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Demographic studies and constraints of buffalo farming in East Godavari district of Andhra Pradesh#

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Abstract

A survey was conducted to analyse the buffalo farming system in East Godavari district of Andhra Pradesh. The demographic studies showed that 77 per cent of buffalo farmers in the study area were of middle age. Majority of buffalo milk producers in delta and upland areas belonged to other caste, but in agency area, most belonged to scheduled tribe. Buffalo farmers under the survey were educated (52.67%) and agriculture was their occupation supported by dairying. Buffalo farmers in agency area practiced agriculture, horticulture and dairying whereas in delta and upland area practiced only agriculture and dairying. Majority of milk producers in delta area were small farmers and in upland area were marginal farmer category. Most (83.67%) of the families were of small size (up to 4 members) in the study area. Upland milk producers had more extension contact with veterinarians (53%). Most (83.67%) of the milk producers had no exposure to mass media. Inadequate availability of fodder seed/ slipswas the major constraint perceived by the milk producers of study area. Veterinarians expressed problem of anestrous or silent heat and repeat breeding in buffaloes as major constraints in dairy production in East Godavari district.

Keywords: *Buffalo milk producers, constraints, socio-economic, veterinarians.*

Andhra Pradesh is endowed with buffalo population of 62 lakhs (DAHD, 2019). It is one of the major buffalo milk producing states of the country. East Godavari district is one of the potential districts for agriculture and dairying in Andhra Pradesh. Agri-Dairy-Horticulture farming system is predominant in the district. All major dairy development programmes were successfully implemented in the district. The upgrading of local buffaloes with Murrah is being taken up for the

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last six decades in the Godavari delta area. The graded Murrah buffaloes in Godavari delta area are commonly called as Godavari buffaloes which are more popular in the north coastal districts of Andhra Pradesh. The information on the socio-economic status of the buffalo milk producers in East Godavari district was limited. Hence the present study was taken up to analyse the demography and constraints of buffalo farming in the area.

Materials and methods

East Godavari district can be broadly classified into three natural divisions namely the Godavari Delta, Upland and Agency (hilly) area. The graded Murrah buffalo in Godavari Delta area is shown in Fig.1. Five mandals each were selected randomly from each division and a total of 15 mandals were selected. Five villages were randomly selected from each mandal. A total of 75 villages were selected. Four dairy farmers were selected from each village at random resulting in a total number of 100 milk producers from Godavari delta area, 100 from upland area and 100 from agency (hilly) area of the district. The farmers were interviewed by pretested schedule and required information was collected on the socio - economic profile and constraints faced by the buffalo milk producers in the district. The data was subjected to frequency and percentages and interpreted.

Results and discussion

Socio - economic status of buffalo farmers

The socio - economic status of buffalo farmers (Table 1) showed that middle aged farmers were more involved in dairying (77%) in the study area which was similar to the reports of Dhaka *et al*. (2011), Rathod *et al.* (2014), Singh *et al.* (2016) and Rangamma *et al.* (2017). Most of milk producers in Godavari delta and upland areas belonged to other caste followed by backward caste and scheduled caste which coincided with the observations of Gangasagar and Karanjkar (2009), Ahirwar *et al.* (2010) and Rangamma *et al.* (2017). Most of the milk producers in agency area belonged to scheduled tribe (48%) followed by other caste and backward caste. It indicates that milk producers belong to different caste categories in the district. The percentage of literate milk producers was higher in Godavari delta area. Regarding upland and agency, more number of milk producers was illiterate which was similar to findings of Debasish *et al*. (2010) and Gami *et al.* (2013) in their study area. However, the literacy level is to be improved in upland and agency areas of East Godavari district.

Agriculture was the main occupation supported by dairying (85.34%) in the study area as reported by Ahirwar *et al*. (2010) and

Fig.1 Graded Murrah Buffalo in Godavari Delta area of East Godavari District

Rangamma *et al.* (2017). Buffalo farmers practiced agriculture + dairying in Godavari delta (70%) and upland area (62%), whereas, most of the milk producers in agency area (51%) practiced agriculture + horticulture + dairying as the agro climatic conditions were more suitable in agency area. More uncultivable land was also available in the agency area as compared to Godavari delta area where in entire available land was intensively irrigated and more suitable for cultivation of paddy and pulses. The availability of crop by-products was also more and it helped in the development of dairying in Godavari delta as compared to upland and agency area. It could be seen that majority of milk producers in Godavari delta area were of small farmer category followed by marginal and medium farmer category, whereas, majority of milk producers (46%) in upland area were of marginal followed by small farmers and landless. Gami *et al.* (2013) and Rangamma *et al.* (2017) also reported that most of respondents were marginal and small farmers. Dairying supported additional income and employment to the family members of small, marginal farmers and medium farmers in East Godavari district. Most of the respondents belonged to small family which was in tune with of Rangamma *et al.* (2017). It indicated that all categories of milk producers realised the importance of small family in East Godavari district.

