	50	200		250	0
6	1198		0						0

7	1208		0						0
8	1209		0						0
9	1219		0						0
10	2645	**GADVASU**	0						0
11	2676		0						0
12	2677		0						0
13	2689		0						0
14	7094	**NDRI**	0	1950	150	1050	750	1950	0
15	7147		0	2580		600	1000	1600	980
16	7227		0	1470		400	750	1150	320
17	7263		0	100					100
Proven	2185 PT	**GADVASU**	0	30	30			30	0
	183 PT	**LUVAS**	0	30	30			30	0
Total			**0**	**6710**	**360**	**2450**	**2500**	**5310**	**1400**

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	66.50	113.67				
Male						**Adults**	
Current year	29.98	66.00	106.75				

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	48	2594.09	340.69	2471.75	12.85
2nd	23	2268.06	292.08	2223.95	12.04
3rd	29	2360.00	281.86	2339.16	13.74
4th	10	2106.70	270.80	2046.30	13.10
5th & above	13	2145.84	296.69	2085.88	12.69
Overall	**123**	**2390.93**	**307.39**	**2318.78**	**12.10**

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)**

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

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

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 April 2018 to March 2019

Month	**No. of Animals**	**Fat (%) (Mean ± SE)**	**SNF (%) (Mean ± SE)**	**Total solids (%)**	**Protein (%)**	**Lactose (%)**	**SCC**
Apr, 18	114	7.74 ± 0.11	9.81 ± 0.12	17.55	3.69	5.07	
May, 18	119	7.46 ± 0.09	9.81 ± 0.02	17.27	3.69	5.09	
Jun, 18	114	7.35 ± 0.10	9.84 ± 0.01	17.19	3.69	5.11	
Jul, 18	109	7.73 ± 0.11	9.87 ± 0.02	17.60	3.70	5.11	
Aug, 18	100	7.62 ± 0.11	9.87 ± 0.02	17.49	3.69	5.16	
Sep, 18	94	7.93 ± 0.11	9.87 ± 0.02	17.80	3.72	5.18	
Oct, 18	86	7.87 ± 0.12	9.87 ± 0.02	17.74	3.72	5.16	
Nov, 18	95	7.91 ± 0.11	9.88 ± 0.12	17.79	3.76	5.20	
Dec, 18	104	7.70 ± 0.10	9.84 ± 0.03	17.54	3.75	5.18	
Jan, 19	111	7.82 ± 0.10	9.87 ± 0.02	17.69	3.73	5.22	
Feb, 19	108	7.82 ± 0.11	9.89 ± 0.02	17.71	3.73	5.20	
Mar, 19	117	7.27 ± 0.10	9.77 ± 0.03	17.04	3.64	4.97	
Overall	**106**	7.69 ± 0.11	9.85 ± 0.04	**17.53**	**3.71**	**5.14**	

9.14: Reproductive Performance during the period Apr, 2018- Mar, 2019

Lactation / Parity	AFC (Months) (N)	SP (Days) (N)	Days Open	DP (Days)	CI (Days)
1	44.39 (41)	118.00 (22)		103.08 (23)	417.08 (23)
2		123.45 (11)		123.00 (11)	426.09 (11)
3		116.21 (14)		122.14 (14)	400.00 (14)
4		142.00 (4)		131.25 (4)	448.75 (4)
5th and above		91.00 (3)		133.33 (3)	387.33 (3)
Over all	**44.39 (41)**	**118.93 (54)**		**115.62 (55)**	**415.22 (55)**

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)**

9.15 Milk Production and Disposal during the period Apr, 2018- Mar, 2019

Month	Total milk produced (kg)	Disposal (Kg)		
		Milk sold	Calf feeding	Expt.
April	29300.0	Total milk produced was supplied to the milk plant, NDRI, Karnal		
May	29792.5			
June	26939.5			
July	24460.0			
August	21493.0			
September	20645.5			
October	21769.5			
November	21250.0			
December	26050.5			
January	28177.0			
February	24809.0			
March	27352.5			
Total	**302039.0**			

9.16 Feed and fodder (Quintals) availability

Months	Green fodder produced at Farm	Green fodder Purchased	Total
April			
May			
March			
TotalGreen			
Silage			
Dry			
Concentrate			

Table 9.17: Milk performance during during the period Apr, 2017- Mar, 2018

Month	Buffaloes in Milk	Dry buffaloes	Total	% in Milk	Wet Av. (kg)	Herd Av. (kg)
April, 17	117	93	210	55.71	8.3	4.6
May	124	94	218	56.88	7.8	4.4
June	120	97	217	55.30	7.5	4.1
July	112	107	219	51.14	7.0	3.6
August	107	115	222	48.20	6.5	3.1
September	101	117	218	46.33	6.8	3.2
October	98	110	208	47.12	7.2	3.4
November	99	114	213	46.48	7.2	3.3
December, 18	111	90	201	55.22	7.6	4.2
January, 19	116	94	210	55.24	7.8	4.3
February	120	99	219	54.79	7.4	4.1
March, 19	122	99	221	55.20	7.2	4.0
Overall	**112**	**102**	**214**	**52.30**	**7.4**	**3.9**

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**

9.18: Bull wise daughters born (only numbers) during the period Apr, 2018- Mar, 2019

Set No.	Centre	Bull No.	Daughters born	Daughters Calved	Daughters completing 1st Lactation
16	GADVASU	2501	4	2	
16	LUVAS	1053	2	1	
17	NDRI	6942	1	-	
		7010	11	6	
17	GADVASU	2565	9	9	
		2594	1	-	
		2558	1	-	
		2607	1	3	
17	CIRB	DARA	3	5	
		51	6	-	
		4687	3	5	
		4715	2	2	
		4733	11	10	
		4837	4	3	
Total			**59**	**46**	**NIL**
Proven bull	CIRB	3267	6	-	-
		3591	1	-	-
Other unknown bulls (from purchase of pregnant buffaloes)			-		
Grand Total			**66**	**46**	**NIL**

9.19 Bull wise daughters completing 1ST lactation during the Period April 2018 to March 2019

Bull No.	Daughter No.	Date of birth	Date of calving	AFC (months)	Lact. Length (days)	TLMY (kg)	SLMY (kg)
Purchase	B-12	20-02-13	05-01-17	46.5	498	2875.0	2389.5
5943	6503	10-08-12	15-01-17	53.2	269	2514.0	2514.0
2269	6515	27-08-12	12-11-17	62.6	459	1891.0	1521.5
1875	6602	09-02-13	22-07-17	53.4	323	3027.0	2990.0
Purchase	6636	03-02-13	02-08-17	53.9	313	2592.5	2585.5
1875	6735	25-05-13	27-08-17	51.1	362	3382.5	**3202.5**
851	6741	07-06-13	25-09-17	51.6	421	2907.0	2530.5
405	6763	07-08-13	11-11-17	51.2	305	3008.5	**3008.5**
4393	6781	06-09-13	23-11-17	50.6	362	2554.5	2426.5
5943	6791	14-09-13	25-07-17	46.3	376	2040.0	1901.5
851	6795	29-09-13	05-09-17	47.2	315	3079.5	**3075.5**
NK	6798	16-10-13	03-08-17	45.6	300	2791.5	2791.5
405	6803	31-10-13	14-07-17	44.4	332	2386.5	2340.5
851	6826	23-12-13	09-08-17	43.6	336	1997.0	2928.5
6136	6828	26-12-13	22-12-17	47.9	355	2909.5	2727.5

6044	6843	21-01-14	29-12-17	47.3	384	3473.0	**3049**.5
6044	6844	23-01-14	01-09-17	43.3	338	2669.0	2660.5
405	6846	23-01-14	16-09-17	43.8	313	2605.5	2599.5
6044	6847	26-01-14	12-09-17	43.6	260	2186.5	2186.5
6136	6848	03-02-14	02-08-17	41.9	368	3248.5	**3057**.0
6136	6851	15-02-14	24-08-17	42.3	292	2314.5	2314.5
6136	6852	15-02-14	08-08-17	41.7	322	3386.0	2343.0
851	6859	14-03-14	10-09-17	41.9	289	2078.5	2078.5
851	6860	14-03-14	11-09-17	42.0	362	1976.0	1837.0
851	6861	16-03-14	07-09-17	41.8	253	1596.5	1596.5
Purchase	6890	15-04-14	18-10-17	42.1	266	2138.0	2138.0
6066	6895	30-04-14	03-09-17	40.2	312	2608.0	2601.5
6136	6896	01-05-14	07-11-17	42.3	449	3080.0	2605.5
6136	6901	08-05-14	19-09-17	40.4	329	2478.5	2457.5
6014	6905	31-05-14	28-11-17	42.0	428	2357.0	1963.0
6014	6906	03-06-14	09-10-17	40.2	460	3260.5	2798.5
6044	6919	10-07-14	08-12-17	41.0	315	2142.5	2138.5
6066	6920	13-07-14	11-11-17	40.0	342	2505.5	2460.0
6066	6922	16-07-14	15-01-18	42.0	300	2862.0	2862.0
4439	6945	26-08-14	03-01-18	40.3	289	2023.0	2023.0
NK	6946	27-08-14	08-04-18	43.4	312	3093.0	**3091.0**
4093	6957	25-09-14	26-11-17	38.1	326	2418.5	2384.5
6066	6962	04-10-14	25-01-18	39.7	369	3373.5	**3127.5**
2357	6970	16-10-14	27-12-17	38.4	266	2221.0	2221.0
2357	6977	20-10-14	11-11-17	36.7	312	2279.0	2272.0
2369	6983	14-11-14	15-11-17	36.1	409	2640.5	2337.5
NK	6999	15-12-14	10-11-17	34.9	364	2960.5	2707.5
NK	7002	23-12-14	15-01-18	36.8	331	3056.0	**3016.0**
5258	7012	28-12-14	11-12-17	35.5	414	2831.5	2627.5
4100	7027	25-01-15	30-07-18	42.1	242	1772.0	1772.0
Purchase	7065	14-02-15	11-11-17	32.9	396	3191.0	2806.5
Purchase	7577	19-03-15	02-02-18	34.5	344	1873.0	1815.5
Purchase	7578	19-09-14	25-01-18	40.2	271	1862.0	1862.0

Out of 48 bulls used, daughters of 08 bulls had given SLMY greater than 3000 kg in NDRI herd

9.20 Breeding bulls Selected for current set during the period Apr, 2018- Mar, 2019

Sr. No.	Bull No.	Date of Birth	Dam No.	Sire No.	Dam's best SLMY
NDRI					
1	7094	08-04-15	6625	NK	3465
2	7147	14-08-15	6631	NK	3018
3	7227	01-04-16	5851	6044	3099
4	7263	28-05-16	6625	6290	3465

9.20.1 PT Bulls for nominated mating during the period Apr, 2018- Mar, 2019

Bull No.	Set No.	Centre	Dams' Best yield	Sire Index	Breeding Value	% Superiority
3267	11	CIRB	2489			
3591	11	CIRB	2598			
2133	11	GADVASU	2717			
183	12	LUVAS	2824			
2185	12	GADVASU	3423			

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	25-09-09	2148	5517	4341	6873
2	6253	26-08-10	ET	418	2601	7147
3	6379	17-10-11	4915	402	3505	2124
4	6405	26-01-12	Purchased	486	2743	2892
5	6409	09-02-11	Purchased	490	4187	2592
6	6646	07-02-13	Purchased	6627	3533	1590
7	6753	13-07-13	858	470	3389	
8	6778	30-08-13	405	5476	3372	527
9	6810	14-11-13	NK	6656	3027	1349
10	6822	13-12-13	2422	490	4187	931
11	6923	23-07-14	ET	6677	1733	
12	6942	23-08-14	4439	6627	3533	6560
13	7010	27-12-14	4100	415	3068	5437
14	7016	08-01-15	4100	5979	3741	1043
15	7029	27-01-15	NK	487	3036	1150
16	7067	10-02-15	Purchased	7046	3228	
17	7070	16-12-14	Purchased	7054	3923	552
18	7092	31-03-15	2357	471	2951	
19	7094	08-04-15	NK	6625	3465	1350
20	7147	14-08-15	NK	6631	3018	1840
21	7227	01-04-16	6044	5851	3099	930
22	7277	22-07-16	2459	6236	3508	
23	7281	25-07-16	1875	470	3389	
24	7287	03-08-16	NK	6104	2930	
25	7263	28-05-16	6290	6625	3465	
26	7317	20-09-16	2459	6871	3272	
27	7435	17-02-17	6379	5988	3209	
28	7450	14-05-17	6409	6116	3570	
29	7441	04-03-17	6379	5988	2838	
30	7467	19-08-17	6646	6351	3030	
31	7386	04-12-16	1893 Proven	6897	1566	
32	7584	30-03-18	6253	6147	3600	
33	7590	17-04-18	3591	6122	3448	
34	7593	02-05-18	2501	6359	2782	
35	7604	18-06-18	7010	6477	3158	

9.21 Target achieved during the year during the period

Trait	Target	Achieved (2017-18)	Achieved (2018-19)
Av. Age at first calving (months)	40	43.40 (44)	44.39
Av. Service period (days)	130	145 (37)	118.93
Calf mortality (0-3 months)	≤ 5 %	7.8 %	18.99 %
Wet average (kg)	≥8.5 kg	8.23	7.4 kg
Herd average (kg)	≥5.5 kg	4.21	3.9 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 16th and 17th set of bulls. One bull from 16th set and 11 bulls of 17th set were used till March 2019. Semen was received/collected from 17 bulls of 18th set and two proven bulls also. The dam's best lactation 305 day milk yield of 6 bulls of NDRI under 17th and 18th set had ranged from 3018 to 3533 Kg.

ii) Targets and Achievements

The herd strength showed steady increase in the number of breedable buffaloes from 160 in 1993-94 to 214 in 2018-19. Average age at first calving of buffaloes was 44.39 months. The average service period of buffaloes has been estimated as 118.93 days. The overall female conception rate in the herd was 43.71% for the buffaloes inseminated during Jan-Dec, 2018, which was higher than that of previous year (39.60%). The overall mortality during the year was only 1.2%. The wet and herd average were 7.4 and 3.9 Kg, respectively. The average Milk Fat, SNF Total Solid, Protein and Lactose were estimated as 7.69, 9.85 17.53, 3.71 and 5.14 percent, respectively.

Selection of bulls

A total of 15 elite Murrah male calves were reserved during the period (2018-19) 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. The dam's best 305 days lactation milk yield of reserved males ranged from 2792 Kg in first lactation to 3570 kg.

Progeny Test Evaluation – Set-wise

The information on 305 days milk yield of daughters completing first lactation during 2018-19 were collected, compiled for genetic evaluation of Murrah bulls.

Technologies developed / Success story(s)/ Supply of Quality germplasm

The NDRI Centre has produced 28497 doses of frozen semen from six bulls of 17th and 18th set. The centre has supplied 11700 doses of frozen semen to other centers and field units, out of which 3250 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 five proven Murrah Bulls. About 57 Murrah buffaloes were identified as elite animals. The average best lactation milk yield of elite Murrah buffaloes was 3351 Kg which was 24.52 percent higher than the herd average. The best lactation milk yield of elite Murrah buffaloes ranged between 3036 kg to 4024 kg in 305 days. Sixty six daughters and eighty two male calves were born in the herd of which seven female and five male were born to elite dams and proven sires.

Gaps/ Constraints, if any

The center has not faced any constraints 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 2018-19 (Rs in Lakhs)

Sanctioned as per R E 2018-19		Released ICAR Share as per R E	Expenditure as per AUC		Balance
Total	ICAR Share		ICAR Share	State Share	
16.30	15.30+1.00 (SCSP)	16.30	9.54966	0.00	(+) 6.75034

Herd Performance

Herd strength was 536 in 2018-19, out of which 302 were breedable buffaloes (>2year). Number of breeding bull > 2 years are 51. During the period 148 calving took place consisting of 82 males, 66 females and 2 still births. The calf mortality (0-3 months) was 18.99 percent (34/179) which is higher than the target. Female conception rate reported as 43.71 percent (198/453). During the report period 34352 semen doses were produced and 15670 frozen semen doses were consumed /distributed at farm and field.

Milk production performance viz. Average lactation yield, Lactation length, 305 day or less day milk yield were 2391 kg (123), 307 days (123) and 2318.78 kg (123), respectively. Age at first calving, Average service period, Average dry period and average calving Interval were 44.39 months (41), 118.93 days (54), 115.62 days (55) and 415.22 days (55). 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 52.30 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: 3845 days, 2430 days, 11289 kg, 3.00 kg and 4.65kg, respectively.

Accomplishment and Targets Achieved:

Sr. No.	Trait	Target	Achieved 2016-17	Achieved 2017-18	Achieved 2018-19
1	Av. AFC (Months)	40.0 months	43.21 (29)	43.40 (44)	44.39
2	Av. service period (Days)	130 days	132.20 (54)	145.40 (37)	118.93
3	Calf mortality (0-3 months)	≤ 4 %	13.55 %	15.72 %	18.99
4	Wet average (Kg)	≥ 8.50 kg	8.39 kg	8.23 kg	7.4 kg
5	Herd average (Kg)	≥ 5.50 kg	4.52 kg	4.21 kg	3.9 kg

Recommendations:

- Emphasis on lactating & dry buffalo management for improvement in milk production traits.
- Efforts should be made to freeze 10000 frozen semen doses within first year of bull in production.
- 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: 2018-19

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. Sanjeev Mehrotra, Pr. Scientist	Project Associate (up to 2017-18)
	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 (w.e.f. 2017-18)
Health / Others	Dr. (Er.) Mukesh Singh, Pr. Scientist (FMP)	Project Associate
	Dr Geeta Chauhan, Pr. Scientist, LPT Div.	Project Associate
	Dr. V.K. Gupta, Pr. Scientist (Medicine)	Project Associate (Retired during 2017-18)
	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	Headwise Budget allocated (lakh Rs.)		Utilization		Revenue Generated (Lakh Rs.)	Remarks/Details
	Recurring contingency	Furniture & Fixtures	Recurring contingency	Furniture & Fixtures		
2018-19	10.00	0.20	6.49109	0.15494	44.29204	Through sale of milk
					5.24200	Sale of 19 buffaloes (with 1 suckling calf); total 20 animals
Total	**10.00**	**0.20**	**6.49109**	**0.15494**	**49.53404**	

9.1 Herd Strength (2018-19)

Sr. No.	Category	Addition			Disposal				CB
		OB	B / P	T	D	T	S	E	CB
	Female								
1.	Below 3 months	3	28+4**	-	2	29*	-	-	4
2.	3-12 months	19	-	29*	-	22*	-	-	26
3.	1-2 years	28	-	22*	-	28*	-	-	22
	Above 2 years	32	-	28*	-	24*	1	-	35
4.	Buffaloes in Milk	44	8**	24*	3	8*	3	-	62
5.	Buffaloes Dry P /NP	20	-	8*	3	-	5	-	20
	Sub Total	**146**	**28+12**=40**	**111***	**8**	**111***	**9**	**-**	**169**
	Males								
1.	Below 3 months	4	30+4**	-	1	30*	1**	-	6
2.	3-12 months	14	-	30**	2	15*	1	1	25
3.	1-2 years	9	-	15*	-	5*	9	-	10
	Above 2 years	1	-	5*	-	5*	-	-	1
4.	Breeding bulls	7	-	5*	-	1*	-	-	11
5.	Bullocks / Teasers / others	1		1*	-	-	-	-	2
	Sub Total	**36**	**30+4**=34**	**56***	**3**	**56***	**10+1****	**1**	**55**
	Grand Total	**182**	**58+16**=74**	**167***	**11**	**167***	**9+10+1**=20**	**1**	**224**

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 (2018-19)

Month	Male	Female	Still Birth	Abortion	Dystokia	ROP	Prolapse
April	-	-	-	-	-	-	-
May	-	-	-	1	-	-	-
June	4	1	-	-	1	1	-
July	(5+4*) 9	(4+4*) 8	-	4	-	1	1
August	2	2	-	-	-	-	-
September	3	7	1	1	-	-	-
October	2	6	-	2	-	1	-
November	5	2	-	-	-	-	-
December	3	2	-	1	-	-	-
January	-	-	-	-	-	-	-
February	4	3	-	-	-	-	-
March	2	1	-	-	1	-	-
Overall	**22**	**24**	**1**	**5**	**1**	**4**	**-**

Sex ratio (Male : Female)= 51.52 :48.48; SB% = 1.51% ((1*100)/66)); Abortion % = 13.63% ((9*100)/66))

9.3. Disposal of Animals (2018-19)

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	1	1	3	-	6
Dry	-	1	2	1	1	3	-	8
Sub Total	**-**	**1**	**4**	**2**	**2**	**8**	**-**	**17**
Males	**Primary cause of disposal**							
Calves								
0 to 3 months	1*	-	-	-	-	1	-	2
3-12 months	1	-	-	-	-	2	1	4
1 to 2 year	9	-	-	-	-	-	-	9
>2 year	-	-	-	-	-	-	-	-
Breeding bulls	-	-	-	-	-	-	-	-
Bullock/Teaser/Others	-	-	-	-	-	-	-	-
Sub Total	**11**	**-**	**-**	**-**	**-**	**3**	**1**	**15**
Grand Total	**11**	**-**	**-**	**-**	**-**	**11**	**1**	**32**

* Suckling calf given with auctioned milch buffalo no. 812

9.4. Mortality during the Period 1st April 2018 to 31st March, 2019

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.	35	73	50	185	104	186	38	70	24	20	70	256
Died	2	-	-	6	6	8	1	2	-	-	3	11
%	**5.71**	**-**	**-**	**3.24**	**5.77**	**4.30**	**2.63**	**2.86**	**-**	**-**	**4.29**	**4.30**

9.5. Causes of Mortality (quarter wise) during the period April 18 to March 19

Particulars	**1st quarter (April-June)**	**2nd quarter (July-Sept)**	**3rd quarter (Oct-Dec.)**	**4th quarter (Jan.-March)**	**Total**
Chronic Supp. Broncho-Pneumonia	-	2	-	-	2
Enteritis /Gastro-Enteritis/ Haemorrhagic Enteritis	1	1		1	3
Septicaemia/Septicaemia due to Navel ill	1	1	-	-	2
Still birth (NSD)	-	1	-		1
Acute Splenitis	-	1	-		1
P.M. report not available	-	1	-		1
Chronic supp. Myositis & Peritonitis	-	1	-		1
Abortions – NSD/Bacterial infection	-	3	2		5
Protein loosing Enteropathy or Nephropathy	1	-	-		1
Total	**3**	**11**	**2**	**1**	**17**

9.7 Prophylactic measures undertaken (2018-19)

Disease	Vaccination Date / No. of animals	No. of animals Tested / Positive		Dates and No. of animals treated for Parasitism	
FMD	591	Faecal samples (70)	57 -ive for parasite eggs; 11 +ive for parasite eggs; 2 reports N.S.	Ectoparasites Endoparasites Coccidiostat Liq.vit. supplement Postnatal Coverage Feed supplement	479 582 101 165 58 99
HS	226	Blood Sample (30)	10 -ive for Haemo protozoan parasites; 16 +ive; 2 observed; 2 report not available		
BQ	-				
Brucellosis	27				
JD	-				
TB	-				
IBR	-				
Mastitis	-				

9.7. Female Conception Rate During the Period April 2018 to March 2019

AI No.→	1st			2nd			3rd			4th& above			Overall		
Parity↓	**AIs**	**C**	**CR%**	**AIs**	**C**	**CR%**	**AIs**	**C**	**CR%**	**AIs**	**C**	**CR%**	**AIs**	**C**	**CR%**
Heifers	31	20	64.52	11	7	63.64	3	0	0.00	5	3	60.00	**50**	**30**	**60.00**
Adults	72	51	70.83	15	9	60.00	6	3	50.00	7	1	14.28	**100**	**64**	**64.00**
Overall	**103**	**71**	**68.93**	**26**	**16**	**61.54**	**9**	**3**	**33.33**	**12**	**4**	**33.33**	**150**	**94**	**62.67**

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

9.8 Quarter-wise conception rate (2018-19)

Quarter	No. of A I	Preg. animals	CR %
January – March (Previous year)	34	16	47.05
April - June	15	11	73.33
July - September	25	18	72.00
October- December	62	36	58.06
Overall	**136**	**81**	**59.56**

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.	M-53	17	10	5	50.00
2.	M-51	17	11	7	63.64
3.	183	Proven	12	10	83.33
4.	1150	Proven	7	5	71.43
5.	1330	17	11	8	72.73
6.	2185	17	3	2	66.67
7.	2558	17	8	3	37.50
8.	2565	17	9	8	88.89
9.	2594	17	9	5	55.56
10	2607	17	11	6	54.55
11.	4687	17	9	5	55.56
12.	4715	17	12	10	83.33
13.	4733	17	10	7	70.00
14.	4837	17	8	5	62.50
15.	4905	17	7	4	57.14

16.	4995	17	4	2	50.00
17.	7010	17	9	2	22.22
		Over all	**150**	**94**	**62.67**
		No. of services per conception	**1.59**		

9.10 Bull Wise Semen Stock (1st April, 2018 to 31st Jan, 2019, 2018-19)

Sl. No.	Set No.	Bull No	Opening balance (1st April, 2017	Semen Doses Received	Doses used /Consumption	Balance (on 31.03.18)
1.	17	M-53	40	-	40	-
2.	17	M-51	40	-	40	-
3.	Proven	183	30	50	44	36
4.	Proven	1150	-	100	28	72
5.	17	1330	40	-	40	-
6.	17	2185	10	-	10	-
7.	17	2558	40	-	40	-
8.	17	2565	40	-	40	-
9.	17	2594	36	-	36	-
10	17	2607	40	-	40	-
11.	17	4687	40	-	40	-
12.	17	4715	40	-	40	-
13.	17	4733	40	-	40	-
14.	17	4837	40	-	34	6
15.	17	4905	-	100	32	68
16.	17	4995	-	50	21	29
17.	17	7010	40	-	40	-
	Grand Total	**17**	**516**	**300**	**605**	**211**

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)		
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)		

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)

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	2358.07±138.46	370.14±34.51	2074.78±77.67	9.48±0.31
2nd	7	2552.09±251.35	343.14±23.39	2377.37±193.88	10.67±0.82
3rd	6	2451.23±133.56	361.67±23.83	2316.97±132.67	11.27±0.37
4th	3	2131.47±376.03	254.33±26.30	2130.80±375.38	11.50±1.04
5th & above	10	2351.80±185.31	326.00±28.18	2220.41±174.10	11.22±0.69
Overall	**40**	**2387.44±84.17**	**344.43±15.43**	**2204.67±68.49**	**10.54±0.28**

* 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)
* 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 2018-19

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

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 2018 to March 2019

Month	N	Fat	SNF
April, 2018-May, 2018	34	9.45	10.22
June, 2018-July, 2018	30	8.77	9.78
August, 2018-September, 2018	45	7.14	9.26
October, 2018-November, 2018	58	6.88	9.56
December, 2018-January, 2019	63	7.64	9.15
February, 2019-March, 2019	62	7.79	9.78
Overall	**292**	**7.76**	**9.58**

9.14 Reproductive Performance

Lactation / Parity	AFC (m)	N →	SP (days)	Days Open (days)	DP (days)	CI (days)
1	43.59±1.97(19)	10	244.90±45.00	-	-	
2	-	7	186.86±37.73	245.57±34.46	589.29±41.05	538.50±50.09
3	-	8	171.88±37.17	170.25±30.47	509.13±47.29	504.75±49.13
4	-	4	106.25±15.94	164.00±39.39	441.75±51.02	441.75±51.02
≥5	-	17	131.00±19.61	164.47±17.16	463.82±22.09	452.33±21.56
Overall	43.59±1.97(19)	**46**	169.22±15.96	181.47±13.70(36)	495.83±18.93(36)	482.80±19.53

9.14.1 Reproduction Performance Since inception of Network.

Years	AFC (m)	Service Period(d)	Days Open(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)	185.60±19.44 (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)	

9.15 Milk Production and Disposal (2018-19)

Month	Total milk produced (kg)	Disposal (Kg)		
		Milk sold	Calf feeding	Expt.
April	7124	The whole milk was given to DT Section (LPT) for disposal		
May	5899			
June	5095			
July	7304			
August	8826			
September	8795			
October	11443			
November	11907			
December	13442			
January	13219			
February	11570			
March	13272			
Total	**117896**			

9.16 Feed and fodder (Quintals) availability (2018-19)

Quarter	Type of fodder	Qty. produced at Farm	Qty.* Purchased	Actually fed (Qtls.)*	Balance
I	Green /Semi Dry	-	-	4302.1	-
	Dry	-	-	130.0	-
	Silage	-	-		-
	Concentrate	-	-	412.8	-
II	Green /Semi Dry	-	-	5273.3	-
	Dry	-	-	81.3	-
	Silage	-	-		-
	Concentrate	-	-	473.1	-
III	Green /Semi Dry	-	-	3912.0	-
	Dry	-	-	73.4	-
	Silage	-	-		-
	Concentrate	-	-	368.5	-
IV	Green /Semi Dry	-	-	3260.5	-
	Dry	-	-	262.0	-
	Silage	-	-		-
	Concentrate	-	-	421.8	-
Total	Green /Semi Dry	-	-	**16747.9**	-
	Dry	-	-	**546.7**	-
	Silage	-	-		-
	Concentrate	-	-	**1676.2**	-

Table 9.17 Milk performance during (April 2018- March 2019)

Month	Buffaloes in Milk	Dry buffaloes	Total	% in Milk	Wet Av. (kg)	Herd Av. (kg)
April 18	39.7	24.27	64.00	62.08	5.98	3.71
May	33.52	30.65	64.16	52.24	5.68	2.97
June	30.93	34.10	65.03	47.56	5.49	2.61
July	38.16	32.16	70.32	54.27	6.17	3.35
August	43.97	32.32	76.29	57.64	6.48	3.73
September	47.10	26.37	73.47	64.11	6.22	3.99
October	54.32	15.65	69.97	77.63	6.80	5.28
November	57.60	15.83	73.43	78.44	6.89	5.40
December	60.75	15.46	76.20	79.72	7.14	5.69

January 19	62.49	14.52	77.00	81.16	6.83	5.54
February	67.47	16.33	77.68	79.01	6.73	5.32
March	63.45	18.06	81.52	77.84	6.75	5.25
Overall	**49.95**	**22.98**	**72.42**	**67.64**	**6.43**	**4.40**

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

* based on pail yields

9.18 Bull wise daughters born (only numbers)

Bull No.	Set No.	Daughters born	Daughters Calved	Daughters completing 1st Lactation
605	P	342,362	-	-
1053	P	338,343	-	-
Sikandar	17	372*,373,375,381	-	-
M-53	17	402	-	-
M-51	17	376,382,408	-	-
2558	17	385,386,399	-	-
2565	17	406	-	-
2607	17	377,378	-	-
4715	17	366,368,370,380,383,395,400	-	-
4733	17	365	-	-
4753	17	388	-	-
7010	17	389	-	-

9.19 Bull wise daughters completing 1st lactation

Bull No.	Daughter No.	Date of birth	Date of calving	AFC (m)	Lact. Length (d)	TLMY (kg)	SLMY (kg)
2234	81/2013	22.9.13	25.9.16	1099	561	2922.7	2061.0
6136	117/14	29.6.14	27.7.17	1124	258	1504.5	-
6136	114/14	24.6.14	13.8.17	1146	288	2025.4	-
1875	54/13	12.05.13	28.8.16	1204	628	2861.1	1953.0
838	105/13	28.12.13	30.8.17	1341	306	1948.6	1947.5
2357	167/15	14.01.15	27.5.18	1229	45	121.0	-
2357	152/14	16.11.14	10.12.17	1120	434	2920.1	2359.8
1994	132/14	25.8.14	16.7.18	1421	16	30.0	-
6044	131/14	20.8.14	28.11.17	1196	263	2358.5	-
6044	134/14	31.8.14	5.1.18	1223	407	3126.1	2570.2
5943	66/13	5.8.13	21.9.17	1508	370	2340.5	2120.1
4324	179/15	28.7.15	28.9.18	1158	20	51.3	-
2412	213/15	27.11.15	14.10.18	1052	5	10	-
4059	15/12	21.8.12	2.12.17	1929	341	2608.7	2462.7
6014	125/14	26.7.14	1.9.17	1133	555	2779.6	2068.4
4439	168/15	22.1.15	30.6.18	1255	253	2019.6	-

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
2234	13	GADVASU	3114	2688	-	14.80
2269	13	GADVASU	3617	2519	-	13.86

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.	165/2015	04/01/2015	1012	6136	3270.0/II	-	-
2.	171/2015	09/02/2015	709	1994	3025.5/V	-	-
3.	216/2015	06/12/2015	942	2429	3205/II	-	-
4.	235/2016	24/05/2016	1012	4363	3270.0/II	-	-
5.	247/2016	14/08/2016	709	6139	3025.5/V	-	-
6.	255/2016	18/09/2016	720	2429	3267.5/VII	-	-
7.	297/2017	08/08/2017	869	4705	3406.7/V	-	-
8.	320/2017	18/11/2017	911	4889	2997.5/IV	-	-
9.	326/2017	02/12/2017	1088	2469	3242.6/II	-	-

9.21 Target achieved during the year 2018-19

Trait	Target	Achieved (2018-19)
Av. Age at first calving (months)	40	38.62
Av. Service period (days)	130	169.22
Calf mortality (0-3 months)	≤ 5 %	4.10
Wet average (kg)	≥8.5 kg	6.43
Herd average (kg)	≥5.5 kg	4.40*

** Based on pail yields*

10. Salient Research Achievements:

(a) **Herd Strength:** The opening balance (herd strength) of Murrah buffaloes as on 01/04/2018 was 182 (36 males and 146 females). Additions in the herd were due to birth of 28 female and 30 male calves (58 calves), in addition to, purchase of 8 milch buffaloes (with 4 suckling female and 4 suckling male calves). Deletions from the herd were due to death of 11 animals (3 males and 8 females), external transfer of 1 male and auction/sale of 19 buffaloes (10 males and 9 females, 1 suckling calf given with milch buffalo; total 20). In all, 32 animals were deleted from the herd due to various reasons, whereas 74 animals were added due to new births and purchase. The new calvings showed a peak of 10 calvings during September, 2018 and new calvings were well distributed throughout the year, except during the months of April and May, 2018 along with January, 2019, when no calvings took place. The male: female ratio of new calvings was 51.52 : 48.48. The closing balance of the buffalo herd as on 31/03/2019 was 224 buffaloes (169 females and 55 males, Table 9.1 and 9.2).

Out of total 19 animals culled/sold (along with 1 suckling calf) during the current year (Table 9.1 and 9.3), all buffaloes (10 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 per cent during the current year was 4.30%. The overall female and male group mortality percents were 4.30 and 4.29%, respectively (Table 9.4). A total of 11 deaths were recorded in IVRI buffalo herd during the current year (3 males and 8 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 62.67% (Table 9.7). The respective figures in heifer and adult groups were 60.00 and 64.00%, respectively. The overall calving abnormalities were 16 (1 still birth, 9 abortions, 2 dystokia, 3 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 43.59±1.97 months, 169.22±15.96 days, 181.47±13.70 days and 495.83±18.93 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 31/03/2019 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 34.86±0.54, 74.85±1.84, 122.94±2.16, 217.59±5.42, 305.01±4.89 and 392.14±6.58 kg, respectively. The respective values for females and males were 33.71±0.66, 72.46±2.79, 118.20±2.58, 215.00±6.42, 303.97±5.18 & 392.14±6.58 and 35.90±0.81, 77.23±2.33, 127.50±3.24, 225.71±9.97, 320.00 kg (24 months – not available), respectively. The weight at first calving during the current year was 566.05±15.37 kg (Table 9.11.1).

(f) **Milk Production Performance:** Buffaloes produced 117896.0 kg milk during the period under report (Table 9.15). Means for overall wet and herd averages were 6.43 and 4.40 kg, respectively (Table 9.17 and 9.17.1). On an average, 49.95% 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 2387.44±84.17 kg, 344.43±15.43 days, 2204.67±68.49 kg and 10.54±0.28 kg, respectively (Table 9.12 and Table 9.12.1). The values for LTMY, productive life, productive days, unproductive days, MY/day of HFL and MY/day of productive life were 13721.90 kg, 2680.92 days, 1805.25 days, 875.67 days, 3.50 kg/d and 5.21 kg/day, respectively (Table 9.12.2).

The means for fat and SNF % were 7.76 and 9.58%, respectively (based on 292 samples during April, 2018-March, 2019, Table 9.13).

The analysis for lactational traits was done for animals expressing normal lactation length i.e. 5 months or more.

(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):**

- Arun Prabhakar, Sofi Aaqib Rashid, Atul Kumar Singh Tomar, Maurya, Vipin and Channa, Ganga Prakash (2018). Effect of coat characteristics on milk production and milk composition traits in Tharparkar cattle. Journal of Entomology and Zoology Studies, 6(5): 939-941 (DOI: 10.3168/jds.1641).
- Channa, G.R., Tomar, A.K.S and Pandey, H.O. (2018). 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. (In Process).
- Channa, G.R., Tomar, A.K.S, Pandey, H.O. and Miranda, Cherryl, D. (2018). 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, Accepted (Manuscript Number: IJLR-2018-05-318).
- Kantharaja, K. J., Tomar, A. K. S. and Pandey Hari Om (2018). Effect of weaning on performance of Murrah buffalo and their calves under organized farm condition. (In Process).
- Kantharaja, K.J., A.K.S. Tomar, O.R. Nataraju and Naveen Kumar, B.T. (2018). Early growth performance comparison of weaned and suckling Murrah buffalo calves under institutional situations. International Journal of Current Microbiology and Applied Sciences, 7(05): 723-733 (DOI: https://doi.org/10.20546/ijcmas.2018.705.087).
- Kantharaja, K.J., A.K.S. Tomar, O.R. Nataraju and Naveen Kumar, B.T. (2018). Effects of weaning and sex of calf on postpartum resumption of reproduction in mother buffaloes. International Journal of Current Microbiology and Applied Sciences, 7(05): 734-737 (DOI: https://doi.org/10.20546/ ijcmas.2018.705.088).
- Prabhakar, Arun, Rashid, Sofi Aaqib, Tomar, A.K.S., Maurya, Vipin and Channa, Ganga Prakash (2018). Effect of genetic and non-genetic factors on various coat characteristics in Tharparkar and Vrindavani cattle. Journal of Pharmacognosy and Phytochemistry, 7(5): 2638-2640.
- Rashid, Sofi Aaqib, Tomar, A.K.S., Verma, M.R., Mehrotra, Sanjeev and Bharti, P.K. (2019). Effect of skin and coat characteristics on growth and milk production traits in Tharparkar cattle. Indian Journal of Animal Sciences (Accepted).

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

- Tomar, A.K.S. (2018). भारत में भैंस नस्ल सुधार |*Shalihotra Darshan- Rajbhasha Smarika-2018*, ICAR-IVRI Izatnagar, pp. 13-14.

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

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

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

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

- Gaur, G.K., Tomar, A.K.S., Dutt, Triveni, Dutt, Narayan, Mehrotra, Sanjeev, Dixit, S.K., Chauhan, Geeta, Ghosh, S.K., Singh, Om, Singh, Mukesh, Gupta, V.K., Patra, M.K. and Pandey, H.O. (2018 & 2019). Annual Report (2017-18 and 2018-19)/RPF II of "Multiplication and evaluation of synthetic crossbred cattle strain – Vrindavani" w.e.f. 01/04/2017 to 31/03/2018 and 01/4/2018 to 31/3.2019, published by LPM, IVRI Izatnagar.
- Tomar, A.K.S., Gaur, G.K., Dutt, Triveni, Dutt, Narayan, Mehrotra, Sanjeev, Dixit, S.K., Chauhan, Geeta, Ghosh, S.K., Singh, Om, Singh, Mukesh, Gupta, V.K., Patra, M.K. and Pandey, H.O. (2018 & 2019). Annual Report (2017-18 and 2018-19)/RPF II of "Network Project on Buffalo Improvement (IVRI Unit)" w.e.f. 01/04/2017 to 31/03/2018 and 01/4/2018 to 31/3.2019, published by LPM, IVRI Izatnagar.
- Tomar, A.K.S., Gaur, G.K., Dutt, Triveni, Dutt, Narayan, Mehrotra, Sanjeev, Dixit, S.K., Chauhan, Geeta, Ghosh, S.K., Singh, Om, Singh, Mukesh, Gupta, V.K., Patra, M.K. and Pandey, H.O. (2018 & 2019). Annual Report (2017-18 and 2018-19)/RPF II of "Genetic Improvement, conservation and multiplication of Tharparkar native cattle" w.e.f. 01/04/2017 to 31/03/2018 and 01/4/2018 to 31/3.2019, 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>**

Tomar, A.K.S. (2019). Selection and procurement of best animals. Invited lecture delivered in Entrepreneurship development programme on "Dairy Farming and Milk Processing"organized by LPM, IVRI Izatnagar w.e.f. 4-10/01/2019 (delivered on 4/1/2019).

(b) **<u>Souvenir</u>**

Tomar, A.K.S., S. Mohan, Chandra, Singh, M.K., Miranda, C.D., Singh, Omvir, Panwar, B.K., Jakhwal, P.S., Mian, N., Joshi, S.C. and Kumar, Ganesh (2019). Souvenir: ICAR Inter Zonal Sports Tournament-2018 (25-28 February, 2019), Published by ICAR-IVRI Izatnagar.

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 2018-19 (Rs in Lakhs)

Sanctioned as per R E 2018-19		Released ICAR Share as per R E	Expenditure as per AUC		Balance
Total	ICAR Share		ICAR Share	State Share	
10.20	10.20	10.20	6.49109	0.15494	(+) 3.55397

Herd Performance:

Herd strength at the centre was 224 animals including 117 breedable buffaloes (>2 year). During the report period 66 calving were reported and calf mortality (0-3 months) was 4.10 %. Conception rate was higher 62.67 % than the last year 49.06 %. Body weights at 24 months was 392.14±6.58 kg (28) in females. Mean for total lactation milk and 305 days or less day milk yield was 2387.44 ±84.17 (40) kg and 2204.67±68.49 (40) kg, respectively. Reproductive performance of the centre improved over the years. AFC at the centre was 43.59±1.97 months (19) higher than the previous year 38.64±1.16 (14). Service period, Dry period and Calving Interval were 169.22±15.96 days (46), 181.47±13.70 days (36) and 495.83±18.93 days (36), all are higher than the previous year 140.77±15.44 (35), 158.53±11.18 (40), 482.80±19.53 (35) respectively. Wet and herd averages are reported as 6.43 kg and 4.40 kg, respectively. Out of 73 animals, 67.64 % animals were in milk during the period. 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: 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 2015-16	Achieved 2016-17	Achieved 2017-18	Achieved 2018-19
1	Av. AFC (Months)	40.0	40.23 (9)	38.99 (19)	38.64 (14)	43.59
2	Av. service period (Days)	90	142 (51)	146 (52)	185 (35)	169.22
3	Calf mortality (0-3 mnths)	≤ 4 %	17.91	4.48	6.15	6.43
4	Wet average (Kg)	≥ 8.50 kg	6.48	6.00	5.77	4.40
5	Herd average (Kg)	≥ 5.50 kg	4.33	3.77	3.72	3.72*

** Based on pail yields*

Recommendations:

- Percent calf mortality (0-3 months) and CR improved significantly compare to the previous year performance.
- 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 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

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

SOE	Allotment	Expenditure	Balance
M&S	4950000	49,48,234	1766
OC	300000	-	300000
M&E	-	-	-
TA	75000	5,595	69405
POL	-	-	-
OE (O)	45000	41,878	3122
Electrical	-	-	-
Works	300000	3,00,000	-
Total	**56,70,000**	**52,95,707**	**3,74,293**

6. Staff position: (Present and revised)

Discipline	Name of Scientist / Staff	Status PI/Co-PI/ Associated)
AGB	Dr. A.S. Yadav	Associated
ARGO	Gynaecology department (as & when required)	Associated
LPM	Dr. S. Sahu Dr. Dipin Chander Yadav	PI Co-PI
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 4/2018 to 3/2019

Category		Addition			Disposal			
S. N.		**OB**	**B**	**T**	**D**	**T**	**S**	**CB**
Female								
1.	Calves 0 – 3 months	9	42+2		3	-42	-	8
2.	Calves >3 – 12 months	38	-	+42	2	-45	4	29
3.	Heifers 1 – 2 years > 2 years	46 57	1	+45 +42	- -	-42 -24	5 9	45 66
4.	Buffaloes in Milk	71	7	+24	5	-16	9	72
5.	Buffaloes Dry P /NP	48	-	+16	-	19	22	23
	Sub Total	269	52	-	10	19	49	243
Male								
1.	Calves 0 – 3 months	7	44+5		3	-46	-	7
2.	Calves >3 – 12 months	20	-	+46	2	-29	-	35
3.	Male above 1 – 2 years > 2 years	42 20	-	+29 +29	- -	-29 -5	21 16	21 28
4.	Breeding bulls	-	-	+5	-	-	5	-
5.	Bullocks /Teaser/Other	2	-	-	-	-	-	2
	Sub Total	91	49	-	5	-	42	93
	Grand Total	360	101	-	15	19	91	336

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

9.2 Calving Statistics During the Period 4/2018 to 3/2019

Month	Male		Female		Dystokia		Prolepses		Still Birth		Abortion		Overall	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
April, 17	2+5		2+2		-		-		-		-			
May	1		3		-		-		-		-			
June	6		5		-		-		-		-			
July	8		5		-		-		-		-			
August	4		11		-		-		-		-			
September	4		2		-		-		-		-			
October	4		2		-		-		-		-			
November	6		4		-		-		-		-			
December	2		0		-		-		-		-			
January,18	1		4		-		-		-		-			
February	3		1		-		-		-		-			
March	3		3		-		-		-		-			
Overall	**49**		**44**		-		-		-		-			

Sex ratio Male : Female 52.69:47.31) SB% = Aboration % =

9.3 Disposal of Animals During the Period 4/2018 to 3/2019

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	4	-	-	-	-	2	-	6
Heifers								
1-2 years	-	6	-	-	-	-	-	6
> 2 years	-	3	4	-	1	-	-	8
Buffaloes								
Milch	-	5	2	2	-	5	-	14
Dry	-	8	10	-	4	-	-	22
Sub Total	4	22	16	2	5	10	-	59
Males	Primary cause of disposal							
Calves								
0 to 3 months	1	-	-	-	-	3	-	4
3-12 months	-	-	-	-	-	2	-	2
1 to 2 year	20	-	-	-	-	-	-	20
. >2 year	16	-	-	-	-	-	-	16
Breeding bulls	5	-	-	-	-	-	-	5
Bullock+Teaser + Others	-	-	-	-	-	-	-	-
Sub Total	42	-	-	-	-	5	-	47
Grand Total	46	22	16	2	5	15	-	106

9.4 Month-wise Mortality During the Period 4/2017 to 3/2018

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	3	-	-	5	10	3	3	-	-	5	15
	Died	-	-	-	-	-	-	-	-	-	-	-	-
	%	-	-	-	-	-	-	-	-	-	-	-	-

% calf mortality= 5.5 % (6/109)

9.5 Causes of Mortality (quarter-wise) During the Period 4/2018 to 3/2019

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

9.6 Prophylactic Measures Taken During the Period 4/2018 to 3/2019

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)	-	-	

9.7 Female conception rate during 4/2018 to 3/2019

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	12	41.4	19	8	42.1	3	1	33.3	9	2	22.2	60	23	38.3
Adults	85	49	57.6	44	24	54.5	16	7	43.7	5	0	0	150	80	53.3
Overall	**114**	**61**	**53.5**	**63**	**32**	**50.8**	**19**	**8**	**42.1**	**14**	**2**	**14.2**	**210**	**103**	**49.0**

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

9.8 Quarter-wise conception rate (1.1.2018 to 31.12.18)

Quarter	No. of A I	Preg. animals	CR %
January – March Previous year	34	15	44.1
April - June	42	21	50.0
July - September	61	29	47.5
October- December	73	38	52.0
Overall	**210**	**103**	**49.0**

9.9 Bull-wise Conception Rate During the Period 4/2018 to 3/2019

S.No.	Bull No.	Total No. of AIs.	Total Conceived	CR%
1	M-51	3	1	38.3
2	183	27	13	48.1
3	2607	6	3	50.0
4	2185	4	4	100.0
5	2558	13	6	46.1
6	4715	6	3	50.0
7	1148	19	9	47.4
8	7010	5	1	20.0
9	2594	5	2	40.0
10	4687	13	6	46.1
11	6942	16	9	56.2
12	4837	12	5	41.7

13	4733	7	3	42.8
14	DARA	13	5	38.5
15	M-53	26	14	53.8
16	B-1330	19	9	47.4
17	Sikandar	16	10	62.5
Overall		**210**	**103**	**49.00**

No. of services per conception 2.03:1

9.10 Bull-wise Semen Stock During the Period 4/2017 to 3/2018

Bull No.	Set no.	Opening balance	Semen produced /Received	Consumption for AI/ Supplied	Balance
2607	17th set	-	21	21	-
4687	17th set	35	56	50	6
4733	17th set	26	41	41	-
4837	17th set	28	67	67	-
2558	17th set	2	70	70	-
183	17th set	18	74	74	-
2185	17th set	30	10	10	-
53-M	17th set	36	90	81	9
DARA	17th set	2	40	40	-
B1-330	17th set	2	40	40	-
Sikander	17th set	32	30	30	-
1148	17th set	30	70	64	6
6942	17th set	30	60	50	10
4715	17th set	-	40	36	4
7010	17th set	-	20	20	-

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)	Adult (n)	Heifer (n)
Male & 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)	
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)	-	

9.12 Average Production Performance During the Period 4/2018 to 3/2019

Lact. No.	No. of obs.	Av. Lact. Yield (kg)	Av. Lact. Length (days)	305-day Milk Yield (kg)	Av. Peak yield
1st	26	2974.0	330.5	2806.8	13.7
2nd	15	3128.4	303.3	3011.3	15.3
3rd	7	2916.7	269.1	2907.3	15.2
4th	9	3968.2	324.8	3811.1	18.0
5th& above	9	3377.0	307.8	3293.7	16.1
Overall	66	3193.6±91.4	313.9±6.1	3067.3±84.1	15.1±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)

Figures in parenthesis indicate number of observations.

