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Existing management practices followed by the cattle keepers in North coastal region of Andhra Pradesh

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Abstract

A field survey was conducted to collect the first-hand information on cattle managemental practices followed by dairy animal owners of Kotabommali Mandal in Srikakulam district which is located in north coastal region of Andhra Pradesh. Questionnaire was designed on cattle managemental practices followed by farmers to improve the productivity. The study was conducted on a total number of 75 households which covered 15 farmers each from 5 villages. Most of the farmers have the small herd size (<6). It was observed that 98.67% of the respondents resorted to artificial insemination, 93.33% of them follow's pregnancy diagnosis. Regarding feeding practices, all the farmers followed individual animal feeding (100%) and grazed in common pasture land (93.33%). 80% of farmers used commercial type concentrate mixture with or without adding salt, with as such (86.67%). The results indicated that knuckling (53.33%) was the main method of milking. Most of the respondents, clean udder and teats and wash hand before milking. Regarding sick animal treatment, 66.67% cattle keepers preferred first qualified veterinary doctor then veterinary assistant/quack man. All the respondent followed satisfactory sanitary conditions of shelter places.

Keywords: Artificial insemination, cattle, farmers, knuckling and sanatory

Introduction

The Andhra Pradesh state ranks fifth in milk production (7.69%) in the country, of which cattle milk is the major marketable surplus milk of the state and contributes to major share of milk production. Milk production can be further enhanced by following proper managemental practices with the available germ plasm. Out of many managemental practices, feed managemental practice is an ignored and resourceful factor that plays a major role in utilizing maximum potential of dairy animals (Sinha *et al.*, 2009) [12]. In addition to breeding and healthcare practices like deworming, deticking, vaccination and timely treatment of diseases also contribute to a great extent in improving the milk productivity of the animal. Livestock grazing is one of the major sources of productive employment in village areas in India. Integrating scientific and technical knowledge to cattle dairy management, particularly in the small scale and household farming will further enhance the productivity and may help in improving the economic status and employment to the rural farming community. Although the managemental practices are in a well organised way in intensive farming methods, such organised managemental practices were not followed in small scale and household rearing of animals due to lack of proper awareness. Dairying is considered to be a remunerative enterprise which gives income throughout the year, this advantage has made dairy farmers to devote most of their time on animal husbandry practices (Sreedhar and Ranganadham, 2010) [14]. Despite of devoting utmost time on cattle rearing the productivity is not at optimal potential level due to poor managemental practices. Therefore, present study was targeted to throw a light on the current managemental practices that were being followed by small scale farmers. Consequently, a survey was conducted to reckon managemental practices followed by buffalo farmers regarding feeding, breeding and health care aspects in Kotabommali Mandal of Srikakulam district which was located in north coastal region of Andhra Pradesh.

Materials and Methods

For current study, five villages in Kotabommali Mandal of Srikakulam district were chosen. From each village 15 farmers were selected randomly, and data from 75 households in total population were randomly presented in this study. The data was collected by schedule of personal interview techniques. Most of the cattle herds are crossbreeds. The collected data consists of current managemental practices followed by the farmers with respect to feeding,

breeding, milking, housing and other managemental practices. The data were subjected to basic statistical analysis as per Snedecor and Cochran (1989) [13].

Results and Discussion

The collected data from the 75 households on managemental practices of feeding, breeding, milking and housing followed for cattle rearing in Kotabommali Mandal of Srikakulam district were presented below category wise.

