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A STUDY ON BREEDING AND HEALTH MANAGEMENT PRACTICES FOLLOWED BY BUFFALO MILK PRODUCERS IN KRISHNA DISTRICT OF ANDHRA PRADESH

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ABSTRACT
The present study was carried out in rural (100), semi- urban (100) and urban (50) areas of Krishna district. The results indicated that overall only 2% of the respondents used bulls for heat detection in buffalo, where as the remaining respondents detect heat by observing signs. Pregnancy diagnosis in buffaloes was adopted by 76, 92 and 94 % of the respondents in rural, semi-urban and urban areas respectively. 96% of the respondents in urban area served their buffaloes 3-5 months after parturition. Nearly all most all respondents vaccinate their buffaloes against Foot and mouth disease and Haemorrhagic Septicemia in all the three areas of the study, 62, 72 and 74 % of the respondents treat their sick animals by veterinarian in rural, semi-urban and urban areas respectively.

KEY WORDS: Buffaloes, Breeding management, Health management.

INTRODUCTION
Dairy farming is one of the most important means of providing livelihood and nutritional security to the vast majority of rural masses. Animal health is an important part of animal welfare and has a direct bearing on the productivity of the dairy animals and so on the profitability of the dairy business. Monitoring animal health helps in minimizing the incidence of disease and mortality; which causes huge loss to the marginalized dairy farmers. The buffalo is a difficult breeder because of its inherent susceptibility to environmental stress, which causes anoetrus and sub-estrus. These two conditions are responsible for a prolonged inter calving period resulting in great economic losses for the dairy industry. Therefore, the health care and breeding management practices followed by the farmers play a vital role in enhancing the income from the dairy enterprise. Keeping this in view, the present study was carried out to know the existing animal health care and breeding management practices followed by the rural, semi-urban and urban areas of Krishna district of Andhra Pradesh.

MATERIALS & METHODS
A multi stage stratified random sampling procedure was used for the selection of villages and wards in the district. For rural area study 20 villages were selected (from each revenue division 5 mandals and from each mandal one village were selected) and whereas from each municipality 5 wards were selected for semi-urban study. 10 wards were selected from Vijayawada Municipal Corporation for the study of urban area. From each village and ward 5 buffalo milk producers were selected randomly. A total of 250 buffalo milk producers were selected from rural (100), semi-urban (100) and urban (50) area. The data were collected by using a pretested questionnaire through personal interview and the data analyzed by using statistical methods according to Snedecor and Cochran (1994).

RESULTS & DISCUSSION
Breeding management practices
The results in Table 1 revealed that rearing of high milk producing buffalo breeds like Murrah and graded Murrah was adopted by overall 96.8 % of milk producers in the study area. It was also found to be higher in the urban (100%) area than that in semi-urban (99%) and rural (93%) areas. The results as not in agreement with Amin *et al*. (2015) reported that buffalo breeds reared by the farmers were mostly indigenous type in Noakhali district in Bangladesh. It indicated that the milk producers realized the importance of high milk producing animals to get more income from dairying. The availability of large number of artificial insemination centres, assured market for milk in the district might have also resulted in the higher population of Murrah and graded Murrah buffaloes. It was revealed that overall 98 % of the respondents practiced the heat detection only by observing the estrous signs like bellowing, frequent urination and mucus discharge in the study area. This practice was more similar in rural, semi-urban and urban areas. It was similar to the findings of Modi and Patel (2010) and Sinha *et al.* (2010). It might be due to more experience of milk producers in buffalo rearing in the study area.
Time of breeding of buffaloes by following AM-PM method was practiced by overall 67.60 per cent of milk producers in the study area. It was observed to be higher in

the rural area (90%) than that in semi-urban (64%) and urban area (30%) whereas Sinha *et al.,* (2010) found that 52.2 per cent farmers in rural area bred their animals just after onset of heat.

Artificial insemination in buffaloes was fully adopted by overall 74 per cent of milk producers in the study area. It was found to be higher in the semi-urban (79%) and urban (78%) areas than that in rural (67%) area. However, Ahirwar *et al.,* (2010), Sinha *et al.,* (2010) and Sunil *et al.,* (2011) reported that majority of buffalo farmers preferred natural service as system of breeding. The results was inagreement with Vinodkumar and Dahiyal (2005) reported that two- thirds of the farmers still prefer natural service for breeding of buffaloes under filed conditions and Bidwe *et al.,* (2007) found that 95.67 per cent dairy farmers adopted the natural service for breeding. The higher rate of adoption of AI in this study area might be due to the availability of larger number of AI centres of A.H department, District Co-operative Dairy Union and Gopala mitra services.

It was also observed that overall 80 per cent of the buffalo milk producers bred their buffaloes between 3-5 months after calving. It was found to be higher in the urban (96%) area than that in semi-urban (87%) and rural (65%) areas. It indicated that the milk producers realised the importance of shorter service period for shorter calving interval so as to get more number of calves during the life time of dairy animals.

Pregnancy diagnosis was adopted by overall 86 per cent of the respondents in the study area. It was higher in the urban (94%) and semi-urban (92%) areas than that in rural (76%) area. It was nearly similar to the observations of Gupta *et al.,* (2008) who reported that pregnancy diagnosis was practiced by 73 per cent of buffalo farmers in their study area. It was not in agreement with the findings of Sunil *et al.* (2011) who reported that only, 7.50% of farmers practiced pregnancy diagnosis and Rathore and Kachwaha (2009) found that only one- fourth of the buffalo owners tested their animals for pregnancy diagnosis.