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

Sr. No.	Traits	Buffalo No.	Average
1.	Herd Life (days)	20	3405
2.	Productive Days	20	1575
3.	Unproductive days	20	548
4.	Productive Life (days)	20	2123
5.	Life time milk Yield (kg)	20	15524
6.	Milk yield / day HLF (kg)	20	4.56
7.	Milk yield / day PLF (kg)	20	7.31
8.	Milk Yield / day productive days	20	9.86

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 4/2018 to 3/2019

Month	Animal in milk (N)	Av. Fat (%)	SNF	Protein	Lactose
April, 2018	73	7.2	-	-	-
May	75	7.3	-	-	-
June	73	7.3	-	-	-
July	70	7.2	-	-	-
August	75	6.9	-	-	-
September	81	7.1	-	-	-
October	84	7.0	-	-	-
November	80	7.0	-	-	-
December	80	7.0	-	-	-
January, 19	78	7.2	-	-	-
February	72	7.3	-	-	-
March	68	7.0	-	-	-
Overall	**76**	**7.1**	-	-	-

9.14 Reproduction Performance During the Period 4/2018 to 3/2019

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)	42.5±0.83 (21)	-	-	-	-	**42.5±0.83 (21)**
Average Service Period (Days)	-	184.3±16.4 (24)	149.1±26.9 (11)	77.8±13.9 (8)	128.0±18.7 (17)	**144.9±10.7 (60)**

Open Days	-					
Average Dry Period (Days)	-	132.6±10.8 (24)	105.1±15.2 (11)	106.1±24.6 (8)	92.2±11.2 (17)	**111.4±7.0 (60)**
Average Calving Interval (Days)	-	494.9±16.5 (24)	458.4±28.0 (11)	386.3±15.7 (8)	435.7±19.2 (17)	**454.1±11.1 (60)**

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)

Figures in parenthesis indicate number of observations

9.15 Milk Production and DisposalDuring the Period 4/2018 to 3/2019

Month	Total milk produced (kg)	Disposal		
		Liquid Milk	Calf feeding	Expt.
April, 18	24948	22876	2072	-
May	24595	22725	1870	-
June	23491	21691	1800	-
July	21428	19288	2140	-
August	23605	21435	2170	-
September	24528	22168	2360	-
October	26120	23640	2480	-
November	26110	23710	2400	-

December	26211	23731	2480	-
January, 19	25059	21979	3080	-
February	22283	19483	2800	-
March	23944	21364	2580	-
Total	**292322**	**264090**	**28232**	-

9.16 Feed & Fodder (Qtls.) During the Period 4/2018 to 3/2019

Month	Type of fodder/feed	Qty. produced at Farm (qtl.)	Qty. Purchased	Actually fed	Balance
Total	Green	22455.00	-	22455.00	-
	Silage	-	-	-	-
	Dry	3718.0	-	3718.0	-
	Concentrate	3731.03	-	3731.03	-

9.17 Milking Performance During the Period 4/2018 to 3/2019

Month	No. of Animal in Milk	No. of Animal dry	Total Animal	% in Milk	Wet Av. (kg)	Herd Av. (kg)
April, 18	73	41	114	64.9	11.5	7.4
May	75	39	114	65.8	10.9	7.2
June	73	43	116	62.9	11.2	7.0
July	70	33	103	68.0	10.3	7.0
August	75	31	106	70.7	10.5	7.4
September	81	27	108	75.1	10.4	7.8
October	84	23	107	78.5	10.7	8.1
November	80	30	110	72.7	11.1	8.0
December	80	13	93	86	11.0	9.4
January, 19	78	14	92	84.8	9.4	8.0
February	72	21	93	77.4	10.0	7.7
March	68	27	95	71.5	11.6	8.3
Overall	**76**	**29**	**104**	**73.2**	**11.0**	**8.0**

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

9.18 Bull-wise Daughters Performance (1st lactation) During the Period 4/2018 to 3/2019

Bull No.	Total No. of daughters born	No. of daughters reaching A.F.C.	No. of daughters completing 1st Lactation
4889	1		
2383	4		
4705	1		
183	6		
4592	1		
2565	2		
4687	3		
2185	5		
4715	2		
Sikander	1		
M-51	4		
4733	5		
7010	3		
4837	3		
2594	1		
70377	-	5	11
PC461		2	4
6044		1	1
2045		2	
6007		1	
2357		2	
2412		2	
6136		2	
6405		1	
B1-330		1	7
2371		1	
1994		1	
2369			3
6014			1
Total	**42**	**21**	**27**

9.19 Bull-wise Daughters Completing 1st Lactation During the Period 4/2018 to 3/2019

Bull No.	Daughter No.	Date of birth	Date of calving	First lact. 305 day or less milk yield(kg)	Total yield/	Remarks/ LL (days)
B1-330	1068	23.03.14	01.05.17	3129	3697	413
70577	1010	25.08.13	11.06.17	2700	3300	398
Pc461	1025	27.09.13	22.07.17	3501	3584	324
Pc461	1046	18.11.13	31.07.17	2850	2991	332
70577	1038	18.10.13	31.07.17	3084	3109	315
70577	1093	23.08.14	26.08.17	3361	3622	352
70577	1047	18.11.13	30.09.17	3098	3458	363

B1-330	1074	15.04.14	02.10.17	2995	3112	331
B1-330	1078	07.05.14	04.10.17	1574	1574	206
6044	1131	23.12.14	12.10.17	3173	3419	346
B1-330	1058	06.01.14	25.10.17	3182	3272	331
B1-330	1072	15.04.14	08.11.17	3159	3632	376
B1-330	1060	26.01.14	16.11.17	3078	3258	342
2369	1123	14.11.14	09.12.17	2896	2981	325
B1-330	1067	03.03.14	21.12.17	3182	3337	344
70577	1104	17.09.14	30.01.18	1984	1984	301
70577	1112	06.10.14	05.02.18	3044	3247	351
2369	1124	14.11.14	10.02.18	2919	3291	349
2369	1125	14.11.14	02.03.18	2869	2869	286
6014	1138	12.01.15	09.03.18	1870	1870	305
70577	1098	07.09.14	13.03.18	2387	2429	315
70577	999	22.06.13	19.03.18	2636	2777	335
Pc461	1114	14.10.14	19.03.18	2987	3223	331
70577	1103	14.09.14	27.03.18	2143	2143	301
70577	1100	09.09.14	17.04.18	2527	2545	311
70577	1111	04.10.14	23.04.18	2648	2661	310

9.20 List of Pre-Selected Breeding/Young Bulls as on 31.03.2019

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	1150	1.5.15	782	6066	3612/4		
2	1208	16.10.15	616	2045	3437/2		
3	1209	17.10.15	708	2045	3824/4		
4	1219	24.11.15	787	6405	4768/4		

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	1250	15.6.16	964	2417	3149/1		
2	1268	19.8.16	655	1693	3149/3		
3	1299	14.10.16	616	2045	3437/2		
4	1307	1.11.16	681	4403	3705/6		
5	1314	18.11.16	779	4403	3002/3		
6	1315	18.11.16	708	2045	3749/5		
7	1319	26.11.16	873	4889	3616/2		
8	1324	1.12.16	617	4705	3263/2		
9	1327	3.12.16	770	4889	3137/2		
10	1330	8.12.16	1007	4705	3347/1		
11	1339	9.1.17	683	2045	4158/4		
12	1345	23.1.17	945	2467	3297/2		
13	1350	12.2.17	1071	4592	3081/2		
14	1365	7.6.17	935	6379	3297/2		
15	1367	14.6.17	902	2045	3228/2		
16	1376	17.8.17	672	3591	3086/1		
17	1382	18.9.17	981	6379	3773/2		
18	1388	4.10.17	918	M-29	2943/1		
19	1400	5.11.17	697	1027	3414/5		

9.21 Targets Achieved During the Year 2018-19

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

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 11.0 kg and 8.0 kg, respectively.
ii) Overall 305d lactation milk yield and total lactation milk were reported 3067 kg and 3194 kg, respectively.
iii) Age at 1st calving during the period was observed 42.5 months.
iv) During the period 1st April, 2018 to 31st March 2019, calf mortality (0-3 months) was 5.5%.

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.

13. Constraints if any

Financial assistance may be provided to improve the existing facilities in the buffalo farm such as:

- Improving the Micro Climate of Milking Parlour
- Performance recording through automatic milk analyzer and somatic cell counter
- Modification of old working yard

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 2018-19 (Rs in Lakhs)

Sanctioned as per R E 2018-19		Released ICAR Share as per R E	Expenditure as per AUC		Balance (ICAR Share)
Total	ICAR Share		ICAR Share	State Share	
75.60	53.70+3.00 (SCSP)	53.70+3.00 (SCSP)	AUC awaited		

Herd Performance

Herd strength at the centre was 336 heads with 161 breedable buffaloes (>2 year). 93 calves were added due to birth. During the period of report calf mortality (0-3 months) was 5.50 % and conception rate was 49.00 %.

Average lactation yield, lactation length and 305 or less days milk yield were 3193.6±91.4 kg (66), 314 days (66) and 3067.3±84.1 kg (66). The reproduction parameters viz Age at first calving, Dry Period and Calving Interval were 42.5±0.83 months (21), 111.4±7.0 days (60) and 454.1±11.1 days (60), respectively. Wet and herd averages were 11.0 kg and 8.0 kg respectively.

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: 3405.05 days, 2123 days, 15524.05 kg, 4.56 kg and 7.31 kg, respectively.

Accomplishment and Targets Achieved:

Sr. No.	Trait	Target	Achieved 2015-16	Achieved 2016-17	Achieved 2017-18	Achieved 2018-19
1	Av. AFC (Months)	40.0	41.7	42.0	42.2±0.87	42.5±0.83
2	Av. service period (Days)	130 days	127.5	129	93.33±7.28	144.9±10.7
3	Calf mortality (0-3 months)	≤ 4 %	2.8 %	3.9 %	3.16 %	5.50 %
4	Wet average (Kg)	≥ 8.50 kg	9.9 %	9.7 %	10.3 kg	11.0 Kg
5	Herd average (Kg)	≥ 5.50 kg	6.2 %	6.6 %	7.6 kg	8.0 Kg

Recommendations:

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

ICAR RESEARCH COMPLEX FOR EASTERN REGION, PATNA (BIHAR)

Report Period 2018-19

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 P.C.Chandran, Scientist	Principal Investigator
ARGO	Dr Chandra Sekar Azad, Asst. Professor	Co- Principal Investigator
ANFT	Dr Amitava Dey, Pr. Scientist	Co- Principal Investigator
LPM	Dr Reena Kamal, Scientist	Co- Principal Investigator
Health / Others	Dr Pankaj Kumar, Sr. Scientist	Co- Principal Investigator
No. of staff		
Technical staff	One - Technician	

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

Fund utilization in Network Project for 2018-19 (Amount in Lakhs)											
Heads	**Capital**						**Salary**	**General**			
	Works	**Equip.**	**Library**	**Livestock**	**Furniture**	**Others**		**TA**	**HRD**	**Contingency**	**Others**
Fund released	4.00	0.00	0.00	7.00	0.00	0.00	0.00	0.00	0.00	16.00	27.00
Fund utilized	4.00	0.00	0.00	6.80	0.00	0.00	0.00	0.00	0.00	15.94	26.74

9.1 Herd Strength during the Period 1st April 2018 to 31st March, 2019

Sr. No.	Category	Addition			Disposal				CB
		OB	**B / P**	**T**	**D**	**T**	**S**	**E**	**CB**
	Female								
1.	Below 3 months	1	5	-	2	-	-	-	3
2.	3-12 months	7	3	-	-	-	-	-	7
3.	1-2 years	10	-	-	-	-	-	-	12
	Above 2 years	10	-	-	-	-	-	-	15
4.	Buffaloes in Milk	17	7	-	-	-	-	-	16
5.	Buffaloes Dry P /NP	18	8	-	-	-	2	-	25
	Sub Total	63	23	-	2	-	2	-	78
	Males								
1.	Below 3 months	0	5	-	3	-	-	-	1
2.	3-12 months	11	3	-	-	-	-	-	2
3.	1-2 years	6	-	-	-	-	7	-	2
	Above 2 years	-	-	-	-	-	-	-	-
4.	Breeding bulls	-	-	-	-	-	-	-	2
5.	Bullocks / Teasers	0	1	-	-	-	1	-	7
	Sub Total	17	9	-	3	-	8	-	7
	Grand Total	80	32	0	5	0	10	0	85

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	-	-	-	-	-	-	-	-
May	1	-	-	-	-	-	-	1
June	-	-	-	-	-	-	-	-
July	1	2	-	-	-	-	-	3
August	-	-	-	-	-	-	-	-
September	-	1	-	-	-	-	1	1
October	1	-	-	-	-	-	-	1
November	-	-	-	-	-	-	-	-
December	2	-	-	-	-	-	-	2
January	-	-	-	-	-	-	-	-
February	-	-	-	-	-	-	-	-
March	1	-	-	-	-	-	-	1
Overall	**6**	**3**	**0**	**0**	**0**	**0**	**4**	**09**

Sex ratio Male : Female (66.66: 33.34) Abortion % = Nil

9.3. Disposal of Animals during the Period 1st April 18 to 31st March 19

Female	Primary cause of disposal							
Category	Surplus	Below farm production standard	Reprod. Problem	Weak & Old	Udder Health	Death	Experimental purposes	Total
Calves 0 to 3 months 3-12 months						2		2
Heifers 1-2 years > 2 years								
Buffaloes Milch Dry			2					2
Sub Total			2			2		4
Males	**Primary cause of disposal**							
Calves 0 to 3 months 3-12 months						3		3
1 to 2 year						-		-
. >2 year	11					-		11
Breeding bulls						-		-
Bullock+Teaser+Others						-		-
Sub Total	11					3		14
Grand Total	11		2			5		18

9.4. Mortality during the Period 1st April 2018 to 31st March, 2019

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.	3 (8)	7	12	15	41	78	1 (8)	2	2	2	7	85
Died	2	0	0	0	0	2	3	0	0	0	3	5
%	25					2.56	37.5				42.8	5.88

9.5. Causes of Mortality (quarter wise) during the period April 18 to March 19

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	0	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	14.04.2018 (77) 10.11.2018 (64)	-	-	Calves under one year of age are dewormed on 7th of every month. Adult animals are dewormed once in 6 months.
HS	14.04.2018 (77) 10.11.2018 (64)	-	-	
BQ	14.04.2018 (77) 10.11.2018 (64)	-	-	
Brucellosis	15.04.2018 (03) 11.11.2018 (02)	-	-	
JD	-	-	-	
TB	-	-	-	
IBR	-	-	-	

9.7. Female Conception Rate during the Period January to December 2018

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	6	3	50.00	5	3	60.00	5	2	40.00	2	1	50.00	18	9	50.00
Adults	7	4	57.14	12	7	58.33	10	6	60.00	5	3	60.00	34	20	58.82
Overall	13	7	53.85	17	10	58.82	15	8	53.33	7	4	57.14	52	29	**55.76**

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	12	5	41.66
April – June	2	1	50.00
July – September	16	10	62.50
October- December	22	13	59.09
Overall	52	29	55.76

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	4687	XV	9	5	55.55
2	M51	XV	5	3	60.00
3	4733	XV	9	5	55.55
4	4715	XV	7	3	42.86
5	2594	XV	6	4	66.67
6	2607	XV	7	4	57.14
7	2565	XV	9	5	55.56
Overall			**52**	**29**	**55.76**
No. of services per conception					**1.79**

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.	XV	4687	38	50	17	0	10	61
2.	XV	4733	39	50	18	0	10	61
3	XV	4715	39	50	10	0	10	69
4	XV	2594	35	50	12	0	10	63
5	XV	2607	39	50	15	0	10	64
6	XV	2565	40	50	16	0	10	64
7	XV	M51	23	0	17	0	0	6
Grand Total			253	300	105	Nil	60	388

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					
2nd					
3rd					
4th	4	1708.21±190.45	337.50±35.77	1524.62±181.38	10.2±0.34
5th & above	12	2478.33±145.50	386.32±28.78	2138.14±122.65	13.73±0.38
Overall	**16**	2356.17±147.22	370.27±23.5	1984.85±135.23	13.08±0.38

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)

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

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

9.13 Average Milk Composition from April 2018 to March 2019

(Not available)

9.14: Reproductive Performance

Lactation / Parity	AFC (Months) (N)	N →	SP (Days)	Days Open	DP (Days)	CI (Days)
1		-	-	-	-	-
2		-	-	-	-	-
3		-	-	-	-	-
4		7	148.35±10.38	-	88.53±7.32	420.58±20.16
5th and above		11	161.25±8.57	-	94.22±9.62	478.27±19.18
Over all		18	157.22±9.28	-	92.25±10.47	463.12±22.17

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)

9.15 Milk Production and Disposal

Month	Total milk produced (kg)	Disposal (Kg)		
		Milk sold	Calf feeding	Expt.
April	2401.5	1910.5	491	
May	2125.1	1721.5	403.6	
June	2103.2	1708.5	394.7	
July	1779.7	1448	331.7	

August	1955.8	1561.5	394.3	
September	1572.2	1264.5	307.7	
October	1833	1390.5	442.5	
November	1688.4	1378	310.4	
December	1483.4	1216.5	266.9	
January	1839.5	1643	196.5	
February	3320.4	2876.5	443.9	
March	3222.8	2700.5	522.3	
Total	25325	20819.5	4505.5	

9.16 Feed and fodder (Quintals) availability

Months	Green fodder produced at Farm	Green fodder Purchased	Total
April	126.1	-	126.1
May	112.2	-	112.2
June	119.8	-	119.8
July	293.4	-	293.4
August	342.4	-	342.4
September	394.6	-	394.6
October	131.2	-	131.2
November	122.4	-	122.4
December	137.4	-	137.4
January	183.2	-	183.2
February	154.2	-	154.2
March	124.3	-	124.3
Total Green	2241.2	-	2241.2
Silage	-	-	-
Dry	750	600	1350
Concentrate	-	730	730

9.17: Milk performance during April 18 to March 19

Month	Buffaloes in Milk	Dry buffaloes	Total	% in Milk	Wet Av. (kg)	Herd Av. (kg)
April	17	11	28	53.13	4.71	3.25
May	17	10	27	53.13	4.17	2.96
June	16	11	27	50.00	4.38	2.94
July	16	10	26	53.33	3.71	2.73
August	14	10	24	50.00	4.66	3.08
September	15	9	23	53.57	3.49	2.62
October	13	11	24	46.43	4.70	2.93
November	14	10	24	50.00	4.02	2.76
December	11	12	23	39.29	4.50	2.52
January	11	12	23	39.29	5.57	2.94
February	17	11	28	48.57	6.90	4.10
March	16	11	27	45.71	7.34	4.11
overall	14.75	10.67	25.33	58.01	4.85	3.08

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

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 2018-19

Trait	Target	Achieved (year)
Av. Age at first calving (months)	40	-
Av. Service period (days)	130	157.22±9.28
Calf mortality (0-3 months)	≤ 5 %	45.45%
Wet average (kg)	≥8.5 kg	4.85
Herd average (kg)	≥5.5 kg	3.08

Salient Research Achievements:

10. Publications

Chandran, P.C., Jegaveera Pandian, S., Reena Kamal and Dey A. Socio-economic status and system of farming practices with Diara buffaloes in the middle Gangetic plains of Bihar, India. *Buffalo Bulletin* (In Review).

11. Socioeconomic impact / Success stories:

The farm continues to be the centre for enhancing the knowledge of visiting farmers. In the year 2018-19, more than 150 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 100 farmers were given Napier Hybrid fodder slips for propagating them in the field as one of the objectives of round the year fodder production.

12. Constraints if any

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

13. 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 2018-19 (Rs in Lakhs)

Sanctioned as per R E 2018-19		Released ICAR Share as per R E	Expenditure as per AUC		Balance (ICAR Share)
Total	ICAR Share		ICAR Share	State Share	
27.00	26.00+1.00 (SCSP)	27.00	26.74397	--	0.25603

Herd Performance

The herd strength of farm increased to 85 head from 80 in 2017-18, comprising 56 breedable buffaloes. 9 calves added due to birth during the year. The calf mortality (0-3 months) was 45.45 percent. Conception rate reported 55.76 percent which improved significantly as compared to 2016-17 (42.86 %).

Av. Lactation milk yield, Av. Lactation length and 305 or less day lactation milk yield were 2356.17 (16), 370.27 (16) and 1984.85 (16), respectively. The service period, dry period and calving interval were 157 days (18), 92 days (18) and 463 days (n=18), respectively. The wet average (4.85 kg) and herd average (3.08 kg) increased significantly as compared to previous year performance (4.30 and 2.93 kg, resp.).

A. Accomplishment and Targets Achieved:

Sr. No.	Trait	Target	Achieved 2015-16	Achieved 2016-17	Achieved 2017-18	Achieved 2018-19
1	Av. AFC (Months)	40.0	--	--	--	--
2	Av. service period (Days)	130	140 (12)	183 (14)	195 (12)	157.22±9.28
3	Calf mortality (0-3 months)	≤ 4 %	10.0%	0.00 %	50.0%	45.45%
4	Wet average (Kg)	≥ 8.50 kg	7.45	6.39	4.30	4.85
5	Herd average (Kg)	≥ 5.50 kg	3.91	4.51	2.93	3.08

Recommendations:

- Need to improve reproduction traits through improvement in farm management-practices.
- Lactation milk yield and CR improved during the report under period, but still need improvement for management of lactating and dry buffaloes.
- Calf mortality is very high conserted effprts should be made for improvement of calf management.
- Since last five 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 31/03/2017: Redeployment
8. Herd Performance: Presented in table 9.1 to 9.21

9.1 Herd Strength during the Period 1st April 2018 to 31st March, 2019

Sr. No.	Category	Addition			Disposal				CB
		OB	**B / P**	**T**	**D**	**T**	**S**	**E**	**CB**
	Female								
1.	Below 3 months	22	64		06	66	-	-	14
2.	3-12 months	36	-	128	02	118	-	-	44
3.	1-2 years	61	-	56	01	61	-	-	53
	Above 2 years	97	-	187	-	186	03	-	95
4.	Buffaloes in Milk	103	-	138	02	115	18	-	106
5.	Buffaloes Dry P /NP	32	-	115	-	78	08	-	61
	Sub Total	351	-	624	11	624	29	-	375
	Males								
1.	Below 3 months	13	73		03	72	01	-	10
2.	3-12 months	49	-	135	07	119	05	-	53
3.	1-2 years	18	-	56	01	151	14	-	44
	Above 2 years	29		29	01	22	09	-	126
4.	Breeding bulls	03	-	08	-	-	01	02	08
5.	Bullocks / Teasers / others	01	-	-	-	-	-	-	01
	Sub Total	113	73	228	12	228	30	02	142
	Grand Total	464	138	852	23	852	59	02	517

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	10	07	-	-	-	-	02	17
May	04	04	01	-	-	01	03	08
June	07	02	-	-	-	-	01	09
July	08	05	01	02	-	03	-	13
August	09	03	-	-	-	-	-	12
September	07	10	-	-	-	-	-	17
October	08	07	-	01	-	-	01	15
November	06	04	-	01	-	-	01	10
December	03	08	-	01	-	-	01	11
January	04	07	-	-	-	-	-	11
February	03	01	-	-	-	-	-	04
March	04	06	-	-	-	-	01	10
Overall	73	64	02	05	-	-	-	144

Sex ratio Male : Female (53 : 47) SB% = 1.39 Abortion % = 3.47

9.3. Disposal of Animals during the Period 1st April 18 to 31st March 19

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	-	-	-	-	-	06	-	06
3-12 months	-	-	-	-	-	02	-	02
Heifers								
1-2 years	-	-	-	-	-	01	-	01
> 2 years	03	-	-	-	-	-	-	03
Buffaloes								
Milch	18	-	-	-	-	02	-	20
Dry	08	-	-	-	-	-	-	08
Sub Total	29	-	-	-	-	11	-	40
Males	**Primary cause of disposal**							
Calves								
0 to 3 months	01	-	-	-	-	03	-	04
3-12 months	05	-	-	-	-	07	-	12
1 to 2 year	14	-	-	-	-	01	-	15
. >2 year	09	-	-	-	-	01	-	10
Breeding bulls	03	-	-	-	-	-	-	03
Bullock+Teaser+Others	-	-	-	-	-	-	-	-
Sub Total	32	-	-	-	-	12	-	44
Grand Total	61	-	-	-	-	23	-	84

9.4. Mortality during the Period 1st April 2018 to 31st March, 2019

	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.	86	164	117	284	167	415	86	184	74	70	186	601
Died	06	02	01	02	02	11	03	07	01	01	12	23
%	6.98	1.22	0.85	0.71	1.20	2.65	3.49	3.80	1.35	1.43	6.45	3.83

9.5. Causes of Mortality (quarter wise) during the period April 18 to March 19

Particulars	*1st quarter*	*2nd quarter*	*3rd quarter*	*4th quarter*
A. Respiratory System:				
1. Broncho-pneumonia	01		01	04
2. Acute Resp. failure				
3. Pheumo-Enteritis				
B. Digestive system				
1. Enteritis		02	01	01
2. Gastritis				
3. Impaction		01	01	
4. Peritonitis			01	
5.Hepatitis				
6. Tympanitis				
C. Cardio-vascular System				
D. Urogenital System				
1. Pyelonephritis				01
2. Urethral obstruction			01	01
3. Prolapse				
4. Others		01		

E. Others				
1. Premature birth				
2. Congenital abnormality				
3. Joint-ill/ Naval ill		01		
4. Euthanasia				
5. Accident	01			02
6.Neurological disorder				01
7. Miscellaneous & Others				01
Total	**02**	**05**	**05**	**11**

9.6 Prophylactic Measures undertaken

10 Vaccination	*No. of animals*		*Screening*	*No of animals*		*No of animals treated for Parasitism*
	Available	*Inoculated*		*Tested*	*Results*	
FMD	575	575	TB*	260	-ve	220
HS	575	575	JD*	260	-ve	
BQ	-	-	Brucellosis**	185	-ve	
RP	-	-	Mastitis***	210	39	
Brucellosis	108	108				

* 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 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	61	33	54.09	26	12	46.15	14	04	28.57	28	07	25.00	129	56	43.41
Adults	134	61	45.52	70	27	38.57	41	19	46.34	52	10	19.23	297	117	39.39
Overall	195	94	48.20	96	39	40.63	55	23	41.82	80	17	21.25	426	173	40.61

9.8 Quarter-wise conception rate

Quarter	No. of A I	Preg. animals	CR %
January – March (Previous year)	93	38	40.86
April - June	77	31	40.26
July - September	89	34	38.20
October- December	167	70	40.92
Overall	426	173	40.61

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	298	7th	06	01	16.67
2	308	7th	10	03	30.00
3	312	7th	09	03	33.33
4	411	1st	04	02	50.00
5	473	1st	03	02	66.66
6	359	7th	107	48	44.86
7	535	2nd	10	04	40.0
8	674	3rd	14	06	42.86
9	702	3rd	17	06	35.29

10	523	2nd	02	-	-
11	487	8th	33	12	36.36
12	435	8th	11	04	36.36
13	501	8th	14	05	35.71
14	507	8th	08	02	25.00
15	511	8th	20	09	45.00
16	543	8th	12	08	66.67
17	905	4th	01	01	100.00
18	480	8th	07	03	42.86
19	516	8th	13	06	46.15
Overall					**40.61**
No. of services per conception					**2.46**

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	1st	411	567		15			552
2		439	694			370		324
3		453	670			540		130
4		455	670					670
5		464	770			130		640
6		473	662		16			646
7		479	766					766
8	2nd	523	784		09			775
9		524	1378					1378
10		525	573					573
11		535	889		57			832
12		562	894					894
13		576	340					340
14		577	1376					1376
15		579	706					706
16	3rd	596	1326					1326
17		674	1372		82	15		1275
18		702	1234		100	65		1069
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	1516			15		1501
27		891	1496			10		1486
28		900	1496					1496
29		902	1500					1500
30		905	1500			09		1491
31		916	1530			11		1519
32		930	1496					1496
33		941	1530					1530
34	5th	991	2304					2304
35		03	520					520
36		25	2370				135	2235

37		27	3251			50	50	3151
38		63	3700					3700
39		113	2066				111	1955
40	6th	168	538					538
41		181	919					919
42		252	538					538
43		254	2096					2096
44		245	2827					2827
45		214	689				565	124
46	7th	298	2084				60	2024
47		308	667					667
48		312	686					686
49		336	212					212
50		352	0	273	270			03
51		359	2844	0	169			2675
52		Bullet	45	0	34			11
53		Raja	35	0	25			10
54		Badshah	18	0	10			08
55	8th	422	0	230	0			230
56		435	0	60	50			10
57		480	0	560	62	245		253
58		487	0	1740	143	55		1542
59		501	0	60	60			0
60		507	0	770	56	250		464
61		511	0	100	79			21
62		516	0	135	75			60
63		543	0	325	71			254
Grand Total			65018	4253	1453	2616		65202

9.11.1 Average Body weight (kg) since inception…. (Indicate number of animals in parenthesis) -------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	45	2606±112.23	321±8.62	2445±85.53	11.74±0.39
2nd	18	2957±124.14	311±12.40	2858±99.00	15.36±0.64
3rd	18	3065±179.47	305±12.75	2973±146.64	15.26±0.66
4th	12	2851±144.83	287±13.07	2797±130.03	15.40±0.77
5th & above	18	2809±117.34	308±12.60	2717±94.73	14.48±0.58
Overall	111	2797±63.94	311±5.18	2679±52.63	13.7±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)
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)

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

No. of Buffaloes	HLF (days)	PLF (days)	LTMY (kg)	MY/HLF	MY/PL	PD (days)	UPD (Days)
32	3212	1994	13156	4.096	6.65	1434	560

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 2018 to March 2019

Month	N	Fat	SNF	Protein	Lactose	SCC
April	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	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	40.61±0.63(55)					
2		23	100±12.35	139±14.35	155±11.90	447±14.31
3		21	113±10.46	147±17.12	147±9.99	456±16.81
4		16	73±13.55	92±13.73	134±10.05	402±14.56
5th and above		17	75±9.31	128±21.38	151±15.23	439±21.41
Over all		77	92±6.02	129±8.55	148±5.93	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)

9.15 Milk Production and Disposal

Month	**Total milk produced (kg)**	**Disposal (Kg)**		
		Milk sold	**Calf feeding**	**Expt.**
April	27170.8	22301.0	4074.91	3.5
May	30976.9	22301.0	4074.91	4.5
June	28317.4	23326.5	4162.12	4.0
July	28625.8	23347.0	4440.54	4.5
August	27735.5	22990.0	3933.66	4.0
September	27404.4	21950.5	4651.21	4.5
October	30631.4	23805.0	5929.72	4.5
November	30723.9	24272.0	5553.53	3.5
December	31816.80	25398.5	5490.59	1.0
January	31319.00	24448.00	5954.79	4.0
February	27855.10	21198.50	5841.78	3.5
March	27118.4	21796.50	4528.04	4.0
Total	349695.40	279044.00	60420.59	45.5

9.16 Feed and fodder (Quintals) availability

Months	Green fodder produced at Farm	Green fodder Purchased	Total
April	3699	-	3699
May	1789	-	1789
June	1874	-	1874
July	3549	-	3549

Aug	4158	-	4158
Sep	3601	-	3601
Oct	2685	-	2685
Nov	2316	-	2316
Dec	3386	-	3386
Jan	2878	-	2878
Feb	4077	-	4077
March	4586	-	4586
Total Green	38598	-	38598
Silage	3909	-	3909
Dry	2991	399	2375.8
Sugarcane	-	122	122
Concentrate	5281.87	-	5281.87

*1102.2 Quintals Wheat straw transferred to CIRB, Hisar during 2018-19; 88 quintals wheat straw was balance of year 2017-18

9.17: Milk performance during April 2018 to March 2019

Month	Buffaloes in Milk	Dry buffaloes	Total	% in Milk	Wet Av. (kg)	Herd Av. (kg)
April	103	32	135	76	8.84	6.74
May	107	37	144	74	9.28	6.91
June	103	44	147	70	9.11	6.40
July	96	46	142	68	9.60	6.49
Aug	98	45	143	69	9.38	6.46
Sep	104	44	149	70	8.81	6.17
Oct	114	41	156	74	8.62	6.35
Nov	124	36	159	72	8.25	6.43
Dec	120	26	145	82	8.55	7.03
Jan	117	26	143	82	8.66	7.07
February	113	33	146	77	8.80	6.81
March	106	46	152	70	8.22	5.76
overall	109	38	147	74	8.82	6.54

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**

9.18: Bull wise daughters born (only numbers)

Bull No.	Set No.	Daughters born	Daughters Calved	Daughters completing 1st Lactation
181	6th	-	-	01
674	3rd	01	-	-
411	1st	02	-	-
535	2nd	01	-	-
359	7th	19	15	-
312	7th	12	14	04
336	7tt	04	04	09
298	7th	06	06	03
308	7th	09	13	06
Total		54	52	23

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)
336	463	30-08-14	18-08-17	35.66	266	1731	1731
	469	09-09-14	17-10-17	37.30	388	3230	2879
	491	20-11-14	20-11-17	36.05	354	2429	2239
	484	29-10-14	14-03-18	40.53	233	1894	1894
	444	01-04-14	23-12-17	44.80	363	2514	2336
	482	26-10-14	03-03-18	40.26	328	2522	2453
	441	01-04-14	25-01-18	45.89	393	3124	2704
	530	19-07-15	24-05-18	34.21	274	2355	2355
	479	13-10-14	02-10-17	35.69	529	5252	3372
181	445	01-04-14	19-07-17	39.64	373	2384	2148
312	456	09-08-14	23-10-17	38.52	319	2761	2716
	510	28-03-15	16-03-18	35.66	315	2169	2155
	483	28-10-14	09-04-18	41.41	333	2943	2836
298	433	11-12-13	03-08-17	43.78	337	2589	2463
	418	21-10-13	29-09-17	47.34	301	1902	1902
	450	14-07-14	19-03-18	44.21	333	3654	3517
308	436	26-12-13	19-08-17	43.52	377	2658	2269
	536	16-08-15	19-06-18	34.14	164	1103	1103
	486	07-11-14	20-02-18	39.51	304	2846	2846
	481	21-10-14	18-04-18	41.94	261	2188	2188
	461	25-08-14	16-01-18	40.79	408	3942	3205
	464	01-09-14	23-03-18	42.86	338	2461	2389

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	-	-
2	556	10-08-2015	366	R-1	3277	-	-
3	561	25-08-2015	367	25	3888	-	-
4	565	02-09-2015	134	63	4050	-	-
5	579	26-10-2015	827	245	3199	-	-
6	588	30-11-2015	138	252	3372	-	-
7	593	22-12-2015	81	168	3746	-	-
8	674	19-01-2017	68	252	3161	-	-
9	705	10-07-2017	115	473	3146	-	-
10	710	25-07-2017	398	252	3395	-	-

9.21 Target achieved during the year 2018-19

Trait	**Target**	**Achieved (year)**
Av. Age at first calving (months)	40	**40.61**
Av. Service period (days)	130	129
Calf mortality (0-3 months)	≤ 5 %	**5.23**
Wet average (kg)	≥8.5 kg	**8.82**
Herd average (kg)	≥5.5 kg	**6.54**

10. Salient Research Achievements:

A total of 137 (64 female & 73 male) calves of high genetic merit were born during this period. Test mating (426 inseminations) were carried out during this period resulting in 173 pregnancies. During this period, 22 daughters of 05 bulls under progeny testing programme completed 1st lactation. The overall Highest ever wet average (8.82 kg), herd average (6.54), 305 days lactation milk yield (2679 kg), total lactation yield (2797 kg), peak yield (13.7 kg) and lactation length (311 days) were achieved in Nili-Ravi herd. The reproductive traits viz., service period (92 days), days

open (129 days), calving interval (438 days), dry period (148 days) were achieved during year 2018-19. The service period (calving to first service interval) as an indicator of reproductive health was 92 days. Herd Life Production (up to 4th Lactation) of 32 buffaloes was estimated. The average productive days were 1434 and average milk yield per day of herd life was 4.09 litres. A total of 4253 semen doses were produced at the sub campus or procured from semen station Nabha. Out of which, 1453 doses were used at farm for insemination and 2616 doses were sold to field inseminators. Overall motility of 3.83% and calf motility of 5.23% was recorded during this period. The overall conception rate of 40.61% was recorded. Milk production of 349695.4 kg was recorded during this year, and 279044.0 kg was sold. Total 61 animals have been sold through public auction and on book value to farmers, universities and various developmental agencies.

11. Publications

Paper in research journals:

- Nehru, D.A., Dhaliwal, G.S., Jan, M.H., Cheema, R.S. and Kumar, S., 2019. Clinical efficacy of intrauterine cephapirin benzathine administration on clearance of uterine bacteria and subclinical endometritis in postpartum buffaloes. *Reproduction in Domestic Animals*, 54(2): 317-324.
- Nehru, D.A., Dhaliwal, G.S., Jan, M.H.,Cheema, R.S. and Kumar, S., 2019. Development of a non-invasive diagnostic test for subclinical endometritis in buffaloes. *Indian Journal of Animal Science*, 89(2): 140–144.

Presentation in workshops/ seminars/ Symposia/ conferences:

- In XVI National Symposium on Animal Genetic Resources for Food and Social Security (Society for Conservation of Domestic Animal Biodiversity) held on February 7 - 8, 2019 at ICAR-NBAGR, Karnal (Haryana).

  1. Sanjay Kumar, Mustafa H. Jan, K.L. Mehrara, A. Gupta and R. Mehta. Seasonal patterns of Nili-Ravi buffalo reproduction and production (SOCDAB -2019/Abst/I-013).

  2. K.P. Singh, Sanjay Kumar, S.S. Dahiya, K.L. Mehrara, Ram Chander and R. Mehta. Sire evaluation and genetic trend of production traits in Nili-Ravi buffaloes (SOCDAB - 2019/Abst/I-061).
- In "National conference on enhancing rural livelihood through improved buffalo productivity and health" held on January 17 - 19, 2019 at Navsari Agricultural University-Navsari (Gujarat).

  1. Sanjay Kumar, Mustafa H. Jan, A. Gupta, K.L. Mehrara. Effect of season on some reproductive performance indicators in Nili-Ravi buffalo (ISBD2019:RP-P-04).

  2. Mustafa H. Jan, Sanjay Kumar, A. Gupta, K.L. Mehrara, R.K. Sharma, H. Kumar. Follicular characteristics and repeatability of wave pattern in Nili-Ravi buffalo heifers (ISBD2019:RP-O-07)

12. Constraints if any : No

Project Co-ordinator's observations on centre performance

Financial Statement for the year 2018-19 (Rs in Lakhs)

Sanctioned as per R E		Released ICAR Share as per R E	Expenditure as per AUC		Balance
Total	ICAR Share		ICAR Share	State Share	
18.00	18.00	18.00	18.00	0.00	Nil

Herd Performance

Herd strength at the centre was 517 including 262 breedable buffaloes (>2.0 years). Number of young males and breeding bulls was 126 and 8 respectively. Total 137 calves added due to birth during the year out of which 73 were male and 64 were female. Calf mortality (0-3 months) was 5.23 %. Conception rate was 40.61 % increased from last year (39.75 %). 4253 semen doses produced during 2018-19 and the centre has sold 2616 frozen semen doses to developmental agencies and farmers. Average lactation milk yield (kg) and 305 or less day lactation milk yield was 2797 kg (111) and 2679 kg (111) respectively Increased from last year 2363 kg and 2321 kg respectively. Average lactation length reported 311 days (111). Reproductive performance viz. Age at first calving, Service Period, Dry Period and Calving Interval were 4061 (55) months, 129 (77) days, 148 (77) days and 438 (77) days, respectively. The wet and herd averages were 8.82 kg and 6.54 kg with 74 % animals in milk.

The lifetime productivity viz. herd life, productive life, milk yield per day of herd life and milk yield per day of productive life were reported: 3212 days, 1994 days, 4.096 kg and 6.65 kg, respectively.