Feeding managemental practices

The feeding managemental practices followed by cattle farmers in Kotabommali Mandal of Srikakulam district are presented in Table 1. The data shows that majority of the cattle farmers were adapting a feeding practice of grazing (92%) followed by semi stall feeding (8%). Among grazing type of feeding 93.33% farmers allow animals grazing on common pasture land and rest on harvested fallow land or forage on the road side. The method of feeding mostly practised by farmers is individual feeding (100%) to maintain a uniform plane of nutrition in milch animals, instead of group feeding. This finding was in conformity with that of Modi (2003) [6]; Patel *et al.* (2005) [7]; Chowdhary *et al.* (2006) [1], Sabapara *et al.* (2010) [10] and Varma *et al.* (2021) [2]. However, the mode in which the fodder was offered to dairy animals varied from farmer to farmer. Farmers has offered fodder to animals both in dry form or as green pasture. In dry form farmers preferred to offer it after chaffing (96%) to improve palatability and digestibility, instead of offering it as such. In green pasture form, farmers have offered the fodder seasonally (93.3%) due to poor availability of fodder throughout the year though some farmers (6.7%) could manage to offer the green pasture throughout the year. Along with green and dry fodder farmers also prefer feeding concentrates to their milch animals of which commercial concentrate mixture supplied from dairy cooperative societies and panchayats on subsidy price contributes to 80%, followed by homemade/ concentrated and homemade concentrates. Further processing methods like soaking and boiling of concentrate before offering them to animals may promote the digestibility and bioavailability of nutrients to the animals. Such practices of soaking and boiling of concentrates before offering to animals is followed to a less extent (13.3%) and they preferred to offer concentrate as such to the animals. In addition, farmers preferred (100%) to offer concentrate to milch animals while milking rather than before and after the milking. These are against the results of Chowdhary *et al.* (2006) [1] and Sabapara *et al.* (2010) [10]. As they were offering as such concentrate mixture to the animals which are against the findings of Malik *et al.* (2005) [4]; Kumar *et al.* (2006) and Rathore *et al.* (2010) [9]. They were offering the concentrate mixture before milking, during milking and after milk at the rate of 25%, 41.67% and 33.33% respectively. These findings were in accordance with Rathore *et al.* (2010) [9] and Varma *et al.* (2021) [2]. Further, the practise of offering concentrate is limited to milch animals, very few farmers (13.3%) has offered concentrate to their young ones, this could be due to lack of awareness among the farmers about the importance of concentrate feeding in early stages of life to their later reproductive and productive performance. Feeding of salts and mineral mixture are very important to maintain proper electrolyte levels as well as calcium and phosphorus levels which are important in productive and reproductive performance in dairy animals. Despite of their importance

very low percent 6.67% of farmers were adapting to provide extra salt to animals regularly and few were offering them occasionally (93.33%) to the animals. These results were similar with results of Singh *et al.* (2007) [11]; Rathore *et al.* (2010) [9], Sabapara *et al.* (2010) [10] and Varma *et al.* (2021) [2]. The same trend is seen with mineral mixture feeding as well. Regular feeding of mineral mixture was followed by 13.33% farmers, 86.67% farmers fed occasionally and remaining doesn't offer mineral mixture to animals. It might be due to lack of awareness among farmers regarding the advantages of mineral mixture feeding and its economy Modi (2003) [6]; Sohane *et al.* (2004); Patel *et al.* (2005) [7]; Chowdhary *et al.* (2006) [1]; Rathore *et al.* (2010) [9] and Sabapara *et al.* (2010) [10]. Majority of the farmers were offering water ad libitum thrice a day (86.67%) rather than twice a day (13.33%).

Table 1: Feeding practices

Feeding practices		
Particulars	Frequency (no of farmers/respondents)	Percentage (%)
Feeding system of animals		
Grazing only	70	93.33
Semi stall feeding	5	6.67
Stall feeding	0	0.00
Grazing area		
Common pasture land	70	93.33
Harvested/fallow land	5	6.67
Method of feeding		
Individual feeding	75	100
Group feeding	0	0
Method of dry fodder feeding		
Chaffed	3	4
As such	72	96
Green fodder production		
Seasonal	70	93.33
Around the year	5	6.67
Type of concentrate mixture		
Home prepared	5	6.67
Commercial	60	80
Home/concentrated	10	13.33
Method of concentrate mixture feeding		
As such	65	86.67
Soaking	7	9.33
Boiling	3	4.00
Mode of concentrate feeding to milch animals		
Before milking time	0	0
At milking time	75	100
After milking time	0	0
Concentrate feeding to young calf		
Yes	10	13.33
No	65	86.67
Feeding of common salt		
Regularly	5	6.67
Occasionally	70	93.33
Not at all	0	
Feeding of mineral mixture		
Regularly	10	13.33
Occasionally	65	86.67
Not at all	0	0.00
Frequency of watering		
2 times/day	10	13.33
3 times/day	65	86.67
Free access to water	0	0.00