The results indicated that upland milk producers (53%) had more extension contact with veterinarian as compared to Godavari delta milk producers (44%) and agency milk producers (31%). Rajput *et al.* (2012) reported that majority (70.62%) farmers had low extension contact, whereas, Prasad *et al*. (2013) observed medium level of extension contact in Jind district of Haryana.

It was observed that overall, only 12.33% of respondents had exposure to mass media on dairying. This was similar to findings of Dhaka *et al.* (2011) who found 18.8 per cent had high exposure to the mass media. Rangamma *et al.* (2017) also reported that only 19.67 per cent of milk producers had mass media exposure for dairying. It indicated that most of the milk producers considered television as a source of entertainment. Hence, they may be educated to view television to get information about dairying from some channels telecasting agriculture and animal husbandry programmes.

Constraints perceived by buffalo milk producers in East Godavari district

The findings on the constraints as perceived by the milk producers in the enhancement of buffalo milk production are presented in Table 2. It was revealed that the high cost of pure-bred buffaloes was perceived as an important constraint by majority of milk producers in delta (73%), upland (81%) and agency (42%) areas in the enhancement of milk production in the study area. It was similar to the findings of Shashishankar *et al.* (2009) and Rangamma *et al.* (2013). This problem can be solved by producing good quality farm born replacement stock reproduced through A.I instead of purchasing the animals from dairy animal traders from distant places. Non remunerative price for milk was perceived as a problem by majority of the milk producers in Godavari delta (69%), upland (76%) and agency area (81%). It was in agreement with the findings of Natchimuthu and Ram Kumar (2004), Kathiravan and Selvam (2011) and Kumar *et al*. (2016). Inadequate availability of fodder seed/ slips felt as a constraint by most of the milk producers in agency area (92%) followed by upland (84%) and delta area (84%).

High cost of feed ingredients like oil cakes, cereal grains and brans was viewed as a problem by majority of milk producers in agency area (84%) followed by upland (73%) and delta area (62%). It was similar to the observations of Natchimuthu and Ram Kumar (2004), Rangamma *et al.* (2013) and Kumar *et al*. (2016). High incidence of repeat breeding in dairy animals was also expressed as a constraint as reported by Modi and Patel (2010), Rangamma *et al.* (2013), Sabapara *et al*. (2015) and Kumar *et al.* (2016). This problem might be solved by conducting fertility camps frequently in the study area. Calf mortality was felt as constraint by majority of milk producers in agency area (83%) followed by upland area (74%) and delta area (50%).

Table 1. Socio-Economic characteristics of milk producers in the study area

Sl. No	Category	Godavari delta area (N=100) %	Upland area (N=100) %	Agency (hilly) area (N=100) %	Overall area (N=300) %
AGE					
1	Young age (upto 30 years)	0	4	3	2.33
2	Middle age (31-55 years)	69	80	82	77.00
3	Old age (above 55 years)	31	16	15	20.67
CASTE					
1	Scheduled caste	17	11	0	9.33
2	Scheduled tribe	1	0	48	16.33
3	Backward caste	31	35	16	27.34
4	Other caste	51	54	36	47.00
EDUCATION					
1	Illiterate	24	59	59	47.33
2	Primary	21	23	15	19.67
3	High school	32	15	17	21.33
4	College	23	3	9	11.67
MAIN OCCUPATION					
1	Agriculture	90	83	83	85.34
2	Dairying	5	6	8	6.33
3	Agricultural labour	5	11	9	8.33
FARMING SYSTEM					
1	Agriculture + Dairying	70	62	37	56.33
2	Agriculture + Horticulture + Dairying	24	23	51	32.67
3	Horticulture + Dairying	1	4	3	2.67
4	Dairying + Agricultural labour	5	11	9	8.33
LAND HOLDING					
1	Landless	5	11	9	8.33
2	Marginal(up to 2.5 acre)	27	46	24	32.33
3	Small(2.5-5 acre)	34	27	47	36.00
4	Medium(5-10 acre)	21	11	11	14.34
5	Large(above 10 acre)	13	5	9	9.00
FAMILY SIZ					
1	Up to 4 members (small)	97	89	65	83.67
2	Above 4 members (large)	3	11	35	16.33
EXTENSION CONTACT					
1	Veterinarian	44	53	31	42.67
2	Para veterinarian	30	13	20	21.00
3	Others	26	34	49	36.33
MASS MEDIA EXPOSURE					
1	Television and Radio	37	7	5	16.33
2	No exposure	63	93	95	83.67