Accomplishment and Targets Achieved:

Sr. No.	Traits	Target	Achieved 2015-16	Achieved 2016-17	Achieved 2017-18	Achieved 2018-19
1	Av. AFC (Months)	40.0	40.03 (56)	41.45 (28)	41.05 (49)	**40.61**
2	Av. service period (Days)	130	145 (88)	140 (118)	136 (95)	**92**
3	Calf mortality (0-3 months)	≤ 4 %	7.53 %	9.46 %	5.06 %	**5.23%**
4	Wet average (Kg)	≥ 8.50 kg	8.51 kg	7.96 kg	8.52 kg	**8.82**
5	Herd average (Kg)	≥ 5.50 kg	6.22 kg	5.23 kg	5.84 kg	**6.54**

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	
Lab Tech	A.P.Patel	

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

Financial Statement: **Budget Head: 2305/03 Year: 2018-19**

Item / Head	**Grant (Rs.)**		
	Allotted	**Expenditure**	**Balance**
A. Recurring			
Pay & Allowances	2000001	1414247	585754
TA	100000	23019	76981
Contingency	4799999	4788583	11416
Total	6900000	6225849	674151
B. Non-recurring	860000	609104	250896
Total	860000	609104	250896
Total	**7760000**	**6834953**	**925047**

9.1 Herd Strength during the Period 1st April 2018 to 31st March, 2019 (Example)

Sr. No.	Category	Addition			Disposal				CB
		OB	B / P	T	D	T	S	E	CB
	Female								
1.	Below 3 months	27	30		1	45			11
2.	3-12 months	17		45		42			20
3.	1-2 years	29		42		27			44
	Above 2 years	72		27	1	22	3		73
4.	Buffaloes in Milk	71		57	3	62			63
5.	Buffaloes Dry P /NP	31		62	4	35			54
	Sub Total	**247**	**30**	**233**	**9**	**233**	**3**	**0**	**265**
	Males								
1.	Below 3 months	19	27		5	36			5
2.	3-12 months	11		36		31			16
3.	1-2 years	17		31	1	24	2		21
	Above 2 years	8		24		2	7		23
4.	Breeding bulls	9	4	2					15
5.	Bullocks / Teasers / others	1							1
	Sub Total	**65**	**31**	**93**	**6**	**93**	**9**	**0**	81
	Grand Total	**312**	**61**	**326**	**15**	**326**	**12**	**0**	**346**

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	3						3
May	0	0						0
June	0	0						0
July	0	0		1				1
August	1	5						6
September	6	2	1					9
October	6	5		1				12
November	3	1						4
December	6	3						9
January	4	4						8
February	0	6						6
March	1	1						2
Overall	**27**	**30**	**1**	**2**				**60**

Sex ratio Male : Female (45.00 : 50.00) SB% = 1.67 Abortion % = 3.33

9.3. Disposal of Animals during the Period 1st April 18 to 31st March 19

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						1		1
Heifers 1-2 years > 2 years						1		1
Buffaloes Milch Dry						4 3		4 3
Sub Total						**9**		**9**

Males	**Primary cause of disposal**							
Calves 0 to 3 months 3-12 months						5		5
1 to 2 year						1		1
. >2 year								
Breeding bulls								
Bullock+Teaser+ Others								
Sub Total						**06**		**06**
Grand Total						**15**		**15**

9.4. Mortality during the Period 1st April 2018 to 31st March, 2019

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.	14	34	24	76	101	249	6	25	18	16	65	314
	Died	0	0	0	0	1	1	0	0	0	0	0	1
	%	0.0	0.0	0.0	0.0	1.0	0.4	0.0	0.0	0.0	0.0	0.0	0.3
May	No.	6	42	23	77	99	247	2	29	17	17	65	312
	Died	0	0	0	0	2	2	0	0	0	0	0	2
	%	0.0	0.0	0.0	0.0	2.0	0.8	0.0	0.0	0.0	0.0	0.0	0.6
June	No.	3	45	22	78	99	247	0	31	17	17	65	312
	Died	0	0	0	0	0	0	0	0	0	0	0	0
	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
July	No.	0	48	15	85	99	247	0	28	19	18	65	312
	Died	0	0	0	0	0	0	0	0	0	0	0	0
	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aug.	No.	5	46	14	86	100	251	1	28	18	19	66	317
	Died	0	0	0	1	0	1	0	0	0	0	0	1
	%	0.0	0.0	0.0	1.2	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.3
Sep.	No.	7	45	13	84	104	253	6	26	18	19	69	322
	Died	0	0	0	0	0	0	1	0	0	0	1	1
	%	0.0	0.0	0.0	0.0	0.0	0.0	16.7	0.0	0.0	0.0	1.4	0.3
Oct.	No.	12	45	8	81	112	258	11	25	18	20	74	332
	Died	0	0	0	0	0	0	1	0	0	0	1	1
	%	0.0	0.0	0.0	0.0	0.0	0.0	9.1	0.0	0.0	0.0	1.4	0.3
Nov.	No.	8	49	5	82	115	259	12	25	17	24	78	337
	Died	0	0	0	0	0	0	1	0	0	0	1	1
	%	0.0	0.0	0.0	0.0	0.0	0.0	8.3	0.0	0.0	0.0	1.3	0.3
Dec.	No.	9	38	17	73	120	257	13	25	17	26	81	338
	Died	1	0	0	0	1	2	0	0	0	0	0	2
	%	11.1	0.0	0.0	0.0	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.6
Jan.	No.	9	25	34	73	119	260	9	17	28	29	83	343
	Died	0	0	0	0	1	1	2	0	0	0	2	3
	%	0.0	0.0	0.0	0.0	0.8	0.4	22.2	0.0	0.0	0.0	2.4	0.9
Feb.	No.	13	19	42	73	118	265	7	15	30	30	82	347
	Died	0	0	0	0	1	1	0	0	1	0	1	2
	%	0.0	0.0	0.0	0.0	0.8	0.4	0.0	0.0	3.3	0.0	1.2	0.6
March	No.	11	20	44	73	117	265	5	15	31	30	81	346
	Died	0	0	0	0	1	1	0	0	0	0	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
Overall Av.	No.	**44**	**20**	**44**	**73**	**117**	**298**	**32**	**15**	**31**	**30**	**108**	**406**
	Died	**1**	**0**	**0**	**1**	**7**	**9**	**5**	**0**	**1**	**0**	**6**	**15**
	%	**2.3**	**0.0**	**0.0**	**1.4**	**6.0**	**3.0**	**15.6**	**0.0**	**3.2**	**0.0**	**5.6**	**3.7**

9.5. Causes of Mortality (quarter wise) during the period April 18 to March 19

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

JD/TB					
Milk Fever / metabolic diseases				1	1
TRP / TP					
Parasitism					
Accidental death		1			1
Peri-parturient disorders			1		1
Miscellaneous	2	1	1	1	5
Total	**3**	**2**	**5**	**5**	**15**

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	17/05/2017			26/04/2017
HS	To			27/07/2017
BQ	03-06-2017 /256			20/12/2017
Brucellosis	05-08-2017 / 23			05/04/2017
JD		231	0	NO .OF ANIMAL 248
TB		231	0	*Regular Quarterly Deworming is Carried out
IBR				
Mastitis	--------	-	12	

9.7 Female Conception Rate During the Period January to December 2018

Disease	**Vaccination Date / No. of animals**	**No. of animals** Tested / Positive		**Dates and No. of animals treated for Parasitism**
FMD	274/June-18			
HS	287/Jan.-19			05-04-2018
BQ				
Brucellosis	49 Female Calf			15-09-2018 274 Animals
JD				
TB				12-02-2019
IBR				
Mastitis				

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)	46	18	39.1
April - June	33	8	24.2
July - September	37	12	32.4
October- December	39	16	41.0
Overall	**155**	**54**	**34.8**

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	13	7	53.8
2.	Madhav	III	19	5	26.3
3.	Ronak	III	1	1	100.0
4.	Girish	III	23	6	26.1
5.	Raghu	III	29	10	34.5
6.	Chaman	III	38	16	42.1
7.	Babbar	III	32	9	28.1
Over all			**155**	**54**	**34.8**

9.10 Bull Wise Semen Stock 2018-19

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	0		3339
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	10878	0	0	0	3150		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	8591	0	0	0	1400		7191
9.	II	Bholenath	1839	0	0	0	0		1839
10.	III	Nayan (07/10)	8637	0	0	0	2100		6537
11.	III	Madhav (37/10)	8154	0	0	25	1400		6729
12.	III	Abhijeet (A1/10)	7966	0	0	0	2050		5916
13.	III	Alok(10376)	8830	4330	735	20	6985		5420
14.	III	Ronak (09/11)	7790	0	0	0	2650		5140
15.	III	Girish (11/13)	4621	0	0	25	0		4596
16.	III	Raghu(11082)	6642	4990	0	25	6450		5157
17.	III	Babar(11083)	7140	2435	285	15	0		9275
18.	III	Chaman(3050)	7340	7740	0	25	11625		3430
19.	IV	Badal (3665)	1630	6300	1780	0	2790		3360
20.	IV	Kamlesh (11081)	0	1625	435	0	25		1165
21.	IV	Mayur (27/15)	0	955	0	0	0		955
22.	IV	Balo (43/15)	0	1140	0	0	15		1125
23.	IV	Janak (11084)	0	115	0	0	0		115
Grand Total			**114248**	**29630**	**3235**	**135**	**40640**		**99868**

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**
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**

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	15	2346.3 + 193.9	325.4 + 17.6	2127.7 + 154.6	12.8 + 0.7
2nd	16	2416.5 + 104.2	306.7 + 10.8	2342.2 + 90.9	15 + 0.8
3rd	13	2622 + 252.4	320.2 + 16.4	2487.8 + 225.2	15 + 1.1
4th	4	2385.6 + 716.8	315 + 43.1	2167.1 + 549.8	13.2 + 1.5
5th & above	9	2782.8 + 217.1	319.3 + 18.3	2678.7 + 184.7	17.6 + 1.6
Overall	**57**	**2500.6 + 99.2**	**317.3 + 7.6**	**2359.8 + 85.1**	**14.7 + 0.5**

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)**

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

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
45/04	27/09/2004	18/11/2018	5165	17597.6	2712.0	694.0	3.4
06/05	07/05/2005	09/09/2018	4873	17176.4	2031.0	1249.0	3.5
07/05	31/05/2005	31/01/2019	4993	21837.6	2482.0	1008.0	4.4
33/06	07/10/2006	20/02/2019	4519	11589.5	1749.0	1336.0	2.6
31/07	14/11/2007	08/01/2019	4073	11341.1	1654.0	1057.0	2.8
14/07	22/06/2007	20/04/2018	3955	15662.4	1661.0	774.0	4.0
35/08	01/10/2008	23/11/2018	3705	11415.4	1438.0	879.0	3.1
42/08	07/10/2008	03/10/2018	3648	11283.5	1294.0	944.0	3.1
05/08	15/04/2008	01/12/2018	3882	12889.9	1644.0	587.0	3.3
19/08	08/09/2008	09/09/2018	3653	9954.5	1201.0	638.0	2.7
55/08	15/12/2008	15/10/2018	3591	11878.8	1359.0	518.0	3.3

57/09	16/10/2009	13/09/2018	3254	4490.8	1091.0	603.0	1.4
41/09	21/09/2009	18/12/2018	3375	6657.6	1149.0	419.0	2.0
07/05	31/05/2005	04/09/2017	4479	2923.6	4479	1503	4.1
45/04	27/09/2004	25/08/2017	4715	1999.1	4715	1759	3.3

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

9.13 Average Milk Composition from April 2018 to March 2019

Month	**N**	**Fat**	**SNF**	**Protein**	**Lactose**	**SCC**
April	71	8.1	10.7	4.2	5.8	
May	68	8.2	10.4	3.9	6.1	
June	67	8.1	11.2	4.1	5.7	
July	62	8.3	10.8	4.4	6.2	
August	68	7.8	11.4	3.8	5.9	
September	62	8.1	9.8	4.1	4.8	
October	65	7.9	11.5	4	4.7	
November	64	8.2	9.8	4.3	5.9	
December	63	8.2	11.2	4.2	6.1	
January	64	7.9	11.3	4.2	5.8	
February	64	8.2	10.4	3.9	6.3	
March	63	8.4	10.8	4.3	6.4	
Overall	**65.1**	**8.12**	**10.78**	**4.12**	**5.81**	

9.14: Reproductive Performance

Lactation / Parity	AFC (Months) (N)	N →	SP (Days)	Days Open	DP (Days)	CI (Days)
1	49.9 ± 1.8(22)					
2		7	132.3 ± 55.2	305.3 ± 115.9	438.8 ± 56.6	526.31±26.99
3		11	129.3 ± 24.9	222.0 ± 34.6	418.9 ± 24.2	580.75±41.44
4		8	239.1 ± 53.3	156.5 ± 34.8	507.4 ± 44.0	517.14±40.53
5th& above		9	197.0 ±45.2	215.6 ± 30.3	503.5 ± 43.4	489.57±39.39
Over all	**49.9 ± 1.8(22)**	**35**	**180.4 ± 23.1**	**213.4 ± 23.2**	**471.2 ± 20.9**	**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)**

9.15 Milk Production and Disposal

Month	Total milk produced (kg)	Disposal (Kg)		
		Milk sold	Calf feeding	Expt.
April-18	14982.5	14961.5	21	
May	14255.5	14255.5		
June	13182.0	13182.0		
July	13163.5	13163.5		
August	11439.0	11400.0	39	
September	9830.5	9768.5	62	
October	10452.0	10382.0	70	
November	9932.0	9908.0	24	
December	9678.5	9626.5	52	
January-19	10560.0	10512.0	48	
February	9877.0	9841.0	36	
March	11398.0	11386.0	12	
Total	**138750.5**	**138386.5**	**364**	

9.16.1 Feed and fodder (Quintals) availability 2018-19

Quarter	Qty. Produced at Farm (kg)	Qty. Purchased (kg)	Actually fed (Quintals)	Balance (Kg)
I (April – June)	Green	--	5470	
	Dry	283	655	
	Silage			
	Concentrate	240	1107	
II (July – September)	Green		3784	
	Dry	473.7	1042	
	Silage			
	Concentrate	360	1229	
III (October –December)	Green		5460	
	Dry	4802.6	496	
	Silage			
	Concentrate	360	1095.5	
IV (January-March)	Green		5148	
	Dry	2051.1	568	
	Silage			
	Concentrate	600	1107	
Total	Green		**19862**	
	Dry	**7610.4**	**2761**	
	Silage			
	Concentrate	**1560**	**4538.5**	

9.17: Milk performance during April 18 to March 19

Month	Buffaloes in Milk	Dry buffaloes	Total	% in Milk	Wet Av. (kg)	Herd Av. (kg)
April -18	71	30	101	70.3	7.0	4.9
May	68	31	99	68.7	6.8	4.6
June	67	32	99	67.7	6.6	4.4
July	62	37	99	62.6	6.8	4.3
August	68	32	100	68.0	5.4	3.7
September	62	42	104	59.6	5.3	3.2
October	65	47	112	58.0	5.2	3.0
November	64	51	115	55.7	5.2	2.9
December	63	57	120	52.5	5.0	2.6

January-19	64	55	119	53.8	5.3	2.9
February	64	54	118	54.2	5.5	3.0
March	63	54	117	53.8	5.8	3.1
Overall	**65.1**	**43.5**	**108.6**	**60.4**	**5.8**	**3.6**

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**

9.18 Bull wise daughters born (only numbers)

Bull No.	Set No.	Daughters born	Daughters Calved	Daughters completing 1st Lactation
Gajanan				1
Khemlo				
Bhagaro	I			
Raja	II			1
Rana				
Nagraj	I			
Moti	II		2	1
Sundar	II		5	1
Ashok				
Laxman	I		4	4
Bholenath	II		5	4
Haresh	II		4	2
Dhingalo	II		1	1
Nayan	III		1	
Madhav	III			
Ronak	III	1		
Alok	III	3		
Abhijit	III	0		
Raghu	III	7		
Chaman	III	5		
Girish	III	3		
Babar	III	11		
Total		**30**	**22**	**15**

9.19 Bull wise daughters completing 1ST lactation

Bull No.	Daug-hter No.	Date of birth	Date of calving	AFC (months)	Lact. Length (days)	TLMY (kg)	SLMY (kg)	Peak Yield
Bholenath	16/14	10-09-2013	13-01-2018	1586	240.0	1198.3	1198.3	8.9
Gajanan	32/13	14-10-2012	24-12-2017	1897	270.0	1522.4	1522.4	9.0
Laxman	12/14	08-10-2013	27-01-2018	1572	258.0	2064.5	2064.5	14.8
Laxman	38/13	25-08-2013	10-02-2018	1630	252.0	1564.7	1564.7	10.8
Bholenath	17/13	10-11-2013	31-12-2017	1512	343.0	3554.5	3301.3	16.4
Sundar	15/13	09-08-2014	24-01-2018	1264	328.0	2486.3	2486.3	14.2
Raja	22/13	29-08-2013	15-01-2018	1600	338.0	1953.0	1791.0	10.1
Bholenath	36/12	10-09-2013	29-12-2017	1571	398.0	3357.0	2936.0	16.0
Laxman	48/13	10-09-2013	30-12-2017	1572	394.0	2525.8	2105.6	10.9
Dhinglo	06/13	22-08-2013	10-03-2018	1661	311.0	2429.2	2398.3	16.4
Haresh	57/13	14-07-2014	08-01-2018	1274	402.0	2830.6	2233.0	15.1
Laxman	30/13	21-09-2013	21-01-2018	1583	390.0	3210.0	2591.3	14.3
Moti	10/13	16-08-2013	04-03-2018	1661	354.0	2398.2	2077.1	13.4
Bholenath	31/13	26-04-2013	23-01-2018	1733	406.0	2872.1	2418.8	12.8
Haresh	11/15	15-02-2015	16-09-2018	1309	197.0	1227.4	1227.4	9.6
			AV.	**1561.7**	**325.4**	**2346.3**	**2127.7**	**12.8**
			SE	**44.0**	**17.6**	**193.9**	**154.6**	**0.7**

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 List of Future breeding bulls Set - IV

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 31-3-2019

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	

9.21 Target achieved during the year 2018-19

Trait	**Target**	**Achieved (year) (2017-18)**	**Achieved (year) (2018-19)**
Av. Age at first calving (months)	40	54.05	**49.9**
Av. Service period (days)	130	217.46	**180.4**
Calf mortality (0-3 months)	≤ 5 %	4.5	**7.9**
Wet average (kg)	≥8.5 kg	6.7	**5.8**
Herd average (kg)	≥5.5 kg	3.0	**3.6**

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., Ravikala, K., Padodara, R.J., Singh, V.K., Murthy, K.S. and Gajbhiye, P.U. 2018. Effects of long day photoperiod on milk yield and circulating concentrations of insulin-like growth factor-1 and prolactin in Jaffrabadi buffalo. *Buffalo Bulletin*. **37(3):**421430
    - 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. **Abstract in compendium :National Buffalo Conference ISBD-2019** on 'Enhancing rural livelihood through improved buffalo productivity and health ' held at NAU, Navsari (Gujarat). (17th to 19th January, 2019).
    - Chaudhary, J.K. Solanki, G.B. Vijyeta, H.P. Gamit P.M. and Murthy, K.S.2018.Sexual behaviour and its relationship with semen quality parameters in jaffarabadi breeding bulls. **Abstract in compendium**:VI Annual Convention of Society for Veterinary Science & Biotechnology and National Symposium on "Newer Concepts and Approaches for Improvement in Animal Health and Production" held at College of Veterinary Science & Animal Science, Navania, Vallabhnagar, Udaipur (Rajasthan) between 13th - 14th December, 2018
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 2018-2019

Sr No.	Centres/ Village	OB	Addition			Deduction		
			New Reg.	Birth	Purchase	Sold	Death	CB
1	Shedhaya	1965	50					2015
2	Pipali	2650	164	34				2848
3	Loej	12254	529	106				12889
4	Surva	3327	219	36				3582
5	Mand likpur	3797	339	52				4188
6	Hadmdiya	892	88	22				1002
7	Khorasa	887	128	26				1041
8	Odadar	2194	339	51				2584
9	Chanchakvad	391	55	7				453
10	Gondal	102	67	13				182
	Total	**28459**	**1978**	**347**	**0**	**0**	**0**	**30784**

F 2. Status of Breedable Females at Different Field Unit Centres during 2018-2019

Centres/ Village	Heifers > 3 years		Buffalo	
	Total	Pregnant	In Milk	Dry
Shedhaya	330			0
Pipali	242			44
Loej	1121			118
Surva	337			12
Movana				16
Mand likpur	291			41
Hadmdiya	85			7
Sherdi				11
Khorasa	39			0
Chanchakvad	35			0
Gondal	0			0
Odadar	178			0
Total	**2658**			**249**

F 3. Monthly AI at Different Field Unit Centres during Period 4/2018 to 3/2019

Month	TOTAL										Total
	Shedhaya	Pipali	Hadmadiya	Loej	Surva	Mandlikpur	Odadar	Chachakvad	Khorasa	Gondal	
April, 18	0	13	6	32	15	23	20	6	7	3	125
May	2	14	7	29	15	18	23	4	11	3	126
June	3	14	10	35	10	15	32	5	8	4	136
July	3	13	8	23	11	17	31	8	10	4	128
August	6	14	6	29	10	27	38	6	13	4	153
September	7	12	7	25	26	30	31	10	15	4	167
October	0	14	8	66	20	48	31	5	10	2	204
November	0	14	7	60	25	35	25	11	15	3	195
December	15	14	8	77	25	45	34	0	12	4	234
January, 19	11	14	7	52	23	47	19	0	10	10	193
February	3	14	8	57	18	30	21	0	8	17	176
March	0	14	6	44	21	39	34	0	9	9	176
TOTAL	**50**	**164**	**88**	**529**	**219**	**374**	**339**	**55**	**128**	**67**	**2013**

F 4. Bull-wise AI at Different Field Unit Centres during the Period 4/2018 to 3/2019

Months	Kamlesh	Raghu	Badal	Babar	Alok	Chaman	Total
April, 18	0	23	13	74	0	15	125
May	0	0	79	47	0	0	126
June	0	0	91	45	0	0	136
July	0	0	97	31	0	0	128
August	0	0	102	51	0	0	153
September	0	0	121	46	0	0	167
October	0	0	173	31	0	0	204
November	0	0	170	25	0	0	195
December	0	0	67	28	139	0	234
January,19	0	0	29	0	164	0	193
February	90	0	21	0	65	0	176
March	169	0	0	0	7	0	176
Total	**259**	**23**	**963**	**378**	**375**	**15**	**2013**

F 5. Month wise Conception at Different Field Unit Centres during the Period 4/2018 to 3/2019

Month	Village / Centre									
	Shedhaya		Pipali		Hadmadiya		Loej		Surva	
	P	E	P	E	P	E	P	E	P	E
April, 18	6	5	8	7	4	3	34	33	7	5
May	1	1	8	6	3	3	26	20	9	9
June	2	1	7	8	4	3	22	20	6	5
July	0	0	7	6	3	3	14	18	9	6
August	1	1	7	7	4	3	14	15	8	7
September	2	1	7	7	4	6	14	21	6	4
October	2	1	6	7	3	3	12	11	5	6
November	3	3	6	8	4	4	14	15	5	5
December	4	3	6	6	3	4	11	14	10	16
January,19	0	0	8	6	3	4	28	37	9	11
February	0	0	8	6	4	4	24	36	9	16
March	8	7	8	6	3	5	32	45	12	13
Total	**29**	**23**	**86**	**80**	**42**	**45**	**245**	**285**	**95**	**103**

Cont..

Month	Village / Centre										Total	
	Mandlikpur		Odadar		Chachakvad		Khorasa		Gondal			
	P	E	P	E	P	E	P	E	P	E	P	E
April, 18	16	18	14	26	5	10	6	8	3	3	**103**	**118**
May	14	16	6	18	5	4	4	5	1	3	**77**	**85**
June	11	13	9	13	3	2	3	3	1	2	**68**	**70**
July	10	13	7	13	3	3	3	4	2	1	**58**	**67**
August	8	10	9	14	1	3	5	6	0	3	**57**	**69**
September	5	10	10	22	1	4	3	5	2	2	**54**	**82**
October	7	10	10	21	2	6	4	6	3	1	**54**	**72**
November	12	15	11	27	2	4	6	7	2	2	**65**	**90**
December	9	21	9	22	4	6	5	10	1	3	**62**	**105**
January,19	13	35	10	20	0	0	3	7	2	0	**76**	**120**
February	13	22	8	17	0	0	5	10	1	2	**72**	**113**
March	15	30	10	24	0	0	4	8	2	2	**94**	**140**
Total	**133**	**213**	**113**	**237**	**26**	**42**	**51**	**79**	**20**	**24**	**840**	**1131**

F 6. Month wise Calving at Different Field Unit Centres during the Period 4/2018 to 3/2019

Month	Village / Centre											
	PIPALI		HADMADIYA		LOEJ		SURVA		MANDLIKPUR		ODADAR	
	M	F	M	F	M	F	M	F	M	F	M	F
April, 18	4	4	2	2	5	3	4	2	3	3	7	3
May	3	2	2	2	5	7	3	3	2	2	2	2
June	4	3	1	3	9	7	3	3	6	3	7	2
July	4	3	0	2	12	10	2	2	8	4	11	8
August	3	4	2	2	18	11	4	2	10	4	4	5
September	4	3	1	2	18	12	4	5	7	4	8	7
October	3	3	2	2	11	13	6	5	8	10	10	7
November	5	3	3	1	13	15	3	3	7	8	7	5
December	6	2	2	1	14	13	5	3	6	5	4	2
January,19	5	2	3	1	12	7	3	2	5	2	6	3
February	4	3	1	2	8	4	6	3	5	4	4	4
March	4	2	2	2	9	4	4	3	3	3	3	3
Total	**49**	**34**	**21**	**22**	**134**	**106**	**47**	**36**	**70**	**52**	**73**	**51**

Conti...

Month	Village / Centre						**Total**	
	CHACHAKVAD		KHORASA		GONDAL			
	M	F	M	F	M	F	**M**	**F**
April, 18	2	1	2	2	1	1	**30**	**21**
May	2	1	2	2	1	1	**22**	**22**
June	3	0	2	2	1	1	**36**	**24**
July	1	0	3	2	3	3	**44**	**34**
August	2	1	3	3	2	0	**48**	**32**
September	2	1	3	3	3	3	**50**	**40**
October	2	0	3	3	2	0	**47**	**43**
November	2	3	4	2	1	2	**45**	**42**
December	0	0	2	2	0	1	**39**	**29**
January,19	0	0	1	2	1	0	**36**	**19**
February	0	0	2	1	1	1	**31**	**22**
March	0	0	3	2	0	0	**28**	**19**
Total	**16**	**7**	**30**	**26**	**16**	**13**	**456**	**347**

M= Male F= Female

F 7. Bull-wise Conception at Different Field Unit Centres during the Period 4/2018 to 3/2019

Month	**Bull Name**										**TOTAL**	
	BADAL		**RAGHU**		**BABAR**		**ALOK**		**CHAMAN**			
	P	**E**	**P**	**E**	**P**	**E**	**P**	**E**				
April, 18	0	0	23	38	73	75	0	0	7	5	**103**	**118**
May	0	0	7	21	61	55	0	0	9	9	**77**	**85**
June	0	0	10	15	52	50	0	0	6	5	**68**	**70**
July	3	3	9	14	37	44	0	0	9	6	**58**	**67**
August	35	44	0	0	22	25	0	0	0	0	**57**	**69**
September	36	55	0	0	18	27	0	0	0	0	**54**	**82**
October	44	51	0	0	10	21	0	0	0	0	**54**	**72**
November	48	56	0	0	17	34	0	0	0	0	**65**	**90**
December	48	73	0	0	14	32	0	0	0	0	**62**	**105**
January,19	74	120	0	0	2	0	0	0	0	0	**76**	**120**
February	72	113	0	0	0	0	0	0	0	0	**72**	**113**
March	34	69	0	0	4	3	56	68	0	0	**94**	**140**
Total	**394**	**584**	**49**	**88**	**310**	**366**	**56**	**68**	**31**	**25**	**840**	**1131**

F 8. Bull-wise Calving at Different Field Unit Centres during the Period 4/2018 to 3/2019

Month	Bull Name									
	BADAL		RAGHU		BABAR		CHAMAN		Total	
	M	F	M	F	M	F	M	F	M	F
April, 18	0	0	5	3	0	0	25	18	**30**	**21**
May	0	0	5	7	0	0	17	15	**22**	**22**
June	0	0	9	7	0	0	27	17	**36**	**24**
July	0	0	20	15	0	0	24	19	**44**	**34**
August	0	0	42	30	0	0	6	2	**48**	**32**
September	0	0	46	35	0	0	4	5	**50**	**40**
October	0	0	41	38	0	0	6	5	**47**	**43**
November	0	0	11	11	31	28	3	3	**45**	**42**
December	0	0	4	3	30	23	5	3	**39**	**29**
January,19	0	0	7	3	26	14	3	2	**36**	**19**
February	2	1	5	5	18	13	6	3	**31**	**22**
March	16	12	0	0	12	7	0	0	**28**	**19**
Total	**18**	**13**	**195**	**157**	**117**	**85**	**126**	**92**	**456**	**347**

F 9. Bull-wise Live Female Progeny at Different Field Unit Centres (0-6 month) as on 3/2019

Centres	RONAK	ALOK	BADAL	BABAR	CHAMAN	RAGHU	TOTAL
Shedhaya	0	0	0	0	0	0	**0**
Pipali	0	0	2	10	0	3	**15**
Hadmdiya	0	0	2	5	0	2	**9**
Loej	0	0	0	43	0	13	**56**
Surva	0	0	3	0	16	0	**19**
Movana	0	0	0	0	0	0	**0**
Mandlimpur	0	0	0	18	0	14	**32**
Sheradi	0	0	0	0	0	0	**0**
Odadar	0	0	3	0	0	21	**24**
Chanchakvad	0	0	0	3	0	0	**3**
Khorasa	0	0	3	6	0	3	**12**
Gonadal	0	0	0	0	0	4	**4**
Total	**0**	**0**	**13**	**85**	**16**	**60**	**174**

F 10. Bull-wise Live Female Progeny at Different Field Unit Centres (6-12 month) as on 3/2019

Centres	RONAK	ALOK	GIRISH	BABAR	CHAMAN	RAGHU	TOTAL
Shedhaya	0	0	0	0	0	0	**0**
Pipali	0	0	0	0	12	7	**19**
Hadmdiya	0	0	0	0	7	6	**13**
Loej	0	0	0	0	0	50	**50**
Surva	0	0	0	0	17	0	**17**
Movana	0	0	0	0	0	0	**0**
Mandlimpur	0	0	0	0	11	9	**20**
Sheradi	0	0	0	0	0	0	**0**
Odadar	0	0	0	0	15	12	**27**
Chanchakvad	0	0	0	0	2	2	**4**
Khorasa	0	0	0	0	6	8	**14**
Gonadal	0	0	0	0	6	3	**9**
Total	**0**	**0**	**0**	**0**	**76**	**97**	**173**

F 11. Bull-wise Live Female Progeny at Different Field Unit Centres (1-3 years) as on 3/2019

Centres	Ronak	Alok	Babar	Chaman	Raghu	Girish	Abhijit	Nayan	Madhav	Total
Shedhaya	15	0	0	0	0	7	8	2	0	32
Pipali	19	10	9	4	9	19	5	0	5	80
Hadmdiya	16	10	2	2	0	10	1	0	1	42
Loej	42	30	28	0	4	45	17	0	3	169
Surva	39	12	7	3	3	13	8	0	4	89
Mandlikpur	17	6	5	4	5	22	1	0	5	65
Odadar	36	17	17	2	6	43	21	0	0	142
Chanchakvad	3	2	2	0	1	3	0	0	5	16
Khorasa	15	7	13	2	2	18	7	0	3	67
Gonadal	1	0	3	0	0	6	0	0	0	10
Total	203	94	86	17	30	186	68	2	26	712

F 12. Bull-wise Live Female Progeny at Different Field Unit Centres (> 3years) as on 3/2018

Centres	**Bhagro**	**Laxman**	**Nagraj**	**Total**
Set - I				
Shedhaya	59	152	86	**297**
Pipali	63	52	69	**184**
Loej	250	758	248	**1256**
Surva	135	134	76	**345**
Mand likpur	155	28	56	**239**
Hadmdiya	12	12	26	**50**
Khorasa	0	4	12	**16**
Odadar	0	0	0	**0**
Sub **Total –I**	**674**	**1140**	**573**	**2387**

Set – II	**Haresh**	**Moti**	**Sundar**	**Raja**	**Dhingalo**	**Bholenath**	**Total**
Shedhaya	17	18	0	10	11	0	**56**
Pipali	29	48	0	6	25	0	**108**
Loej	56	86	175	82	44	30	**473**
Movana	10	83	0	44	27	0	**164**
Surva	2	149	7	27	27	0	**212**
Mandlikpur	6	14	0	13	2	2	**37**
Sheradi	6	28	0	5	0	0	**39**
Hadmdiya	21	0	0	43	64	1	**129**
Sub Total- II	**147**	**426**	**182**	**230**	**200**	**33**	**1218**

Set – III	**Nayan**	**Madhav**	**Total**
Shedhaya	12	0	**12**
Pipali	15	12	**27**
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	**134**	**53**	**187**

F 13. 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 (18-19)	Pro.	Cur.year (18-19)	Pro.	Cur.year (18-19)	Pro.	Cur.year (18-19)					
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					24	24
Laxman	I	5343		2735(4556)		2735		1349					79	79
A		**18916**	**0**	**8606(14234)**	**0**	**7274**	**0**	**3917**	**0**				**148**	**148**
Haresh	II	1245		660(1082)		437		211				36	25	25
Moti	II	2459		1041(2129)		1007		472				0	41	41
Sunder	II	719		371(539)		329		151				0	18	18
Raja	II	1443		724(1378)		594		277				230	2	2
Dhinglo	II	1089		552(1064)		552		259				200	1	1
Bholenath	II	2557		1235(1988)		843		404				33	13	13
B		**9512**	**0**	**4583(8180)**	**0**	**3762**	**0**	**1774**	**0**			**499**	**100**	**100**
Nayan (07/10)	III	1061		503(1000)		391		164			2	134	1	1
Abhijit (A1/10)	III	619		279(619)		254		98			68	0		
Madhav(37/10)	III	692		295(639)		239		105			21	53		
Alok	III	794	375	315(802)	56(124)	276		132		56	36	0		
Ronak(09/11)	III	1737		752(1736)		670		284		12	188	0		
Girish	III	1601		612(1565)		464		210		119	64	0		
Babar	III	1142	378	299(704)	310(676)	209	202	93	85	84	0	0		
Raghu	III	1289	23	442(1026)	49(137)	75	352	34	157	29	0	0		
Chaman	III	855	15	321(780)	31(56)	45	218	18	92	17	0	0		
Badal	III	0	963	0	394(978)		31		13	0	0	0		
Kamalesh	III	0	259	0						0	0	0		
C		**9790**	**2013**	**3818(8871)**	**840(1971)**	**2623**	**803**	**1138**	**347**	**317**	**379**	**187**	**1**	**1**
Gr.Total (A+B+C)		**38218**	**2013**	**17007(31285)**	**840(1971)**	**13659**	**803**	**6829**	**347**	**317**	**379**	**686**	**249**	**249**

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	
Overall	**40166**	**17818(35275)**	**51.01**	**15414**	**7225**	**249**	**50.2**	**8.9**	

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	0	0	0	0	45	0	24	79	**148**

Set - II	Haresh	Moti	Sundar	Raja	Dhingalo	Bholenath	Total
AI	1245	2459	719	1443	1089	2557	**9512**
Pregnancies	660	1041	371	724	552	1235	**4583**
Daughters Born	211	472	151	277	259	404	**1774**
Daughters Calved	25	41	18	2	1	13	**100**

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	315	752	612	299	442	**321**	**3818**
Daughters Born	164	98	105	132	284	210	93	34	**18**	**1138**
Daughters Calved	1	0	0	0	0	0	0	0	0	**1**

Project Co-ordinator's observations on centre performance

Financial Statement for the year 2018-19 (Rs in Lakhs)

Allocation as per R E 2018 – 19		Released ICAR Share	Expenditure as per AUC		Closing Balance
Total	ICAR Share		ICAR Share	State Share	
69.00	55.20+3.00 (SCSP)	58.20	49.02619+ 2.98128 (SCSP	16.34206	6.17381+0.01872 (SCSP)

Herd Performance

Herd strength was 346 heads comprising of 190 breedable buffaloes and 15 breeding bulls. 57 calving reported during the report period out of which 27 male, 30 female and one still birth. Calf mortality (0-3 months) was 5.8 percent and conception rate was 34.84 %, calf mortality increased and CR rate decreased over last year (17.84 % and 52.68%). During the year 29630 doses of semen were produced and 40640 doses were sold to the farmers and other developmental agencies. 99868 frozen semen doses are available at the centre. Production performances indicated by average lactation milk yield and 305 day or less day milk yield were 2500.6 kg (57) and 2359.8 kg (57) significantly increased from lat year (2242.8 kg and 1907.3 kg) respectively. The reproductive traits viz. AFC, SP, DP and calving interval were 49.90 months(22), 180.4 days (35), 213.4 days (35) and 471.2 days (35) respectively. The wet and herd average were 5.80 kg and 3.6 kg resp., marked significant reduction over 2015-16 performance (wet Av. 8.10 and herd Av. 3.5 kg). 60.40 percent buffaloes were in milk during the report period.

Field Unit:

2013 AI's were performed utilization from the semen of 6 bulls (4 bulls III set and 2 bulls IV set) in 10 centers/villages. Total 840 conceptions reported with conception rate of 41.73 %. 347 female progeny born and 87 daughters completed lactation in 2018-19.

Accomplishment and Targets Achieved:

Sr. No.	Trait	Target	Achieved 2015-16	Achieved 2016-17	Achieved 2017-18	Achieved 2018-19
1	Av. AFC (Months)	40.0 months	47.82 (11)	49.80 (12)	54.05 (21)	**49.9**
2	Av. service period (Days)	130 days	150 (42)	190 (33)	150 (48)	**180.4**
3	Calf mortality (0-3 months)	≤ 4 %	6.25 %	6.94 %	10.64 %	**5.82**
4	Wet average (Kg)	≥ 8.50 kg	8.10 kg	7.4 kg	6.7 kg	**5.8**
5	Herd average (Kg)	≥ 5.50 kg	3.50 kg	3.2 kg	3.0 kg	**3.6**

Recommendations:

1. Bull set for 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 and organizing meeting-interface with enumerators / A I workers / farmers. All the bulls should be used in equal proportion in the field.
3. Significant improvement reported in lactation milk yield as compared to previous year performance.
4. Need to improve CR in main unit.

LIVESTOCK RESEARCH STATION, VALLABHNAGAR

Report Period: 2018-19

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**
Pay & Allowances	22,00,000	0
T.A.	1,00,000	91,997
Recurring Contingencies University Development Fund	50,00,000	49,99,952
Non recurring	-	-
Total	**73,00,000**	**50,91,949**
1. Equipments	60,000	59,944
2. Works	2,00,000	2,00,000
3. Livestock	-	-
Total Non-Recurring	**2,60,000**	**2,59,944**
Grand Total	**75,60,000**	**53,51,893**

Revenue generated: Total receipt generated during the year : Rs. 18,70,253/-

1. 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 2018 to 31st March, 2019

Sr. No.	Category	Addition			Disposal				CB
		OB	B / P	T	D	T	S	E	CB
	Female								
1.	Below 3 months	1	18	0	6	11	0	0	**2**
2.	3-12 months	15	0	11	1	16	0	0	**9**
3.	1-2 years	8	0	16	0	8	0	0	**16**
	Above 2 years	23	0	8	2	8	0	0	**21**
4.	Buffaloes in Milk	23	0	8	1	2	0	0	**28**
5.	Buffaloes Dry P /NP	11	0	2	0	0	0	0	**13**
	Sub Total	81	18	45	10	45	0	0	**89**
	Males								
1.	Below 3 months	1	14	0	3	11	0	0	**1**
2.	3-12 months	7	0	11	0	8	0	0	**10**
3.	1-2 years	4	0	8	1	4	0	0	**7**
	Above 2 years	14	0	4	2	2	1	0	**13**
4.	Breeding bulls	6	0	2	0	0	1	0	**7**
5.	Bullocks / Teasers / others	2	0	0	0	0	0	0	**2**
	Sub Total	34	14	25	6	25	2	0	**40**
	Grand Total	**115**	**32**	**70**	**16**	**70**	**2**	**0**	**129**

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	0	0	0	0	0	0	0
May	0	0	0	0	0	0	0	0
June	0	0	0	0	0	0	0	0
July	3	1	0	0	0	0	0	4
August	4	6	0	0	0	0	0	10
September	4	6	1	0	0	0	0	11
October	1	2	0	0	0	0	0	3
November	0	0	1	0	0	0	0	1
December	2	2	1	0	0	0	0	5

January	0	0	0	0	0	0	0	0
February	0	1	0	0	0	0	0	1
March	0	0	0	0	0	0	0	0
Overall	**14**	**18**	**3**	**0**	**0**	**0**	**0**	**35**

Sex ratio **Male : Female (7:9)** Abortion % = 0 %

9.3. Disposal of Animals during the Period 1st April 18 to 31st March 19

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	1	0	**1**
Heifers								
1-2 years	0	0	0	0	0	0	0	**0**
> 2 years	0	0	0	0	0	2	0	**2**
Buffaloes								
Milch	0	0	0	0	0	1	0	**1**
Dry	0	0	0	0	0	0	0	**0**
Sub Total	**0**	**0**	**0**	**0**	**0**	**10**	**0**	**10**
Males	**Primary cause of disposal**							
Calves								
0 to 3 months	0	0	0	0	0	3		**3**
3-12 months	0	0	0	0	0	2	0	**2**
1 to 2 year	0	0	0	0	0	0	0	**0**
>2 year	1	0	0	0	0	1	0	**2**
Breeding bulls	1	0	0	0	0	0	0	**1**
Bullock+Teaser+Others	0	0	0	0	0	0	0	**0**
Sub Total	**2**	**0**	**0**	**0**	**0**	**6**	**0**	**8**
Grand Total	**2**	**0**	**0**	**0**	**0**	**16**	**0**	**18**

9.4. Mortality during the Period 1st April 2018 to 31st March, 2019

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.	19	26	24	31	46	146	15	18	12	18	63	209
Died	6	1		2	1	10	3		1	2	6	16
%	**31.6**	**3.8**	**0.0**	**6.5**	**2.2**	**6.85**	**20.0**	**0.0**	**8.3**	**11.1**	**9.52**	**7.66**

9.5. Causes of Mortality (quarter wise) during the period April 18 to March 19

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

TRP / TP	-	-	-	-	0
Parasitism	-	-	-	-	0
Accidental death	-	-	-	-	0
Peri-parturient disorders	-	-	1	-	1
Miscellaneous	-	2	3	2	7
Total	**2**	**3**	**7**	**4**	**16**

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	01-03-2019 02-03-2019	127			April	0
					May	20
HS	01-03-2019 02-03-2019	127			June	0
					July	8
BQ	01-03-2019 02-03-2019	127			August	15
					September	20
Brucellosis	13-05-2018, 27-06-2018, 04-07-2018, 23-09-2018	11			October	30
					November	15
JD			8	0	December	10
TB			8	0	January	127
IBR					February	2
Mastitis					March	0

9.7. Female Conception Rate During the Period January to December 2018

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	6	60.00	3	1	33.33	1	0	0.00	1	0	0.00	15	7	46.67
Adults	28	13	46.43	10	4	40.00	6	3	50.00	6	1	16.67	50	21	42.00
Overall	**38**	**19**	**50.00**	**13**	**5**	**38.46**	**7**	**3**	**42.86**	**7**	**1**	**14.29**	**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	17	6	35.29
April - June	8	1	12.50
July - September	8	1	12.50
October- December	32	20	62.50
Overall	**65**	**28**	**43.08**

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.	1948	1	1	1	100.00
2.	1950	2	4	2	50.00
3.	1952	2	10	3	30.00
4.	1955	3	8	2	25.00
5.	1961	3	3	1	33.33
6.	1963	4	18	8	44.44
7.	1968	4	6	4	66.67
8.	4529	8	2	1	50.00
9.	4542	8	6	0	0.00
10.	4548	8	1	1	100.00
11.	4567	8	1	1	100.00
12.	4578	8	5	4	80.00
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	225	0	6	-	-	-	6	219
I	1949	2	0	-	-	-	-		2
II	1950	307	0	22	-	-	-	22	285
II	1951	15	0	-	-	-	-		15
II	1952	205	0	6	-	-	-	6	199
II	1953	95	0	-	-	-	-		95
III	1955	553	0	28	-	-	-	28	525
III	1956	536	0	-	-	-	-		536
III	1957	900	0	-	-	-	24	24	876
III	1958	163	0	-	-	-	-		163
III	1959	0	0	-	-	-	-		0
III	1961	473	0	6	-	-	-	6	467
IV	1962	85	0	-	-	-	-		85
IV	1963	990	0	28	-	-	-	28	962
IV	1964	510	0	-	-	-	10	10	500
IV	1965	350	0	-	-	-	-		350
IV	1966	1152	0	-	-	-	-		1152
IV	1967	2435	0	-	-	-	-		2435
IV	1968	1656	0	20	-	-	-	20	1636
IV	1969	1640	0	-	-	-	10	10	1630
IV	1970	5	0	-	-	-	-		5
V	1971	1111	0	-	-	-	-		1111
V	1972	573	0	-	-	-	-		573
V	1973	1451	0	-	-	-	-		1451
V	1974	1137	0	-	-	-	-		1137
V	1975	741	0	-	-	-	-		741
V	1976	1346	0	-	-	-	-		1346
V	1977	1877	0	-	-	-	-		1877

V	1978	70	0	-	-	-	-		70
VI	4203	268	0	-	-	-	-		268
VI	4229	3627	0	-	-	-	-		3627
VI	4264	2281	0	-	-	-	-		2281
VI	4299	5703	0	-	-	-	-		5703
VI	4302	174	0	-	-	-	-		174
VI	4321	124	0	-	-	-	-		124
VI	4323	99	0	-	-	-	-		99
VI	25	248	0	-	-	-	-		248
VI	8	565	0	-	-	-	-		565
VII	4373	1746	0	-	-	-	-		1746
VII	4403	3073	0	-	-	-	-		3073
VII	4392	1996	0	-	-	-	-		1996
VII	4429	2406	0	-	-	-	-		2406
VII	4413	1164	0	-	-	-	-		1164
VII	4458	123	0	-	-	-	-		123
VIII	4464	2256	0	-	215	-	-	215	2041
VIII	4529	3506	0	2	95	-	-	97	3409
VIII	4542	1592	922	12	845	-	-	857	1657
VIII	4548	1738	471	2	597	-	-	599	1610
VIII	4567	1878	823	2	716	-	-	718	1983
VIII	4578	3423	0	16		-	-	16	3407
IX	**4611**	0	1846	-		-	-		1846
IX	**4612**	0	671	-		-	-		671
IX	**4633**	272	2308	-		-	-		2580
IX	**4647**	0	1128	-		-	-		1128
IX	**4648**	0	1342	-		-	-		1342
Total		**58865**	**9511**	**150**	**2468**	**0**	**44**	**2662**	**65714**