Breeding managemental practices

The results of cattle breeding managemental practices

followed by the cattle farmers are presented in the Table no 2. The study shown that majority of the farmers followed the practice of heat detection through typical estrus signs or symptoms. Mainly farmers observed signs like mucus discharges and bellowing (73.33%), mucus discharges (17.33%), frequent urination (6.67%) and mounting (2.66%) for identifying estrous in animals. These results are similar with findings of Patel *et al.* (2005) [7]; Chowdhary *et al.* (2006) [11]; Rathore *et al.* (2010) [9] and Sabapara *et al.* (2010) [10]. Despite of the good infrastructure facilities and availability of artificial insemination to the door step, most farmers preferred natural service. These findings indicates that most of the farmers having poor knowledge on Artificial Insemination that resulted in sexually transmitted diseases through coitus. These are unlinear to findings of Chowdhary *et al.* (2006) [11] and Sabapara *et al.* (2010) [10]. Apart from this, 93.33% farmers after getting their animal inseminated had them diagnosed for pregnancy following three months of A.I. Further, farmers preferred a qualified veterinarian (86.66%) followed by AI worker (6.67%) and self (6.67%) for conformation pregnancy with the findings of Sabapara *et al.* (2010) [10] and Varma *et al.* (2021) [2]. Apart from this, calving interval among the studied sample population was around 12-15 months, 15-18 months and more than 18 months in 6.67%, 90.67% and 2.67% populations respectively. These findings are against the findings of Patel *et al.* (2005) [7]; Chowdhary *et al.* (2006) [11]; Sabapara *et al.* (2010) [10] and Varma *et al.* (2021) [2]. The observed prolonged calving interval in the studied population could be due to poor feeding practices of the farmers *vis a vis* not offering concentrates at heifer stage or during pregnancy especially last few days prior to calving.

Table 2: Breeding practices

Particulars	Frequency (no of farmers/respondents)	Percentage (%)
Heat detection		
Yes	75	100
No	0	0.00
Method of heat detection		
Teaser	0	0.00
Symptoms	75	100
Symptom of heat detection		
Mucus discharge	13	17.33
Mucus discharge+ballowing	55	73.33
Frequent urination	5	6.67
Mounting	2	2.66
Method of breeding		
Natural services	1	1.33
Artificial insemination	74	98.67
Pregnancy diagnosis		
Yes	70	93.33
No	5	6.67
If yes by whom		
Self	5	6.67
Qualified veterinary doctor	65	86.67
AI Worker	5	6.67
Calving interval		
12-15 months	5	6.67
16-18 months	68	90.67
More than 18 months	2	2.67

Housing management practices

Most of the respondents reared cross bred cattle for milk production (Table. 3). With regard to composition of livestock maintained by the respondents, majority of the respondents

maintained their herd by keeping cross bred cattle alone (66.67%) and some of the farmers maintained cross bred cattle along with buffaloes (33.33%). With respect to housing management, majority of the respondents followed semi-intensive housing system and kuccha material used for the housing (100%). Regarding direction of cattle housing, all the farmers kept in the direction of north to south to avoid west-east cold air during winter, prevent from direct sunlight and for providing good ventilation in summer through north side. The location of cattle shelters inside or near human dwelling was practiced by majority of the respondents.

Table 3: Housing management practices

Particulars	Frequency (no of farmers/respondents)	Percentage (%)
Type of Livestock		
Indigenous cattle only	0	0
Buffaloes only	0	0
Cross bred cattle only	50	66.67
Indigenous cattle + cross bred cattle	0	0
Indigenous cattle + buffaloes	0	0
cross bred cattle + buffaloes	25	33.33
Indigenous cattle + small ruminants	0	0
Housing management		
Intensive	0	0
Semi intensive	75	100
Extensive	0	0
Direction of house		
North-south	75	100
East-west	0	0
Materials using for housing		
Kucha	75	100
Pacca/concrete	0	0
Location of house		
Away from house	0	0
Near the house	75	100