Majority of buffaloes calved in rainy season (55.20%) followed by winter (39.20%) and summer (5.60%) in the study area. The same trend was observed in rural, semi-urban and urban areas. The results were similar to the findings of Kushwaha *et al*. (2011) and Thokal *et al*. (2004). Further it was also found that overall 68 % of respondents adopted treatment of anestrous/ repeat breeding buffaloes in the veterinary dispensaries. It was found to be higher in the urban area (86%) than that in semi-urban (67%) and rural (60%) areas. It is not in agreement with the observations of Sunil *et al.* (2011) who reported that only 5 % of farmers got treated their animals for anestrous and repeat breeding problem in mid hills of Uttarakhand. The higher rate of adoption of treatment of anestrous and repeat breeding in buffaloes in the study area in the present study might be due to availability of larger number of Veterinary institutions in the rural, semi-urban and urban areas of Krishna district.

TABLE 1: Breeding management practices adopted by respondents in buffaloes

S.No.	Breeding practices		Rural (N=100) %	Semi-urban (N=100) %	Urban (N=50) %	Overall (N=250) %
1.	Rearing of high milk producing buffalo breeds like Murrah and graded Murrah	Adopted	93	99	100	96.8
		Not adopted	7	1	0	3.2
2.	Heat detection by	Estrous symptoms	98	99	96	98.00
		Bulls	2	1	4	2.00
3.	Time of breeding of buffaloes	Early to mid heat	10	36	70	32.40
		AM-PM method	90	64	30	67.60
4.	Method of breeding	Natural service	33	21	22	26.00
		Artificial insemination	67	79	78	74.00
5.	Service after calving	3-5 months	65	87	96	80.00
		After 5 months	35	13	4	20.00
6.	Pregnancy diagnosis	Adopted	76	92	94	86.00
		Not adopted	24	8	6	14.00
7.	Season of calving	Rainy	54	58	52	55.20
		Winter	42	35	42	39.20
		Summer	4	7	6	5.60
8.	Treatment of anestrous/ Repeaters	Adopted	60	67	86	68.00
		Not adopted	40	33	14	32.00

Health care practices

A persual of Table 2 revealed that almost all the milk producers in rural (96%), semi-urban (98%) and urban (98%) areas vaccinated buffaloes against FMD and HS diseases in the study area. The rate of adoption of this practice was higher than the findings of Mahendra *et al.* (2007), Sinha *et al.* (2010) and Sunil *et al.* (2011) and Malik (2005). The results were similar with findings of Raquib *et al*. (2009). It was observed that the milk producers practiced regular deworming for adult buffaloes in rural (19%), semi-urban (13%) and urban (22%) areas in the study area. It was mostly nearer to the observations of Sinha *et al.* (2001) who reported that deworming was done at regular interval by 2.2, 3.3 and 2.2% of dairy farmers in rural, semi-urban and urban areas, respectively. It indicated that the adult buffaloes were dewormed as and when required but not as a preventive measure. Control of ectoparasites using insecticides in adult buffaloes was practiced by very few milk producers in rural (2%), semi-urban (6%) and urban (20%) areas in the study area. It was

in agreement with the findings of Sinha *et al.* (2010b) and Sunil *et al.* (2011) who reported that 90.83 % of the animal owners followed dusting of insecticide to control lice/ ticks in mid hills of Uttarakhand. It indicated that the incidence of lice and ticks infestation might be lower in the present study area as the animals were washed in tanks and canals regularly.

Isolation of sick animals was adopted by majority of milk producers in urban (70%), semi-urban (44%) and rural (42%) areas in the study area. It was mostly similar to the observations of Rathore and Kachwaha (2009) who reported that 59.75 % of the respondents isolated their sick buffalo from healthy animals. Sunli *et al.* (2011) observed that only 9.58 % and Meena *et al*. (2008) reported that only 6 % of the respondents isolated their sick animals from healthy ones.

It was observed that majority of milk producers consulted the veterinarian for the treatment of sick animals in urban (74%), semi-urban (72%) and rural (62%) areas in the study area. They also consulted para veterinarian for the same purpose in rural (25%), semi-urban (19%) and urban (28%) areas. These observations were mostly similar to the findings of Sinha *et al.,* (2010) who reported that the farmers availed the advice from veterinary doctor in urban (77.1%), semi-urban (58.9%) and rural (44.4%) areas in Barielly district of Utter Pradesh. Sunil *et al.,* (2011) and Malik (2005) observed that majority of farmers consulted the veterinary doctor/ stock man for treatment of sick animals.

It was also observed that majority of milk producers rated the veterinary facilities as satisfactory in rural (70%), semi-urban (72%) and urban (48%) areas, whereas very few milk producers rated as good in rural (15%), semi-urban (24%) and urban (32%) areas in the study area. It was mostly similar to the observations of Sunil *et al.,* (2011) who reported that the percentage of respondents rating veterinary facilities as good, satisfactory and poor were 8.33, 25.67 and 66.67 per cent, respectively, in mid hills of Uttarakhand.

TABLE 2: Health care practices adopted by respondents in buffaloes

S.No	Health care practices		Rural (N=100) %	Semi-urban (N=100) %	Urban (N=50) %	Overall (N=250) %
1.	Vaccination for FMD &HS	Practiced	96	98	98	97.20
		Not practiced	4	2	2	2.80
2.	Deworming of adults buffaloes	Practiced	19	13	22	17.20
		Not practiced	81	87	78	82.80
3.	Control of ecto parasites	Practiced	2	6	20	7.20
		Not practiced	98	94	80	92.80
4.	Isolation of sick animals	Practiced	42	44	70	48.40
		Not practiced	58	56	30	51.60
5.	Treatment of sick animals	Veterinarian	62	72	74	68.40
		Para veterinarian	25	19	28	21.60
		Others	13	9	6	10.00
6.	Veterinary facilities	Good	15	24	32	22.00
		Satisfactory	70	72	48	66.40
		Un satisfactory	15	4	20	11.60

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