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**	**-**	
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**	**-**	
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	2	1753.35 ± 88.15	315.00 ± 1.00	1731.50 ± 91.20	9.75 ± 0.15
2nd	3	1764.50 ± 403.60	308.00 ± 60.93	1613.83 ± 254.30	9.87 ± 0.73
3rd	4	1650.33 ± 219.79	340.50 ± 12.82	1551.90 ± 170.93	9.30 ± 1.06
4th	8	1670.24 ± 137.43	313.63 ± 34.14	1584.04 ± 112.15	10.00 ± 0.51
5th & above	5	1504.60 ± 173.50	293.60 ± 31.57	1453.30 ± 134.20	8.98 ± 0.43
Overall	**22**	**1649.38** ± 85.81	**313.32** ± 15.74	**1565.95** ± 64.94	**9.60** ± 0.29

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

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
4267	17-12-2003	12-09-2018	5383	12266.4	2465	1211	2.28
4377	03-06-2006	15-11-2018	4548	5965.6	1132	1109	1.31
4405	03-12-2006	24-11-2018	4374	8966.7	1922	770	2.05
4426	24-07-2007	30-05-2018	3963	8790.7	1495	597	2.22
4430	15-08-2007	13-05-2018	3924	6546.4	1125	857	1.67
4434	29-08-2007	13-06-2018	3941	8049.2	1462	639	2.04
4446	21-11-2007	12-11-2018	4009	8202.9	1489	754	2.05
4455	02-11-2010	23-03-2018	2698	8790.4	1615	806	3.26
4461	13-08-2008	21-01-2019	3813	3006.2	800	786	0.79

4466	28-08-2008	11-04-2018	3513	5987.9	1234	844	1.70
4482	01-12-2008	11-08-2018	3540	7957.9	1229	556	2.25
4501	02-08-2009	04-04-2018	3167	6326.9	1253	342	2.00
4523	29-07-2010	30-10-2018	3015	4730	1173	507	1.57
4528	05-08-2010	02-03-2019	3131	5817.2	1146	729	1.86
4533	02-08-2010	18-03-2019	3150	3919.5	885	826	1.24
4549	26-09-2010	09-06-2018	2813	4470.7	968	647	1.59
4627	Purchased	08-04-2018	-	3930.5	853	996	-

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 2018 to March 2019

Month	N	Fat	SNF	Protein	Lactose	SCC
April	19	6.9	-	-	-	-
May	15	7.2	-	-	-	-
June	12	7.9	-	-	-	-
July	12	7.2	-	-	-	-
August	20	6.4	-	-	-	-
September	30	5.6	-	-	-	-
October	30	5.5	-	-	-	-
November	30	5.7	-	-	-	-
December	31	6.0	-	-	-	-
January	33	7.8	-	-	-	-
February	31	7.3	-	-	-	-
March	25	7.7	-	-	-	-
Overall		**Overall**	**7.72**	-	-	-

9.14: Reproductive Performance

Lactation / Parity	AFC (Months) (N)	SP (Days)	DP (Days)	CI (Days)
1	42.41 ± 2.71 (7)	173.50 ± 44.90 (4)	-	-
2	-	109.33 ± 16.33 (4)	154.00 ± 65.00 (2)	439.50 ± 36.50 (2)
3		134.50 ± 49.50 (3)	164.00 ± 16.83 (5)	387.40 ± 17.68 (5)
4	-	111.17 ± 20.40 (7)	200.89 ± 15.58 (9)	448.00 ± 31.34 (9)
5th& above	-	143.80 ± 34.27 (5)	178.60 ± 45.15 (10)	416.80 ± 29.89 (10)
Over all	**42.41** ± 2.71 (**7**)	**133.85** ± 14.36 (**23**)	**181.62** ± 18.46 (**26**)	**423.69** ± 16.31 (**26**)

9.14.1 Reproduction Performance Since inception of Network.

Years	AFC (Days/ Months)	AFC months	Service Period (days)	Dry Period (days)	Calving Interval (days)
2001-02	-	-	243.92 ±42.12	250.08 ±23.75	556.17 ±24.96
2002-03	-	-	195.00 ±22.93	204.45 ±25.71	489.95 ±24.01
2003-04	1517.34 ±50.82	49.75	146.13 ±14.32	177.35 ±12.01	454.71 ±14.45
2004-05	1370.64 ±86.23	44.94	153.55 ±11.10	179.37 ±9.84	462.79 ±11.33
2005-06	1366.23 ±31.93	44.79	145.87 ±18.50	171.83 ±16.20	451.63 ±18.03
2006-07	1367.69 ±29.27	44.84	148.68 ±13.13	163.32 ±11.69	450.27 ±14.29
2007-08	1431.62 ± 22.36	46.94	150.57 ± 13.02	162.03 ± 23.45	456.11 ± 11.48
2008-09	1565.62 ± 41.18	51.33	118.27 ± 16.96	172.88 ± 15.90	480.25 ± 16.10
2009-10	1489.18 ± 29.65	48.83	203.10 ± 22.39	169.57 ± 11.58	453.30 ± 16.06
2010-11	1391.67 ± 88.97(8)	45.63	108.68±19.01(34)	193.57± 9.64(30)	503.24 ± 22.75(30)
2011-12	1461.00 ± 98.49(5)	47.90	97.11 ± 5.15(18)	141.19± 1.18(23)	425.90 ± 33.77(23)

2012-13	1448.00 ± 69.58(8)	47.47	108.6 ± 14.82(17)	164.08± 1.72(26)	441.73 ± 22.99(26)
2013-14	45.47 ± 2.62(8)	45.47	119.63± 1.84(25)	135.60± 7.83(16)	401.06 ± 11.50(16)
2014-15	47.01 ± 2.49(10)	47.01	162.28± 8.74(18)	177.2± 35.07(10)	445.9 ± 33.71(10)
2015-16	46.29(1)	46.29	169.29± 7.39(19)	192.47± 9.78(19)	±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	130.70±16.45(23)	193.3 ±13.47 (31)	456.44± 21.45 (31)
2018-19	42.41 ± 2.71 (7)	42.41	133.85 ±14.36 (23)	181.62 ± 18.46 (26)	423.69 ± 16.31 (26)

9.15 Milk Production and Disposal

Month	Total milk produced (kg)	Disposal (Kg)		
		Milk sold	Calf feeding	Expt.
April	2798	2768	30	0
May	2058.5	2058.5	0	0
June	1483	1483	0	0
July	1509	1361.5	84	0
August	2908.8	1934.5	768	0
September	5286	3463.5	1575	0
October	6205	4386.2	1744.5	1.6
November	5509.7	4337.5	1170	2.2
December	5402.8	4658.7	663	6
January	5277.5	4875.2	393	2
February	4429.80	4180.10	223.50	4.00
March	4317.5	4130.5	183	4
Total	**47,185.60**	**39,637.20**	**6,834.00**	**19.80**

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	0	0	0
	Dry	0	1101.4	546	651.4
	Silage	0	0	0	0
	Concentrate	0	254.5	188	152
II (July - September)	Green	0	99.98	99.98	0
	Dry	0	0	518	251.4
	Silage	0	0	0	0
	Concentrate	0	205.99	188.79	18.7
III (October – Dec.)	Green	0	91.86	91.86	0
	Dry	0	845.9	476	412.85
	Silage	0	0	0	0
	Concentrate	0	480.130	259.69	276.25
IV (January - March)	Green	0	571.1	571.1	0
	Dry	0	0	364	283.9
	Silage	0	0	0	0
	Concentrate	0	143.85	288.6	88.07
TOTAL	Green	**0**	**762.94**	**762.94**	**0**
	Dry	**0**	**1947.3**	**1904**	**283.9**
	Silage	**0**	**0**	**0**	**0**
	Concentrate	**0**	**1081.47**	**925.08**	**87.32**

9.17: Milk performance during April 2018 to March 2019

Month	Buffaloes in milk	Buffaloes dry	Total	% in milk	Wt. Avg.(kg)	Herd Avg.(kg)
Apr-18	606	414	1020	59.41	4.62	2.74
May-18	492	562	1054	46.68	4.18	1.95
Jun-18	359	661	1020	35.20	4.13	1.45
Jul-18	360	741	1101	32.70	4.19	1.37
Aug-18	565	634	1199	47.12	5.15	2.43
Sep-18	845	351	1196	70.65	6.26	4.42
Oct-18	960	245	1205	79.67	6.46	5.15
Nov-18	891	323	1214	73.39	6.18	4.54
Dec-18	913	287	1200	76.08	5.92	4.50
Jan-19	980	250	1230	79.67	5.39	4.29
Feb-19	893	255	1148	77.79	4.96	3.86
Mar-19	907	323	1230	73.74	4.76	3.51
Overall	**8771**	**5046**	**13817**	**63.48**	**5.38**	**3.42**

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

9.18: Bull wise daughters born (only numbers)

Bull No.	Set No.	Daughters born	Daughters Calved	Daughters completing 1st Lactation
1948	1	2	1	-
1950	2	3	1	1
1952	2	1	-	1
1955	3	4	1	-
1956	3	0	-	-
1961	3	1	1	1
1963	4	2	-	-

1968	4	1	-	-
4229	6	-	1	-
4299	6	-	1	-
4321	6	-	1	-
4403	7	-	1	1
4529	8	2	-	-
4542	8	1	-	-
4578	8	1	-	-
Total		18	8	4

9.19 Bull wise daughters completing 1st lactation Farm (2018-19)

Bull No.	Daughter No.	Date of birth	Date of calving	AFC (months)	Lact. Length (days)	TLMY (kg)	SLMY (kg)
1950	4616	25-10-2012	31-07-2017	56.97	314	1665.20	1640.30
1952	4599	27-08-2012	05-01-2018	64.08	316	1841.50	1822.70
1961	4696	18-08-2015	19-07-2018	34.91	246	940.80	940.80
4403	4649	21-11-2013	21-08-2017	44.83	257	825.00	825.00

9.20 Breeding bulls Selected for current set (VIII Set)

Sr. No.	**Bull No.**	**Date of Birth**	**Dam No.**	**Sire No.**	**Dam's best SLMY**
1	4464	24-08-2008	3701	1949	1986
2	4529	07-08-2010	4289	1971	1398.5
3	4542	28-08-2010	4189	1971	1397.5
4	4548	24-09-2010	4224	1974	1573
5	4567	21-08-2011	4330	1973	2054.9
6	4578	23-09-2011	4198	1974	1790.5

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

9.20.2 List of Future breeding bulls (proposed for IX Set and X 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	4611	28-09-2012	3908	1948	1996.5/IV	0	101.52
2	4648	20-11-2013	4434	4264	1896.9/III	0	87.60
3	4680	09-09-2014	4520	4403	1614.8/II	0	72.56
4	4689	13-10-2014	4176	1952	1964.7/IX	0	65.05
5	4712	31-10-2015	4446	1950	2091.6/III	0	165.95
6	4715	22-12-2015	4409	1950	2209.2/III	0	139.27
7	4728	09-09-2016	4430	1948	1742.6/III	0	94.53
8	4765	11-10-2017	4520	1963	1614.8/II	0	72.56
9	4772	23-11-2017	4482	1950	2052.9/II	0	164.11

9.21 Target achieved during the year 2018-19

Trait	Target	Achieved (year)
Av. Age at first calving (months)	40	**42.41**
Av. Service period (days)	130	**133.85**
Calf mortality (0-3 months)	≤ 5 %	**26.47 %**
Wet average (kg)	≥8.5 kg	**5.38**
Herd average (kg)	≥5.5 kg	**3.42**

10. Salient Research Achievements:

- **Four Set** of bulls **complete**ly evaluated with 4586 doses of Proven Surti Bulls.
- Test mating from VII set completed.
- Test mating of VIII set underway.
- Training of bulls for IX set started.
- **No case of any reproductive abnormality** reported for last year except one still birth.
- **Improvement** in **ALL reproductive parameters**.
- **Marked improvement** in **ALL production parameters**

11. Publications:

12. Socioeconomic impact / Success stories:

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

13. Constraints if any

For strengthening of field testing programme:

- Recurring contingency is short to meet out the increased cost of feed and fodder, labour, medicine and liquid nitrogen.
- Training programmes may be organized for the buffalo keepers with the provision of sufficient fund for the same.
- Provision for 6 posts of inseminators on fixed wages of Rs. 8000 pm. (Rs.5.76 Lacs/year)
- Atleast Rs 6.0 lacs for incentives to the registered farmers in terms of vaccination, deworming, mineral mixture supply and organizing treatment camps and events 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 **VIII set** of bulls.
- To preserve doses of IX set of bulls
- Efforts will be made to further increase reproductive and productive efficiency of institutional herd.
- Conduct behaviour study on Sexual behavior; Milking behavior; Physiological behavior

Field Unit, Surti (RAJUVAS)

F 1. Herd Strength of Registered Females at Field Unit Centers during 4/2018 to 3/2019

Center	Opening balance	Addition			Deduction			Closing balance
		Birth	Purchased	New Reg.	Sold	Death	Reg. Cancelled	
Menar	427	42	39	14	4	44	0	474
Rundera	467	39	33	12	35	54	0	462
Navania	412	48	59	150	19	38	0	612
Tarawat	339	26	34	10	25	41	0	343
Dhamania	554	64	62	27	74	69	0	564
Total	2199	219	227	213	157	246	0	2455

F 2. Status of Breedable Females at Different Field Unit Centers during 4/2018 to 3/2019

Center	Heifers >3 years		Buffalo Non Pregnant		Buffalo Pregnant	
	Total	Pregnant	In milk	Dry	In milk	Dry
Menar	108	13	80	18	4	32
Rundera	115	41	49	4	5	22
Navania	142	28	80	13	11	31
Tarawat	87	26	21	5	11	25
Dhamania	116	34	64	7	19	70
Total	**568**	**142**	**294**	**47**	**50**	**180**

F 3. Monthly AI (Center-wise) at Different Field Unit Centers during 4/2018 to 3/2019

Month	**Centre**					**Total**
	Menar	**Rundera**	**Navania**	**Tarawat**	**Dhamania**	
Apr-18	11	12	15	2	1	**41**
May-18	10	6	16	3	3	**38**
Jun-18	8	20	16	3	6	**53**
Jul-18	20	62	23	11	30	**146**
Aug-18	34	78	36	19	34	**201**
Sep-18	31	51	36	16	54	**188**
Oct-18	34	60	64	25	44	**227**
Nov-18	29	61	43	16	47	**196**
Dec-18	26	88	41	13	36	**204**
Jan-19	37	53	59	10	26	**185**
Feb-19	14	50	31	15	21	**131**
Mar-19	9	52	31	14	3	**109**
Total	**263**	**593**	**411**	**147**	**305**	**1719**

F 4. Bull-wise AI at Different Field Unit Centers during the Period 4/2018 to 3/2019

Month	**Bull No.**						**Total**
	4464	**4529**	**4542**	**4548**	**4567**	**4578**	
Apr-18	0	2	1	12	26	0	**41**
May-18	0	0	19	0	13	6	**38**
Jun-18	0	0	30	0	4	19	**53**
Jul-18	0	1	39	34	72	0	**146**

Aug-18	0	50	21	77	53	0	**201**
Sep-18	0	0	32	36	114	6	**188**
Oct-18	0	0	25	125	35	42	**227**
Nov-18	0	0	0	111	85	0	**196**
Dec-18	0	0	82	31	91	0	**204**
Jan-19	0	0	181	4	0	0	**185**
Feb-19	21	0	110	0	0	0	**131**
Mar-19	90	0	19	0	0	0	**109**
Total	**111**	**53**	**559**	**430**	**493**	**73**	**1719**

F 5. Month-wise Conception at Field Unit Centres during the period 4/2018 to 3/2019

Month	**Centre**					**Total**
	Menar	**Rundera**	**Navania**	**Tarawat**	**Dhamania**	
Jan-18	7	12	19	2	8	**48**
Feb-18	3	18	13	2	5	**41**
Mar-18	5	7	7	2	1	**22**
Apr-18	4	4	3	1	0	**12**
May-18	3	2	4	3	1	**13**
Jun-18	3	5	3	2	2	**15**
Jul-18	5	19	6	3	9	**42**
Aug-18	7	20	10	6	12	**55**
Sep-18	6	18	11	5	17	**57**
Oct-18	7	18	21	7	18	**71**
Nov-18	9	20	10	5	15	**59**
Dec-18	6	17	9	4	14	**50**
Total	**65**	**160**	**116**	**42**	**102**	**485**

F 6. Month-wise Calving at Different Field Unit Centres during the Period 4/2018 to 3/2019

Month	Centre										Total	
	Menar		Rundera		Navania		Tarawat		Dhamania			
	M	F	M	F	M	F	M	F	M	F	M	F
Apr-18	2	0	1	2	1	1	1	1	1	1	6	5
May-18	2	3	6	3	1	1	1	1	4	5	14	13
Jun-18	3	1	4	3	3	0	2	2	7	10	19	16
Jul-18	4	2	5	6	9	2	4	7	11	8	33	25
Aug-18	5	2	4	5	4	4	5	3	7	6	25	20
Sep-18	2	3	3	2	16	13	5	3	7	5	33	26
Oct-18	4	2	7	5	11	10	2	0	2	4	26	21
Nov-18	4	2	5	4	10	9	1	1	4	4	24	20
Dec-18	1	1	6	7	6	6	2	0	4	1	19	15
Jan-19	2	2	2	3	4	2	1	1	0	0	9	8
Feb-19	2	1	2	1	3	0	1	0	0	0	8	2
Mar-19	2	0	1	1	3	1	1	0	1	0	8	2
Total	**33**	**19**	**46**	**42**	**71**	**49**	**26**	**19**	**48**	**44**	**224**	**173**

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F 7. Bull-wise Conception at Different Field Unit Centres during the Period 4/2018 to 3/19

Month	Bull No.					Total
	4529	4542	4548	4567	4578	
Jan-18	2	0	27	19	0	48
Feb-18	0	4	0	37	0	41
Mar-18	0	8	0	14	0	22
Apr-18	0	0	0	8	4	**12**
May-18	0	6	0	5	2	**13**
Jun-18	0	7	0	3	5	**15**
Jul-18	0	16	9	17	0	**42**
Aug-18	11	8	19	17	0	**55**
Sep-18	0	0	15	30	12	**57**
Oct-18	0	7	40	12	12	**71**
Nov-18	0	0	34	25	0	**59**
Dec-18	0	17	8	25	0	**50**
Total	**13**	**73**	**152**	**212**	**35**	**485**

F 8. Bull-wise Calving at Different Field Unit Centres during the period 4/2018 to 3/2019

Month	Bull No.										Total	
	4529		4542		4548		4567		4578			
	M	F	M	F	M	F	M	F	M	F	M	F
Apr-18	2	3	0	0	2	2	0	0	2	0	6	5
May-18	8	5	0	0	2	2	0	0	4	6	14	13
Jun-18	7	3	0	0	6	10	0	1	6	2	19	16
Jul-18	2	0	0	0	20	10	4	7	7	8	33	25
Aug-18	6	7	0	0	5	3	11	8	3	2	25	20
Sep-18	4	4	10	6	13	13	6	3	0	0	33	26
Oct-18	0	0	6	4	13	7	7	10	0	0	26	21
Nov-18	1	1	0	0	12	10	11	9	0	0	24	20
Dec-18	2	0	0	0	0	0	17	15	0	0	19	15
Jan-19	0	0	2	3	0	0	7	5	0	0	9	8
Feb-19	0	0	0	0	0	0	6	1	2	1	8	2
Mar-19	0	0	5	1	0	0	2	0	1	1	8	2
Total	**32**	**23**	**23**	**14**	**73**	**57**	**71**	**59**	**25**	**20**	**224**	**173**

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F 9. Bull-wise Live Female Progeny at Different Field Unit Centres (0-6M) as on 3/2019

Centre	Bull No.					Total
	4529	4542	4548	4567	4578	
Menar	0	0	5	4	0	**9**
Rundera	0	6	6	5	3	**20**
Navania	0	2	6	19	0	**27**
Tarawat	1	0	0	1	0	**2**
Vallabhnagar	0	0	0	0	0	**0**
Dhamania	0	1	0	7	0	**8**
Total	**1**	**9**	**17**	**36**	**3**	**66**

F 10. Bull-wise Live Female Progeny at Different Field Unit Centres (6-12M) as on 3/2019

Center	Bull No.					Total
	4529	4542	4548	4567	4578	
Menar	0	0	3	1	6	**10**
Rundera	7	0	0	2	4	**13**
Navania	0	3	11	3	0	**17**
Tarawat	0	0	9	10	0	**19**
Vallabhnagar	0	0	0	0		**0**
Dhamania	9	0	7	2	8	**26**
Total	**16**	**3**	**30**	**18**	**18**	**85**

F 11. Bull-wise Live Female Progeny at Different Field Unit Centres (1-3 yrs) as on 3/2019

Center	Bull No.													Total
	4373	4392	4403	4413	4429	4458	4464	4497	4529	4542	4548	4567	4578	
Menar	3	3	1	5	4	1	5	2	3	5		6	2	40
Rundera	5	3		7	3	4	4	3	14	3	5	2	7	60
Navania	0	0	0	4	1	7	5	5	12		2	16	3	55
Tarawat	0	1	0	4	0	4	2	3	2	0	2	5	5	28
Vallabhnagar	0	0	0	1	0	1	0	1	0	0	0	0	0	3
Dhamania	5	0	2	0	8	6	0	6	14	0	3	3	7	54
Total	**13**	**7**	**3**	**21**	**16**	**23**	**16**	**20**	**45**	**8**	**12**	**32**	**24**	**240**

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

Centre	Bull No.												Total
	4203	4229	4264	4299	4302	4373	4392	4403	4413	4429	4458	4464	
Menar	0	1	2	6	0	3	4	4	7	8	3	1	**39**
Rundera	2	4	5	2	1	2	10	2	22	6	2	0	**58**
Navania	0	1	2	1	1	1	1	8	1	1	1	0	**18**
Tarawat	2	0	0	1	0	1	2	1	0	1	0	0	**8**
Vallabhnagar	0	3	0	1	0	0	0	3	1	0	0	0	**8**
Dhamania	0	4	3	4	0	4	5	6		12	1	0	**39**
Total	**4**	**13**	**12**	**15**	**2**	**11**	**22**	**24**	**31**	**28**	**7**	**1**	**170**

F 12.1. Center and Age-wise Live female Progeny as on 3/2019

Center	Age				Total
	0-6M	6-12M	1-3yr	>3yr	
Menar	9	10	40	39	98
Rundera	20	13	60	58	151
Navania	27	17	55	18	117
Tarawat	2	19	28	8	57
Vallabhnagar	0	0	3	8	11
Dhamania	8	26	54	39	127
Total	**66**	**85**	**240**	**170**	**561**

F 13. Bull-wise Daughters Calved at Different Field Unit Centers during 2017-18

Bull No.	Center					Total
	Menar	Rundera	Navania	Tarawat	Dhamania	
4203	2	2	1	0	1	**6**
4229	2	1	2	0	1	**6**
4264	0	4	2	0	3	**9**
4299	1	0	2	1	0	**4**
4373	0	0	1	2	1	**4**
4392	1	1				**2**
4403	0	3	1	5	1	**10**
4429	**0**	**0**	**0**	**3**		**3**
Total	**6**	**11**	**9**	**11**	**7**	**44**

F 14. Bull-wise Daughters Recorded at Different Field Unit Centres during 2018-19

Name of village	Bull no.	Daughter no.	Date of birth	Monthly milk recorded										
Menar	4203	C-1384	24-09-2013	DOR	10-08-2017	15-09-2017	14-10-2017	15-11-2017	13-12-2017	10-01-2018	12-02-2018	10-03-2018	13-04-2018	11-05-2018
				M	2.2	2.9	3.4	3.8	3.9	3.7	3.4	2.9	2.3	1.7
				E	2	2.4	2.9	3.3	3	3.1	2.9	2.4	1.8	1.3
				Total	4.2	5.3	6.3	7.1	6.9	6.8	6.3	5.3	4.1	3
	4203	C-1383	14-09-2013	DOR	16-08-2018	16-09-2018	15-10-2018	15-11-2018	16-12-2018	15-01-2019	15-02-2019			
				M	2	2.5	3.2	3.4	3.1	2.9	2.7			
				E	2.1	2.4	2.9	3.1	2.9	2.7	2.4			
				Total	4.1	4.9	6.1	6.5	6	5.6	5.1	Sold on 10/03/2019		
	4229	C-1355	13-12-2012	DOR	16-09-2017	14-10-2017	15-11-2017	13-12-2017	10-01-2018	12-02-2018	10-03-2018	13-04-2018	11-05-2018	12-06-2018
				M	1.9	2.9	3.1	3.5	3.8	3.7	3.4	3	2.6	2.1
				E	1.7	2.3	2.6	3.1	3.2	3.1	2.9	2.7	2.2	1
				Total	3.6	5.2	5.7	6.6	7	6.8	6.3	5.7	4.8	1.6
	4299	C-1319	02-02-2012	DOR	25-08-2017	15-09-2017	14-10-2017	15-11-2017	13-12-2017	10-01-2018	12-02-2018	10-03-2018	13-04-2018	11-05-2018
				M	2.3	3.1	3.8	4	3.9	3.8	3.5	3.1	2.6	2.2
				E	1.9	2.7	3.2	3.3	3.1	3.3	3	2.7	2.1	1.7
				Total	4.2	5.8	7	7.3	7	7.1	6.5	5.8	4.7	3.9
Rundera	4203	B-1716	21-07-2013	DOR	08-10-2017	09-11-2017	07-12-2017	09-01-2018	07-02-2018	08-03-2018	09-04-2018	08-05-2018	10-06-2018	09-07-2018
				M	2.1	2.7	3.3	3.6	3.5	3.3	3.1	2.6	2.3	1.9
				E	2.8	2.3	2.8	3	3.1	2.8	2.6	2	1.8	1.5
				Total	4.9	5	6.1	6.6	6.6	6.1	5.7	4.6	4.1	3.4
		B-1717	25-07-2013	DOR	08-10-2017	09-11-2017	07-12-2017	09-01-2018	07-02-2018	08-03-2018	09-04-2018	08-05-2018	10-06-2018	09-07-2018
				M	2	2.2	2.8	3.1	3.4	3.3	3.2	2.7	2.4	2
				E	1.7	1.7	2	2.5	3	2.9	2.7	2.1	2	1.6
				Total	3.7	3.9	4.8	5.6	6.4	6.2	5.9	4.8	4.4	3.6
		B-1718	06-08-2013	DOR	16-06-2018	18-07-2018	15-08-2018	16-09-2018	17-10-2018	16-11-2018	15-12-2018	16-01-2019	17-02-2019	16-03-2019
				M	1.5	2	2.5	3	3.2	3.3	3.1	2.4	2	1.5
				E	1.2	1.7	2	2.2	2.4	2.8	2.4	1.8	1.2	1
				Total	2.7	3.7	4.5	5.2	5.6	6.1	5.5	4.2	3.2	2.5
	4264	B-1607	22-10-2011	DOR	16-06-2018	18-07-2018	15-08-2018	16-09-2018	17-10-2018	16-11-2018	15-12-2018	16-01-2019	17-02-2019	17-03-2019
				M	2.2	2.5	2.9	3.2	3.4	3.3	3	2.5	2.2	2
				E	2	2.1	2.5	2.6	2.7	2.8	2.5	2	1.6	1.4
				Total	4.2	4.6	5.4	5.8	6.1	6.1	5.5	4.5	3.8	3.4
	4299	B-1746	06-12-2013	DOR	26-10-2017	09-11-2017	07-12-2017	09-01-2018	07-02-2018	08-03-2018	09-04-2018	08-05-2018	10-06-2018	09-07-2018
				M	1.7	2.3	2.9	3.3	3.4	3.3	3	2.5	2.1	2
				E	1.4	2	2.5	2.7	2.8	2.9	2.6	2.1	1.7	1.6

				Total	3.1	4.3	5.4	6	6.2	6.2	5.6	4.6	3.8	3.6
	4403	B-1761	07-07-2014	DOR	25-08-2017	07-09-2017	08-10-2017	09-11-2017	07-12-2017	09-01-2018	07-02-2018	08-03-2018	09-04-2018	08-05-2018
				M	1.9	2.8	3.2	3.8	3.8	3.7	3.4	3	2.5	2.0
				E	1.6	2	2.4	2.6	2.7	2.5	2.6	2.3	2	1.6
				Total	3.5	4.8	5.6	6.4	6.5	6.2	6	5.3	4.5	3.6
Navania	4203	A-1225	20-08-2013	DOR	15-12-2017	13-01-2018	14-02-2018	14-03-2018	13-04-2018	14-05-2018	13-06-2018	14-07-2018	12-08-2018	
				M	2.4	2.9	3.3	3.5	3.6	2.9	2.6	2.4	2	
				E	2	2.7	3	3.1	3.2	2.6	2.1	1.9	1.6	
				Total	4.4	5.6	6.3	6.6	6.8	5.5	4.7	4.3	3.6	0
		A-1172	01-09-2012	DOR	14-09-2018	15-10-2018	15-11-2018	13-12-2018	15-01-2019	15-02-2019	16-03-2019			
				M	2.9	3.2	3.5	3.7	3.6	3.3	3			
				E	2.7	3.1	3	3.1	3	2.8	2			
				Total	5.6	6.3	6.5	6.8	6.6	6.1	5	Sold on 24/03/2019		
	4229	A-1016	11-06-2011	DOR	13-08-2017	14-09-2017	13-10-2017	14-11-2017	15-12-2017	13-01-2018	14-02-2018	14-03-2018	13-04-2018	14-05-2018
				M	2.2	3.4	3.8	2.6	3.3	3.4	3	2.6	2.4	1.9
				E	2.1	2.8	3.3	3.2	3	2.9	2.6	2.3	2	1.6
				Total	4.3	6.2	7.1	5.8	6.3	6.3	5.6	4.9	4.4	3.5
	4323	A-1218	22-07-2013	DOR	13-10-2017	14-11-2017	15-12-2017	13-01-2018	14-02-2018	14-03-2018	13-04-2018	14-05-2018	13-06-2018	14-07-2018
				M	1.8	2.1	2.4	2.7	3.1	3.6	3.4	3.1	2.7	2.1
				E	1.6	1.8	2	2.2	2.4	3	2.9	2.7	2.2	1.7
				Total	3.4	3.9	4.4	4.9	5.5	6.6	6.3	5.8	4.9	3.8
	4403	A-1290	22-08-2015	DOR	15-12-2017	13-01-2018	14-02-2018	14-03-2018	13-04-2018	14-05-2018	13-06-2018	14-07-2018	12-08-2018	14-09-2018
				M	2	2.5	3	2.8	2.5	2.3	2.0	1.8	1.7	1.5
				E	1.6	2.1	2.7	2.3	2.0	1.8	1.6	1.3	1.2	1.3
				Total	3.6	4.6	5.7	5.1	4.5	4.1	3.6	3.1	2.9	2.8
Tarawat	4229	D-686	13-07-2011	DOR	27-10-2017	15-11-2017	16-12-2017	15-01-2018	16-02-2018	15-03-2018	16-04-2018	16-05-2018	15-06-2018	16-07-2018
				M	2.5	2.2	3.6	3.3	4.1	4.2	3.8	3.6	2.9	2.6
				E	1.7	2.5	2.7	3.2	3.6	3.7	3.4	3.1	2.4	2.3
				Total	4.2	4.7	6.3	6.5	7.7	7.9	7.2	7.2	6.7	5.3
	4264	D-756	10-08-2013	DOR	27-10-2017	15-11-2017	16-12-2017	15-01-2018	16-02-2018	15-03-2018	16-04-2018	16-12-2018	15-06-2018	16-07-2018
				M	1.7	2.7	3.2	3.6	4.2	4.1	3.5	3.1	2.7	2.3
				E	1.3	2	2.4	3.3	3.7	3.5	3	2.7	2.3	1.8
				Total	3	4.7	5.6	6.9	7.9	7.6	6.5	5.8	5	4.1
	4403	D-784	28-02-2015	DOR	15-06-2018	16-07-2018	14-08-2018	14-09-2018	16-10-2018	15-11-2018	15-12-2018	14-01-2019	15-02-2019	16-02-2019
				M	1.6	2.9	3.3	3.5	3.5	3.3	3	2.5	2.0	1.5
				E	1.5	2.8	3	3.2	3	2.9	2.8	2.5	1.9	1
				Total	3.1	5.7	6.3	6.7	6.5	6.2	5.8	5	3.9	2.5
Dhamania	4203	H-1	10-08-2012	DOR	21-10-2017	18-11-2017	17-12-2017	15-01-2018	17-02-2018	18-03-2018	17-04-2018	18-05-2018	17-06-2018	17-07-2018
				M	1.7	2	2.3	2.6	2.9	3.2	2.8	2.6	2.3	1.9
				E	1.4	1.7	1.9	2.2	2.6	2.7	2.3	2.1	1.8	1.5
				Total	3.1	3.7	4.2	4.8	5.5	5.9	5.1	4.7	4.1	3.4
	4203	H-39	25-06-2013	DOR	16-09-2018	15-10-2018								
				M	1.9	2.5								
				E	1.8	2						Sold 05/11/2018		
				Total	3.7	4.5	0	0	0	0	0	0	0	0
	4229	H-27	06-12-2012	DOR	17-10-2017	18-11-2017	17-12-2017	15-01-2018	17-02-2018	18-03-2018	17-04-2018	18-05-2018	17-06-2018	17-07-2018
				M	1.9	2.8	3.1	3.5	3.8	3.7	3.4	3	2.5	2
				E	1.6	2	2.3	2.6	2.7	2.5	2	2.3	2	1.6
				Total	3.5	4.8	5.4	6.1	6.5	6.2	5.4	5.3	4.5	3.6

	4264	H-36	12-06-2013	DOR	18-03-2018	17-04-2018	18-05-2018	17-06-2018	17-07-2018	16-08-2018	16-09-2018	15-10-2018	15-11-2018	15-12-2018
				M	2.2	2.8	3.5	3.8	3.7	3.9	3.2	3	2.7	2.5
				E	1.7	2.3	3	3.2	3.1	3.2	2.9	2.5	2.4	2.2
				Total	3.9	5.1	6.5	7	6.8	7.1	6.1	5.5	5.1	4.7
		H-53	15-09-2013	DOR	16-09-2018	15-10-2018								
				M	3	4								
				E	3	3.6								
				Total	6	7.6	Sold on 31/10/2018							
	4403	H-74	22-07-2014	DOR	25-11-2017	17-12-2017	15-01-2018	17-02-2018	18-03-2018	17-04-2018	18-05-2018	17-06-2018	17-07-2018	16-08-2018
				M	2.9	3.4	3.8	3.8	3.5	3.2	2.8	2.1	2.3	2.1
				E	2.3	2.9	3.3	3.2	2.9	2.4	2.7	1.6	1.7	1.9
				Total	5.2	6.3	7.1	7	6.4	5.6	5.5	3.7	4	4

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	16	13
4229/VI	1776	571	418	180	164	139	120	25	19
4264/VI	1579	514	396	174	149	125	116	25	15
4299/VI	1477	466	343	153	127	105	84	20	12
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	4	0
4392/VII	623	189	148	58	39	31	25	2	0
4403/VII	1130	362	267	92	65	44	37	13	4
4413/VII	869	289	227	91	75	45	34	1	1

4429/VII	640	197	148	66	54	44	35	3	0
4458/VII	574	170	134	51	40	17	9	0	0
4497/VII	451	126	88	33	25	12	3	0	0
4464/VIII	471	99	61	28	24	16	2	0	0
4529/VIII	808	241	190	76	45	0	0	0	0
4542/VIII	739	122	62	23	8	0	0	0	0
4548/VIII	999	324	171	74	12	0	0	0	0
4567/VIII	1281	405	228	101	32	0	0	0	0
4578/VIII	729	218	129	56	24	0	0	0	0
TOTAL	**33,116**	**9,793**	**7,379**	**3,109**	**1,782**	**1,340**	**1,072**	**489**	**380**

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	5(1)
2011-12	2023	520	25.7	475	226	17	57.45	5.43	5(5)
2012-13	1897	583	30.73	497	198	19	51.13	5.54	25(10)
2013-14	1591	555	34.88	410	158	13	48.46	5.34	52(14)
2014-15	1534	455	29.66	409	156	4	36.57	5.44	78(5)
2015-16	1986	556	27.99	345	145	1	27.44	4.06	103(2)
2016-17	1979	622	31.35	467	179	0	-	-	134
2107-18	1478	506	34.23	830	357	0	-	-	154
2018-19	1719	485	28.21	20	4				5
Overall	**33,136**	**9,793**	**535.73**	**7,771**	**3,261**	**380**	**59.51**	**4.47**	**561(37)**

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	104
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	10	19	16	16	6	2	3	**72**
Complete Recording	13	19	15	12	5	2	3	**69**
Daughters Available	4(2)	13(6)	12(7)	15(4)	2	-	0	**46(19)**

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	-	-	3	1	-	-	-	**4**
Complete Recording	-	-	4	1	-	-	-	**5**
Daughters Available	**24(3)**	**29(3)**	**27(9)**	**52**	**44(3)**	**30**	**20**	**226(18)**

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	471	808	739	999	1281	729	**5027**
Pregnancies	99	241	122	324	405	218	**1409**
Daughters Born	28	76	23	74	101	56	**358**
Daughters Calved	-	-	-	-	--	-	**0**
Complete Recording	-	-	-	-	-	-	**0**
Daughters Available	**17**	**62**	**20**	**59**	**86**	**45**	**289**

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	104	57.65/106	4.59	-
6	7	6895	2211	1671	725	624	537	432	69	55.19(76)	5.35	46(19)
7	7	4874	1528	1161	451	340	215	159	5	43.16(20)	5.17	226(18)
8	6	5027	1409	841	358	145	16	2	0	0	0	289

Project Co-ordinator's observations on centre performance

Financial Statement for the year 2018-19 (Rs in Lakhs)

Allocation as per R E 2018 – 19		Released ICAR Share	Expenditure as per AUC		Closing Balance (ICAR Share)
Total	ICAR Share		ICAR Share	State Share	
53.60	37.20+3.00 (SCSP)	40.20	40.13920	13.37973	0.06080

Herd Performance

Herd strength was 129 heads comprising 62 breedable buffaloes (> 2.0 years) 32 calves were born and 3 still births during the period, 0 – 3 months calf mortality was 26.47 %. The female conception rate was 43.08 % at the farm is almost same as previous year. During the report period 9511 semen doses were produced, 2618 doses were used in NPBI and 65714 frozen semen doses is available in stock.

Means for total lactation milk yield 1649.35 (22) kg improved from the last year 1617.7 (23) kg and 305 or less day lactation milk yield were 1565.95 kg, decreased from last year 1586.06 (23) kg. Age at first calving, Service Period, Dry Period and calving Interval were 42.41 months, 133.85 days (23), 181.62 days (26) and 423.69 days (26), respectively. Wet 5.38 kg decreased from the previous year 5.55 kg and herd average 3.42 kg almost same as previous year 3.43 kg, 63.48 percent animal were in milk during the report period.

Field Unit

Total 1719 AI's were performed in field centers. Total 485 buffaloes conceived, 397 calving took place out of them 173 female calves. Live female progenies of 0-6 month 66, 6-12 months 85, 1-3 years 240 and > 3 years 170 were available at field unit centers. 22 daughters completed milk recording during the 2018-19.

A. Accomplishment and Targets Achieved:

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

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.
- 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 (Murrah).
   - 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 2017-18	Balance
Recurring		36.00	34.92581	1.07419
Sub Total		36.00	34.92581	1.07419
Non recurring				
	Livestock	3.50	0.18166	3.31834
	Fir. Fixture	0.60	0.32000	0.28000
	Works/ Modificat	4.00	3.93996	0.16004
Sub Total		11.50	14.34162	3.75838
Grand Total		41.50	39.26743 (Rupees Thirty Nine lakhs Twenty Six Thousand Thousand seven Hundred forty three only)	4.83257

* Rs. 2.00 lakhs included for SCSP.

Revenue generation during 2017-18

S.No.	**Item**	**Revenue generated (Rs.)**
1	Animal sale	2,97,500
2	Milk Sale	7,61,835.40
3	Frozen semen sale	-
	Total	**10,59,335.40**

9.1 Herd Strength during the Period 1st April 2018 to 31st March, 2019

Sr. No.	Category	**Addition**			**Disposal**				**CB**
		OB	**B / P**	**T**	**D**	**T**	**S**	**E**	**CB**
	Female								
1.	Below 3 months	1	12		1	12			-
2.	3-12 months	10		12		9	2		11
3.	1-2 years Above 2 years	6 19		9 7		7 6			8 20
4.	Buffaloes in Milk	21		6		5	2		20
5.	Buffaloes Dry P /NP	13		5			7		11
	Sub Total	70	12	39	1	39	11		70
	Males								
1.	Below 3 months	1	10			10	1		-
2.	3-12 months	7		10		4	4		9
3.	1-2 years Above 2 years	3 2		4 2		2 2	1		4 2
4.	Breeding bulls	4		2			2		4
5.	Bullocks / Teasers / others	4					2		2
	Sub Total	21	10	18		18	10		21
	Grand Total	91	22	57	1	57	21		91

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 18 to 31st March 19

Month	Male	Female	Still Birth	Abortion	Dystokia	ROP	Prolapse	Overall
April		1						1
May		1						1
June								
July	1	1						2
August	1	2	1					4
September	3	3						6
October	1							1
November		1						1
December	4	3						7
January								
February								
March								
Overall	10	12	1					23

Sex ratio Male : Female (45.5 : 54.5) SB% = 4.3 Abortion % = Nil

9.3. Disposal of Animals during the Period 1st April 18 to 31st March 19

Female	Primary cause of disposal							
Category	Surplus	Below farm production standard	Reprod. Problem	Weak & Old	Udder Health	Death	Experimental purposes	Total
Calves 0 to 3 months 3-12 months	 2*					1		1 2
Heifers 1-2 years > 2 years								
Buffaloes Milch Dry		 2 3	 1	 1	 2			 2 7
Sub Total	2	5	1	1	2	1		12
Males	**Primary cause of disposal**							
Calves 0 to 3 months 3-12 months	 1 4							 1 4
1 to 2 year	1							1
. >2 year								
Breeding bulls	2							2
Bullock+Teaser+Others	2							2
Sub Total	10							10
Grand Total	12	5	1	1	2	1		22

9.4. Mortality during the Period 1st April 2018 to 31st March, 2019

Female							Male					Overall Herd
	0-3 Month	3-12 Month	1-2 Yrs.	Above 2 Yrs.	Milk + Dry	Overall Female	0-3 Month	3-12 Month	1 -2 Yrs.	>2 yrs.	Overall Male	
No.	13					13						113
Died	1					1						1
%	7.6					7.6						0.88

9.5. Causes of Mortality (quarter wise) during the period April 18 to March 19

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

10.4 Prophylactic Measures undertaken

Disease	**Vaccination Date / No. of animals**	**No. of animals** Tested / Positive		**Dates and No. of animals treated for Parasitism**
FMD	April 2018 : 5 animal May 2018 : 92 animals			APR - 28 MAY- 10 JUN - 01 JUL - 01 AUG - 20 SEP - 19 OCT - 06 NOV- 04 DEC- 02 JAN- 53 FEB – 18 MAR- 34
HS	April 2018 : 5 animal May 2018 : 92 animals			
BQ	April 2018 : 5 animal May 2018 : 92 animals			
Brucellosis				
JD				
TB				
IBR				
Mastitis				

9.7. Female Conception Rate During the Period January to December 2018

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	2	1	50	1	1	100							3	2	66.6
Adults	19	13	68.4	6	2	33.3	5	2	40	1			31	17	54.8
Overall	21	14	66.6	7	3	42.8	5	2	40	1			34	19	**55.8**

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	14	6	42.8
April - June	-	-	-
July - September	1	1	100
October- December	19	12	63.15
Overall	34	19	55.8

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.	B331	III	16	9	56.25
2.	B333	III	6	2	33.3
3.	B354	III	10	8	80.0
	B366	III	2	0	0.0
Over all			34	19	55.8
No. of services per conception					1.78

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					3722
18	B244	3105					3105
19	B331	13127		620			12507
20	B333	5408	124	-			5532
21	B354	3956	1735	1420			4271
22	B366	3915	2701	1458			5158
	B393	-	900	552			348
Total		**38548**	**5460**	**4050**			**39958**

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)
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)

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	7	1285.7	357	1089.0	6.19
2nd	2	1940.5	365	1602.6	7.65
3rd	3	1443.9	306	1346.6	7.03
4th	3	1238.9	289	1226.4	6.90
5th & above	2	1213.9	320	1133.8	6.75
Overall	**17**	**1373.9**	**332**	**1224.4**	**6.70**

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**

*Within parenthesis are number of observations

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

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	01.03.19	4504	8511.2	1969	2535	1.89
B-204	30.01.07	25.07.18	4194	6882.3	1714	2480	1.64
B-224	07.10.07	5.11.17	3682	5419.4	1779	2503	1.47
B-231	5/11/07	30.07.16	3190	4583.3	984	2206	1.44
B-235	25.11.07	16.06.18	3856	6420.7	1374	2482	1.66
B-238	10.12.07	27.09.17	3579	5423.0	1196	2383	1.52
B-251	26.08.08	07.05.18	3441	5098.2	1233	2308	1.43
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 2018 to March 2019

Month	N	Fat	SNF	Protein	Lactose	SCC
April	32	7.78	9.19	3.31	4.94	
May	39	8.23	9.04	3.29	4.87	
June	19	8.30	9.05	3.32	4.91	
November	12	8.73	10.0	3.62	5.43	
December	14	8.16	10.19	3.69	5.52	
January	29	7.77	10.26	3.72	5.58	
February	17	8.40	9.94	3.59	5.39	
March	25	8.96	9.98	3.60	5.42	
Overall	**187**	**8.23**	**9.61**	**3.48**	**5.20**	

9.14: Reproductive Performance

Lactation / Parity	AFC (Months) (N)	N →	SP (Days)	Days Open	DP (Days)	CI (Days)
1	47.28±1.64	13				
2		1	316	326	156	623
3		1	387	387	350	696
4		2	129.0±76.2	129.0±76.2	134.0±60.1	401.5±70.7
5th and above		5	133.0±31.5	133.0±31.5	156.8±34.3	452.0±44.1
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)	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)	190.5±31.8 (15)	177.3±24.3 (14)	493.3±31.7 (15)
2018-19	47.28±1.6 (13)	181.7±39.3 (9)	173.1±30.4 (9)	486.8±42.7 (9)

9.15 Milk Production and Disposal

Month	Total milk produced (kg)	Disposal (Kg)		
		Milk sold	Calf feeding	Expt.
April	2379.7	1962.60	417.1	
May	2454.1	2044.3	409.8	
June	2239.4	1818.3	421.1	
July	1811.2	1591.4	219.8	
August	1399.8	1184.5	215.3	
September	1687.2	1285.8	401.4	
October	2054.2	1659.4	394.8	
November	1910.4	1520.7	389.7	
December	2124	1529.8	594.2	
January	2638.5	2009.2	629.3	
February	2362.1	1915.60	446.5	
March	2555.9	2009.3	546.6	
Total	25616.5	20530.9	5085.6	

Note: Mention sale price of milk (range during the year): Rs. 36 per kg up to 15.09.2018, Rs. 38 per kg w.e.f. 16.09.2018.