Health care management practices

The study has indicated that there was proper awareness about the health managemental practices (Table. 4). Vaccination against the foot and mouth and haemorrhagic septicemia diseases is followed by 100% farmers. These findings are in concurrence with the findings of Singh *et al.* (2007) [11] and Sabapara *et al.* (2010) [10] and against the findings of Sunil Kumar *et al.* (2017) [15]. In addition, 13.33% were farmers regularly deworming their cattle, occasionally by 66.67% farmers and remaining farmers hadn't been followed the deworming in milch animals; similar findings were noticed by Pawar *et al.* (2006) [8] and Rathore *et al.* (2010) [9] and Sabapara *et al.* (2010) [10]. However, 100% farmers followed regular deworming in calves, which reflects to be a good managemental practice to reduce the internal parasitic load at younger stage which further enhances the growth of the livestock at appropriate stages. Almost all the farmers followed dushing method (100%) to remove the ecto parasitic load than manual method. However, coming to shed sanitation, very few farmers (6.67%) had followed a good shed sanitation protocol, 73.33% has followed a satisfactory shed sanitation protocols and 20% farmers followed better shed sanitation protocols. Finally, majority of the farmers get

their sick animals treated by a qualified veterinary doctor (66.67%) followed by a veterinary assistant (26.67%). The percentage of respondents regarding veterinary facilities as good, satisfactory and poor was 26.67%, 60% and 13.33% respectively.

Table 4: Health care aspects

Particulars	Frequency (no of farmers/respondents)	Percentage (%)
Vaccination against FMD and HS		
Yes	75	100
No	0	0
Deworming of milch animals		
Regular manner as per schedule	10	13.33
Occasional	50	66.67
Not practicing	15	20
Deworming of calves		
Regular manner as per schedule	75	100
Occasional	0	0
Not practicing	0	0
Practice to control ectoparasites		
Followed	75	100
Not followed	0	0
If practice		
Manual	0	0
Dushing of insects	75	100
Sanatory conditions of shed/shelter/ standing place		
Good	15	20
Satisfactory	55	73.33
Poor	5	6.67
Treatment of sick animals		
Veterinary doctor	50	66.67
Veterinary assistant	20	26.67
Quack	5	6.67
Availability of veterinary facility		
Good	20	26.67
Satisfactory	45	60.00
Poor	10	13.33

Milking managerial practices

The current study observed that 100 percent cattle farmers followed practice of milking twice in a day following regular milking interval (Table 5). These results were in accordance with the findings of Malik and Nagpaul (1999) [5], Sabapara *et al.* (2015) and Varma *et al.* (2021) [2]. Among these 13.33% and 86.67% of the farmers used stainless steel vessels and plastic buckets as the milking utensils. Coming to the method of milking, 46.66% of farmers had followed the full hand method of milking and remaining 53.33% followed the knuckling method, the latter is the least recommended method to follow. Most of the farmers (80%) following the sanitary practices before and after milking. They allow the calf to suckle the leftover milk so that they cannot wash the udder after milking. The findings in present study implicates that there is need in change of milking practices from knuckling method to full hand method. There is an immense need in educating the farmers reared the adoption of sanitation practices during milking and on following the mastitis control practices which helps in clean milk production, a very essential entity to meet the minimum standards and requirements for public health.

Table 5: Milking practices

Particulars	Frequency (no of farmers/respondents)	Percentage (%)
Method of milking		
Full hand method	35	46.66
Knuckling method	40	53.33
No of animals are milked		
Twice	75	100
Interval between each milking		
Regular	75	100
Irregular	0	0
Type of utensils used for milking		
Stain less steel	10	13.33
Iron buckets	0	0
Plastic	65	86.67
Sanitary practices followed before and after milking		
Yes	60	80
No	15	20
Washing udder after milking		
Followed	60	80
Not followed	15	20

Conclusion

The present study reveals that most of the managerial practices had considerable impact on the performance of the animal. The study indicates that there is a requirement for adaptation of certain managerial practices especially by small scale farmers in Kotabommali village of Srikakulam district to enhance the performance of their dairy cattle. The study indicates that there is prerequisite of conducting awareness programmes to educate the farmers about the importance of feeding practices like processing the concentrates before offering to animals which improves the digestibility and the amount of available nutrients, feeding concentrates and providing minerals to heifers in addition to milch animals as it helps in proper reproductive and productive growth of animal. In addition, more importance has to be given to educate the farmers to follow breeding practices like artificial insemination and maintaining appropriate calving interval to meet the goal of a calf in a year by reducing the incidence of animals to reproductive diseases. Health care management practices followed by farmers under study seems to be satisfactory due to timely awareness camps conducted by animal husbandry department but still few lacunae in following hygienic milking practices while milking to produce clean milk of public health standards and proper methods of milking, where awareness has to be created.

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