N= No. of milk producers

Lack of sufficient knowledge about scientific feeding and management of dairy animals was felt as a constraint by majority of milk producers in agency area (86%) followed by upland (63%) and delta area (47%). It was in agreement with the findings of Patil *et al.* (2009),

Sanjeeva *et al*. (2009), Kumar and Mehla (2011) and Singh *et al*. (2015). It might be due to less exposure of the agency and upland area milk producers to the training programmes, print and mass media exposure because of low literacy level. Inadequate supply of concentrate mixture/mineral mixture on subsidized cost was perceived as a problem by majority of milk producers in agency area (93%) followed by upland (83%) and delta area (46%). It indicated that the government and co-operative agencies were not able to supply the required quantity of balanced concentrate mixture to the milk producers in the agency area and upland area of the district. High incidence of anestrous in dairy animals was perceived as a problem by majority of milk producers in agency area (52%) followed by upland (47%) and delta area (44%). It might be due to lack of adequate knowledge about the detection of estrous in dairy animals particularly in agency and upland milk producers than that in Godavari delta milk producers. It was similar to the observations of Chand *et al*. (2012).

Lack of knowledge about insurance of dairy animals was also felt as a constraint by majority of milk producers in agency area (73%) followed by upland area (45%) and delta area (45%). High cost of hired labour for maintaining dairy animals was also felt as constraint by a few milk producers in delta area (36%) followed by upland area (14%). It was similar to the findings of Rangamma *et al*. (2013). Majority of milk producers in agency and upland area maintained dairy animals with their family labour as dairying was an employment generating activity in agency area and land less people of rural areas. Lack of sufficient land for fodder production was expressed as a constraint by a few milk producers in upland area (38%) followed by delta area (31%) and agency area (19%). It was in agreement with Bulbul *et al*. (2015). Lack of knowledge about prevention and control of diseases in dairy animals was also felt as a problem by majority of milk producers in agency area (56%) followed by upland area (33%) and delta area (29%). It was in agreement with Sabapara *et al.* (2015) and Singh *et al*. (2015).

Feed and fodder shortage was perceived as a constraint by majority of milk producers in agency area (80%) followed by upland (40%) and delta area (28%). It was similar to the findings of Patil *et al.* (2009) and Kathiravan and Selvam (2011) and Rangamma *et al.* (2013). It might be due to non availability of sufficient crop by- products during summer season for feeding of dairy animals particularly for agency and upland milk producers. Non availability of green fodder was felt as a problem by majority of milk producers in agency area (85%) followed by upland (41%) and delta area (26%). It is in agreement with Wani *et al*. (2013) and Bulbul *et al*. (2015). It might be due to lack of irrigation facilities in agency (hilly) and upland areas.

Inadequate veterinary services were expressed as a problem by the milk producers of agency area (45%) followed by upland (34%) and delta area (20%). Similar findings were reported by Yadav *et al*. (2007), Sanjeeva *et al*. (2009) and Singh *et al*. (2015). It indicated that adequate veterinary services were not available in the remote areas and agency (hilly) areas. Distant location of veterinary hospital was also viewed as a problem by majority of milk producers in agency area (58%) followed by upland area (27%). It was similar to the observations of Karamjit *et al.* (2010) and Rangamma *et al*. (2013). Low conception rates with AI in dairy animals were also viewed as a constraint by majority of the milk producers in agency area (53%) followed by upland (23%) and delta area (10%). It was in agreement with the findings of Karamjit *et al*. (2010), Modi and Patel (2010) and Labrinsangpuii *et al.* (2017). This constraint might be solved by educating the agency and upland milk producers about the heat detection and time of A.I. Non availability/ Distant location of milk collection centre was felt as a problem particularly in agency area (79%). It indicates that there is no assured market and remunerative price for milk in remote areas and agency (hilly) areas.

Constraints perceived by field veterinarians in buffalo production

The observations on the constraints perceived by field veterinarians in the buffalo production are presented in Table 3. It was revealed that the majority of veterinarians expressed that problem of anestrous or silent