9.16 Feed and fodder (Quintals) availabilityApril 2018 to March 2019

Quarter		Qty. Produced at Farm (Qt.)	Qty. Purchased (Qt.	Actually fed (Qt)	Balance (Qt.)
I (April – June)	Green	190	0	190	0
	Dry	429	0	429	0
	Silage	673	0	673	0
	Concentrate	0	0	147	-92
II (July – September)	Green	1185	0	1185	0
	Dry	221	0	221	0
	Silage	0	0	0	0
	Concentrate	0	0	135	-227
III (October – December)	Green	695	0	695	0
	Dry	412	0	412	0
	Silage	0	0	0	0
	Concentrate	0	540	126	187
IV (January-March)	Green	1120	0	1120	
	Dry	0	350	350	0
	Silage	0	0	0	0
	Concentrate	0	0	0	0
Total	Green	3190	0	3190	0
	Dry	1062	350 (Bhoosa)	1412	0
	Silage	673	0	673	0
	Concentrate	0	540	534	61

*Balance from previous year, conc 55 quintal.

9.17: Milk performance during April 18 to March 19

Month	Buffaloes in milk	Dry buffaloes	Total	% in Milk	Wet Av. (kg)	Herd Av. (kg)
April, 18	22	7	29	75.8	3.74	2.73
May	23	10	33	69.6	3.62	2.40
June	22	11	33	66.7	3.56	2.26
July	21	13	34	61.8	3.19	1.72
August	17	8	25	68.8	3.40	1.80
September	22	3	25	88	3.36	2.24
October	20	9	29	68.9	3.48	2.28
November	21	8	29	72.4	3.13	2.19
December	22	8	30	73.3	3.83	2.28
January, 19	20	10	30	66.6	4.26	2.84
February	20	11	31	64.5	4.22	2.72
March	20	11	31	64.5	4.34	2.65
Overall	**20.8**	**9.08**	**29.9**	**70.07**	**3.67**	**2.34**

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**

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	2
B240	3	19	9	2
B244	3	15	4	2
B331	3	18		
B333	3	7		
B354	3	2		

9.19 Bull wise daughters completing 1ST lactation

Bull No.	Daughter No.	Date of birth	Date of calving	AFC (months)	Lact. Length (days)	TLMY (kg)	SLMY (kg)
182	355	06/02/13	18/03/17	50.03	467	1633.4	1250.5
244	360	03/09/13	05/08/17	47.73	355	1055.3	919.8
240	381	16/03/14	13/11/17	44.60	310	1102.8	1097.6
170	368	04/10/13	03/10/17	48.67	422	1283.0	1035.0
228	380	13/03/14	03/11/17	44.37	391	1317.6	1170.0
244	374	16/11/13	07/11/17	48.40	387	1432.9	1172.3
228	379	28/02/14	27/11/17	45.60	387	1175.1	978.0

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 2018-19

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

Conservation in the breeding Tract

a) Germ Plasm Dissemination

- 2 breeding bull sold (B331 and B333) through auction
- 8 males and 12 females were sold to farmers through auction

b) Artificial Insemination in field

Traits	2016-17	2017-18
AI performed	3244	3195
Buffalo sold before Pd	55	73
Died	6	3
Buffalo pregnant	1423	1463
Conception rate (%)	44.7	46.9
Abortion	17	14
Pregnant buffalo sold	97	80
Calvings recorded	1105 (560 Males+ 545 Females)	919 (471 Males+ 448 Females)

Artificial Insemination in field

Month	**No. of AI (2017-18)**	**No. of AI (2018-19)**
APR 17	111	102
MAY	111	65
JUN	86	81
JUL	126	137
AUG	221	217
SEP	357	193
OCT	426	283
NOV	461	371
DEC	457	323
JAN 18	380	228
FEB	346	174
MAR	113	107
TOTAL	**3195**	**2281**

10. Salient Research Achievements:

- Average lactation milk yield, 305 days or less milk yield and wet average were recorded as 1373.9 kg, 1224.4 kg and 3.67 kg, respectively.
- Average age at first calving, average service period and conception rate were 47.28 months, 180 days and 55.8 percent, respectively.
- Calf mortality was vey less (<5%), only 1 calf died during the year.
- 2 breeding bulls sold to the farmers for natural service
- 8 males and 12 females were sold through auction
- Cryopreservation of semen form selected bulls was done for it use in field and farm herd for artificial insemination, 5460 doses were frozen.
- 919 calvings were recorded in the field from the AI done during the year 2017-18. Conception rate in the field was recorded as 46.9 percent.
- Artificial insemination in the Bhadawarti breeding tract was continued during the year 2018-19. A total of 2281 artificial inseminations were performed.

11. Publications

Research papers in journals

- B P Kushwaha, Sultan Singh, S B Maity, K K Singh, A K Misra and Inderjeet Singh (2017). Milk Fatty acid Profile of Bhadawari Buffaloes. Indian Journal of Animal Sciences, 88(7):868-870, July 2018.
- Sultan Singh, B P Kushwaha, M Mohini, A K Misra, S K Nag, A Singh. 2018. Methane production from lactating bhadawari and murrah breeds of buffalo fed wheat straw-concentrate diet. Buffalo Bulletin (April to June 2018) Vol. 37 No. 2 page 145 -150.

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

- Milk Fatty acid Profile of Murrah Buffaloes. 2019. Kushwaha B P, Singh S, Maity S B, Kumar A, Singh K K and Misra A K. Abstract submitted to ISBD seminar January 18-19, 2019, Navsari (Gujrat).
- Improvement and conservation of Bhadawari buffaloes, 2019, B.P.Kushwaha , Sultan Singh, S B Maity , K K Singh, A K Misra & Deepak Upadhyay. Submitted to SOCDAB symposium Feb. 7-8, 2019, NBAGR Karnal.

Popular Article/ technical article

- बद्री प्रसाद कुषवाहा, सूल्तान सिहं,एवं इन्द्रजीत सिहं (2018) भारतीय भैंस नस्ल जैव विविधता. पषुधन प्रकाष नवम अंक 2018, प्रश्ठ 6 से 10

- B P Kushwaha, Sultan Singh, S B Maity and A K Misra (2019). Bhadawari: The buffalo known for high milk fat. Asian Buffalo Magazine, Jan- Dec., 2017, Page 7-13

Award

The article "conservation and improvement of Bhadawari buffaloes", published in Pashudhan prakash hindi magazine, 8th issue, 2017, published by NBAGR Karnal, was awarded as the best article.

12. Socioeconomic impact/ success stories: Activities of the project is creating awareness among the farmers about the Bhadawari buffaloes and farmers are coming forward to purchase Bhadawari animals for rearing purpose during auction. It is a means of livelihood to the resource poor and remotely located farmers.

13. Constraints if any: Nil

14. Focus of work in the coming year: Breed activities shall be continued through semen freezing and artificial insemination in the Bhadawari breeding tract. Efforts will be made to disseminate Bhadawari germplasm through sale of frozen semen/breeding bulls to various agencies for their use in the field. Demonstration, radiotalk and kishan gosthies shall be organized to motivate farmers for rearing of Bhadawari buffaloes.

Project Co-ordinator's observations on centre performance

Financial Statement for the year 2018-19 (Rs in Lakhs)

Sanctioned as per R E2018-19		Released ICAR Share as per R E	Expenditure as per AUC		Closing balance
Total	ICAR Share		ICAR Share	State Share	
44.10	42.10+2.00 (SCSP)	44.10	39.26743	0.00	4.83257

Herd Performance

The Herd strength was 91 head, which comprises of 51 breeding buffaloes (>2.0 years), 22 calving took place during the period out of which 10 were male and 12 were female. 0-3 month calf mortality was reported as 4.17 % and conception rate was reported 55.8 percent. 5460 doses of frozen semen were produced and 4050 doses were used/ supplied for AI purpose in the field.

Average lactation yield decreaed from 1478.4 kg (19) to 1373.9 kg (17), lactation length 316.5 days (19) to 332 days (17) and 305 or less day milk yield were 1402.5 kg (19) to 1224.4 kg (17) 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 47.28 month (13), 180.6 days (9), 173.1 days (9) and 486.8 days (9) respectively. 70 % animals were in the milk with wet average decreased from 4.16 kg to 3.67 kg and herd average 2.39 kg to 2.34 kg. A total 2281 A I's were performed in field, 919 calving recorded 448 female calves born during 2018-19.

Accomplishment and Targets Achieved:

Sr. No.	Trait	Target	Achieved 2015-16	Achieved 2016-17	Achieved 2017-18	Achieved 2018-19
1	Av. AFC (Months)	40.0	47.25 (5)	50.6 (4)	46.26 (7)	47.28 (13)
2	Av. service period (Days)	140	212.3 (24)	176.2 (18)	173 (15)	181 (22)
3	Calf mortality (0-3 months)	≤ 4 %	16.12	3.7 %	4.00 %	4.16
4	Wet average (Kg)	≥ 5.0 kg	4.49 kg	4.62 kg	4.16 kg	3.67
5	Herd average (Kg)	≥ 3.0 kg	2.64 kg	2.97 kg	2.39 kg	2.34

Recommendations:

- Management of hefiers and lactating animals needs to be improved at farm.
- Field AI program to be continued.
- Production performance decreased significantly as compared to 2017-18. Efforts should be made to improve the production performance traits.

NETWORK PROJECT ON BUFFALO IMPROVEMENT (NILI RAVI, GADVASU)

Report Period: 2018-19

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 500 and 300 breed able 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 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 and utilization; revenue receipts.

Account Head	Budget Allotted	Expenses made	Balance
Recurring Contingencies	3400000/-	3400000/-	Nil
TA/POL	60,000/-	59,940/-	60/-
Non Recurring Contigencies			
Livestock	600000/-	600000/-	Nil
Furniture	60,000/-	59968/-	32/-
	41,20,000/-	41,19,908/-	92/-

ICAR Share 75% = 30,90,000/- State Share 25% = 10,30,000/-

9.1 Herd Strength during the Period 1st April 2018 to 31st March, 2019

Sr. No.	Category	Addition			Disposal				CB
		OB	**B / P**	**T**	**D**	**T**	**S**	**E**	**CB**
	Female								
1.	Below 3 months	7	22+1	-	5	18	-	-	7
2.	3-12 months	15	-	18	-	22	-	-	11
3.	1-2 years	16	2	22	3	15	-	-	22
	Above 2 years	24	4	15	-	16	-	-	27
4.	Buffaloes in Milk	40	3	16	2	21	-	-	36
5.	Buffaloes Dry P /NP	28	3	21	2		9	-	41
	Sub Total	130	35	92	12	92	9	-	144
	Males								
1.	Below 3 months	4	28+1		5	19	2	-	7
2.	3-12 months	3	-	19	-	3	15	-	4
3.	1-2 years	2	-	3	-	1	1	-	3
	Above 2 years	1		1	-	0	1		1
4.	Breeding bulls	2	-	0	-	-	-	-	2
5.	Bullocks / Teasers / others	-	-	-	-	-	-	-	-
	Sub Total	12	29	23	5	23	19	-	17
	Grand Total	142	64	115	17	115	28	-	161

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	2	0	0	0	0	0	0	2
May	2	0	0	3	0	2	0	5
June	1	0	0	0	0	0	0	1
July	3	4	0	0	1	0	0	7
August	1	1	0	1	0	1	0	3
September	4	0	2	0	0	0	0	6
October	5	4	1	0	0	0	0	10
November	2	4	0	0	0	0	0	6
December	0	1	0	0	0	0	0	1
January	1	2	1	0	1	0	0	4
February	6	4	0	0	0	0	0	10
March	1	2	1	0	0	0	0	4
Overall	**28**	**22**	**5**	**4**	**2**	**3**	**0**	**59**

Sex ratio Male: Female **1: 0.78** SB% = 9.0% Abortion = 6.7%

9.3. Disposal of Animals during the Period 1st April 18 to 31st March 19

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	-	-	-	-	-	5	-	**5**
3-12 months						-		-
Heifers								
1-2 years	-	-	-	-	-	-	-	
> 2 years						3		3
Buffaloes	-	-						
Milch			5	4	-	2	-	11

Dry						2		2
Sub Total	-	-	5	4	-	12	-	21
Males								
Calves 0 to 3 months 3-12 months	2 15	-	-	-	-	5 -	-	7 15
1 to 2 year	1	-	-	-	-	-	-	1
.>2 year	1	-	-	-	-	-	-	1
Breeding bulls	-	-	-	-	-	-	-	-
Bullock+Teaser +Others	-	-	-	-	-	-	-	-
Sub Total	19	-	-	-	-	5	-	24
Grand Total	19	-	5	4	-	17	-	45

9.4. Mortality during the Period 1st April 2018 to 31st March, 2019

	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	5	0	0	3	2+2	12	5	0	0	0	5	17
%	16.66	0	0	6.97	3.3+ 3.8	4.66	15.15	0	0	0	7.81	5.29

9.5. Causes of Mortality (quarter wise) during the period April 18 to March 19

Particulars	**1st quarter (April-June)**	**2nd quarter (July-Sept)**	**3rd quarter (Oct-Dec.)**	**4th quarter (Jan.-March)**	**Total**
Enteritis	1			3	4
Pheumo Enteritis	1	1	1	1	4
Broncho-Pheumonia	-	1	1	1	3
Septicamia / Toxaemia	-	-	-	-	-
Peritonitis	-	2	-	1	3
JD/TB	-	-	-	-	-
Milk Fever / metabolic diseases	-	-	-	-	-
TRP / TP	-	-	-	-	-
Parasitism	-	-	-	-	-
Accidental death	-	-	-	-	-
Peri-parturient disorders	-	-	-	-	-
Miscellaneous	-	-	2	1	3
Total	**2**	**4**	**4**	**7**	**17**

9.6 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	141 (Thrice a year)			
BQ	131			
Brucelloses	8	71	4	
JD	-	-	-	
TB	-	126	8 (Reactor)	
IBR	-	-	-	
Mastitis	-	-	-	

9.7. Female Conception Rate during the Period January 2018 to December 2019

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	13	7	53.8	9	2	22.2	6	5	83.3	0	0	0	28	14	50.0
Adults	40	14	35.0	23	10	43.5	16	9	56.3	13	8	61.5	92	41	44.5
Overall	53	21	39.6	32	12	37.5	22	14	63.6	13	8	61.5	120	55	**45.8**

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	21	14	66.6
April - June	24	10	41.6
July - September	37	9	24.3
October- December	38	22	57.8
Overall	**120**	**55**	**45.8**

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

Sr. No.	Bull No.	Total Number of AI	Total Conceived	CR%
1.	NR 27	2	1	50.0
2.	NR674	22	6	27.0
3.	NR 702	7	3	42.8
4.	NR1359	17	9	52.9
5.	NR2591	8	2	25.0
6.	NRNAAG2	14	8	57.1
7.	NRRAJA	39	20	51.2
8.	NRTANK	11	6	54.5
Total		**120**	**55**	**45.8**

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	105	1147	35	575	0	610	642
2.	NR2591	1117	8480	0	8246	0	8246	1351
Grand Total		1222	9627	35	8821	0	8856	1993

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)
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)	

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	2592.10 ±182.79	328.18 ± 23.26	2454.4 ± 145.06	13.0 ± 0.75
2nd	8	2697.22 ± 299.16	316.37 ± 24.04	2544.1 ± 210.86	14.02 ± 1.0

3rd	8	2608.5 ± 68.81	287.87 ± 16.42	2574.3 ± 64.78	14.88 ± 1.02
4th	7	2436.42 ± 212.83	282.85 ± 17.35	2391.4 ±173.64	13.6 ± 1.35
5th & above	5	2236.28 ± 72.37	255.20 ± 14.67	2236.28 ±72.37	11.78 ± 0.34
Overall	**39**	**2543.47 ± 89.08**	**300 ± 10.0**	**2458.17 ± 68.01**	**13.54 ± 0.44**

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

9.13 Average Milk Composition from April 2018 to March 2019

Month	N	Fat	SNF	Protein	Lactose
April 18	38	8.05	9.61	3.45	5.71
May	36	8.02	9.88	3.53	5.63
June	32	8.07	9.57	3.47	5.59
July	30	8.02	9.53	3.39	5.53
August	35	7.99	9.55	3.42	5.64
September	30	7.96	9.71	3.51	5.71
October	29	7.86	9.59	3.48	5.68
November	42	7.89	9.81	3.37	5.77
December	33	7.98	9.66	3.46	5.72
January 19	33	8.01	9.49	3.52	5.81
February	26	8.04	9.73	3.44	5.72
March	31	7.99	9.63	3.46	5.74
Overall	**33**	**7.99**	**9.64**	**3.45**	**5.67**

9.14: Reproductive Performance

Lactation / Parity	N	AFC (Months)	SP (Days)	DP (Days)	CI (Days)
0	15	40.27±1.80	-	-	-
1	10		124.3 ± 32.47	143.2 ± 26.84	431.8 ± 33.28
2	12		165.83 ± 39.97	240.0 ± 38.79	472.5 ± 40.50
3	6		113.83 ± 26.26	260.83 ± 93.58	420.5 ± 26.50
4	12		233.75 ± 86.98	304.83 ± 89.04	542.66 ± 87.23
5th and above	-	-	-	-	-
Over all	**40**		**168.02 ± 30.10**	**238.37 ± 33.20**	**475.57 ± 30.31**

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)**

9.15. Month-wise milk production and disposal during the period 4/2018 to 3/2019

	Production	Disposal			
Month	Total milk produced (kg)	Liquid milk (kg)	Calf feeding (kg)	Experimental purposes (kg)	Milk lost in handling (kg)
April 2018	9111.9	8229	855.7	-	27.2
May	8656.8	8102	531.5	-	23.3
June	8018.5	7505	490.5	-	23
July	7993.6	7281	682	-	30.6
August	7866.6	6910	929	-	27.6
September	7186.4	6194	964.2	-	28.2

October	8172.6	6771	1374.4	-	27.2
November	8820.3	7147	1647.2	-	26.1
December	8858.2	7508	1322.5	-	27.7
January 2019	7971.2	6917	1025.2	-	29
February	6988.6	5927	1039.2	-	22.4
March	7462.1	6083	1352	-	27.1
Total	**97106.8**	**84574**	**12213.4**	**0**	**319.4**

9.16 Feed and Fodder (Quintals) availability April 2018 – March 2019)

Quarter	**Feed/fodder**	**Quantity produced at farm**	**Quantity purchased**	**Actually fed**
I (April – June)	Green	1646		1646
	Dry	473		473
	Silage	522		522
	Concentrate	432.60	432.60	432.60
II (July – September)	Green	2328		2328
	Dry	157		157
	Silage	640		640
	Concentrate	437.33	437.33	437.43
III (October – December)	Green	1663		1663
	Dry	255		255
	Silage	909		905
	Concentrate	454.72	454.72	454.72
IV (January-March)	Green	2059.7		2059.6
	Dry	416.6		416.6
	Silage	259		259
	Concentrate	414.59	414.59	414.59
Total	Green	7696.7		7696.7
	Dry	1301.6		1301.6
	Silage	2326		2326
	Concentrate	1739.24	1739.24	1739.27

9.17: Milk performance during April 18 to March 2019

Month	Buffaloes in Milk	Dry buffaloes	Total	% in Milk	Wet Av. (kg)	Herd Av. (kg)
April 2018	40	28	68	58.82	7.99	4.40
May	36	33	69	52.17	7.54	3.99
June	32	33	65	49.23	8.35	4.11
July	30	28	58	51.72	8.5	4.00
August	35	32	67	52.23	7.25	4.52
September	30	31	61	49.18	7.9	3.92
October	29	30	59	49.15	9	4.46
November	42	32	74	56.75	7	4.00
December	33	34	67	49.25	7.14	4.26
January 2019	33	31	64	51.56	7.79	4.01
February	26	27	53	49	9.5	4.47
March	36	41	77	46.75	7.76	3.34
Overall	**33.50**	**31.66**	**65.16**	**51.40**	**7.97**	**4.12**

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

9.18: Bull wise daughters born (only numbers)

Bull No.	Daughters born	Daughters Calved	Daughters completing 1st Lactation
NM 19022	5	5	4
M 2254	2	2	2
NR1024	1	1	1
NR245	1	1	1
OVERALL	9	9	8

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)
NR 19022	2914	28-3-15	7-12-17	32.2	297	2296.6	2296.6
NR 19022	2900	15-1-15	19-3-18	38.0	316	2497	2458
M 2254	2896	16-12-14	31-1-18	37.4	324	2527.8	2475
NR NAGI	2861	9-2-14	8-10-17	43.8	265	2143.9	2143.9
NR NOHRA	2877	31-3-14	4-8-17	40.0	357	3051	2806
NR NOVA	2868	13-3-14	24-4-17	42.3	279	2091	2091
NR NOVA	2867	12-3-14	6-12-17	44.7	306	2034	2033
NR 1024	2667	4-8-13	30-4-17	44.7	365	3853.7	3665
NR881	2894	29-10-14	5-1-18	38.1	360	2748	2608
MR881	2881	16-6-14	17-8-17	37.9	520	3336	2487

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	2965 KG / 3	-

9.21 Target achieved during the year :

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

10. Salient Research Achievements: There is an improvement in the production traits. One of the Nili Ravi buffalo produced 3871.2 kg milk in 305d lactation length with a peak yield of 20.5 kg
11. Publications: -
12. Constraints if any: -
13. Focus of work in the coming year: Efforts will be made to improve production & reproduction performance.

Project Co-ordinator's observations on centre performance

Financial Statement for the year 2018-19 (Rs in Lakhs)

Sanctioned as per R E 2018-19		Released ICAR Share as per R E	Expenditure as per AUC		Closing balance
Total	ICAR Share		ICAR Share	State Share	
41.20	29.90+1.00 (SCSP)	30.90	30.89931	10.29977	0.00069

Herd Performance

The herd strength of Nili-Ravi was 161, included 104 breedable buffaloes. Total 50 calves (28 male and 22 female) 5 still birth during 2018-19. The calf mortality (0-3 months) was increased from 13.11 percent to 15.87 percent during the year which higher than the target. Conception rate was reported 45.8 percent.

Mean for lactation milk yield, lactation length and 305 or less day lactation milk yield were 2543 kg (39), 300 days and 2458 kg (39), respectively. Milk yield significantly increased during the year. The reproductive traits viz: age at first calving, service period, dry period and calving interval were 40.27 months (15), 168 days (40), 238 days (40) and 476 days (40), respectively. The wet average and herd average reported 7.97 kg and 4.12 kg, respectively.

Accomplishment and Targets Achieved

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

Recommendations:

- Need to improve service period and dry period through proper care and management of lactating buffaloes.
- Calf mortality is very high emphasis should be given to 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: 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 2018 to March 2019, 3977 artificial inseminations were performed using test bulls of 17th and 18th set. The use 18th set was initiated from January 2019. The conception rate in the field was worked out to be 55.83%. In this period 2150 pregnancies were confirmed and 1710 calving (880 males, 830 females) were recorded. In addition 183 progenies, 4 of 13th, 71 of 14th, and 108 of 15th set were also calved and monthly test day milk yield were/ being recorded. The average age at first calving for these 183 daughters was 40.07 months. During the year 299 daughters were recorded, out of which 122 daughters completed the lactation, 43 daughters sold before the lactation was completed and recording of 134 daughters are in progress. The physical identification using ear tagging has been done in all female progenies born in the field till March 2019. As on 31st March 2019, 1302 female progenies of 14^{th} to 17^{th} 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 2018-19

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

F 2. Status of Breedable females under field unit during 2018-19

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 2018-19

Months	Centre/ Village										Total
	Beed	Juglan	Dhiktana	Kheri	Jewra	Kirara	Sarsod	Bichpari	Bado	Bugana	
April 18	21	16	23	29	20	3	17	15	22	9	**175**
May	25	22	28	28	28	6	37	27	19	9	**229**
June	25	20	28	27	41	8	44	30	19	8	**250**
July	31	33	28	39	41	6	35	37	27	9	**286**
Aug	32	41	31	42	38	8	46	39	36	12	**325**
Sept	51	66	36	31	33	5	50	51	28	22	**373**
Oct	58	56	28	47	45	9	80	43	32	27	**425**
Nov	87	92	24	47	44	7	85	65	32	18	**501**
Dec	68	68	31	47	37	5	94	54	37	19	**460**
Jan 19	65	68	26	43	36	5	80	27	33	20	**403**
Feb	29	41	22	29	24	4	41	32	37	18	**277**
March	44	27	20	39	19	4	46	25	27	22	**273**
Total	**536**	**550**	**325**	**448**	**406**	**70**	**655**	**445**	**349**	**193**	**3977**

F 4. Bull-wise AI at Different Field Unit Centres during the Period 4/2018 to 3/2019

Month	Bull No.																
	M29 XVI	M51 XVI	1148 XVII	2558 XVII	2565 XVII	2594 XVII	2607 XVII	4687 XVII	4715 XVII	4733 XVII	4837 XVII	53M XVII	B1/330 XVII	6942 XVII	7010 XVII	Sikander	Dara XVII
April 18	-	2	66	-	-	-	9	52	42	-	4	-	-	-	-	-	-
May	-	-	103	-	-	27	18	16	13	-	2	3	45	-	-	-	2
June	-	-	-	-	-	1	-	-	-	-	-	85	63	-	64	31	6
July	-	-	-	-	-	-	-	-	-	-	-	67	101	-	7	52	59
Aug	-	-	1	-	-	1	-	-	2	-	-	6	113	117	-	42	43
Sept	1	-	107	-	-	-	-	-	-	1	-	-	98	120	-	34	12
Oct	1	-	18	-	66	1	-	-	-	3	13	-	27	120	79	43	54
Nov	-	-	-	37	49	106	-	-	-	-	108	54	-	-	40	62	45
Dec	-	-	1	65	76	27	32	-	-	4	35	16	-	15	5	87	97
Jan 19	-	-	43	19	2	-	9	1	-	-	-	19	-	25	23	16	14
Feb	-	-	7	-	-	-	-	-	-	-	-	-	-	-	-	4	3
March	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Total	**2**	**2**	**346**	**121**	**193**	**163**	**68**	**69**	**57**	**8**	**162**	**250**	**447**	**397**	**218**	**372**	**336**

Cont..

Month	Bull No.														Total
	2645 XVIII	2676 XVIII	4905 XVIII	4928 XVIII	4995 XVIII	5031 XVIII	1150 XVIII	1198 XVIII	1208 XVIII	1209 XVIII	1219 XVIII	7094 XVIII	7147 XVIII	7227 XVIII	
April 18	-	-	-	-	-	-	--	-	-	-	-	-	-	-	**175**
May	-	-	-	-	-	-	-	-	-	--	-	-	-	-	**229**
June	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**250**
July	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**286**
Aug	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**325**
Sept	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**373**
Oct	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**425**
Nov	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**501**
Dec	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**460**
Jan 19	-	-	141	-	2	-	89	-	-	-	-	-	-	-	**403**
Feb	-	-	35	-	94	-	59	-	-	-	-	37	38	-	**277**
March	29	29	95	-	-	-	78	-	-	-	-	17	23	-	**273**
Total	**29**	**29**	**271**	**-**	**96**	**-**	**226**	**-**	**-**	**-**	**-**	**54**	**61**	-	**3977**

F 5. Month-wise Conception at Different Field Unit Centres during 2018-19

Months	Centre/ Village										Total
	Beed	**Juglan**	**Dhiktana**	**Kheri**	**Jewra**	**Kirara**	**Sarsod**	**Bichpar**	**Baado**	**Bugana**	
April 18	32	24	26	19	19	3	33	21	14	9	**200**
May	18	19	15	23	21	4	22	15	17	5	**159**
June	14	11	10	19	10	4	13	7	11	7	**106**
July	9	8	11	15	11	2	10	8	12	5	**91**
Aug	15	11	15	14	12	4	19	15	9	6	**120**
Sept	14	10	15	14	23	5	23	18	8	5	**135**
Oct	16	16	18	21	25	1	20	19	15	4	**155**
Nov	20	26	14	20	22	3	26	20	16	7	**174**
Dec	29	42	22	18	15	2	27	24	12	10	**201**
Jan 19	35	35	18	20	28	6	48	22	14	16	**242**
Feb	48	54	13	22	21	6	49	36	18	10	**277**
March	47	42	20	25	24	3	64	34	17	14	**290**
Total	**297**	**298**	**197**	**230**	**231**	**43**	**354**	**239**	**163**	**98**	**2150**

F 6. Bull-wise Conception at Different Field Unit Centres during the Period 2018-19

Month	Bull No.																	
	M29 XVI	M51 XVI	2558 XVII	1148 XVII	2565 XVII	2594 XVII	2607 XVII	4687 XVII	4715 XVII	4733 XVII	4837 XVII	6942 XVII	53M XVII	B1-330 XVII	7010 XVII	Sikander	Dara XVII	Total
April 18	3	19	36	-	38	2	25	-	-	1	34	-	7	-	23	1	11	**200**
May	-	16	19	-	-	20	8	28	19	-	21	-	-	-	26	-	2	**159**
June	-	2	-	39	-	2	31	12	16	-	3	-	-	-	-	-	1	**106**
July	-	2	-	36	-	-	5	24	23	-	1	-	-	-	-	-	-	**91**
Aug	-	-	-	52	-	10	10	7	10	-	1	-	3	26	-	-	1	**120**
Sept	-	-	-	-	-	1	-	-	-	-	-	-	44	33	38	17	2	**135**
Oct	-	-	-	-	-	-	-	-	-	-	-	-	38	57	6	22	32	**155**
Nov	-	-	-	1	-	1	-	-	1	-	-	61	2	58	-	23	27	**174**
Dec	-	-	-	60	-	-	-	-	-	1	-	62	-	54	-	16	8	**201**
Jan 19	-	-	-	7	40	1	-	-	-	3	10	72	-	15	43	27	24	**242**
Feb	-	-	24	-	21	59	-	-	-	-	67	-	28	-	16	42	20	**277**
March	-	-	38	1	50	18	20	-	-	3	19	10	13	-	2	58	58	**290**
Total	**3**	**39**	**117**	**196**	**149**	**114**	**99**	**71**	**69**	**8**	**156**	**205**	**135**	**243**	**154**	**206**	**186**	**2150**

F 7. Month-wise Calving at Different Field Unit Centres during 2018-19

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 18	5	6	6	7	6	4	6	5	5	11	1	3	6	8	9	4	4	3	3	2	51	**53**
May	4	5	6	6	10	5	6	6	7	14	2	2	8	6	5	7	3	3	3	1	54	**55**
June	10	9	10	11	9	8	10	9	5	10	0	2	12	5	8	7	6	4	4	0	74	**65**
July	14	16	15	12	11	6	11	9	7	14	1	3	9	9	10	9	10	8	2	2	90	**88**
Aug	15	14	27	16	19	11	12	10	8	12	1	3	20	22	12	13	8	6	2	3	124	**110**
Sept	18	16	18	16	11	9	11	9	10	18	1	2	18	15	6	10	5	4	5	7	103	**106**
Oct	19	17	15	16	16	7	11	8	9	11	1	0	9	19	7	9	9	8	5	5	101	**100**
Nov	12	16	9	11	12	6	9	7	12	7	2	1	9	17	9	7	7	5	2	5	83	**82**
Dec	8	8	6	10	6	4	12	7	14	7	3	1	5	11	5	6	8	5	2	3	69	**62**
Jan 19	5	7	4	6	5	4	9	5	1	1	1	0	3	6	3	3	5	3	2	4	38	**39**
Feb	4	4	2	5	5	4	7	5	7	3	1	0	5	3	4	1	4	4	3	2	42	**31**
March	5	8	4	5	5	6	7	4	7	0	1	1	7	5	8	5	4	2	3	3	51	**39**
Total	**119**	**126**	**122**	**121**	**115**	**74**	**111**	**84**	**92**	**108**	**15**	**18**	**111**	**126**	**86**	**81**	**73**	**55**	**36**	**37**	**880**	**830**

F 8. Bull-wise Calving at Different Field Unit Centres during the Period 4/2018 to 3/2019

Months	**Bull No.**																					
	1027 XVI		**1053 XVI**		**1064 XVI**		**4592 XVI**		**M29 XVI**		**M51 XVI**		**6379 XVI**		**6409 XVI**		**6646 XVI**		**6753 XVI**		**2558 XVII**		**2565 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 18	0	1	5	4	13	12	5	10	1	2	-	-	-	-	2	0	5	5	9	6	-	-	-	-
May	1	0	2	4	4	4	19	12	1	0	-	-	-	-	5	12	8	7	7	8	-	-	-	-
June	-	-	6	4	-	-	10	9	1	1	-	-	2	1	1	1	2	1	1	3	-	-	2	1
July	-	-	-	-	-	-	8	9	4	2	3	1	-	-	-	-	-	-	-	-	3	1	-	-
Aug	-	-	-	-	-	-	-	-	2	1	21	17	24	19	-	-	-	-	-	-	21	17	24	19
Sept	-	-	-	-	-	-	-	-	0	1	5	10	15	13	-	-	-	-	-	-	5	10	15	13
Oct	-	-	-	-	-	-	-	-	1	0	11	11	-	-	-	-	-	-	-	-	11	11	-	-
Nov	-	-	-	-	-	-	-	-	0	2	15	17	17	12	-	-	-	-	-	-	15	17	17	12
Dec	-	-	-	-	-	-	-	-	-	-	10	6	-	-	-	-	-	-	-	-	10	6	-	-
Jan 19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Feb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
March	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**1**	**1**	**13**	**12**	**17**	**16**	**42**	**40**	**10**	**9**	**65**	**62**	**58**	**45**	**8**	**13**	**15**	**13**	**17**	**17**	**65**	**62**	**58**	**45**

Cont..

Month	Bull No.																								Total	
	2594 XVII		2607 XVII		4687 XVII		4715 XVII		4733 XVII		4837 XVII		53M XVII		7010 XVII		Sikander		Dara XVII		B1/330 XVII		1148 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	M	F
April 18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	51	53
May	-	-	-	-	-	-	3	7	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	54	55
June	13	10	-	-	12	5	12	6	10	17	-	-	-	-	1	5	3	2	-	-	-	-	-	-	74	65
July	1	0	-	-	29	21	22	22	11	17	-	-	-	-	1	3	4	2	-	-	-	-	-	-	90	88
Aug	-	-	13	11	25	26	12	10	19	18	-	-	--	-	-	-	5	3	-	-	-	-	-	-	124	110
Sept	7	15	14	15	1	1	1	0	30	23	13	16	17	12	-	-	-	-	-	-	-	-	-	-	103	106
Oct	19	18	14	11	-	-	-	-	21	15	13	19	13	14	-	-	-	-	8	11	-	-	-	-	101	100
Nov	0	1	9	10	-	-	-	-	0	1	16	10	5	2	4	15	-	-	7	4	-	-	-	-	83	82
Dec	7	10	3	3	15	10	5	10	-	-	10	6	-	-	12	10	-	-	1	0	-	-	-	-	69	62
Jan 19	0	2	13	12	6	3	4	7	-	-	1	0	-	-	-	-	-	-	1	0	-	-	12	14	38	39
Feb	-	-	2	1	14	9	8	8	-	-	0	1	2	0	-	-	-	-	-	-	-	-	16	12	42	31
March	5	1	3	5	5	0	4	2	-	-	-	-	2	0	-	-	-	-	1	0	8	14	23	17	51	39
Total	**52**	**57**	**71**	**68**	**107**	**75**	**71**	**72**	**92**	**91**	**53**	**52**	**39**	**28**	**18**	**33**	**12**	**7**	**18**	**15**	**8**	**14**	**51**	**43**	**880**	**830**

F 9. Bull-wise Live Female Progeny at Different Field Unit Centers (0-6month) as on 3/2019

Bull No. Centres	M51 XVI	1148 XVII	2558 XVII	2565 XVII	2594 XVII	2607 XVII	4687 XVII	4715 XVII	4733 XVII	4837 XVII	7010 XVII	M53 XVII	BI/330 XVII	Dara XVII	Total
Beed	1	5	4	-	3	1	2	1	5	3	4	-	2	-	**31**
Juglan	-	5	3	-	3	1	3	2	-	5	2	1	1	1	**27**
Dhiktana	-	3	-	2	2	-	-	1	-	-	1	-	-	1	**10**
Kheri	-	2	6	-	2	6	-	1	-	1	-	-	-	-	**18**
Jewra	1	1	-	-	1	-	1	-	2	2	1	1	-	3	**13**
Kirara	-	-	-	-	-	-	-	-	-	-	-	-	--	-	**0**
Sarsod	3	2	5	3	-	2	1	3	1	9	3	1	-	1	**34**
Bichpari	1	3	1	1	2	-	-	3	-	1	3	-	-	2	**17**
Bado Patti	1	2	2	-	2	4	1	-	-	-	-	-	-	-	**12**
Bugana	1	-	-	-	1	-	2	1	-	1	1	-	1	-	**8**
Total	**8**	**23**	**21**	**6**	**16**	**14**	**10**	**12**	**8**	**22**	**15**	**3**	**4**	**8**	**170**

F 10. Bull-wise Live Female Progeny at Different Field Unit Centers (6-12month) as on 3/2019

Bull No. Centres	1053 XVI	1064 XVI	4592 XVI	6379 XVI	6409 XVI	6646 XVI	6753 XVI	M29 XVI	M51 XVI	2558 XVII	2565 XVII	2594 XVII	2607 XVII
Beed	-	3	1	-	-	-	3	-	-	-	6	-	2
Juglan	-	-	-	5	1	-	1	2	-	1	4	1	-
Dhiktana	-	-	1	-	-	-	-	-	2	1	2	1	5
Kheri	2	2	11	-	-	-	-	-	-	3	-	-	1
Jewra	-	1	-	-	1	-	1	1	-	1	3	1	-
Kirara	1	-	1	-	-	-	2	-	-	2	-	-	-
Sarsod	-	-	1	1	-	3	1	-	2	2	-	5	4
Bichpari	-	1	1	-	4	3	-	-	1	2	3	3	4
Bado Patti	2	-	6	2	-	-	-	-	-	1	-	-	-
Bugana	-	-	-	-	-	1	1	-	-	3	-	-	1
Total	**5**	**7**	**22**	**8**	**6**	**7**	**9**	**3**	**5**	**16**	**18**	**11**	**17**

Bull No. Centres	4687 XVII	4715 XVII	4733 XVII	4837 XVII	7010 XVII	M53 XVII	Sikender XVII	**Total**
Beed	10	6	5	1	-	3	1	**41**
Juglan	5	5	5	-	-	2	-	**32**
Dhiktana	-	4	4	-	-	-	2	**22**
Kheri	2	-	7	-	-	-	-	**28**
Jewra	4	3	5	4	3	1	-	**29**
Kirara-	-	-	1	-	1	1	-	**9**
Sarsod	7	4	6	2	-	1	-	**39**
Bichpari	-	3	4	1	-	-	-	**30**
Bado Patti	2	-	6	-	-	-	-	**19**
Bugana	-	-	-	-	-	-	1	**7**
Total	**30**	**25**	**43**	**8**	**4**	**8**	**4**	**256**

F 11. Bull-wise Live Female Progeny at Different Field Unit Centers (1-3 years) as on 3/2019

Bull No. Centres	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	1027 XVI
Beed	-	3	-	-	-	3	-	-	1	2	1	4	3	9	5
Juglan	-	2	-	1	-	4	1	3	1	1	1	5	2	11	5
Dhiktana	-	1	-	-	-	-	-	-	-	1	-	-	-	2	6
Kheri	2	1	-	-	-	1	-	-	1	2	-	-	3	1	6
Jewra	-	3	3	1	2	6	3	8	1	1	1	1	4	8	12
Kirara	-	-	-	-	1	2	-	2	-	-	-	-	1	2	1
Sarsod	2	2	2	4	2	5	2	3	1	2	-	-	1	2	6
Bichpari	1	2	5	3	1	5	4	4	-	4	-	-	1	2	4
Bado Patti	1	2	2	-	-	4	1	-	-	-	2	-	4	-	4
Bugana	-	1	-	-	1	-	-	1	-	-	-	-	-	4	1
Total	**6**	**17**	**12**	**9**	**7**	**30**	**11**	**21**	**5**	**13**	**5**	**10**	**19**	**41**	**50**

Cont..

Bull No. Centres	1053 XVI	1064 XVI	2383 XVI	2467 XVI	2501 XVI	4592 XVI	4705 XVI	4889 XVI	6379 XVI	6409 XVI	6646 XVI	6753 XVI	M29 XVI	M51 XVI	**Total**
Beed	6	6	4	5	2	5	7	5	6	8	9	7	4	8	**113**
Juglan	6	6	3	8	4	3	3	4	6	8	8	6	9	6	**117**
Dhiktana	-	1	6	-	4	3	3	2	-	1	2	1	2	7	**42**
Kheri	7	-	1	12	1	-	10	-	6	-	1	2	5	1	**63**
Jewra	5	3	2	6	3	2	8	6	1	3	6	4	8	9	**120**
Kirara	1	2	1	1	-	1	2	1	-	-	2	3	2	-	**25**
Sarsod	3	2	5	4	3	6	5	5	1	5	6	1	4	11	**95**
Bichpari	6	1	6	1	7	4	7	6	2	5	3	2	5	8	**99**
Bado Patti	2	-	1	8	1	-	5	2	7	1	4	3	3	2	**59**
Bugana	1	-	-	1	2	4	-	-	-	-	1	-	1	2	**20**
Total	**37**	**21**	**29**	**46**	**27**	**28**	**50**	**31**	**29**	**31**	**42**	**29**	**43**	**54**	**753**

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

Bull No.	2357 XIV	4093 XIV	4100 XIV	4196 XIV	4439 XIV	6014 XIV	2371 XV	2412 XV	2417 XV	2429 XV	2459 XV	4324 XV	4328 XV
Beed	-	1	1	2	1	-	1	-	1	1	5	2	1
Juglan	2	2	-	2	1	1	6	-	-	1	2	2	1
Dhiktana	-	-	-	-	-	-	1	1	-	-	1	-	-
Kheri	-	-	-	-	-	-	-	-	-	-	-	1	-
Jewra	-	-	-	-	1	-	-	4	-	-	-	1	-
Kirara	-	-	-	-	-	-	2	1	1	-	-	-	1
Sarsod	-	-	-	-	-	-	-	-	-	1	-	-	-
Bichpari	1	-	-	-	-	-	1	1	-	1	-	-	1
Bado	-	-	-	-	-	-	-	1	-	-	-	1	1
Bugana	-	-	-	-	-	-	-	-	-	1	-	-	-
Total	**3**	**3**	**1**	**4**	**3**	**1**	**11**	**8**	**2**	**5**	**8**	**7**	**5**

Cont..

Bull No.	4354 XV	4363 XV	4403 XV	4438 XV	6007 XV	6139 XV	6290 XV	6405 XV	**Total**
Beed	1	-	2	-	4	2	-	1	**26**
Juglan	-	5	2	5	5	1	1	-	**39**
Dhiktana	1	1	-	-	-	2	-	-	**7**
Kheri	-	-	-	-	-	-	1	-	**2**
Jewra	2	-	1	-	4	2	2	-	**17**
Kirara	1	-	1	-	-	1	-	-	**8**
Sarsod	-	-	-	1	-	2	-	1	**5**
Bichpari	2	1	-	-	2	1	-	-	**11**
Bado	-	-	-	-	-	-	-	1	**4**
Bugana	2	-	-	-	-	1	-	-	**4**
Total	**9**	**7**	**6**	**6**	**15**	**12**	**4**	**3**	**123**

F 13. Bull-wise Daughters Calved at Different Field Units during 2018-2019

Bull No. Centres	851 XIII	858 XIII	2269 XIII	2357 XIV	2369 XIV	4093 XIV	4100 XIV	4196 XIV	4439 XIV	6014 XIV	6044 XIV	6136 XIV	2371 XV	2412 XV	2417 XV	2429 XV	2459 XV	4324 XV
Beed	-	-	-	3	1	-	-	2	-	-	4	-	1	1	-	-	-	2
Juglan	-	1	-	4	2	3	-	5	2	1	2	2	3	-	4	1	-	4
Dhiktana	-	-	-	-	1	-	-	2	-	1	1	2	1	-	1	2	1	-
Kheri	-	-	-	1	-	-	1	2	-	-	-	1	2	-	1	1	-	-
Jewra	-	-	-	1	-	3	-	2	1	1	2	1	2	-	-	-	-	3
Kirara	-	-	1	-	-	-	1	1	-	-	-	-	1	-	-	-	-	1
Sarsod	-	-	-	2	-	-	1	-	-	-	-	-	-	2	1	4	2	-
Bichpari	-	1	-	-	-	1	1	-	-	-	-	-	2	2	-	-	-	1
Bado	1	-	-	1	2	-	-	4	-	-	-	1	2	1	-	1	-	1
Bugana	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-
Total	**1**	**2**	**1**	**12**	**7**	**7**	**4**	**18**	**3**	**4**	**9**	**7**	**14**	**6**	**7**	**9**	**3**	**12**

Cont..

Bull No. Centres	4328 XV	4354 XV	4363 XV	4403 XV	4438 XV	6007 XV	6139 XV	6290 XV	6405 XV	**Total**
Beed	-	-	-	-	-	-	-	-	-	**14**
Juglan	-	1	2	-	-	5	-	-	-	**42**
Dhiktana	-	1	-	-	1	-	-	-	1	**15**
Kheri	2	-	-	1	-	4	1	-	-	**17**
Jewra	1	4	-	-	2	2	3	1	1	**30**
Kirara	-	1	-	-	-	-	1	-	1	**8**
Sarsod	-	1	3	-	1	1	3	-	-	**21**
Bichpari	1	-	2	-	1	1	1	-	-	**14**
Bado	1	-	-	1	-	3	-	-	-	**19**
Bugana	1	-	-	-	-	-	-	-	-	**3**
Total	**6**	**8**	**7**	**2**	**5**	**16**	**9**	**1**	**3**	**183**

F 14. Bull-wise Daughters Recorded at Different Field Units Centres during the Period 4/2018 to 3/2019

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																								
	3964 XIII	263	07/12/12	30/07/17	4.0	3.8	4.3	4.2	4.5	4.5	4.5	4.5	5.0	5.0	4.5	4.5	4.3	4.2	4.0	4.0	sold	x	x	x
	858 XIII	280	11/06/13	22/08/17	4.0	4.0	4.5	4.2	4.5	4.2	5.3	5.0	5.0	5.0	5.0	5.0	4.0	3.5	3.0	3.0	5.0	x	4.0	x
	4439 XIV	365	26/08/14	03/10/17	4.0	4.0	4.5	4.5	4.0	4.0	4.5	4.3	4.0	3.8	3.8	3.7	3.5	3.5	3.0	3.0	5.0	x	5.0	x
	3964 XIII	318	28/11/13	06/11/17	3.5	3.2	4.2	4.0	4.3	4.2	4.5	4.5	4.3	4.2	4.0	4.0	3.5	3.5	3.5	3.5	3.0	3.0	3.8	3.7
	6014 XIV	340	22/05/14	07/11/17	3.0	3.0	4.5	4.3	4.5	4.5	4.5	4.5	4.0	4.0	4.0	3.8	3.8	3.7	3.5	3.5	3.3	3.2	3.0	3.0
	6136 XIV	341	10/06/14	03/11/17	4.5	4.2	4.3	4.2	5.5	5.5	6.0	6.0	5.0	5.0	5.0	5.0	4.5	4.5	4.0	4.0	4.0	4.0	4.3	4.2
	2357 XIV	386	17/10/14	08/11/17	4.0	4.0	4.3	4.2	4.2	4.0	4.5	4.5	4.3	4.2	4.0	4.0	4.0	4.0	5.0	x	4.0	x	Dry	x
	4100 XIV	391	04/11/14	29/12/17	4.0	4.0	4.3	4.2	4.0	4.0	4.3	4.2	4.2	4.0	4.0	4.0	3.5	3.5	3.0	3.0	5.0	x	4.0	x
	4093 XIV	370	08/09/14	25/12/17	3.5	3.5	5.0	5.0	4.8	4.7	4.3	4.2	4.0	4.0	4.0	4.0	Sold	x	x	x	x	x	x	x
	6136 XIV	399	04/11/14	18/02/17	4.5	4.5	5.0	5.0	5.3	5.2	4.5	4.3	4.5	4.5	4.3	4.2	4.0	4.0	3.8	3.7	3.5	3.5	5.0	x
	6044 XIV	347	09/07/14	07/05/18	sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	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		
	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		
	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		
	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						
	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						
	2369 XIV	357	11/08/14	25/08/18	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	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						
	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						
	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						
	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								
	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								
	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												
	4196 XIV	405	17/01/15	07/03/19	4.0	4.0																		
Juglan																								
	2357 XIV	872	23/10/14	02/07/17	4.0	4.0	4.5	4.4	4.5	4.5	5.5	5.0	5.0	5.0	4.5	4.5	4.3	4.2	4.0	4.0	7.0	x	7.0	x
	6044 XIV	822	14/08/14	30/07/17	6.0	6.0	6.0	6.0	6.3	6.0	6.0	6.0	6.0	5.8	5.5	5.5	5.3	5.2	4.0	4.0	3.8	3.7	6.0	x
	2304 XIII	761	13/12/13	25/07/17	4.4	4.1	5.5	5.3	5.5	5.5	5.8	5.7	5.0	5.0	4.8	4.7	4.3	4.2	4.0	4.0	3.0	3.0	5.0	x
	858 XIII	698	03/08/13	29/07/17	4.0	4.0	4.3	4.2	4.5	4.5	4.8	4.7	4.5	4.3	4.0	4.0	4.0	4.0	3.8	3.7	3.3	3.2	4.0	X
	851 XIII	670	18/04/13	04/08/17	3.5	3.5	3.8	3.7	4.8	4.7	4.8	4.3	4.0	4.0	4.8	4.7	4.5	4.5	4.5	4.0	4.0	4.0	3.5	3.5
	4439 XIV	777	23/02/14	14/08/17	3.8	3.5	3.8	3.7	4.0	4.0	4.5	4.5	4.3	4.2	4.0	4.0	4.2	4.0	4.0	4.0	3.5	3.3	3.3	3.2
	6014 XIV	789	04/05/14	18/08/17	3.0	3.5	4.0	4.0	4.5	4.3	4.8	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
	6136 XIV	804	03/07/14	15/08/17	4.0	4.0	4.5	4.5	5.8	5.5	5.2	5.0	5.2	5.0	5.5	5.5	5.3	5	5.0	5.0	5.0	5.0	4.5	4.0
	2357 XIV	879	30/10/14	20/08/17	3.0	3.0	3.3	3.2	3.5	3.5	3.5	3.0	3.0	3.0	5.0	x	5.0	x	4.0	x	Dry	X	X	X
	6044 XIV	850	24/09/14	01/09/17	4.5	4.3	6.0	6.0	5.3	5.2	5.3	5.2	5.0	5.0	5.3	5.0	5.0	5.0	4.5	4.5	4.0	4.0	5.0	x
	2369 XIV	811	21/07/14	02/10/17	4.0	4.0	4.5	4.5	5.0	5.0	5.5	5.5	6.0	5.8	5.5	5.0	5.0	5.0	4.5	4.5	4.0	3.5	Sold	x
	4196 XIV	914	26/12/14	10/10/17	4.4	4.1	5.0	5.0	6.0	5.8	5.8	5.7	5.5	5.5	5.0	5.0	4.5	4.5	4.0	4.0	5.0	x	4.0	x

	6044 XIV	855	02/10/14	28/10/17	5.5	5.2	5.5	5.3	5.3	5.2	5.0	5.0	5.3	5.2	4.8	4.7	4.5	4.5	3.5	3.5	3.5	3.5	4.0	x
	6044 XIV	852	27/09/14	02/12/17	5.5	5.3	5.5	5.5	6.0	6.0	5.8	5.7	5.0	5.0	4.3	4.2	4.0	4.0	3.0	3.0	dry	x	x	x
	838 XIII	712	28/08/13	05/12/17	3.0	3.0	4.0	4.0	4.3	4.2	4.5	4.5	4.5	4.5	4.5	4.5	3.5	3.5	4.0	4.0	6.0	x	5.0	X
	2357 XIV	875	28/10/14	08/12/17	4.8	4.7	6.0	6.0	6.3	6.2	6.5	6.3	6.3	6.2	6.0	6.0	5.5	5.5	5.0	5.0	5.0	5.0	4.0	4.0
	4093 XIV	844	09/09/14	12/12/17	3.0	3.0	4.0	3.8	4.5	4.5	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.8	3.7
	6044 XIV	824	16/08/14	07/01/18	5.0	5.0	5.3	5.2	5.5	5.5	5.8	5.7	5.5	5.5	5.5	5.0	5.0	5.0	4.5	4.5	4.0	4.0	5.0	X
	6014 XIV	790	10/05/14	02/01/18	3.0	3.0	3.5	3.5	3.8	3.7	4.0	4.0	4.3	4.2	4.0	4.0	4.0	4.0	3.8	3.7	5.0	x	4.0	X
	6139 XV	985	25/07/15	11/02/18	4.0	4.0	4.5	4.5	5.5	5.5	4.5	4.5	4.3	4.2	4.3	4.0	4.0	4.0	Sold	x	x	x	x	x
	6014 XIV	881	01/11/14	20/02/18	5.5	5.3	5.0	5.0	5.0	5.0	5.0	5.0	4.8	4.7	4.5	4.5	4.0	4.0	3.5	3.5	5.0	x	4.0	x
	4093 XIV	832	25/08/14	27/03/18	3.0	3.0	3.8	3.7	4.0	4.0	4.0	4.0	3.5	3.5	3.8	3.7	3.5	3.5	3.0	3.0	Dry	x	x	x
	2417 XV	958	30/05/15	20/04/18	Sold	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	6136 XIV	800	24/06/14	28/04/18	4.0	4.0	4.5	4.5	5.0	5.0	5.5	5.5	5.0	5.0	4.8	4.7	4.0	4.0	3.5	3.5	3.5	3.5	5.0	x
	4196 XIV	939	25/03/15	12/05/18	4.0	4.0	5.0	5.0	6.0	6.0	5.0	5.0	4.8	4.7	5.0	5.0	4.8	4.7	4.0	4.0	4.0	4.0	3.5	3.0
	858 XIII	699	04/08/13	06/06/18	3.5	3.5	4.3	4.2	4.3	4.2	4.5	4.0	4.8	4.7	4.5	4.5	4.3	4.2	4.0	4.0	3.5	3.5	5.0	x
	2369 XIV	812	23/07/14	15/06/18	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	4196 XIV	942	28/03/15	10/07/18	4.0	4.0	sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	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		
	4196 XIV	927	02/02/15	04/07/18	4.0	4.0	5.0	5.0	5.3	5.2	5.5	5.5	5.3	5.2	5.0	x	3.0	3.0	Dry	x	x	x	x	x
	4439 XIV	780	12/03/14	10/07/18	4.0	4.0	4.5	4.5	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	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		
	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				
	6014 XIV	787	25/04/14	27/07/18	4.5	4.5	4.8	4.7	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	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				
	4363 XV	1073	02/12/15	08/08/18	sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	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				
	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						
	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						
	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						
	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						
	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						
	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						
	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						
	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						
	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						
	4363 XV	1049	03/10/15	25/09/18	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	6044 XIV	854	26/09/14	30/09/18	4.0	4.0	Sold	x	x	x	x	x	x	x	x	x	x	x	x	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								
	6007 XV	1016	05/09/15	07/10/18	4.3	4.2	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	4354 XV	983	21/07/15	11/10/18	3.8	3.7	5.0	5.0	5.0	5.0	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x
	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										
	6044 XIV	806	11/07/14	30/10/18	6.0	6.0	6.5	6.5	6.0	6.0	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x
	4093 XIV	843	11/09/14	8/11/18	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	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										
	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										
	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												
	2357 XIV	878	24/10/14	25/11/18	3.5	3.5	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	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												
	2371 XV	975	09/07/15	15/12/18	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	2429 XV	980	15/07/15	03/01/19	4.0	4.0	4.0	4.0	4.5	4.5														
	6007 XV	1061	16/11/15	10/01/19	3.8	3.7	4.3	4.2	4.8	4.7														
	2417 XV	1017	08/09/15	25/03/19																				
	2417 XV	1057	09/11/15	28/03/19																				
Dhiktana																								
	2234 XIII	567	14/08/13	14/07/17	3.9	3.4	5.6	5.2	5.9	5.5	6.1	5.6	5.9	5.5	5.5	5.1	5.4	4.9	4.4	4.1	4.1	3.8	2.7	2.4
	851 XIII	559	05/08/13	03/08/17	4.0	3.7	5.1	4.8	5.3	4.9	5.5	5.0	5.2	4.7	5.4	4.7	3.6	3.2	3.4	3.1	2.5	2.1	2.3	2.0
	4439 XIV	620	10/09/14	16/08/17	3.6	3.1	5.3	4.8	5.5	5.0	5.7	5.3	5.5	5.1	4.8	4.3	3.9	3.6	3.5	3.2	3.3	3.0	X	4.0
	838 XIII	586	08/10/13	18/08/17	3.4	3.0	5.2	4.9	5.4	5.0	5.6	5.3	5.8	5.3	5.3	5.0	4.8	4.3	4.9	4.4	4.0	3.5	X	2.8
	858 XIII	532	26/04/13	05/09/17	4.0	3.6	5.3	4.8	5.5	5.1	5.7	5.3	5.5	5.1	5.1	4.8	5.0	4.6	4.2	3.8	4.0	3.6	3.3	2.8
	6014 XIV	612	22/05/14	10/09/17	3.9	3.6	4.6	4.3	4.8	4.4	4.9	4.6	4.6	4.3	4.2	3.7	4.0	3.7	3.8	3.5	3.5	3.3	3.0	2.6
	4100 XIV	649	12/11/14	22/09/17	4.3	4.0	5.0	4.5	5.2	4.7	5.0	4.7	4.9	4.6	4.6	4.3	4.3	4.0	4.1	3.8	3.2	2.9	2.6	2.3
	2304 XIII	587	15/10/13	20/10/17	3.3	3.0	4.4	4.0	5.3	4.9	5.6	5.1	5.4	5.0	5.1	4.8	4.5	4.1	4.0	3.6	3.5	3.0	2.4	2.1
	838 XIII	596	21/11/13	18/10/17	3.5	3.1	5.2	4.7	5.6	5.1	5.9	5.4	5.7	5.4	5.8	5.4	5.2	4.8	4.8	4.5	4.2	3.8	2.5	2.0
	4100 XIV	636	04/10/14	13/11/17	3.8	3.5	4.1	3.7	5.8	5.5	5.6	5.3	5.4	5.1	5.0	4.6	4.9	4.4	4.4	4.0	3.2	2.8	2.1	1.7
	4100 XIV	651	12/11/14	23/12/17	4.6	4.2	4.8	4.1	5.2	4.8	5.4	4.9	5.0	4.7	4.7	4.4	4.4	4.1	3.3	2.9	2.3	2.0	1.7	x
	4196 XIV	667	03/03/15	30/05/18	3.8	3.4	5.6	5.1	5.8	5.4	5.6	5.2	5.3	4.9	4.4	4.0	2.7	2.4	2.4	2.1	Dry	x	x	x
	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		
	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		
	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		
	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				
	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				
	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						
	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						
	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						
	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						
	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						
	2459 XV	691	08/08/15	06/11/18	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	2369 XIV	622	15/09/14	13/11/18	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	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												
	2371 XV	677	30/05/15	25/01/19	4.4	4.0	5.6	5.1																
Kheri																								
	3964 XIII	416	04/09/12	08/07/17	4.9	4.5	5.6	5.2	6.1	5.5	5.1	4.7	5.3	4.8	4.8	4.2	3.3	3.0	4.8	4.6	3.5	3.0	3.5	3.0
	2234 XIII	507	30/01/14	05/07/17	5.5	5.1	5.3	4.9	5.4	5.0	6.1	5.7	5.8	5.5	4.3	4.1	4.1	3.7	3.9	3.8	3.5	3.7	3.5	3.4
	838 XIII	452	23/06/13	10/08/17	4.8	4.5	4.9	4.6	5.3	5.1	5.1	4.7	4.7	4.3	3.2	3.0	2.9	2.8	2.8	2.2	2.8	2.2	2.1	2.3
	838 XIII	453	06/06/13	19/08/17	5.2	5.0	5.4	5.0	4.5	4.1	5.3	5.1	4.9	4.4	4.7	4.2	4.5	4.4	4.3	4.5	4.3	4.2	X	3.2

	2234 XIII	459	07/08/13	19/08/17	4.5	4.1	5.1	4.7	5.2	4.8	5.1	4.6	4.2	3.9	4.1	3.4	4.2	4.1	3.5	3.0	3.5	3.0	3.1	3.3
	4439 XIV	510	03/03/14	28/08/17	4.0	4.0	5.1	4.8	5.3	4.7	5.3	5.1	4.0	3.5	3.8	3.7	3.6	4.0	3.6	3.4	2.1	2.5	x	1.8
	4093 XIV	526	10/10/14	19/09/17	5.3	5.0	5.3	5.0	5.2	4.7	4.1	3.3	4.3	4.2	3.7	3.4	3.7	3.4	3.4	3.7	2.1	x	x	2.1
	858 XIII	456	29/07/13	19/11/17	5.5	5.1	4.8	4.5	5.1	4.5	4.1	4.0	4.1	4.3	4.1	4.0	4.4	4.6	2.5	2.7	2.3	2.5	2.5	x
	4439 XIV	514	07/07/14	13/01/18	4.7	4.3	3.3	3.2	3.5	3.2	3.5	3.2	4.5	4.7	3.1	3.5	3.2	3.6	4.5	4.1	2.2	1.5	2.1	1.5
	838 XIII	485	26/10/13	18/01/18	4.5	4.1	3.7	3.6	3.9	3.4	3.9	3.4	4.1	4.3	3.7	4.0	3.9	4.2	4.3	4.0	2.5	2.0	2.4	2.0
	2304 XIII	502	28/12/13	23/01/18	4.0	3.9	4.7	5.0	4.7	4.6	4.7	5.0	3.2	3.7	3.3	3.8	4.8	4.2	3.0	x	3.0	2.8	x	2.5
	2369 XIV	521	16/08/14	22/02/18	5.3	5.5	5.3	5.2	4.6	4.8	5.1	5.6	5.3	5.5	4.7	4.3	3.5	3.1	3.5	3.0	2.5	2.0	2.5	2.0
	6136 XIV	520	03/08/14	22/04/18	5.2	5.5	5.2	5.5	5.4	5.7	5.2	4.9	4.7	4.4	4.5	4.0	Sold	x	x	x	x	x	x	x
	4100 XIV	528	10/10/14	30/0418	5.1	5.5	4.8	5.1	5.1	5.5	5.3	5.0	4.2	4.0	4.0	3.8	3.7	3.2	3.7	3.0	2.0	x	2.0	x
	4196 XIV	543	28/01/15	17/06/18	5.5	6.1	5.2	5.4	4.7	4.5	5.3	4.7	5.0	4.7	4.7	4.2	4.5	4.0	3.4	3.0	3.4	3.0	3.3	3.0
	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		
	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				
	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				
	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				
	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						
	4403 XV	572	03/12/15	19/09/18	4.2	4.0	4.0	4.0	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	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								
	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								
	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								
	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										
	6007 XV	613	25/07/16	23/12/18	4.8	4.5	4.7	4.4	4.8	4.3														
	4328 XV	636	16/10/16	25/12/18	5.3	5.0	5.2	4.6	5.0	4.3														
	6139 XV	551	03/07/15	28/01/19	5.3	4.7	5.2	4.5																
	6007 XV	564	12/10/15	11/02/19	4.9	4.4	5.0	4.4																
Jewra																								
	838 XIII	638	03/12/13	29/06/17	6.2	5.8	6.5	6.2	6.2	6.1	6.0	5.9	4.6	4.3	4.5	4.1	4.0	4.0	4.0	4.2	3.8	3.7	4.5	x
	851 XIII	606	01/05/13	16/07/17	4.1	3.7	1.0	0.8	4.0	4.0	4.0	3.8	3.6	3.3	3.5	3.2	3.1	3.0	3.0	3.0	3.0	2.5	3.0	1.0
	2369 XIV	665	24/08/14	25/07/17	4.3	4.2	4.6	4.3	4.2	4.1	4.0	3.7	3.6	3.8	3.4	3.3	3.3	3.1	3.2	3.0	3.0	2.3	Dry	X
	4439 XIV	644	18/03/14	08/08/17	3.6	3.3	4.1	3.6	4.1	3.5	2.5	2.0	3.7	3.3	3.3	3.7	3.0	3.0	2.8	2.6	2.5	2.2	3.5	X
	2369 XIV	641	10/02/14	25/08/17	3.9	3.1	3.8	3.5	4.0	4.3	4.0	4.0	4.0	3.7	4.1	3.5	4.0	3.5	3.5	3.0	3.5	1.7	3.2	X
	6014 XIV	648	20/05/14	27/08/17	4.5	4.4	4.6	4.3	4.6	4.4	4.5	4.2	4.0	3.9	4.0	2.9	3.0	3.0	3.5	x	2.9	X	Dry	X
	2369 XIV	662	25/08/14	27/08/17	4.2	4.0	4.4	4.3	4.6	4.4	4.3	4.1	3.8	3.8	3.8	3.5	3.5	3.3	3.3	3.0	3.0	2.5	3.0	2.0
	6136 XIV	657	21/08/14	18/09/17	3.1	2.8	3.8	3.6	4.3	4.1	4.2	4.0	4.0	3.8	4.0	3.5	4.0	3.3	3.8	3.5	3.4	3.2	3.5	X
	6136 XIV	653	12/06/14	15/10/17	4.2	3.6	5.1	4.8	5.0	4.6	4.4	4.3	4.5	4.2	4.3	4.1	4.4	4.0	4.0	3.5	3.8	3.3	3.6	3.1
	2369 XIV	667	07/09/14	28/10/17	4.1	4.0	4.9	4.2	4.5	4.0	4.4	4.1	4.2	4.0	4.0	3.9	4.0	3.3	3.3	2.6	3.0	3.0	2.5	2.1
	4439 XIV	642	25/03/14	18/01/18	3.1	2.8	4.4	4.2	4.2	4.4	4.3	4.0	4.1	3.7	3.9	3.6	4.0	3.5	3.3	3.0	Sold	x	x	x
	4100 XIV	683	06/12/14	15/01/18	3.0	3.0	4.6	3.9	4.4	4.0	4.3	4.2	4.0	4.1	5.2	5.0	3.6	3.4	3.7	3.0	2.6	0.0	5.2	5.0
	4354 XV	760	15/10/15	01/04/18	4.2	4.0	5.3	5.0	5.0	5.1	5.2	5.0	3.6	3.3	3.9	3.3	4.3	4.1	4.3	4.1	3.5	3.1	3.3	3.1
	6007 XV	722	12/07/15	02/04/18	4.3	4.0	4.5	3.8	5.2	5.0	5.6	5.3	6.3	5.8	6.3	6.0	6.4	6.1	5.2	5.0	4.6	4.2	4.2	3.9
	6044 XIV	672	29/09/14	26/04/18	4.3	4.0	Sold	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	4324 XV	737	22/08/15	19/05/18	3.6	3.3	3.6	3.0	4.0	3.7	3.9	3.2	3.1	3.0	4.2	4.2	4.2	4.0	2.9	2.7	3.2	2.6	2.2	1.6

	6139 XV	730	18/08/15	28/05/18	4.0	4.1	5.1	5.0	4.8	4.6	4.3	4.1	5.2	5.0	5.4	4.2	2.7	2.5	3.9	3.3	3.2	2.6	3.1	2.5
	6290 XV	792	12/12/15	15/06/18	3.6	3.2	5.3	5.0	5.0	4.8	4.8	4.6	5.3	5.1	5.3	5.1	5.2	4.9	5.1	4.7	4.9	4.2	4.4	4.1
	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		
	4093 XIV	677	12/10/14	07/07/18	4.3	4.0	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	4196 XIV	687	30/01/15	05/07/18	3.6	3.4	4.2	4.0	4.4	4.1	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x
	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		
	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				
	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				
	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				
	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				
	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						
	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						
	6044 XIV	666	05/09/14	09/09/18	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	4438 XV	743	05/09/15	11/09/18	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	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						
	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						
	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						
	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								
	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								
	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								
	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								
	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								
	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								
	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										
	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												
	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												
Kirara																								
	858 XIII	356	15/08/13	05/07/17	4.1	3.8	4.2	4.0	4.4	4.0	4.2	3.9	4.0	3.6	3.5	3.2	3.3	3.0	3.2	3.0	3.0	2.3	3.5	x
	851 XIII	352	12/06/13	12/07/17	3.4	3.0	4.2	3.9	4.0	4.0	4.0	3.6	4.0	3.3	4.0	3.1	3.6	3.0	3.4	3.0	3.4	2.8	3.3	3.0
	851 XIII	353	14/06/13	20/09/17	4.6	4.2	4.5	4.0	4.6	4.1	4.2	4.0	4.0	3.9	3.6	3.3	3.3	3.0	3.5	X	2.9	2.1	2.5	x
	2269 XIII	362	23/09/13	20/10/17	3.2	3.1	4.0	3.8	4.4	3.9	4.0	4.0	4.3	4.0	4.0	3.8	4.0	3.5	3.2	3.0	2.7	2.5	2.3	2.1
	851 XIII	365	19/12/13	21/12/17	3.7	3.6	4.0	4.2	4.2	4.2	4.3	4.0	4.0	3.3	3.7	3.0	3.4	3.0	3.0	2.5	3.5	x	Sold	x
	4093 XIV	374	28/09/14	28/12/17	4.1	4.0	4.3	4.0	4.4	4.0	4.4	4.1	3.6	3.3	3.5	3.0	3.0	3.0	2.5	2.3	2.5	2.0	Sold	x
	3964 XIII	347	28/12/12	05/01/18	3.7	3.3	4.5	4.4	4.3	4.1	4.6	4.0	4.4	4.0	4.0	3.7	4.0	3.3	3.8	3.0	3.4	3.0	Sold	x
	4439 XIV	367	22/02/14	15/01/18	4.1	3.6	4.4	3.8	4.2	4.0	4.0	3.8	4.0	3.9	3.8	3.6	3.5	3.2	3.0	3.0	3.0	2.6	Sold	x
	4093 XIV	373	09/09/14	18/01/18	3.7	3.2	4.0	4.3	4.4	4.4	4.4	4.0	4.5	3.6	4.0	3.5	4.0	3.0	3.7	3.0	3.2	2.5	1.6	1.6
	2269 XIII	359	13/09/13	20/01/18	3.3	3.0	4.9	5.0	5.1	5.2	5.2	5.2	5.0	4.8	5.0	4.6	4.8	4.4	4.0	3.9	4.0	3.7	2.7	2.5
	2369 XIV	366	26/01/14	22/12/17	3.6	3.4	4.1	4.0	4.3	4.2	4.3	4.0	4.0	3.3	3.6	3.3	3.4	3.1	3.0	2.7	3.0	2.1	3.9	3.7
	838 XIII	364	25/11/13	21/03/18	4.0	4.0	5.3	5.2	4.6	4.1	4.6	4.0	4.0	3.7	4.0	3.5	Sold	x	x	x	x	x	x	x
	4100 XIV	376	28/11/14	28/04/18	4.8	4.0	4.8	4.3	5.0	4.8	4.6	3.7	4.2	4.0	Sold	x	x	x	x	x	x	x	x	x
	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				
	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						

	2371 XV	386	30/06/15	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						
	4196 XIV	378	19/01/15	08/09/18	4.0	3.7	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	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								
	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								
	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										
Sarsod																								
	6044 XIV	242	22/07/14	10/07/17	4.8	4.6	5.2	5.0	6.2	6.0	5.2	5.0	4.9	4.7	4.8	4.6	4.2	4.0	3.8	3.6	2.1	1.8	1.0	X
	2269 XIII	215	08/10/13	31/07/17	4.3	4.1	4.3	4.1	4.2	4.0	4.2	4.0	3.4	3.2	3.8	3.6	2.7	2.5	2.6	2.4	1.5	x	1.00	X
	6136 XIV	238	24/06/14	10/08/17	4.4	4.2	3.7	3.5	3.6	3.4	3.8	3.6	4.5	4.2	3.9	3.7	3.9	3.7	3.9	3.7	2.7	2.5	2.3	2.1
	858 XIII	226	07/12/13	16/08/17	4.0	3.8	5.2	5.0	5.3	5.1	4.7	4.5	4.8	4.6	4.3	4.1	4.3	4.1	3.6	3.4	3.3	3.1	2.00	1.7
	3964 XIII	184	18/11/12	18/08/17	4.9	4.7	4.8	4.6	5.2	5.0	4.2	4.0	4.0	3.8	3.3	3.1	4.2	3.9	4.2	4.0	2.8	2.6	2.6	2.4
	6014 XIV	264	15/12/14	28/08/17	5.4	5.2	5.6	5.4	5.2	5.0	4.3	4.1	4.6	4.3	5.4	5.2	4.2	4.0	3.9	3.7	2.3	2.1	1.0	.8
	4100 XIV	254	26/10/14	12/09/17	3.7	3.5	3.8	3.6	2.6	2.3	2.8	2.6	2.8	2.6	3.2	3.0	2.7	2.5	2.3	2.1	2.8	2.6	1.0	.6
	4439 XIV	231	04/03/14	06/10/17	3.6	3.4	4.6	4.4	4.8	4.6	4.0	3.8	4.2	4.0	4.0	3.8	4.5	4.3	4.3	4.0	1.0	0.8	Dry	x
	6014 XIV	265	05/12/14	02/10/17	4.0	3.8	4.8	4.6	5.2	5.0	3.9	3.7	5.2	4.9	3.8	3.6	4.2	4.0	4.6	4.3	2.7	2.5	1.5	x
	838 XIII	229	12/01/14	12/11/17	4.7	4.5	5.3	5.1	3.4	3.2	2.6	2.4	3.8	3.6	2.8	2.6	2.9	2.7	2.6	2.4	2.7	2.5	2.0	1.7
	4100 XIV	255	12/10/14	10/12/17	3.6	3.4	5.2	5.0	5.4	5.2	5.3	5.1	5.2	5.0	4.3	4.1	4.3	4.1	2.8	2.6	2.0	1.6	2.0	1.8
	2369 XIV	247	16/08/14	19/03/18	6.8	6.6	sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	2412 XV	305	06/09/15	01/05/18	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	4363 XV	299	21/08/15	25/05/18	5.8	5.6	5.1	4.9	5.4	5.2	5.2	5.0	4.0	3.8	2.6	2.4	3.9	3.7	2.0	1.8	1.6	1.4	2.3	2.1
	2429 XV	289	12/07/15	16/06/18	3.8	3.6	5.4	5.2	5.7	5.5	4.5	4.3	4.5	4.3	3.9	3.7	Sold	x	x	x	x	x	x	x
	2357 XIV	272	07/04/15	20/06/18	4.2	4.0	5.5	5.3	5.2	5.0	4.9	4.7	4.1	3.9	3.7	3.5	3.4	3.2	2.2	2.0	2.5	2.3	2.0	1.0
	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		
	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		
	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		
	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		
	2429 XV	290	18/07/15	26/07/18	5.1	4.9	5.4	5.2	Sold	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	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				
	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						
	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						
	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						
	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						
	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										
	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										
	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												
	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												
	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												
	2429 XV	286	17/07/15	07/01/19	5.2	5.0	5.6	5.4	6.2	6.0														
	2459 XV	331	24/12/15	23/03/19																				
Bichpari																								
	838 XIII	167	09/01/14	25/06/17	5.7	5.5	5.6	5.4	5.6	5.4	5.4	5.2	4.7	4.5	3.7	3.5	3.7	3.5	2.3	2.0	1.4	x	Dry	x
	6044 XIV	180	07/07/14	01/08/17	4.8	4.6	5.2	5.0	5.2	5.0	4.8	4.6	5.2	5.0	4.0	3.8	3.4	3.2	2.0	1.8	Dry	x	x	x

	851 XIII	159	14/11/13	04/08/17	3.8	3.6	4.2	4.0	4.3	4.1	3.9	3.7	4.2	4.0	3.9	3.7	2.5	2.3	3.9	3.7	2.7	2.5	2.2	2.0
	6044 XIV	193	10/09/14	20/08/17	4.4	4.2	4.9	4.7	5.5	5.3	4.7	4.5	3.9	3.7	4.8	4.6	2.4	2.2	4.1	3.8	2.2	2.0	2.3	2.1
	6136 XIV	178	20/06/14	16/09/17	4.7	4.5	5.3	5.1	4.3	4.1	5.2	5.0	4.8	4.5	4.1	3.8	5.3	5.1	3.9	3.7	2.8	2.6	1.0	9.0
	2234 XIII	145	18/09/13	18/09/17	4.2	4.0	6.0	5.8	3.6	3.3	4.3	4.1	4.0	3.8	3.8	3.6	4.0	3.8	4.2	4.0	3.2	3.0	2.0	1.8
	6136 XIV	187	13/08/14	20/09/17	3.0	3.0	4.8	4.6	4.6	4.3	3.8	3.6	3.8	3.6	4.3	4.1	3.3	3.1	1.9	1.7	3.4	3.2	2.3	2.1
	2412 XIV	217	06/05/15	30/09/17	4.1	3.8	5.3	5.1	3.7	3.5	3.8	3.6	4.7	4.5	3.3	3.0	3.0	2.8	2.6	2.4	4.1	3.9	2.0	1.8
	6014 XIV	173	26/04/14	30/09/17	4.0	3.4	4.8	4.4	5.0	4.8	4.0	4.2	3.5	3.3	3.2	3.0	3.2	3.0	3.3	3.1	1.8	1.6	2.2	2.0
	2369 XIV	190	18/08/14	30/09/17	2.7	2.5	4.0	3.5	4.5	4.7	3.8	3.6	3.2	3.0	3.1	3.0	3.7	3.5	2.5	2.3	2.1	1.9	2.0	1.8
	4363 XV	243	15/09/15	19/04/18	4.2	4.0	4.7	4.5	4.7	4.5	4.2	4.0	2.2	2.0	4.8	4.6	Sold	x	x	x	x	x	x	x
	6007 XV	245	20/09/15	30/04/18	5.2	5.0	5.8	5.6	5.8	5.6	4.3	4.1	5.3	5.1	4.3	4.1	4.5	4.3	4.0	3.8	4.2	4.0	3.0	2.8
	858 XIII	161	25/11/13	08/05/18	3.2	3.0	4.1	3.8	3.7	3.5	3.8	3.6	3.9	3.7	3.6	3.4	3.8	3.6	2.7	2.5	3.6	3.4	2.7	2.5
	4093 XIV	195	16/09/14	14/05/18	3.8	3.6	3.8	3.6	3.9	3.7	4.2	4.0	4.3	4.1	3.7	3.5	3.9	3.7	2.8	2.6	3.7	3.5	1.8	1.6
	2371 XV	269	05/11/15	27/05/18	6.0	5.8	6.2	6.0	6.2	6.0	5.3	5.1	6.3	6.1	4.2	4.0	4.7	4.5	3.8	3.6	1.2	1.0	2.0	x
	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				
	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				
	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						
	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						
	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						
	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								
	4100 XIV	203	21/11/14	22/12/18	4.3	4.1	5.3	5.1	4.5	4.3														
	4328 XV	315	09/07/16	20/02/19	5.2	5.0	4.6	4.4																
	2412 XV	241	05/09/15	31/03/19																				
Bado Patti																								
	838 XIII	74	02/09/13	12/07/17	5.1	4.7	5.3	4.8	5.1	4.8	5.1	4.5	4.8	4.5	3.1	2.9	3.0	3.2	3.0	2.9	2.7	2.3	2.7	2.5
	4059 XIII	83	30/09/13	16/07/17	5.5	5.0	5.5	5.0	5.5	5.0	5.6	4.7	5.2	4.5	4.8	4.5	4.4	4.5	2.5	2.4	2.5	2.3	2.5	2.3
	2269 XIII	33	30/10/12	22/07/17	4.6	4.2	4.9	4.4	5.2	4.6	5.4	4.8	5.0	4.4	5.0	5.2	2.0	1.9	1.9	2.0	2.1	2.0	2.0	X
	838 XIII	80	15/09/13	02/08/17	5.1	4.6	5.2	5.0	5.5	5.0	5.5	5.1	2.2	2.0	2.0	2.1	3.1	3.0	3.1	2.8	3.1	2.9	2.3	2.6
	2304 XIII	85	12/10/13	16/11/17	4.9	4.5	5.1	4.7	3.0	3.1	2.8	2.6	3.0	3.4	3.3	3.1	3.2	3.4	1.5	2.0	6.4	6.5	1.5	x
	5943 XIII	88	14/10/13	13/11/17	5.3	5.1	5.9	6.0	2.9	3.0	2.7	2.5	3.5	3.1	3.5	3.3	4.1	3.5	x	3.0	x	3.0	x	2.5
	6044 XIV	113	03/08/14	13/11/17	5.5	4.9	5.2	4.6	3.5	3.6	5.0	4.8	5.1	4.8	5.1	4.9	4.1	3.7	2.5	2.8	2.4	2.8	2.3	2.0
	4093 XIV	123	15/09/14	18/01/18	3.2	3.4	4.8	4.6	5.2	4.6	5.2	5.0	4.7	5.0	5.2	5.6	4.9	5.5	4.7	4.5	2.5	2.0	2.4	2.0
	4439 XIV	109	28/02/14	26/02/18	5.4	4.9	5.4	5.0	4.2	4.7	5.1	5.5	5.2	5.5	5.3	4.6	4.2	3.5	4.1	3.8	2.0	x	2.0	1.0
	851 XIII	60	05/08/13	29/04/18	5.1	5.5	5.5	6.1	5.0	5.5	5.1	4.8	4.6	4.1	4.5	4.0	2.2	2.5	2.4	2.0	2.0	1.5	2.0	1.5
	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		
	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		
	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		
	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		
	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		
	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						
	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						
	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								
	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								

	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								
	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								
	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										
	6007 XV	176	23/10/15	30/12/18	5.1	4.5	4.7	4.4	4.8	4.4														
	4324 XV	160	06/08/15	19/01/19	4.5	4.1	4.8	4.4	4.7	4.0														
	2412 XV	165	28/08/15	20/01/19	4.7	4.2	4.5	4.0	4.5	3.7														
	4403 XV	188	19/12/15	12/02/19	4.5	4.0	4.5	4.0																
	6007 XV	173	14/10/15	17/02/19	4.5	4.7	5.3	4.4																
	2429 XV	158	25/07/15	24/03/19																				
Bugana																								
	5943 XIII	91	10/11/13	28/06/17	4.0	3.6	5.3	5.0	5.9	5.5	5.2	4.8	4.8	4.3	4.5	4.2	3.9	3.6	3.6	3.2	2.1	1.7	1.5	1.1
	838 XIII	86	22/09/13	26/07/17	5.5	5.0	5.8	5.3	5.9	5.6	5.6	5.1	5.4	5.0	4.7	4.3	4.6	4.3	3.2	2.9	2.2	1.9	1.9	1.6
	851 XIII	74	15/02/13	04/09/17	4.1	3.8	4.7	4.2	4.9	4.4	5.1	4.7	5.0	4.6	4.9	4.6	4.7	4.2	4.1	3.8	3.6	3.2	2.9	2.5
	851 XIII	93	29/11/13	01/09/17	4.1	3.7	4.3	4.0	5.0	4.6	5.3	5.0	5.0	4.5	4.7	4.3	4.6	4.1	3.9	3.6	3.5	3.1	2.8	2.5
	6136 XIV	98	19/08/14	10/09/17	3.9	3.4	5.0	4.5	5.3	5.0	5.5	5.0	5.1	4.7	4.8	4.3	4.7	4.2	4.2	3.7	4.8	3.5	3.3	2.9
	851 XIII	76	28/02/13	19/11/17	3.6	3.1	4.1	3.7	5.3	5.0	5.5	5.1	5.7	5.3	4.9	4.6	4.6	4.3	4.2	3.7	2.8	2.4	x	4.8
	2369 XIV	106	19/12/14	12/06/18	4.4	4.1	5.5	5.2	5.7	5.3	5.9	5.5	5.7	5.3	5.4	5.1	4.8	4.4	4.4	4.0	3.2	3.0	dry	x
	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		
	4328 XV	144	18/08/16	20/03/19	4.2	3.8																		

Milk Recording up to March 2019 & Calving till March 2019

F 15. Set-wise AI, Conception and daughters retained

Set No.	Duration	Bulls (n)	AI	Preg	Calving		Progenies				
					Total	F	Calved (n)	Av. AFC (month)	Complete Recording	Av. Milk Yield (kg/day)	Available (n)
VIII	Jan 2004 to July 2005	17	1679	737	440	199	23	40.84	18	6.86	-
IX	Aug 2005 to Jan 2007	14	3418	1744	1222	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	7.58	-
XIII	Sept 2011 to March 2013	9	6251	3197	1989	937	272	42.75	203	7.94	-
XIV	March 2013 to July 2014	10	4144	2261	1325	638	157#	41.25	120	8.26	11
XV	July 2014 to Dec 2015	15	6955	3762	2732	1286	124#	36.31	106	8.64	281
XVI	Jan 2016 to June 2017	15	6116	3218	2485	1251	2#	-	-	-	606
XVII	July 2017 to Jan 2019	15	6053	3380*	1584*	757*					351
* Set XVII - Preg reported till May 2019 (AI of Feb 2019); Calving recorded till May 2019 # **Calving and milk recording of progenies of** XIVth set is near completion; XVth set is in progress; XVI set initiated											**1249**

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

Duration	AI	Pregnancies	CR%	Calvings		Progenies				
				Total	Females	Calved (n)	Av. AFC (months)	Complete Recording	Av. Milk Yield (kg/day)	Daughters Available for 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	123	8.05	-
2013-14	3962	1903	48.03	1079	517	133	41.30	97	8.22	7
2014-15	4129	2218	53.72	1614	776	131	37.42	115	8.58	79
2015-16	4434	2326	52.46	1693	806	15	31.43	-	-	283
2016-17	3807	2063	54.19	1591	802	-	-	-	-	411
2017-18	4093	2248	54.92	1724	845	-	-	-	-	436
2018-19	3977	2068* Preg upto Feb 19 AI	55.83	370*	165*	-	-	-	-	33
				Upto May 2019						
Overall	**49537**	**25400**	**51.56**	**14563**	**7030**	**1067**	**41.72**	**815**	**7.84**	**1249**

Project Co-ordinator's observations on field unit performance

Financial Statement for the year 2018-19 (Rs in Lakhs)

Sanctioned as per R E 2018-19		Released ICAR Share as per R E	Expenditure as per AUC	
Total	ICAR Share		ICAR Share	Balance
12.32	12.32	12.32	12.32	Nil

- A total of 3977 artificial inseminations were performed in ten adopted villages using the semen of **12 bulls of 17th set and 18th set** during 2018-19.
- The overall conception rate was reported 55.83 %.
- In this period 1710 calving (880 males, 830 females) were recorded. In addition 183 progenies, 4 of 13th, 71 of 14th, and 108 of 15th set were also calved and monthly test day milk yield were/ being recorded.
- The average age at first calving of 183 daughters calved was 40.07 months.
- Milk recording of 122 daughters completed, 43 daughters sold before the lactation was completed and recording of 134 daughters are in progress.
- The physical identification using ear tagging has been done in all female progenies born in the field till March 2019.
- As on 31st March 2019, 1302 female progenies of 14th to 17th set of different age are standing at various field unit for future recordings.

Recommendations:

- Follow up action be taken to record maximum no of daughters' first lactation milk yield.
- Incentives to the livestock owner may be provided for getting the more daughters recorded on test day milk of 1st lactation.
- 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, 2018 to March, 2019.