Table 2. Constraints perceived by milk producers in East Godavari district

Sl. No.	Constraint	Godavari delta area (N=100)		Upland area (N=100)		Agency (hilly) area (N=100)		Overall (N=300)	
		%	Rank	%	Rank	%	Rank	%	Rank
1	High cost of pure bred buffaloes	73	I	81	III	42	XVI	65.33	VI
2	Non remunerative price for milk	69	II	76	IV	81	VII	75.33	II
3	High cost of feed and feed ingredients	62	III	73	VI	84	V	73.00	IV
4	Inadequate availability of fodder seed / slips	61	IV	84	I	92	II	79.00	I
5	High incidence of Repeat breeding problem	54	V	56	VIII	42	XVI	50.67	IX
6	Problem of calf mortality	50	VI	74	V	83	VI	69.00	V
7	Lack of sufficient knowledge about scientific feeding and management of dairy animals	47	VII	63	VII	86	III	65.33	VI
8	Inadequate availability of concentrate mixture/mineral mixture	46	VIII	83	II	93	I	74.00	III
9	High incidence of Anestrus problem	44	IX	47	IX	52	XIV	47.67	XI
10	Lack of knowledge about Insurance of dairy animals	38	X	45	X	73	X	52.00	VIII
11	High cost of hired labour	36	XI	14	XIX	7	XVIII	19.00	XVII
12	Lack of sufficient land for fodder production	31	XII	38	XIII	19	XVII	53.00	VII
13	Lack of knowledge about prevention and control of diseases in dairy animals	29	XIII	33	XV	56	XII	39.33	XII
14	Feed and fodder shortage	28	XIV	40	XII	80	VIII	49.33	X
15	Non availability of green fodder	26	XV	41	XI	85	IV	50.67	IX
16	Problem of mastitis	21	XVI	18	XVIII	2	XIX	13.67	XVIII
17	Inadequate veterinarian services	20	XVII	34	XIV	45	XV	33.00	XIII
18	Distant location of Veterinary Hospital	12	XVIII	27	XVI	58	XI	32.33	XIV
19	Low conception rate through A.I	10	XIX	23	XVII	53	XIII	28.67	XVI
20	Non availability / Distant location of milk collection center	1	XXI	11	XX	79	IX	30.33	XV

heat and repeat breeding in buffaloes, problem of mastitis, prolapse of uterus in buffaloes, low procurement price for cow milk, presence of low pedigree bulls, buffalo calf mortality and low conception rate in AI in buffaloes were the major technical constraints for enhancing the milk production in the study area.

Inadequate facilities for diagnostic purpose and specialized treatment, larger area to be covered for treatment of livestock and too many job responsibilities were also felt as constraints for increasing the milk production in the study area. It was nearly similar to the findings of Sasidhar *et al*. (2001), Rajput and Tripathi (2010), Chand *et al*. (2012) and Patel *et al.* (2016).

Conclusion

The study revealed that majority of buffalo farmers were of middle age group, educated, supported by dairying and had small family size with no exposure to mass media. High cost of pure-bred buffaloes was major constraint felt by the milk producers of study area. Veterinarians expressed problems of anestrous, repeat breeding in buffaloes, lack of sufficient knowledge to the farmers, presence of low pedigree bulls, buffalo calf mortality and low conception rate.

Conflict of interest

The authors declare that they have no conflict of interest.

Table 3. Constraints perceived by field veterinarians in dairy production in East Godavari district

Sl. No.	CONSTRAINT		F (N=80)	%
1.	Problem of Anestrous / silent heat in buffaloes	Agree	79	**98.75**
		Disagree	1	1.25
2.	Problem of Repeat breeding in buffaloes	Agree	73	**91.25**
		Disagree	7	8.75
3	Problem of mastitis	Agree	71	**88.75**
		Disagree	9	11.25
4	Problem of prolapse of uterus in buffaloes	Agree	68	**85.00**
		Disagree	12	15.00
5	Lack of sufficient knowledge to the farmers about the scientific feeding and management of dairy animals	Agree	65	**81.25**
		Disagree	15	18.75
6	Low procurement price for cow milk	Agree	64	**80.00**
		Disagree	16	20.00
7	Presence of low pedigreed bulls in villages which are often used for natural service	Agree	63	**78.75**
		Disagree	17	21.25
8	Inadequate facilities for diagnostic purpose and specialized treatment	Agree	61	**76.25**
		Disagree	19	23.75
9	Animals are not brought in right time for AI	Agree	56	**70.00**
		Disagree	24	30.00
10	Larger area to be covered for treatment of livestock and too many job responsibilities	Agree	55	**68.75**
		Disagree	25	31.25
11	Problem of calf mortality in buffaloes	Agree	50	**62.50**
		Disagree	30	37.50
12	Problem of low conception rates in AI in buffaloes	Agree	48	**60.00**
		Disagree	32	40.00
13	Non availability of concentrate mixture in the local market	Agree	43	**53.75**
		Disagree	37	46.25
14	Problem of prolapse of uterus in cross bred cows	Agree	35	**43.75**
		Disagree	45	56.25

N= No. of field veterinarians; F = Frequency

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