Financial Statement for the year 2018-19 (Rs in Lakhs)

	Budget Sanctioned (Rs.)	**Amount Spent (Rs.)**
Pay & allowances	28,00,000	26,84,460
T.A.	1,40,000	1,39,980
Contingencies		
Recurring	26,00,000	26,00,000
Equipments	60,000	60,000
Total	56,00,000	54,84,440

Staff and Infrastructure Buildup during the year :

i) Staff in position: Principal Investigator : Dr. Puneet Malhotra (Asstt. Professor)
Co Principal Investigator : Dr. Simarjeet Kaur (Asstt. Animal Geneticist)

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.	Sh. Sikander Lal Milk Recorder Supervisor	Rs. 10300-34800+3800	Full Time	
2.	Sh. Amar Singh Milk Recorder	Rs. 10300-34800+3200	Full Time	

F 1. Herd Strength of Registered females at Different Field Centers during 2018-19

Centers/ Village	OB	Addition			Deduction		Closing Birth
		New Reg.	Birth	Purchase/ Traced	Sold/	Death/ AB	
Aitiana	125	24		0	29	1	119
Barsal	148	10		0	13	0	145
Batha dhua	334	32		0	12	3	351
Bharowal kalan 1 (bharowal khurd)	34	5		0	5	0	34
Bhundri (gorahoor), bhundri dairy	342	39		1	47	4	331
Boparai kalan	17	0		0	8	0	9
Chimna	388	39		0	45	6	376
Chowkiman	112	24		0	10	1	125
Dhat	7	0		0	0	0	7
Bharowal kalan 2 (GKB)	11	14		0	3	0	22
Gurusar kaunke	129	0		1	24	5	101
Jandi	34	2		0	5	1	30
Jasowal	416	35		0	32	2	417
Kailpur	416	45		3	69	11	384
Kehra bet	79	28		0	4	0	103
Khudai chak	282	32		0	25	4	285
Mandiani	25	0		0	1	0	24
Ponna	119	21		0	9	1	130
Raqba	17	11		0	3	0	25
Sadarpura	148	20		0	19	0	149
Sawaddi kalan (majri)	68	2		0	3	0	67
Sawaddi khurd	206	32		0	12	4	222
Talwandi khurd	139	46		0	9	2	174
Walipur kalan	187	49		0	5	1	230
Walipur khurd	199	17		0	13	0	203
Total	3982	527		5	405	46	4063

F2. Status of breedable females at different field unit centers during 2018-19

Centers/ Village	Heifers >3 years		Buffalo (NP)		Buffalo Pregnant	
	Total	Pregnant	In milk	Dry	In milk	Dry
Aitiana	90	30	15	13	6	8
Barsal	135	35	20	18	4	11
Bhatha Dhua	115	30	15	18	18	10
Bharowal Kalan 1 & 2	170	40	5	8	1	5
Bhundri 1 & 2	190	95	30	25	18	11
Boparai Kalan	130	40	7	3	0	6
Chimna	190	170	10	15	5	5
Dhatt	160	25	3	5	0	1
Walipur Kalan	350	70	15	20	6	3
Gurusar	190	40	5	7	12	3
Jandi	250	35	7	8	3	2
Kailpur	200	145	25	35	25	12
Kehra Bet	35	50	20	25	3	5
Khudai Chak	95	70	5	7	14	0
Pandori	60	20	3	2	0	1
Raqba	100	50	6	3	0	3
Sawaddi Khurd	170	70	35	30	7	9
Walipur Khurd 1 & 2	260	100	20	18	15	6
Chowkiman	205	45	5	8	0	1
Sadarpura	195	40	8	6	12	2
Jasowal	290	135	20	25	28	7
Mandiani	95	15	5	3	5	2
Talwandi Khurd	100	60	15	20	0	1
Sidhwan bet	170	50	15	10	0	7
Total	3945	1460	314	332	182	121

F3. Monthly A.I.'s at different field unit centers during the period from 4/2018 to 3/2019

Centre/ month	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Total
Aitiana	**20**	**22**	**21**	**29**	**25**	**23**	**24**	**27**	**22**	**25**	**21**	**23**	**282**
Barsal	**7**	**7**	**9**	**10**	**8**	**10**	**7**	**13**	**15**	**14**	**22**	**10**	**132**
Batha dhua	**8**	**6**	**5**	**9**	**5**	**19**	**11**	**18**	**17**	**13**	**10**	**10**	**131**
Bharowal khurd							**44**	**41**	**53**	**50**	**36**	**36**	**260**
Bhundri dairy	**2**	**2**	**2**	**2**	**4**	**6**	**6**	**4**	**8**	**6**	**2**		**44**
Boparai kalan	**6**		**5**	**5**		**8**	**2**	**10**	**8**	**15**	**12**	**12**	**83**
Chimna	**25**	**20**	**31**	**32**	**25**	**45**	**37**	**66**	**60**	**44**	**63**	**39**	**487**
Chowkiman	**6**	**8**	**2**	**3**	**8**	**6**	**29**	**20**	**29**	**13**	**15**	**15**	**154**
Dhat	**5**		**5**	**5**			**5**	**10**	**10**	**9**	**12**	**9**	**70**
Giderpindi						**20**	**10**	**10**	**30**	**18**	**43**	**30**	**161**
Gkb	**10**	**18**	**10**	**10**	**13**	**20**	**22**	**36**	**23**	**21**	**25**	**21**	**229**
Gorahoor	**25**	**30**	**25**	**28**	**35**	**40**	**50**	**50**	**75**	**30**	**50**	**31**	**469**
Gurusar	**2**	**12**	**12**	**16**	**16**	**20**	**25**	**35**	**18**	**42**	**23**	**19**	**240**
Hans kalan											**28**	**21**	**49**
Jandi	**20**	**30**	**20**	**40**	**35**	**30**	**73**	**65**	**63**	**40**	**40**	**35**	**491**
Jasowal	**45**	**42**	**41**	**51**	**75**	**56**	**100**	**83**	**91**	**78**	**74**	**71**	**807**
Kailpur	**49**	**75**	**33**	**55**	**64**	**88**	**69**	**72**	**95**	**94**	**65**	**54**	**813**
Kehra bet	**15**	**21**	**11**	**20**	**23**	**22**	**35**	**31**	**43**	**35**	**30**	**42**	**328**
Khudai chak	**6**	**12**	**16**	**12**	**12**	**25**	**16**	**32**	**23**	**33**	**31**	**37**	**255**
Leelan/Sidhwan bet									**29**	**32**	**16**	**20**	**97**
Majri	**25**		**20**	**10**	**15**	**15**	**15**	**50**	**30**	**10**			**190**
Ponna	**6**	**6**	**10**	**13**	**20**	**12**	**15**	**15**	**26**	**15**	**19**	**10**	**167**
Raqba	**9**	**12**	**10**	**15**	**7**	**13**	**5**	**37**	**23**	**13**	**24**	**23**	**191**
Sadarpura	**15**	**15**	**10**	**10**	**10**	**10**	**14**	**23**	**15**	**27**	**8**	**10**	**167**
Sawaddi kalan/ majri											**5**	**5**	**10**
Sawaddi khurd	**16**	**13**	**20**	**32**	**20**	**10**	**13**	**25**	**31**	**23**	**15**	**17**	**235**
Sidhwan bet	**15**	**20**	**10**	**10**	**15**	**15**	**45**	**37**					**167**
Talwandi khurd	**20**	**20**	**10**	**30**	**20**	**20**	**30**	**29**	**24**	**35**	**30**	**28**	**296**
Walipur kalan	**45**	**20**	**31**	**43**	**30**	**19**	**60**	**66**	**53**	**51**	**36**	**48**	**502**
Walipur khurd	**26**	**21**	**15**	**16**	**20**	**32**	**25**	**35**	**20**	**22**	**15**	**25**	**272**
Total	**428**	**432**	**384**	**506**	**505**	**584**	**787**	**940**	**934**	**808**	**770**	**701**	**7779**

F4. Bull-wise A.I's. at different field unit centers during the period from4/2018 to 3/2019

Bull No.	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Grand Total
330							129	232	7				368
1148					45	306	61	135	127				674
1150												73	73
2558	22			102	111	15			82	108	2		442
2565					60	180	240	10					490
2594									363	171	15		549
2607	5				103	44	272	40	116	13			593
2645										126	249	175	550
2676										156	284	173	613
2677										132	175	97	404
2689										55	37		92
4687	79	56	69	50									254
4715	223	148	32	4	4	6	6						423
4733		15	124	78	10								227
4837		136	126	45	11								318
4905												110	110
6942							63	254	64				381
7010	59	42											101
7094												10	10
7147												49	49

DARA	5						12	41	42	27	4	3	134
M51	25	35	33	227	108	14			26				468
M53					53	19		220	70				362
SIKANDER	10						4	8	37	20	4	11	94
Total	428	432	384	506	505	584	787	940	934	808	770	701	7779

F5: Month –wise Conception at different field unit centers for period from 4/2018 to 3/2019

Centre	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Total
Aitiana	11	14	12	15	9	11	8	13	13	11	11	14	142
Barsal	7	5	4	3	4	4	5	5	4	5	4	7	57
Batha dhua	7	6	8	6	4	3	2	4	2	9	5	9	65
Bharowal khurd	3	2									24	21	50
Bhundri dairy	3	2		2	1	1	1	1	2	3	3	2	21
Boparai kalan	4	3	2	2	2		2	2		5	1	4	27
Chimna	29	16	10	21	11	8	15	16	12	22	17	31	208
Chowkiman	9	7	6	2	2	3	1	1	4	4	11	13	63
Dhat	2	1	1	3	2		2	2			2	5	20
Giderpindi										11	5	4	20
Gkb	13	9	5	7	5	8	4	4	6	9	11	17	98
Gorahoor	24	25	22	12	12	14	11	13	17	20	24	26	220
Gurusar	4	2			1	5	5	7	7	9	11	16	67
Jandi				22	10	14	10	20	15	15	35	30	171
Jasowal	55	40	36	37	21	17	4	24	34	28	50	40	386
Kailpur	36	23	22	26	20	32	15	25	31	40	27	32	329
Kehra bet	21	17	14	19	9	9	4	8	11	10	16	13	151
Khudai chak	16	11	12	3	2	5	7	6	6	12	8	15	103
Majri	18	6	11	15	12		10	4	7	7	6	24	120
Ponna	11	5	10	12	3	2	4	7	10	6	7	9	86
Raqba	12	3	3	5	3	4	4	7	3	8	2	17	71
Sadarpura	9	5	11	8	7	7	5	4	5	6	10	13	90
Sawaddi khurd	7	6	7	10	7	5	9	15	10	6	8	14	104
Sidhwan bet	14	4	5	8	7	9	4		6	6	21	19	103
Talwandi khurd	9	14	23	12	9	9	4	12	10	10	13	13	138
Walipur kalan	19	23	14	31	23	8	12	19	15	9	30	29	232
Walipur khurd	21	18	11	16	13	10	8	8	9	15	10	18	157
Total	364	267	249	297	199	188	156	227	239	286	372	455	**3299**

F6: Month –wise Calving at different field unit centers during the period from 4/2018 to 3/2019

Month	4/18		5/18		6/18		7/18		8/18		9/18		10/18		11/18		12/18		1/19		2/19		3/19		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	2	2	2	2	3	2	2	2	4	5	4	5	4	6	3	6	7	5	6	4	7	6	4	4	48	49
Barsal	1	1	2	3	2	3	2	1	3	3	4	3	4	3	3	3	1	3	2	2	2	1	2	2	28	28
Batha dhua	1	1	2	1	1	1	3		1	2	1	1	2	2	4	3	2	3	4	4	3	3	2	2	26	23
Bharowal khurd	2	1	1	1	1	2	1		3	4	3	4	2	2	1	1	1	1							15	16
Bhundri dairy		1	1		1	1	1		1	2	1	2	2	2	2	1	1	1			1	1	1	1	12	12
Boparai kalan	1	1					1	1	2	2			2	2	1	2	1	1	1	1	1	1	1	1	11	12
Chimna	3	2	2	2	4	4	5	5	7	7	7	8	7	8	9	11	7	8	7	3	8	8	5	5	71	71
Chowkiman	2	2	1	1	1	1	1	1	2	2	3	3	3	3	3	6	3	4	3	3	1	1	1	1	24	28
Dhat	1	1	1	1	1	1	0	1	0	1	0	1	1	1	1	1	1		1	0	2	1	1	1	10	10
Gkb	2	3	3	3	1	2	2	3	5	5	3	3	5	6	5	7	5	4	2	2	3	3	2	2	38	43
Gorahoor	2	2	5	4	4	4	5	4	5	4	6	5	16	11	10	11	10	10	10	9	5	5	5	5	83	74
Gurusar	3	3	1	1	2	2	1	1	1	1	2	2	2	3	1	2	1	1					0	1	14	17
Hans kalan	2	2	2	2	3	3	1	1	1	1															9	9
Jandi	1	2	2	2																	8	10	4	4	15	18
Jasowal	4	3	6	6	6	5	10	10	8	9	15	16	16	15	19	30	15	19	12	18	15	16	10	9	136	156
Kailpur	7	7	10	8	10	13	14	15	16	21	15	20	6	9	11	16	8	12	10	10	11	12	10	8	128	151
Kehra bet	5	5	3	3	4	3	4	3	9	7	5	4	6	7	8	10	7	8	6	8	8	7	5	5	70	70
Khudai chak	2	2	2	2	2	2	3	3	3	2	5	4	4	4	6	5	4	5	6	5	2	1	2	0	41	35
Majri	2	3			8	9	1	1	3	3	3	2	9	9	5	8	2	3	2	7	4	7	4	6	43	58
Ponna			1	1	3	2	3	3	6	6	3	2	2	1	4	5	3	2	5	4	5	5	1	1	36	32
Raqba	3	2	3	3	2	2	2	3	2	2	3	4	3	3	2	3	1	2	1	1	3	2	2	2	27	29
Sadarpura	2	3	2	2	2	1	1	3	1	1	3	3	5	4	3	3	2	2	4	4	2	3	3	2	30	31
Sawaddi khurd			1	1	6	5	1	1	6	7	4	5	8	10			3	3	3	3	6	4	3	3	41	42
Sidhwan bet	1	2	3	2	2	2	3	3	3	3	4	2	3	5	5	6	2	2	3	1	3	3	3	3	35	34
Talwandi khurd	2	2	1	1	3	3	4	3			5	4	5	5	3	5	6	6	9	11	5	5	4	4	47	49
Walipur kalan	6	5	9	8	6	7	2	4	5	4	10	12	5	6	7	9	8	10	6	7	13	9	10	11	87	92
Walipur khurd	3	5	2	4	3	3	5	3	8	11	8	11	9	12	4	10	7	9	4	5	8	8	6	6	67	87
Total	**60**	**63**	**68**	**64**	**81**	**83**	**78**	**75**	**105**	**115**	**117**	**126**	**131**	**139**	**120**	**164**	**108**	**124**	**107**	**112**	**126**	**122**	**91**	**89**	**1192**	**1276**

F= Female M = Male

F7: Bull–wise Conception at different field unit centers during the period from 4/2018 to 3/2019

BULL NO.	SET	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Total
330	17											60	108	168
1148	17									22	149	30	65	266
2558	17	179	76	19	66	11			46	51	7			455
2565	17	88	2							27	87	112	4	320
2594	17		94	99										193
2607	17	17	93	125	8	3				49	22	125	22	464
4687	17	6			53	36	25	32	23					175
4715	17			6	41	102	64	15	2	2	3	3		238
4733	17	5					6	55	37	5				108
4837	17	53					57	39	16	6				171
6942	17											31	128	159
7010	17				77	28	20							125
DARA	17					4						8	21	33
M51	17				52	11	16	15	103	52	8			257
M53	17									25	10		104	139
SIKANDER	17	16	2			4						3	3	28
Total		**364**	**267**	**249**	**297**	**199**	**188**	**156**	**227**	**239**	**286**	**372**	**455**	**3299**

F8 Bull–wise calving at different field unit centers during the period from 4/2018 to 3/2019

Month		Apr-18		May-18		Jun-18		Jul-18		Aug-18		Sep-18		Oct-18		Nov-18		Dec-18		Jan-19		Feb-19		Mar-19		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
2383	16	2	3																							2	3
2467	16	2	1																							2	1
2501	16	26	23	23	21	1	1																			50	45
2558	16									13	13	3	2	5	5	55	85	31	33	9	9	28	31	4	5	148	183
2565	17							19	22	9	11	3	4	65	66	28	38	1	1							125	142
2594	17							22	17	48	53	4	3					38	45	44	40					156	158
2607	17									22	24	8	10	1	1	6	9	37	44	53	59	4	3	2	2	133	152
4592	16	2	3	1																						3	3
4687	17					9	9	24	26	8	9	24	28	18	22	3	2					25	23	16	15	127	134
4705	16			37	35	42	44	6	3																	85	82
4715	17											34	35	6	6					1	4	15	17	47	46	103	108
4733	17									3	4	35	41			2	2									40	47
4837	17													27	29	21	21									48	50
4889	16	27	31	7	8	16	17	2	2																	52	58
7010	17											4	2									32	31	12	12	48	45
DARA	17																							2	2	2	2
M29	16	1	2																							1	2
M51	17					13	12	5	5	2	1											22	17	6	5	48	40
SIKANDER	17											2	1	9	10	5	7	1	1					2	2	19	21
Grand Total		**60**	**63**	**68**	**64**	**81**	**83**	**78**	**75**	**105**	**115**	**117**	**126**	**131**	**139**	**120**	**164**	**108**	**124**	**107**	**112**	**126**	**122**	**91**	**89**	**1192**	**1276**

F = Female M = Male

F9. Live female progeny at field unit centers from (0 to ≤ 6 mo.) as on 3/2019.

32 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 3/2019.

328 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 3/2019

1082 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 3/2019

2621 live female progeny (>3 years)available in the field unit centres.

F13 : Daughters calved at different field unit centers during 2018-2019

281 daughters calved during the report period at different field unit centres.

F 14 Daughters recorded at different field units during 2018-2019

Test day milk recording of 270 daughters completed at different field unit during the period and 305 days average milk yield was 2458.23 kg

F15. Bull-wise A.I., Conception, Calving and Daughter's retained till completion of milk recording

Bull No.	Set No.	A.I.	P.D.	Calving		Daughters retained up to			Calving	Complete
				Total	Female	1 year	2 years	3 years		
1667	6	159	56	18	7	0	0	2	2	2
1706	6	421	141	130	61	0	0	4	4	4
1713	6	423	208	121	54	0	0	0	0	0
1717	6	497	168	145	65	0	0	4	4	4
1933	6	27	11	5	3	0	0	0	0	0
1944	6	25	11	5	2	0	0	0	0	0
4506	6	210	76	49	21	0	0	1	1	1
4523	6	117	82	65	30	0	0	4	4	4
4619	6	99	52	26	11	0	0	0	0	0
4637	6	124	48	30	12	0	0	3	3	3
4640	6	221	90	75	34	0	0	6	6	6
1727	7	301	109	88	42	0	0	5	5	5
1746	7	594	219	132	67	0	0	9	9	9
1749	7	314	110	84	39	0	0	0	0	0
1796	7	200	80	45	17	0	0	1	1	1
2121	7	85	34	13	6	0	0	0	0	0
2133	7	103	32	26	12	0	0	3	3	3
2184	7	36	28	27	13	0	0	0	0	0
2331	7	61	19	13	7	0	0	2	2	2
2363	7	61	20	8	3	0	0	0	0	0
1492	8	134	43	40	18	0	0	1	1	1
1509	8	101	30	26	13	0	0	1	1	1
1867	8	604	202	173	78	0	0	9	9	9
1868	8	520	199	169	85	0	0	8	8	8
1875	8	980	366	236	105	0	0	7	7	7
1893	8	342	110	88	41	0	0	1	1	1
2250	8	84	33	27	14	0	0	0	0	0
2308	8	136	48	27	12	0	0	3	3	3
2396	8	60	22	16	6	0	0	0	0	0
2422	8	63	30	22	10	0	0	0	0	0
2479	8	81	38	27	13	0	0	1	1	1
2522	8	77	35	28	14	0	0	2	2	2
4813	8	21	12	5	2	0	0	1	1	1
4865	8	103	51	37	20	0	0	0	0	0
5049	8	88	34	23	10	0	0	0	0	0

Bull No.	Set No.	A.I.	P.D.	Calving		Daughters retained up to			Calving	Complete
				Total	Female	1 year	2 years	3 years		
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
HAU 12	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
HAU 183	12	80	29	17	9	0	0	2	2	2
HAU 220	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
2234	13	5060	2129	1651	749	0	0	255	168	115
2269	13	3349	1445	1158	536	0	0	117	81	60
2304	13	6134	2631	2115	985	0	0	314	206	154
3964	13	131	52	45	25	0	0	14	8	5
4059	13	214	85	69	32	0	0	15	4	0
5943	13	31	13	10	5	0	0	1	1	1
2357	14	1640	701	578	262	0	0	94	30	1
2369	14	5454	2323	2001	973	0	0	208	95	18

Bull No.	Set No.	A.I.	P.D.	Calving		Daughters retained up to			Calving	Complete
				Total	Female	1 year	2 years	3 years		
4093	14	253	109	91	42	0	0	23	7	3
4100	14	110	48	45	24	0	0	19	5	0
4196	14	143	60	73	50	0	0	8	1	0
4439	14	214	87	76	35	0	0	30	11	0
6014	14	146	63	60	31	0	0	20	8	0
6044	14	166	70	68	33	0	0	16	4	0
6136	14	202	89	85	42	0	0	34	14	0
2371	15	854	378	297	137	0	0	105	2	0
2412	15	820	367	304	139	0	1	79	2	0
2417	15	1605	707	592	284	0	10	161	1	0
2429	15	991	430	358	171	0	3	109	0	0
2459	15	917	383	352	158	0	4	62	0	0
4324	15	1121	505	419	193	0	0	77	5	0
4328	15	701	314	265	125	0	0	80	1	0
4354	15	1069	461	369	168	0	0	126	4	0
4363	15	588	257	202	98	0	3	62	7	1
4403	15	624	272	215	97	0	0	66	0	0
4438	15	564	257	211	96	0	0	70	2	0
6007	15	579	247	213	97	0	0	32	0	0
6139	15	407	183	147	71	0	0	46	0	0
6290	15	371	159	129	59	0	0	31	2	0
6405	15	411	180	142	63	0	0	35	1	0
1027	16	425	190	161	74	0	25	1	0	0
1053	16	278	127	108	48	0	18	0	0	0
1064	16	0	0	0	0	0	0	0	0	0
2383	16	1069	471	386	177	2	82	30	0	0
2467	16	856	383	306	146	0	65	6	0	0
2501	16	1161	520	419	199	15	83	32	0	0
4592	16	386	173	136	61	0	16	7	0	0
4623	16	0	0	0	0	0	0	0	0	0
4705	16	1074	476	392	188	68	4	45	0	0
4889	16	888	403	330	157	19	44	21	0	0
6379	16	174	82	66	33	0	10	1	0	0
6409	16	260	117	95	42	0	21	0	0	0
6646	16	341	154	132	63	0	39	0	0	0
6753	16	52	24	18	7	0	0	0	0	0
29m	16	489	222	175	82	0	44	0	0	0
1148	17	674	266	0	0	0	0	0	0	0
2558	17	1307	509	331	148	15	0	0	0	0
2565	17	1192	545	267	125	57	1	0	0	0
2594	17	1335	359	314	156	42	0	0	0	0
2607	17	1291	550	285	133	16	0	0	0	0
4687	17	857	392	261	127	56	0	0	0	0
4715	17	741	336	211	103	22	0	0	0	0
4733	17	454	209	87	40	18	0	0	0	0
4837	17	584	237	98	48	12	0	0	0	0
7010	17	286	132	93	48	4	0	0	0	0
6942	17	381	159	0	0	0	0	0	0	0
51m	17	890	397	121	41	8	27	0	0	0
53m	17	362	139	48	48	0	0	0	0	0
B-1-330	17	368	168	0	0	0	0	0	0	0
Sikander	17	193	54	40	19	6	0	0	0	0
Dara	17	134	33	4	2	0	0	0	0	0
4905	18	110	0	0	0	0	0	0	0	0
4928	18	0	0	0	0	0	0	0	0	0
4995	18	0	0	0	0	0	0	0	0	0

Bull No.	Set No.	A.I.	P.D.	Calving		Daughters retained up to			Calving	Complete
				Total	Female	1 year	2 years	3 years		
5031	18	0	0	0	0	0	0	0	0	0
1150	18	73	0	0	0	0	0	0	0	0
1198	18	0	0	0	0	0	0	0	0	0
1208	18	0	0	0	0	0	0	0	0	0
1209	18	0	0	0	0	0	0	0	0	0
1219	18	0	0	0	0	0	0	0	0	0
2645	18	550	0	0	0	0	0	0	0	0
2676	18	613	0	0	0	0	0	0	0	0
2677	18	404	0	0	0	0	0	0	0	0
2689	18	92	0	0	0	0	0	0	0	0
7094	18	10	0	0	0	0	0	0	0	0
7147	18	49	0	0	0	0	0	0	0	0
7227	18	0	0	0	0	0	0	0	0	0
7263	18	0	0	0	0	0	0	0	0	0
		91134	**36497**	**26790**	**12566**	**360**	**500**	**3203**	**1428**	**1109**

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	171	49.0	8.1	21
2012-13	8517	3463	40.7	2497	1155	221	46.2	7.8	155
2013-14	8014	3380	42.2	2831	1303	44	42.7	8.3	436
2014-15	8316	3810	45.8	2958	1447		-	-	804
2015-16	6325	3054	48.3	3013	1383	-	-	-	610
2016-17	5289	2464	46.6	2236	1049				480
2017-18	6344	2579	40.7	1933	899				448
2018-19	7779	3299	42.4	2468	1276				
Overall	**91134**	**36497**	**39.8**	**26790**	**12650**	**1109**	**48.3**	**8.1**	**2954**

A.I., Conception, Calvings and Daughters Retained –11th Set

Bull No.	2133	2148	2154	3226	3255	3267	3591	5496	5516	HAU12	ND6	ND8	Tot
AI	3263	2905	2558	76	220	53	46	45	35	217	23	37	9478
Pregnancies	1202	1068	975	32	104	37	17	18	14	91	8	13	3579
Daughter Born	379	338	322	13	32	5	7	5	5	33	2	6	1147
Daughters available	59	77	66	1	8	2	2	0	0	3	1	0	219
Daughter Calved	59	77	66	1	8	2	2	0	0	3	1	0	219
Daughters Complete Recorded	59	77	66	1	8	2	2	0	0	3	1	0	219
Daughters to be recorded	0	0	0	0	0	0	0	0	0	0	0	0	0

A.I., Conception, Calvings and Daughters Retained –12th Set

Bull No.	2176	2177	2185	3598	HAU183	HAU220	KHURANA	REDHU11	Total
AI	2980	2520	2420	104	80	35	2	71	8212
Pregnancies	1159	956	893	36	29	13	1	23	3110
Daughter Born	429	315	293	13	9	5	0	9	1073
Daughters available	73	85	74	3	2	0	0	1	238
Daughter Calved	73	85	74	3	2	0	0	1	238
Daughters Complete Recorded	73	85	74	3	2	0	0	1	238
Daughters to be recorded	0	0	0	0	0	0	0	0	0

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	255	117	314	14	15	1	716
Daughter Calved	168	81	206	8	4	1	468
Complete Recording	115	60	154	5	0	1	335
Daughter Available	140	57	160	9	15	0	381

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	94	208	23	19	8	30	20	16	34	452
Daughter Calved	30	95	7	5	1	11	8	4	14	175
Daughters Complete Recorded	1	18	3	0	0	0	0	0	0	22
Daughters to be recorded	93	190	20	19	8	30	20	16	34	430

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	105	80	171	112	66	77	80	126	65	66	70	32	46	31	35	1162
Daughter Calved	2	2	1	0	0	5	1	4	7	0	2	0	0	2	1	27
Daughters Complete Recorded	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Daughters to be recorded	105	80	171	112	66	77	80	126	64	66	70	32	46	31	35	**1161**

A.I., Conception, Calvings and Daughters Retained –16th Set

Bull No.	1027	1053	2383	2467	2501	4592	4705	4889	6379	6409	6646	6753	Total
AI	425	278	1069	856	1161	386	1074	888	174	260	341	52	7453
Pregnancies	190	127	471	383	520	173	476	403	82	117	154	24	3342
Daughter Born	74	48	177	146	199	61	188	157	33	42	63	7	1277
Daughters available	26	18	114	71	130	23	117	84	11	21	39	0	698
Daughter Calved	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
Daughters to be recorded	26	18	114	71	130	23	117	84	11	21	39	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	B1-330	Dara	Sikander	Total
AI	674	1307	1192	1335	1291	857	741	454	584	381	286	890	362	368	134	193	11049
Pregnancies	266	509	545	359	550	392	336	209	237	159	132	397	139	168	33	54	4485
Daughter Born	0	148	125	156	133	127	103	40	48	0	48	41	48	0	2	19	1038
Daughters available	0	15	58	42	16	56	22	18	12	0	4	35	0	0	0	6	284
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	0	15	58	42	16	56	22	18	12	0	4	35	0	0	0	6	284

A.I., Conception, Calvings and Daughters Retained –18th Set

Bull No.	4905	4928	4995	5031	1150	1198	1208	1209	1219	2645	2676	2677	2689	7094	7147	7227	7263	Total
AI	110	0	0	0	73	0	0	0	0	550	613	404	92	10	49	0	0	1901
Pregnancies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Daughter Born	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Daughters available	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	
Daughters Complete Recorded	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	

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	716	335	46.4	8.0	381
14th	9	8328	3550	3077	1492	0	0	452	22	40.0	7.9	430
15th	15	11622	5100	4215	1956	0	21	1141	1	39.2	7.8	1161
16th	15	7453	3342	2724	1277	104	451	143	0	0	0	698
17th	16	11049	4485	2160	1038	256	28	0	0	0	0	284
18th	17	1901	0	0	0	0	0	0				
Total	**97**	91134	36497	26790	12566	360	500	3203	1109	**48.4**	**8.1**	2954

Bull- wise additional daughters completing 1st lactation from 12th set

Bull No.	Daughter No	Date of birth	Date of calving	Age at first calving (days)	Lact length	Lact. Yield
2185	2405	30-Oct-11	24-Apr-17	2003	305	2047.2
2185	B0373	22-Jul-12	6-Apr-17	1719	305	2366.8
2176	B193	5-Oct-11	20-May-17	2054	305	2482.1
2176	B0068	30-Apr-12	15-May-17	1841	305	2468.3
2176	1547	30-Aug-11	5-Jun-17	2106	305	2089.3
2176	B2441	24-Dec-11	24-Jun-17	2009	305	2298.4
2176	B0445	25-Jul-12	15-May-17	1755	305	2300.5
2176	B2195	11-Mar-12	10-Jul-17	1947	305	2263.1
2185	B0376	15-Jun-12	30-Jun-17	1841	305	2236.9
2177	2041	20-Aug-11	15-Aug-17	2187	305	2601.7
HAU183	B2596	8-Dec-13	2-Aug-17	1333	305	2216.0
2185	2700	25-Sep-11	01-Aug-17	2137	305	2477.9
2185	7084	4-Mar-12	15-Aug-17	1990	305	2533.5
2176	1542	30-Nov-11	15-Oct-17	2146	305	1843.3
2176	2487	15-Nov-11	1-Oct-17	2147	305	2074.2
2185	2795	5-Dec-11	15-Oct-17	2141	305	1933.5
2185	B0092	13-Mar-12	5-Oct-17	2032	305	2356.4
2176	B0381	20-Apr-12	5-Oct-17	1994	305	2378.8
2176	B0214	16-Jun-12	2-Oct-17	1934	305	2079.0
2176	B0444	30-Jul-12	2-Oct-17	1890	305	2108.1
2185	2688	15-Jan-12	10-Nov-17	2126	305	2470.4
2177	B0551	7-Jul-13	12-Mar-18	1709	305	2749.2
2176	B0139	10-Jul-13	27-Jan-18	1662	305	3022.0
HAU183	B2513	17-Dec-13	24-Feb-18	1530	305	2979.2

Bull- wise daughters completing 1st lactation from 13th set of Network Project on Buffalo Improvement

Bull No.	Daughter No	Date of birth	Date of calving	Age at first calving (days)	Lact length	Lact. Yield
2269	B0007	28-Jul-12	5-Apr-17	1712	305	2199.2
2304	B0633	10-Aug-12	15-Mar-17	1678	305	2764.1
2269	B0563	7-Sep-12	3-Apr-17	1669	305	2026.1
2269	B0370	11-Dec-12	25-Mar-17	1565	305	2136.8
2234	2122	16-Jan-13	3-May-17	1568	305	1990.9
2234	B0977	20-Apr-13	20-Mar-17	1430	305	4069.1
2234	B0413	6-May-13	20-Mar-17	1414	305	3830.6
2304	B1627	25-Jun-13	10-Mar-17	1354	305	3851.1
2304	B0837	10-Aug-13	15-Apr-17	1344	305	3532.6
2304	B0822	27-Aug-13	20-Apr-17	1332	305	2379.6
2304	B1542	25-Aug-13	20-Mar-17	1303	305	2098.9
2234	2227	3-Nov-13	7-Apr-17	1251	305	2337.3
2234	B0348	24-May-12	26-May-17	1828	305	2591.9
2269	B0761	30-Oct-12	28-May-17	1671	305	1919.5
2269	B0634	9-Feb-13	20-Apr-17	1531	305	2779.7
2269	B1815	25-Apr-13	28-Apr-17	1464	305	2533.4
2304	B0967	14-Jun-13	5-Apr-17	1391	305	2682.1
2304	B1621	15-Jun-13	9-May-17	1424	305	2470.8
3964	B0821	7-Jun-13	17-May-17	1440	305	2222.2
2234	B0418	13-Jun-13	24-May-17	1441	305	3905.7
2234	B1550	10-Aug-13	15-May-17	1374	305	2055.8
2234	B1578	22-Aug-13	28-Apr-17	1345	305	2102.3
2304	B1632	5-Sep-13	15-Apr-17	1318	305	3897.6
2234	B1646	10-Sep-13	24-May-17	1352	305	2227.7

Bull No.	Daughter No	Date of birth	Date of calving	Age at first calving (days)	Lact length	Lact. Yield
2304	B1556	10-Sep-13	7-May-17	1335	305	1931.9
2269	B0438	25-Sep-12	26-Jun-17	1735	305	2379.9
2304	B0138	13-Dec-12	20-Jun-17	1650	305	2294.6
2234	B0418	8-Apr-13	24-May-17	1507	305	3668.6
2304	B0886	25-Apr-13	17-Jun-17	1514	305	2272.1
2304	B0900	13-May-13	4-Jun-17	1483	305	1849.6
2234	B0910	2-Aug-13	14-Jun-17	1412	305	2521.0
2234	B1769	22-Aug-13	23-Jun-17	1401	305	2636.6
2304	B0600	13-Oct-13	2-Jun-17	1328	305	2155.8
2304	2292	13-Oct-13	2-Jun-17	1328	305	3498.0
2234	B1545	17-Oct-13	7-May-17	1298	305	1965.4
2304	2234	12-Oct-13	25-May-17	1321	305	4301.0
2304	B1678	18-Oct-13	7-Jun-17	1328	305	2112.4
2234	B1734	17-Oct-13	13-May-17	1304	305	2609.8
2304	B1651	20-Oct-13	10-Jun-17	1329	305	2276.8
2269	2503	10-Jul-14	19-Jul-17	1105	305	2417.3
2234	B0460	26-Sep-12	6-Jul-17	1744	305	2893.4
2304	B0356	28-Jan-13	16-Jul-17	1630	305	2336.1
2304	B1621	9-May-13	13-Jul-17	1526	305	2410.6
2234	B1688	15-Jun-13	4-Jul-17	1480	305	2198.2
2234	B0824	25-Aug-13	5-Jul-17	1410	305	2614.1
2304	B1515	1-Nov-13	20-Jun-17	1327	305	2544.4
2304	B0266	4-Nov-13	20-Jul-17	1354	305	2518.9
2234	2181	8-Nov-13	25-Jun-17	1325	305	2081.8
2304	B1622	9-Nov-13	21-Jun-17	1320	305	2389.1
2234	2448	11-Nov-13	21-Jul-17	1348	305	2022.1
2304	2273	13-Nov-13	21-Jun-17	1316	305	2565.7
2234	B2501	19-Nov-13	18-Jul-17	1337	305	2149.5
2304	B0885	8-Nov-13	7-Jul-17	1337	305	2065.7
2234	B2597	14-Nov-13	16-Jul-17	1340	305	2160.5
2234	B2332	20-Nov-13	5-Jul-17	1323	305	2559.0
2234	B2537	18-Nov-13	19-Jul-17	1339	305	2170.4
2304	B1625	24-Nov-13	8-Jul-17	1322	305	2318.9
2304	2222	25-Nov-13	26-Jun-17	1309	305	2472.0
2304	B0360	15-Aug-12	20-Aug-17	1831	305	2367.3
2269	B0928	19-Apr-13	3-Jul-17	1536	305	2624.3
2269	B1864	20-Apr-13	7-Aug-17	1570	305	2402.6
2269	B1000	15-May-13	25-Jul-17	1532	305	2780.8
2234	B0984	10-Jun-13	6-Aug-17	1518	305	2428.6
2269	B0702	9-Jul-13	10-Aug-17	1493	305	2041.4
2304	B1628	25-Jul-13	16-Aug-17	1483	305	2382.0
2269	B1860	9-Aug-13	25-Jul-17	1446	305	2489.4
2304	B0398	1-Nov-13	14-Aug-17	1382	305	2550.3
2234	2379	5-Nov-13	9-Aug-17	1373	305	2364.8
2304	2139	28-Nov-13	15-Aug-17	1356	305	2050.9
2304	2010	5-Dec-13	30-Jul-17	1333	305	2206.5
2304	2092	11-Dec-13	7-Aug-17	1335	305	2048.1
2234	2019	10-Dec-13	7-Aug-17	1336	305	2372.2
2304	2052	15-Dec-13	10-Aug-17	1334	305	2028.7
2234	2463	7-Dec-13	12-Aug-17	1344	305	3022.5
2304	B1518	19-Dec-13	7-Aug-17	1327	305	2322.9
2234	B2538	14-Dec-13	28-Jul-17	1322	305	2339.1
2304	2266	18-Dec-13	26-Aug-17	1347	305	2425.0
2234	B2322	8-Dec-13	5-Aug-17	1336	305	2717.7
2234	2808	16-Dec-13	5-Aug-17	1328	305	2172.8
2304	2464	20-Dec-13	20-Jul-17	1308	305	2518.3
2304	2299	20-Dec-13	18-Jul-17	1306	305	2390.6

Bull No.	Daughter No	Date of birth	Date of calving	Age at first calving (days)	Lact length	Lact. Yield
2304	2224	28-Dec-13	25-Jul-17	1305	305	2688.4
2234	2374	24-Dec-13	9-Aug-17	1324	305	2599.0
2304	2815	26-Dec-13	15-Aug-17	1328	305	2912.1
2304	2363	28-Dec-13	17-Aug-17	1328	305	1975.7
2304	B2527	25-Dec-13	5-Aug-17	1319	305	2205.0
2304	2453	30-Dec-13	29-Jul-17	1307	305	2550.1
2304	B0090	24-Aug-12	02-Sep-17	1835	305	2264.4
2304	B0442	11-Oct-12	05-Sep-17	1790	305	2211.2
2269	B0921	28-Nov-12	02-Sep-17	1739	305	2637.6
2269	B0133	5-Jan-13	15-Aug-17	1683	305	2505.9
2304	B0394	13-May-13	1-Sep-17	1572	305	2526.1
2234	B1787	23-Jun-13	22-Sep-17	1552	305	2593.5
2234	B1605	6-Jul-13	8-Sep-17	1525	305	2241.6
2234	B1837	19-Jul-13	07-Sep-17	1511	305	2025.6
2304	B1610	25-Jul-13	20-Aug-17	1487	305	2494.8
2304	B0294	2-Aug-13	02-Aug-17	1461	305	2526.7
2304	B0539	13-Aug-13	15-Sep-17	1494	305	2224.8
2304	B1532	2-Sep-13	17-Sep-17	1476	305	2170.0
2304	B1768	8-Sep-13	25-Sep-17	1478	305	2589.0
2234	B1586	6-Oct-13	25-Aug-17	1419	305	2255.7
2304	B1533	10-Oct-13	10-Sep-17	1431	305	2165.4
2234	B1795	8-Oct-13	3-Sep-17	1426	305	2542.5
2304	B0274	1-Nov-13	10-Sep-17	1409	305	2365.5
2304	B1576	30-Oct-13	6-Sep-17	1407	305	2092.9
2304	2152	20-Nov-13	25-Aug-17	1374	305	2172.0
2234	2328	30-Nov-13	09-Sep-17	1379	305	2364.8
2234	2009	20-Nov-13	07-Sep-17	1387	305	1811.6
2304	2188	20-Dec-13	29-Sep-17	1379	305	2221.2
2234	2809	14-Dec-13	01-Sep-17	1357	305	2190.8
2304	2883	25-Dec-13	07-Sep-17	1352	305	2361.0
2304	B2578	22-Dec-13	07-Sep-17	1355	305	2165.2
2304	2009	10-Jan-14	05-Sep-17	1334	305	1962.3
2234	2223	13-Jan-14	24-Aug-17	1319	305	2538.6
2304	B2527	26-Jan-14	05-Sep-17	1318	305	2781.4
2304	2044	25-Jan-14	04-Sep-17	1318	305	2801.8
2304	2053	20-Jan-14	10-Sep-17	1329	305	2018.0
2304	B2364	30-Jan-14	04-Sep-17	1313	305	2376.4
2304	2012	30-Jan-14	05-Sep-17	1314	305	1955.9
2304	B2531	27-Feb-14	20-Sep-17	1301	305	2138.0
2234	2136	25-Jun-14	02-Sep-17	1165	305	2022.5
2234	B0896	20-Oct-12	1-Oct-17	1807	305	1998.2
2269	B0746	10-Nov-12	17-Oct-17	1802	305	2341.7
2269	B0111	25-Feb-13	10-Oct-17	1688	305	2210.3
2304	B1593	16-May-13	11-Oct-17	1609	305	2023.1
2304	B1535	30-May-13	7-Oct-17	1591	305	1911.1
2234	B1623	5-Jul-13	5-Oct-17	1553	305	2489.1
2269	B1550	17-Jul-13	28-Sep-17	1534	305	2413.3
2234	B1567	9-Aug-13	15-Oct-17	1528	305	1739.4
2234	B0845	15-Aug-13	20-Oct-17	1527	305	2182.6
2234	B0888	23-Aug-13	11-Oct-17	1510	305	1879.9
2304	B1865	18-Aug-13	7-Oct-17	1511	305	1980.6
2304	B1577	5-Sep-13	05-Oct-17	1491	305	2216.1
2304	B0267	10-Sep-13	15-Sep-17	1466	305	2552.6
2304	B1558	11-Oct-13	5-Oct-17	1455	305	2130.1
2234	B1620	10-Oct-13	28-Sep-17	1449	305	2533.3
2304	B1538	12-Oct-13	28-Sep-17	1447	305	2042.9
2234	B1706	19-Oct-13	20-Sep-17	1432	305	2437.8

Bull No.	Daughter No	Date of birth	Date of calving	Age at first calving (days)	Lact length	Lact. Yield
2304	2293	28-Oct-13	14-Oct-17	1447	305	2062.0
2304	B0826	28-Oct-13	15-Oct-17	1448	305	2247.2
2234	B1571	4-Nov-13	26-Sep-17	1422	305	1859.1
2304	B1619	27-Oct-13	2-Oct-17	1436	305	2516.1
2234	2193	12-Nov-13	15-Oct-17	1433	305	2004.6
2234	2271	9-Nov-13	21-Oct-17	1442	305	2418.5
2304	2258	12-Dec-13	28-Sep-17	1386	305	2298.4
2234	B2567	26-Dec-13	23-Aug-17	1336	305	2639.4
2304	2297	6-Jan-14	04-Oct-17	1367	305	2271.8
2234	2884	6-Feb-14	10-Oct-17	1342	305	1830.2
2304	2823	24-Feb-14	17-Oct-17	1331	305	2235.6
2304	B2514	28-Feb-14	2-Oct-17	1312	305	2205.2
2304	B2515	20-Feb-14	28-Sep-17	1316	305	2419.3
2304	B0420	17-Dec-12	10-Nov-17	1789	305	2186.1
2269	B0638	4-May-13	10-Nov-17	1651	305	2714.7
2304	B0979	15-May-13	30-Sep-17	1599	305	2481.0
2234	B1756	20-Jul-13	07-Nov-17	1571	305	2410.0
3964	B1588	25-Jul-13	15-Nov-17	1574	305	2105.1
2304	B1534	28-Aug-13	15-Nov-17	1540	305	2206.9
2304	B0546	6-Nov-13	25-Oct-17	1449	305	2180.8
2304	B1506	9-Nov-13	5-Nov-17	1457	305	2326.1
2234	B1802	7-Nov-13	10-Nov-17	1464	305	2470.3
2234	2154	18-Nov-13	25-Oct-17	1437	305	1874.1
2304	1902	25-Nov-13	25-Oct-17	1430	305	2474.9
2234	2089	30-Nov-13	2-Oct-17	1402	305	2513.3
2234	2362	30-Nov-13	7-Nov-17	1438	305	2131.7
2234	B2670	8-Dec-13	3-Nov-17	1426	305	2436.6
2304	2405	18-Dec-13	30-Sep-17	1382	305	2505.9
2304	2270	30-Dec-13	03-Oct-17	1373	305	2477.1
2234	2461	20-Feb-14	21-Nov-17	1370	305	2050.3
2304	B2570	4-Mar-14	26-Nov-17	1363	305	2195.9
2304	B0292	9-Apr-13	1-Dec-17	1697	305	1893.1
2234	B1602	25-Apr-13	15-Oct-17	1634	305	2429.1
2269	B0081	17-Jun-13	5-Nov-17	1602	305	2257.2
2269	B0429	20-Jun-13	10-Nov-17	1604	274	2017.4
2234	B0424	9-Jul-13	20-Nov-17	1595	305	2000.8
2234	B1616	25-Jul-13	3-Dec-17	1592	305	2473.9
3964	B1540	3-Aug-13	5-Dec-17	1585	305	2141.2
2304	B0832	19-Aug-13	25-Sep-17	1498	305	2162.8
2304	B0670	15-Sep-13	17-Dec-17	1554	305	1985.0
2304	B1595	18-Oct-13	19-Dec-17	1523	305	2216.3
2234	2208	28-Oct-13	19-Dec-17	1513	305	1973.1
2304	2254	30-Oct-13	11-Nov-17	1473	305	2259.9
2304	2172	6-Dec-13	15-Dec-17	1470	305	2062.9
2234	2108	15-Dec-13	22-Dec-17	1468	305	1886.8
2304	2129	22-Apr-14	2-Nov-17	1290	305	2392.8
2304	2327	15-Apr-14	9-Nov-17	1304	305	2516.3
2304	2039	25-Apr-14	12-Dec-17	1327	305	2123.7
2269	B0097	31-Mar-13	27-Dec-17	1732	305	2394.2
2304	B1505	20-Aug-13	20-Dec-17	1583	305	2225.0
2234	2045	16-Nov-13	20-Dec-17	1495	305	2239.6
2304	2027	20-Apr-14	31-Jan-18	1382	305	2221.7
2304	2295	2-May-14	30-Dec-17	1338	305	2360.0
2234	B0798	2-Dec-13	05-Feb-18	1526	305	2774.6
2269	B0911	25-Dec-13	5-Feb-18	1503	305	3048.6
2304	2357	20-Jan-14	15-Jan-18	1456	305	2578.7
2304	2422	7-Feb-14	27-Feb-18	1481	305	3167.7

Bull No.	Daughter No	Date of birth	Date of calving	Age at first calving (days)	Lact length	Lact. Yield
2304	2287	15-Feb-14	15-Jan-18	1430	305	3164.3
2269	B0863	6-Jun-14	25-Jan-18	1329	305	2980.5
2234	2307	20-Jun-14	10-Jan-18	1300	305	2537.6
2234	B1771	25-Jun-14	30-Dec-17	1284	305	3401.9
2304	2494	30-Aug-14	15-Jan-18	1234	305	3063.4
2234	2966	15-Sep-14	24-Feb-18	1258	305	2966.3
2304	2789	25-Sep-14	25-Jan-18	1218	305	3300.5
2304	2217	8-Oct-14	10-Jan-18	1190	305	2540.3
2304	B0093	4-Sep-13	10-Feb-18	1620	305	3149.7
2234	B0385/2234	16-Oct-13	5-Jan-18	1542	305	3134.8
2269	B1748	5-Nov-13	26-Feb-18	1574	305	3451.9
2304	B0119	20-Nov-13	6-Mar-18	1567	305	2971.3
2304	B0377	30-Nov-13	25-Jan-18	1517	305	2960.9
2269	B1633	30-Nov-13	02-Jan-18	1494	305	3240.4
2304	B1508	28-Nov-13	28-Feb-18	1553	305	3263.8
2304	2309	20-Dec-13	12-Jan-18	1484	305	3543.8
2234	B1579	26-Dec-13	15-Feb-18	1512	305	3051.5
2304	2218	29-Jan-14	15-Mar-18	1506	305	3025.3
2234	B0702	28-Feb-14	28-Jan-18	1430	305	3149.1
2304	2465	28-Feb-14	28-Feb-18	1461	305	3270.3
2304	2098	25-Feb-14	8-Feb-18	1444	305	3423.3
2304	2394	15-Mar-14	11-Mar-18	1457	305	3466.3
2234	B1511	18-Mar-14	10-Mar-18	1453	305	3129.0
2234	2250	10-Apr-14	20-Jan-18	1381	305	3049.0
2304	2184	16-Apr-14	10-Mar-18	1424	305	3102.3
2234	B0981	8-Apr-14	28-Feb-18	1422	305	3467.9
2234	2415	24-Jun-14	28-Feb-18	1345	305	3143.7
2269	2767	3-Sep-14	13-Mar-18	1287	305	2759.5

Bull- wise daughters completing 1st lactation from 14th & 15th set

Bull No.	Daughter No	Date of birth	Date of calving	Age at first calving (days)	Lact length	Lact. Yield
2357	B2559	28-Jun-14	17-Sep-17	1177	305	2669.9
4093	2993	13-Aug-14	1-Sep-17	1115	305	2793.9
4093	2988	25-Aug-14	2-Sep-17	1104	305	2696.3
4093	2972	27-Aug-14	1-Oct-17	1131	305	2705.6
2369	2295	8-Nov-14	15-Oct-17	1072	305	2337.0
2369	B2578	10-Mar-14	15-Nov-17	1346	305	2354.1
2369	2898	15-Mar-14	1-Nov-17	1327	305	2678.1
2369	B2533/2553	28-Mar-14	22-Oct-17	1304	305	2671.4
2369	2136	24-Mar-14	11-Nov-17	1328	305	1944.4
2369	2269	19-Mar-14	2-Oct-17	1293	305	2746.6
2369	2134	10-May-14	12-Jan-18	1343	305	2171.3
2369	2427	10-May-14	22-Jan-18	1353	305	2194.1
2369	2132	14-May-14	18-Jan-18	1345	305	2290.1
2369	B2593	8-May-14	21-Jan-18	1354	305	2516.8
2369	2756	30-May-14	10-Feb-18	1352	305	2289.1
2369	2298	13-Jan-14	03-Feb-18	1482	305	2274.2
2369	2429	20-Mar-14	28-Jan-18	1410	305	2411.6
2369	B2592	6-Apr-14	23-Feb-18	1419	305	3049.5
2369	2206	5-May-14	12-Mar-18	1407	305	2240.6
2369	2105	5-Jul-14	12-Mar-18	1346	305	1993.6
2369	2107	13-Jul-14	17-Mar-18	1343	305	2273.1
2369	2112	24-Jul-14	20-Mar-18	1335	305	2060.9
4363	B6423	15-Aug-14	22-11-2017	1195	305	2385.8

Project Co-ordinator's observations on Field Unit performance

Financial Statement for the year 2018-19 (Rs in Lakhs)

Sanctioned as per R E 2018-19		Released ICAR Share as per R E	Expenditure as per AUC		Balance (ICAR Share)
Total	ICAR Share		ICAR Share	State Share	
56.00	41.00+1.00 (SCSP)	42.00	41.13330	13.71110	0.86670

- Total 7779 AI's were performed and 3299 buffalos conceived in the field using 15 bulls of 17th and 9 bulls of 18th sets during report period. The conception rate reported 42.41 %.
- 2468 calving reported during the period out of which 1192 female and 1276 were male.
- At various centers 4063 female progenies of different age groups are standing for future recording
- 281 daughters calved during the year and 270 daughter recorded in 2018-19.

Recommendations:

- Care should be taken to use all set bulls simultaneously and in equal numbers for AI at the field.
- Need to improved conception rate in field through monitoring and training of A I workers.
- Organized milk competition in the villages for the animals participating in NPBI (Dams and their daughters).

FIELD UNIT: NDRI, KARNAL

Title of the project: Progeny testing of bulls under field conditions (FPT)
Principal Investigator: Dr S M Deb, Principal Scientist

A total of 4315 AI were performed in Murrah Buffaloes under field conditions during 2018-19 and as a result 47.02% conception rate was obtained. The highest conception rate was observed in the month of April 47.78(%) and the lowest was in the month of August (45.79%). Across the villages, the highest conception rate was observed in Shekhpura (50.00%) and lowest in the village Kheri Maan Singh 43.70(%). A total of 1030 (574 male and 456 female) Murrah buffalo calves were born in the farmers' herds and performance data onMilk Recording 83 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 5983 and 3602 respectively. As many as 13 breeding bulls of Set No-17 and 3 bulls belonging to the Set No-18 were used for AI during the year.

F 1. Herd Strength of Registered females under field unit as on 31-03- 2019

Name of Centre	OB	Addition	Deduction		
		New Reg. (Birth/ Purchase)	Sold	Death	CB
Darar	1840	160	95	8	1897
Kheriman Singh	1619	108	145	9	1573
Rindal	1165	92	126	11	1120
Sheikhpura	1498	74	166	13	1393
Kamalpur	549	-	-	-	549
Total	**6671**	**434**	**532**	**41**	**6532**

F2. Status of Breedable females under field unit as on 31-03- 2019

Name of Village	Heifers >3 years		Buffalo (NP)		Buffalo Pregnant	
	Total	Pregnant	In milk	Dry	In milk	Dry
Darar	263	174	364	103	168	64
Kheriman Singh	308	214	298	95	135	84
Rindal	217	155	204	67	195	63
Sheikhpura	354	173	192	69	242	117
Kamalpur	204	112	98	38	108	48
Total	**1346**	**828**	**1156**	**372**	**848**	**376**

F 3. Monthly AI under Field Unit during 01-04-2018 to 31-03-2019

Month	Centre / Village				Total
	Darar	Kheriman Singh	Rindal	Sheikhpura	
April 18	23	25	62	60	10
May	52	36	55	58	28
June	40	54	68	61	31
July	32	54	62	60	26
Aug.	41	72	65	53	42
Sept.	64	75	67	69	44
Oct.	75	89	122	97	38
Nov.	80	100	102	111	49
Dec.	96	122	117	105	64

Jan. 19	126	132	108	107	63
Feb.	105	101	107	99	57
March.	112	90	87	98	67
Total	**846**	**950**	**1022**	**978**	**519**

F 4 Bullwise AI at Different Field Unit Centers during the Period 1-4-2018 to 31-03-2019

Bull No/Set	April	May	June	July	Aug	Sept	Oct.	Nov.	Dec	Jan	Feb	Mrch	Total
4715/17	33	80	12						58	56			**239**
6942/17	60		40	15									**372**
Sikander		58	20	17	77	62	1						**235**
Daara				21	36	101	48	1					**207**
2607/17	18				39	12	75	75					**219**
M 53/17							92	203	50				**345**
M-51/17							8	55	64	93			**220**
2558/17	7	36	95	33			50	59					**280**
2565/17			19	6				21	75				**121**
4837/17									207	75			**282**
B-1 330/17				60	79	76	68	28					**311**
2594/17	62	40							50				**152**
4687/17				20	42	35							**97**
7094/17										238	188	182	**608**
7147/17										7	180	252	**439**
7227/17										67	101	20	**188**
Total	**180**	**229**	**254**	**234**	**273**	**319**	**421**	**442**	**504**	**536**	**469**	**454**	**4315**

F 5: Month – wise Conception at Different Field Units during the period1-4-18 to 31/03/19

Month	Village / Centre							CR %
	Darar	Kherimann Singh	Rindal	Sheik hpura	**Kamal pur**	Total Conce.	Total AI	
April 18	8	14	28	32	4	86	180	**47.78**
May	25	15	27	28	13	108	229	**47.16**
June	19	20	32	32	14	117	254	**46.06**
July	16	21	30	32	13	112	234	**47.86**
Aug.	19	27	34	26	19	125	273	**45.79**
Sept.	32	35	30	30	22	149	319	**46.71**
Oct.	35	42	55	50	17	199	421	**47.25**
Nov.	40	48	52	55	17	212	442	**47.96**
Dec	44	52	57	52	30	235	504	**46.63**
Jan. 19	**238**	**274**	**347**	**337**	**149**	**1343**	**2856**	**47.02**
AI Till Jan 19	**503**	**627**	**720**	**674**	**332**	**2856**		
	47.32	**43.70**	**48.19**	**50.00**	**44.88**	**47.02**		

F 6: Monthwise Calvings at Different Field Unit Centers During the Period 01-04-2018 to 3-2019

Month	**Darar**		**Rindal**		**Kherimann Singh**		**Sheikhpura**		**Kamalpur**		**Total**	
	M	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**
Apr 18	14	9	6	5	12	7	10	9			42	30
May	16	9	9	6	15	11	12	13			52	39
June	14	7	16	9	9	8	10	10			49	34
July	14	8	15	14	10	8	11	13			50	43
Aug.	21	12	19	17	8	8	10	12			58	49
Sept.	12	7	24	17	11	9	7	11			54	44

Oct.	11	9	19	11	9	8	10	11			49	39
Nov.	11	9	25	16	10	8	12	13			58	46
Dec.	10	8	12	8	8	7	9	8			39	31
Jan 19	13	9	9	7	9	8	10	11	5	4	46	39
Feb	5	3	6	5	8	7	12	11	2	2	33	28
Mar	15	10	6	5	7	6	9	8	7	5	**44**	**34**
Total	**156**	**100**	**166**	**120**	**116**	**95**	**122**	**130**	**14**	**11**	**574**	**456**

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

F 7. Bull wise Conception at different Field Unit Centers during 1-4-2018 to 31-03-19

Bull No	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	**Total**
4715/17	12	38	5						26	**81**
6942/17	32	8	51	37		15	34			**177**
Daara/17				8	13	43	21	1		**86**
Sikander/17		28	5	9	33	29	1			**105**
2594/17	28	19							25	**72**
2565/17			9	3				7	36	**55**
2607/17	11				20	10	35	38		**114**
2558/17	3	15	47	13			30	30		**138**
51 M/17							6	28	31	**65**
4687/17				10	19	17				**46**
53 M/17							44	98	21	**163**
B-1-330/17				32	40	35	28	10		**145**
4837/17									96	**96**
Total	**86**	**108**	**117**	**112**	**125**	**149**	**199**	**212**	**235**	**1343**

F8. Bullwise Calving at Different Field Unit Centers during 1-4-2018 to 31-3-2019

Month		April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan	Feb	Mrch	**Total**
6646/16	M	12	14	9										**35**
	F	9	10	8										**27**
6753/16	M	24	5											**29**
	F	16	4											**20**
29 M/16	M	6	9	4										**19**
	F	5	6	1										**12**
4705/16	M		12	14	2									**28**
	F		6	7										**13**
1027/16	M		12	10										**22**
	F		13	10										**23**
51 M/17	M			12	9									**37**
	F			8	8									**21**
4687/17	M				16	20			16	10	9			**71**
	F				14	19			14	8	9			**64**
4733/17	M				11	17	9	13			5			**55**
	F				13	10	5	6			4			**38**
2594/17	M				12	4	5				10	8	5	**44**
	F				8	2	5				7	7	4	**33**
7010/17	M					7	27	36	28					**98**
	F					6	22	33	17					**78**
4715/17	M					10	11		14	8	8	7	22	**80**
	F					12	6		15	7	3	5	15	**63**
2565/17	M						2							**2**
	F						6							**6**
4837/17	M									21	1			**22**

	F									16				**16**
2607/17	M										3	5		**8**
	F										5	4		**9**
2558/17	M											1	6	**7**
	F											1	5	**6**
6942/17	M											12	2	**14**
	F											11	2	**13**
Sikander/17	M												9	**9**
	F												8	**8**

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

F. 9 Bull wise female progeny at different Field Unit Centers (0-12 months) as on 31/3/19

Bull No	Darar	Kheriman Singh	Rindal	Sheikhpura	Total
1027/16				23	**23**
2558/17		6			**6**
2565/17				6	**6**
2594/17	11	2	16	5	**34**
2607/17		9			**9**
4687/17	27	26	12		**65**
4705/16	13				**13**
4715/17	13	6	12	25	**56**
4733/17	15	6		13	**34**
4837/17		23		8	**31**
6646/16			18	9	**27**
6753/16	12		8		**20**
6942/17			2	11	**13**
7010/17	11	21	20	11	**63**
29 M/17		12			**12**
51 M/17		9	7	11	**27**
Sikander/17				8	**8**
Total	**102**	**120**	**95**	**130**	**447**

F. 10. Bull wise Live Female Progeny at different Field Unit s (1-2 yrs) as on 31/3/ 2019

Bull No	Darar	Kheriman Singh	Rindal	Sheikhpura	Total
1027/16	23	33			**56**
1053/16			2	11	**13**
2383/16			20		**20**
2467/16			9	12	**21**
2501/16	33		10		**43**
4363/15			2		**2**
4438/15		5			**5**
4592/16	22	43		33	**98**
4623/16	8	6			**14**
4705/16	7	2		45	**54**
4889/16	12	29		13	**54**
6379/16	10	11	22		**43**
6409/16		14	32		**46**
6646/16	8				**8**
29 M/16		5	20	46	**71**
Total	**123**	**148**	**117**	**160**	**548**

F. 11. Bull wise Live Female Progeny at different Field Unit s (2-3 yrs) as on 31/3/ 2019

Bull No	Darar	Kheriman Singh	Rindal	Sheikhpura	Total
3591/11			5		**5**
6136/14				12	**12**
2371/15		6	8		**14**
2412/15	17		4	28	**49**
2417/15	6	5	5	32	**48**
2429/15			7		**7**
2459/15		12			**12**
4324/15	19	9	8	28	**64**
4328/15	16	11	17	14	**58**
4354/15	12	10		25	**47**
4363/15	4	15	11		**30**
4403/15			6		**6**
4438/15	14	11	9		**34**
6007/15	5	21			**26**
6139/15	4	30		25	**59**
6200/15		14			**14**
6405/15		10			**10**
4592/16		8	12		**20**
4623/16	15				**15**
6379/16	3				**3**
Total	**115**	**162**	**92**	**164**	**533**

F. 12. Bull wise Live Female Progeny at different Field Unit Centers (>3 Years) as on 31/3/2019

Bull No	Darar	Kheriman Singh	Rindal	Sheikhpura	Total
5489/11				15	**15**
5516/11				37	**37**
5710/12				25	**25**
2269/13	6				**6**
4059/13				12	**12**
5943/13				44	**44**
2357/14		14			**14**
2369/14				10	**10**
4093/14	16	15			**31**
4100/14	41	17			**58**
4439/14	64	11			**75**
6014/14	81	79			**160**
6044/14	17	19			**36**
6136/14	35	39	21		**95**
2417/15			12		**12**
6139/15			16		**16**
4328/15			15		**15**
4354/15			18		**18**
Total	**260**	**194**	**82**	**143**	**679**

F 13. Bull wise daughters calved at different field unit centers during2018-19

Bull No	Darar	Kheriman Singh	Rindal	Sheikhpura	Total
5943/13	1				**1**
4093/14		1	9	**1**	**11**
4100/14	1		4		**5**
4438/14		1			**1**
4439/14	3		2	2	**7**
6014/14	1	6	15	3	**25**
6044/14	4	2	4	1	**11**
6136/14		1	12	1	**14**
2371/15	2	5			**7**
2417/15		1			**1**
4324/15		3			**3**
4328/15	1				**1**
4363/15	2			1	**3**
6139/15	1		1		**2**
6405/15	1	1			**2**
Total	**17**	**21**	**47**	**9**	**94**

F. 14. Bull wise daughters recorded at different field units during2016-17

Bull No	Darar	Kheriman Singh	Rindal	Sheikhpura	**Total**
5496/11	1	1			**2**
5720/12		8			**8**
2269/13		5			**5**
2304/13		1			**1**
3964/13		2	8		**10**
4059/13		1	3		**4**
4093/14	1		3	1	**4**
4100/14			1	1	**2**
2369/14				4	**4**
6014/14	3	1	2	2	**8**
6044/14	7	1			**8**
6136/14	1		4	1	**6**
2412/15				1	**1**
2371/15	2				**2**
4354/15				1	**1**
4363/15				4	**4**
4438/15				1	**1**
4439/15	6			3	**9**
6007/15				1	**1**
6139/15				1	**1**
Total	**21**	**20**	**21**	**21**	**83**

F 15.Bull-wise AI, conception, calving and daughters retained till completion of milk recording as on 31/03/2018

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
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
2	6	4506	282	117	57	30				18	9
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
3	6	4523	317	158	127	62				12	10
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		8		34	30
70	11	5414	515	176	173	96				54	48
71	11	5489	1313	598	483	215			15	73	60
72	11	5496	736	348	301	140				32	31
73	11	5516	966	429	314	162			37	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			25	21	14
78	12	5720	1057	567	417	212				72	55
79	13	851	301	154	139	69				10	9
80	13	858	223	122	90	37				16	14
81	13	2234	74	40	28	12				4	2
4	6	4619	183	74	37	20				14	14
82	13	2269	139	73	58	27				7	9
83	13	2304	183	85	62	29				3	2
84	13	3964	512	289	208	103				22	15
85	13	4059	266	108	87	42			12	10	7
86	13	5943	563	244	193	84			44	24	11
87	14	2357	72	40	38	16			15		
88	14	2369	108	64	59	29			17	7	4
89	14	2371	640	221	50	24		19		8	2
90	14	4093	648	300	217	107			35	14	7
91	14	4100	417	208	171	87			62	5	4
92	14	4439	670	355	300	109			79	14	13
93	14	6014	1598	705	598	293			168	31	13
94	14	6044	791	344	302	139			41	30	16
95	14	6066	67	25	16	10					
96	14	6136	1559	873	756	382		12	105	24	16
97	15	2412	469	222	120	58		32			1
98	15	2417	435	239	129	53		38	19	1	
99	15	2429	83	51	33	15		11			
100	15	2459	50	36	35	18		15			
101	15	4324	804	355	178	79		71		4	
102	15	4328	582	263	171	83	1	68	26	1	
103	15	4354	934	418	124	58		51	26		1
104	15	4363	551	122	102	49	3	38		3	4
105	15	4403	73	43	32	16		9			1
106	15	4438	450	200	116	53	6	40		1	
107	15	6007	397	227	71	36		30			1
108	15	6139	742	386	144	71		33	21	2	1
5	6	4637	156	60	50	15				6	6
109	15	6200	74	43	41	20		16			
110	15	6290	246	93	76	37					
111	15	6405	406	125	31	15		12		2	
112	16	M-29	652	422	212	98	86				
113	16	1027	456	248	166	86	61				
114	16	2383	148	88	64	29	27				

115	16	2467	222	117	60	27	26				
116	16	2501	388	183	105	48	35				
117	16	4592	661	386	295	134	105	24			
118	16	4623	229	104	89	38	17	12			
119	16	4705	451	249	161	69	36				
120	16	4889	370	173	143	59	49				
121	16	6379	372	179	124	60	44	4			
122	16	6409	440	212	141	60	51				
123	16	1053	112	60	31	15	14				
124	16	6646	275	150	83	37	8				
125	16	6753	161	87	49	20					
126	17	2565	147	68	8	6					
127	17	2594	324	126	77	33					
128	17	2607	245	114	17	9					
129	17	4687	479	147	135	64					
130	17	4715	555	141	143	63					
131	17	4733	202	100	93	38					
132	17	4837	459	96	38	16					
133	17	7010	447	201	176	78					
134	17	Daara	253	86							
135	17	M-51	407	124	58	27					
136	17	6942	372	177	27	13					
6	6	4640	190	76	48	14				12	8
137	17	Sikander	235	105	17	8					
138	17	53 M	345	163							
139	17	2558	280	138	13	6					
140	17	B 1 330	311	145							
141	18	7094	608								
142	18	7147	439								
143	18	7227	188								
Total			**47474**	**21067**	**13889**	**6612**	**569**	**543**	**747**	**1489**	**1129**

F 16. Performance of FPT Programme on Farmer's Buffaloes NDRI unit as on 31.03.2019

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	33.50	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	1860	905	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			298
2015-16	3905	1994	51.06	1648	768				58
2016-17	3916	1975	50.43	1524	722				125
2017-18	3241	1641	50.63	1357	640				485
2018-19	4315*	2856**	47.02	1030	456				
Overall	46886	23904	50.98	18776	8847	1258			

* Upto March. 2019 and ** upto Dec. 2018

Project Co-ordinator's observations on field performance

Financial Statement for the year 2018-19 (Rs in Lakhs)

Sanctioned as per R E 2018-19		Released ICAR	Expenditure as per AUC		Balance
Total	ICAR Share	Share as per R E	ICAR Share	State Share	
15.60	14.60+1.00 (SCSP)	15.60	AUC Awaited		

- A total of 4315 AI were performed in adopted villages with the semen of **17th and 18th sets** used for test mating during 2018-19.
- The conception rate was reported 47.02 %.
- Total 1030 (574 male and 456 female) calving reported in the farmers' herd.
- Total 94 daughters calved and 83 daughters recorded for complete first lactation milk yield.
- As on 31st March 2019: total 2207 daughters of various age groups (0-12 months: 447, 1-2 years: 548, 2-3 years: 533 and > 3 year: 679) are standing in field for future recording.

Recommendations:

- Effort should be made to use all bulls simultaneously and in equal numbers for AI from each bull of the set for obtaining equal progenies.
- 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 continue from January 2019. 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	GADVASU	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	
18.	Jan., 2019 to June 2020	3	4	4	4			15	3284	3867	

* 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 398 daughters born from the 12th set of bulls which completed 1st lactation was compiled and progeny test evaluated. Bull no. 2185 and 183 from GADVASU, Ludhiana and LUVAS/HAU, Hisar ranked 1st and 2nd with sire index 2341.35 kg and 2336.77 kg respectively. The % superiority over least square mean (LSM) of the bull no 2185 and 183 was 0.94 and 0.75 percent.

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 31.3.2019
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	2767
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	4117
1153	VI	CCS HAU	29-09-96	618	759	2675	2121	13.31	2138
2422	VIII	CIRB	19-08-00	1194	4337	3369	2057	9.40	3343
1693	X	CCS HAU	27-10-03	1050	392	3194	2320.39	1.23**	810
3267	XI	CIRB	27-09-04	2263	1419	2489	2177.81	0.20	3173
3591	XI	CIRB	29-05-06 P	3590		2598	2176.56	0.14	3760
183	XII	LUVAS	03-06-07	1374	1354	2824	2336.77	0.75	5438
Total									**26592**
1354	III	GADVASU	12-12-92	762	989	3088	1975	13.11	1834
1506	IV	GADVASU	25-04-95		988	3018	2089	18.81	343
1451	IV	GADVASU	10-08-94		3567	3401	1945	10.44	1062
1437	IV	GADVASU	04-04-94	797	636	3127	1904	08.11	1150
1796	VII	GADVASU	10-02-00	1386	1506	3170	2092	15.81	594
1875	VIII	GADVASU	20-08-01	1669	558	2714	2300	24.89	2844
1994	IX	GADVASU	16-06-03	1884	392	2938	2487	11.73	1331
2045	X	GADVASU	24-02-04	1835	3567	3369	2320.29	1.23**	302
2133	XI	GADVASU	09-11-05	2041	1354	2844	2175.40	0.09	359
2185	XII	GADVASU	23-11-06	1898	1354	3423	2341.35	0.94	1519
Total									**11338**
3108	I	NDRI	29-04-86	2221	368	4114	1953	07.10	1049
3567	I	NDRI	07-09-89	2408	2304	2877	1923	06.20	2178
4393	V	NDRI	10-12-95	2762	1908		2143	22.29	2573
4371	V	NDRI	23-10-95	2984	988	3258	1971	14.90	1171
4506	VI	NDRI	31-10-96	3527	3551	3512	1972	09.29	2125
4915	VII	NDRI	28-10-99	3521	2921	3437	2116	17.26	2198
4813	VIII	NDRI	17-01-99	3818	3966	3016	2101	12.59	959
5258	IX	NDRI	01-08-02	4066	1706	3305	2466	10.52	1991
Total									**14244**
Grand Total									**52174**

* Peak yield ** analyzed by Harvey model VIII

Semen freezing and balance stock for bulls under test

Centre wise test bulls of Murrah breed as on 31-03-2019 at various centres

CIRB			NDRI			GADVASU		
Bull No.	Set No	No of semen doses	Bull No.	Set No	No of semen doses	Bull No.	Set No	No of semen doses
4059	XIII	6104	5943	XIII	3740	2234	XIII	200
3964	XIII	4625	6066	XIV	58	2269	XIII	1014
4439	XIV	8446	6136	XIV	6883	2304	XIII	5365
4093	XIV	8169	6014	XIV	5204	2357	XIV	4164
4100	XIV	9194	6044	XIV	4079	2369	XIV	5158
4196	XIV	8308	6007	XV	2636	2371	XV	4407
4324	XV	6484	6139	XV	5016	2412	XV	4440
4354	XV	7402	6290	XV	1549	2417	XV	5410
4438	XV	7613	6405	XV	2444	2429	XV	4144
4363	XV	7059	6379	XVI	1179	2459	XV	3115
4403	XV	7075	6409	XVI	8397	2383	XVI	4469
4328	XV	6932	6646	XVI	2832	2467	XVI	6822
29 M	XVI	8047	6753	XVI	1772	2501	XVI	5960
4592	XVI	6176	7010	XVII	6147	2565	XVII	8352
4705	XVI	5518	7094	XVIII	190	2558	XVII	7054
4889	XVI	10493	7147	XVIII	1080	2607	XVII	4560
1027	XVI	8766	7227	XVIII	420	2594	XVII	7954
1053	XVI	6798	7263	XVIII	100	2645	XVIII	1140
1064	XVI	8976				2676	XVIII	1603
M 51	XVII	23542				2677	XVIII	1439
4715	XVII	6474				2689	XVIII	390
4733	XVII	6501						
4687	XVII	4833						
M 53	XVII	11463						
Sikander	XVII	13102						
Dara	XVII	5890						
4905	XVIII	5123						
4995	XVIII	572						
5147	XVIII	980						
1150	XVIII	2677						
1209	XVIII	804						
Sub Total		224146			53726			87160
Grand Total								365032

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		63974	5	8181	0	9404
2010-11		59546	5	22383	0	22405
2011-12		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
Total	**428**	**765263**	**288**	**348411**	**193**	**241090**

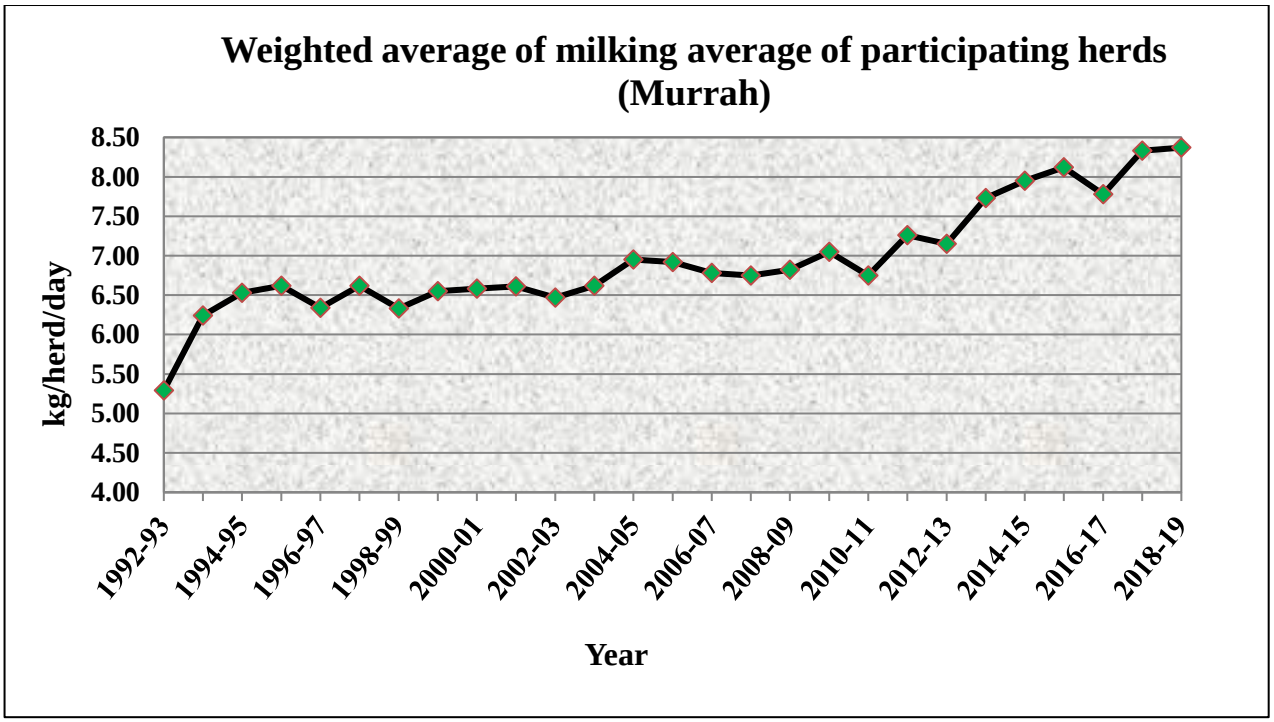
Performance Characteristics

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.

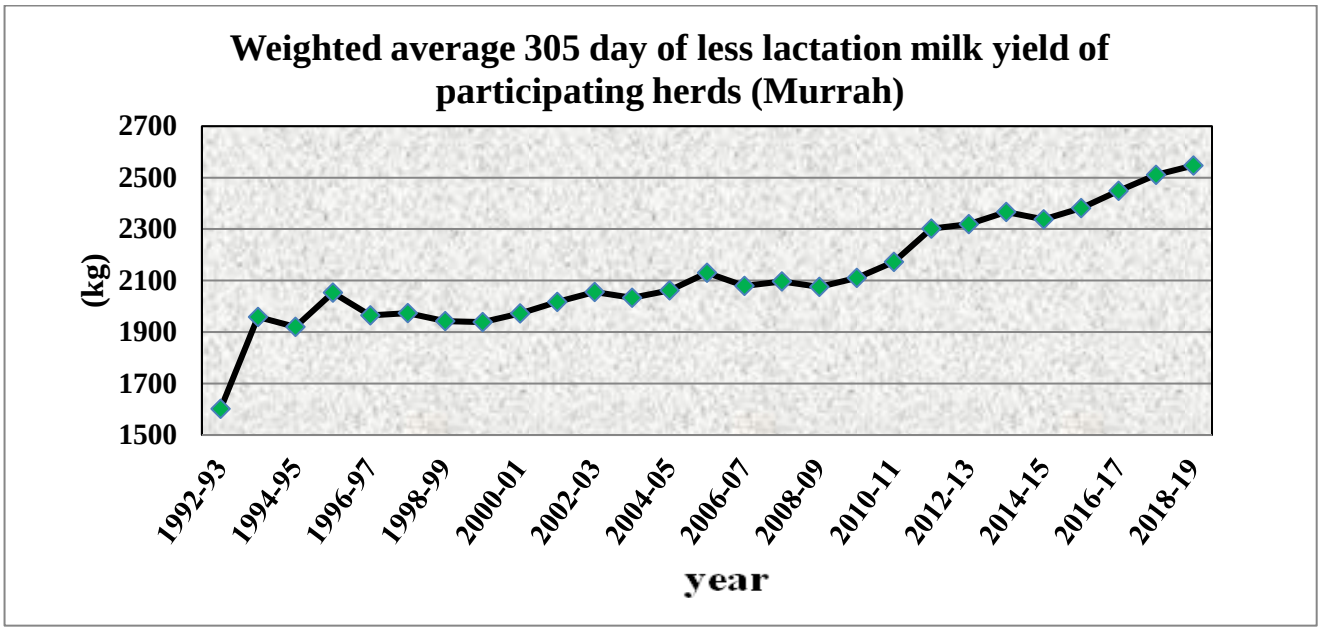
Year	CIRB	GADVASU	NDRI	LUVAS	IVRI	CCBF	NDUAT	Weighted average
1992-93	4.80 (165)	5.54 (149)			4.31 (22)	6.3 (65)		5.29 (403)
1993-94	5.65 (153)	6.20 (115)	7.80 (115)	6.3 (42)	4.62 (380	5.8 (62)		6.24 (525)
1994-95	6.09 (181)	6.09 (116)	8.39 (114)	7.2 (49)	3.90 (39)	6.3 (48)		6.53 (547)
1995-96	6.43 (1.53)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



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

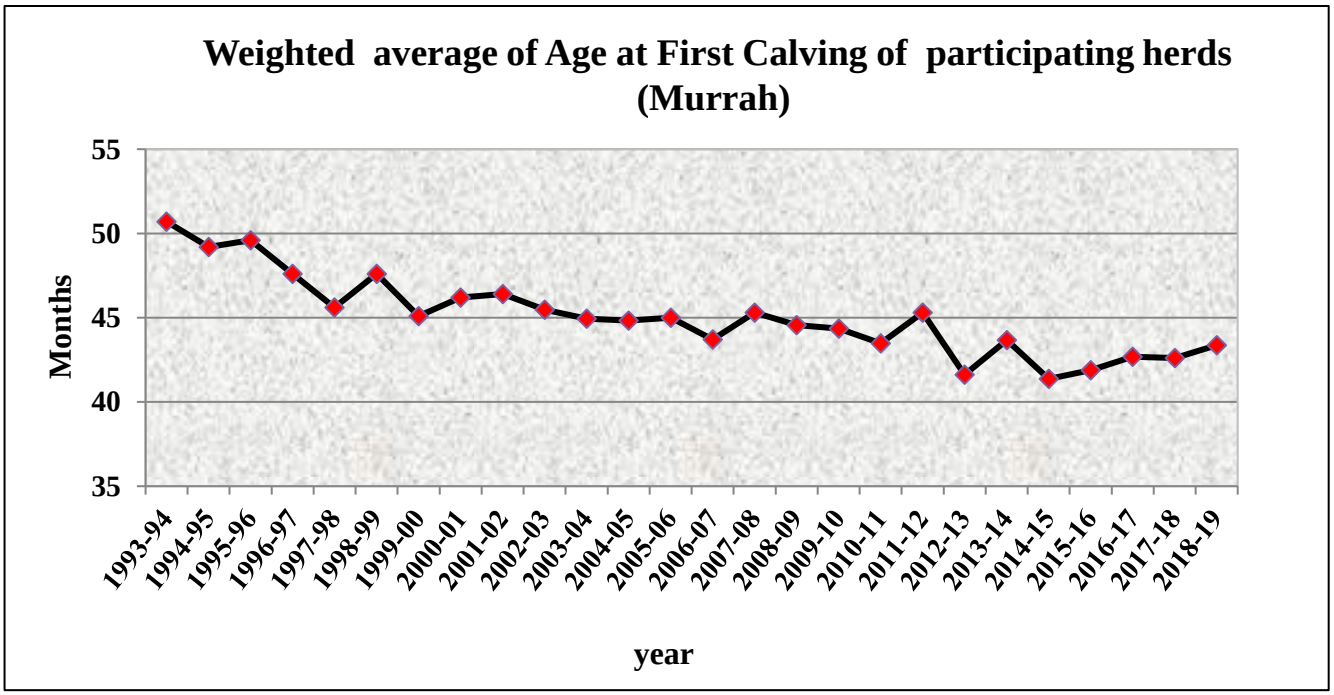
Year	CIRB	GADV ASU	NDRI	LUVAS	IVRI	CCBF/ KVASU	NDUAT/ Mamnoor	Weighted average
1992-93	1508±34 (137)	1730 (138)			1458±48 (34)	1899.1		1602 (309)
1993-94	1686±46 (148)	1948 (144)	2351.8 (137)	1818.8	1537±49 (28)	1746.0		1959 (457)
1994-95	1787±0 (206)	1877 (121)	2270.1 (128)	1912.7	1536±40 (32)	1896.7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



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)

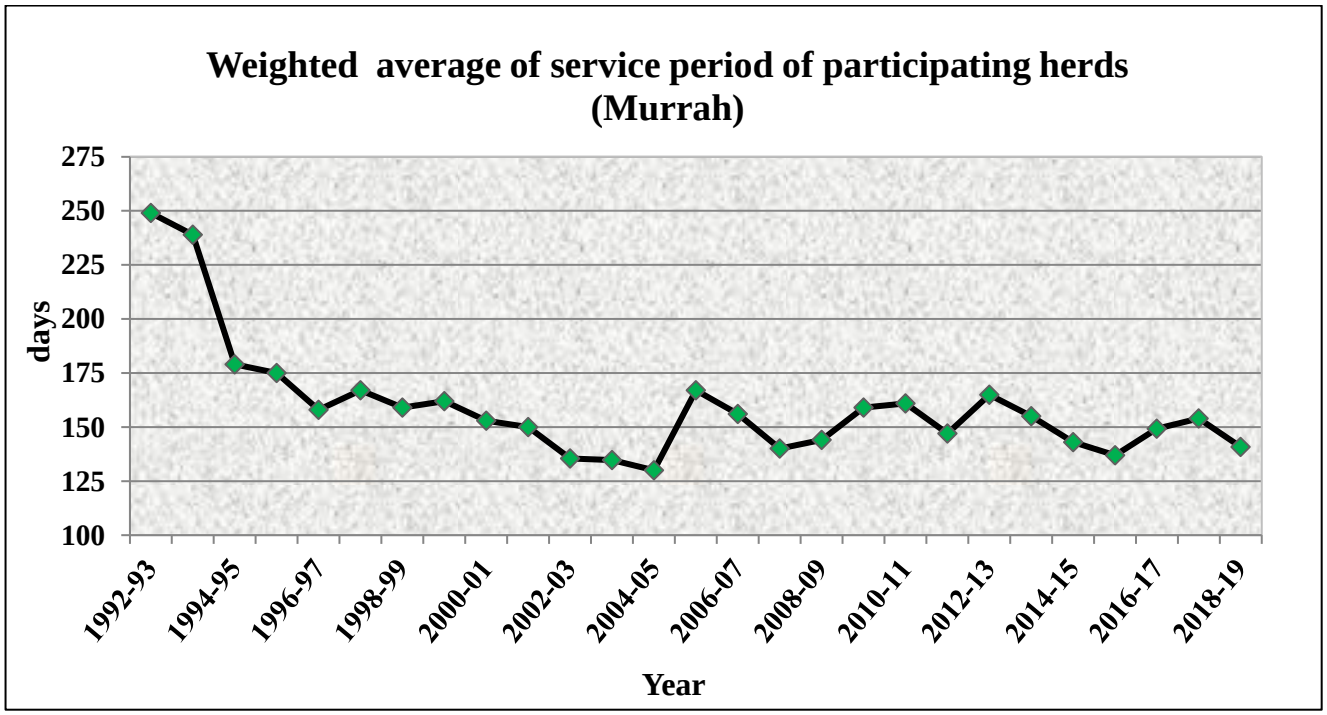
2010-11	49.9±1.0 (35)	39.1±1.4 (21)	41.26 (50)	45.8±1.8 (33)	39.6±1.2 (25)		43.7±0.44 (9)	43.49 (173)
2011-12	51.9 (37)	37.4 (22)	42.13 (24)		45.6±3.2 (20)			45.30 (103)
2012-13	44.5±1.4 (37)	38.9±3.5 (34)	41.6±5.7 (29)		39.7±2.8 (7)	KVASU	LRS Mamnoor	41.62 (107)
2013-14	45.6±0.8 (37)	42.3±1.6 (12)	41.8±3.8 (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)	43.59±1.97 (19)	--	--	43.37 (151)



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)

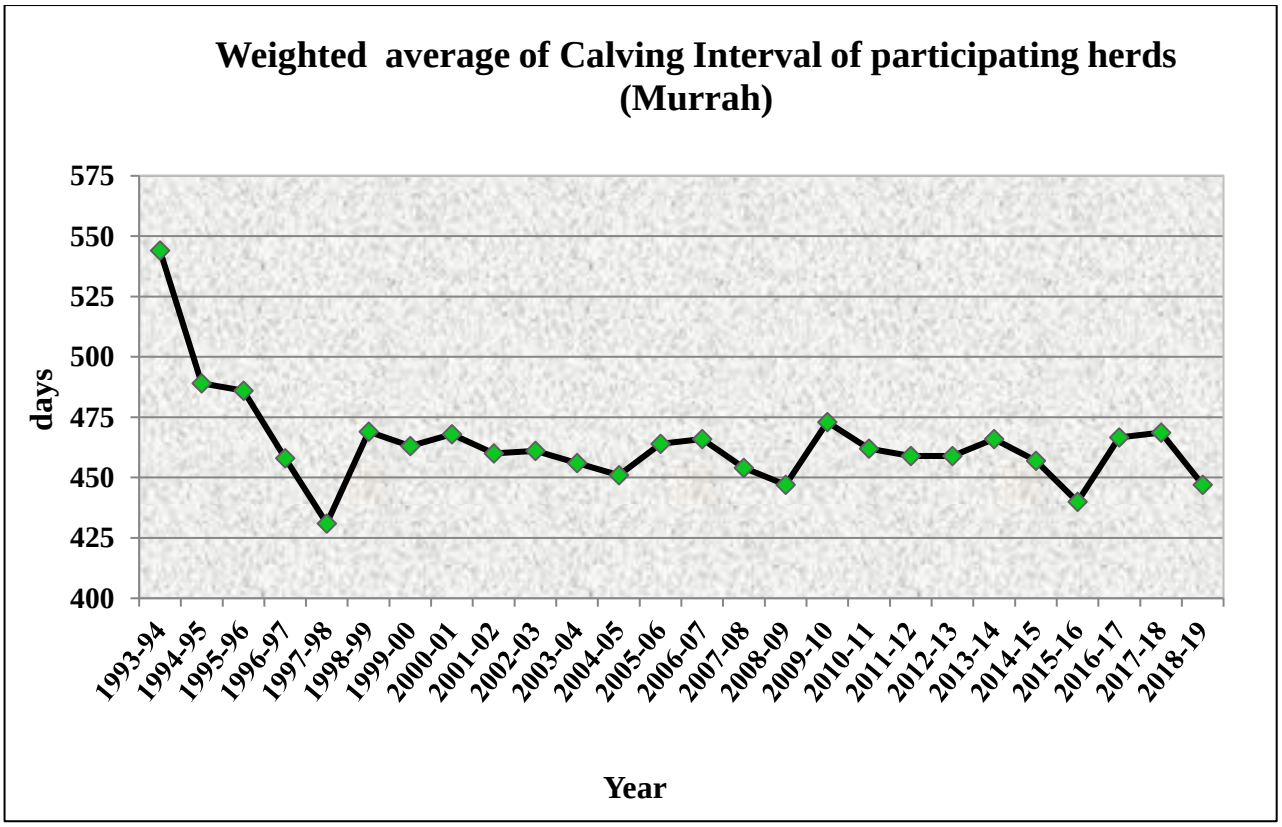
2002-03	133±9 (126)	133±9 (95)	141±12 (59)	165±11 (47)	405±96 (5)	102 (76)		135.4 (408)
2003-04	151±10 (142)	160 (107)	131.65 (117)	87.6±8.4 (42)	108±15.5 (19)	48(11)		134.7 (432)
2004-05	111±7 (100)	140 (80)	126±10 (93)	96±6.0 (52)	150±16 (30)	160 (87)		130 (442)
2005-06	184±12 (112)	143 (65)	149±12 (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)	149.18 (304)
2017-18	167±10 (101)	152±10 (41)	145±10 (37)	135±12 (46)	140.77±15 (35)	195±8.21 (12)	--	154 (272)
2018-19	136±6.98 (97)	136±10 (104)	119 (54)	150±10.7 (60)	169.22±16 (46)	157±9.28 (18)	--	140.79 (379)



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)	454.1±11 (37)	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)	415 (55)	454±11.1 (60)	495.8±19 (36)	463±22.1 (18)	--	446.97 (370)



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)
Between breeds	**Murrah**	**Nili Ravi**	**Bhadawari**	**Jaffarabadi**	**Pandharpuri**	**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)	--	6.64 (288)	7.99 (33)	--	

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	171
2012-13	8517	3463	2497	1155	221
2013-14	8014	3380	2831	1303	44
2014-15	8316	3810	2958	1447	
2015-16	6325	3054	3013	1383	
2016-17	5289	2464	2236	1049	
2017-18	6344	2579	1933	899	
2018-19	7779	3299	2469	1192	
Sub Total	**91134**	**36497**	**26791**	**12566**	1109
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	123
2013-14	3962	1903	1079	517	97
2014-15	4129	2218	1614	776	115
2015-16	4434	2326	1693	806	122
2016-17	3807	2063	1591	802	-
2017-18	4093	2248	1724	845	-
2018-19	3977	2150	1710	830	-
Sub Total	**49537**	**25482**	**17627**	**8540**	**909**
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	1860	905	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	
2016-17	3916	1975	1524	722	
2017-18	3241	1641	1357	640	
2018-19	4315	1343	1030	456	
Sub Total	**46886**	**22391**	**18776**	**8847**	**1258**
Grand Total	**187557**	**84370**	**63194**	**29953**	**3276**

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	
Grand Total	**193566**	**85459**	**64183**	**30411**	**3276**

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	1256	537	74
2017-18	2462	1032	815	365	72
2018-19	2013	840	803	347	87
Total	**40166**	**3100**	**15414**	**7225**	**249**
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	830	357	0
2018-19	1719	485	20	4	
Total	**33136**	**9793**	**7771**	**3261**	**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	
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	**189903**	**63333**	**55404**	**24667**	**1330**