

## A STUDY ON BUFFALO MANAGEMENT PRACTICES IN KHAMMAM DISTRICT OF ANDHRA PRADESH

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### ABSTRACT

A study was carried out to find out various buffalo management practices adopted by the farmers in Khammam district of Andhra Pradesh. More than half of the farmers under survey (58%) were able to provide insemination or natural service to their animals in heat at the right time, while 42% of farmers were unable to inseminate their animals in time due to various reasons. Only 16.66% farmers utilized the facility of artificial insemination, while 37.51% farmers opted for natural service. About 85.85% farmers fed green and dry roughage in combination and provided clean drinking water to their animals, but none of the farmer practiced silage making or other special treatments like chaffing, soaking or urea treating paddy straw. Most of the farmers collected fodder from the fields. Only 3% farmers fed additional concentrates to pregnant animals; the rest did not do this. As a part of summer management, 51% farmers allowed their buffaloes to wallow in the village tanks during the hotter parts of the day and 49.16% farmers washed their animals by splashing water manually. Washing of the animals and of their udders before milking were practiced by 15.68 and 98.40% farmers, respectively. Non-descript

buffaloes were predominant in this region and the majority of the farmers were poor in certain aspects of scientific feeding, breeding, housing, milking and health care practices and needed to be educated. Artificial insemination should be made available to all the farmers, which in turn would result in the upgrading of local buffaloes and improving their performance.

**Keywords:** buffaloes, breeding, feeding, housing, management, milking

### INTRODUCTION

Buffaloes are the backbone of rural economy in many developing countries of the Asian region including India. Buffaloes occupy a prominent place in the social, economic and cultural life of Indian rural communities and are useful as a triple purpose animal for milk, meat and draft power. Dairying with buffaloes in India is a closely interwoven integral part of agriculture. India possess 283 million dairy bovines and stands first in milk production with more than 100 million metric tonnes but the productivity of dairy animals is very much less than in the developed countries.

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The performance and productivity of buffaloes in the region appears to be at low level and the factors responsible need greater attention. Productivity of an animal is primarily the product of interaction of its genetic makeup and the environment in which it develops. Therefore, a study was undertaken to assess various management practices such as breeding, feeding, housing, milking practice *etc.*, in Khammam district of Andra Pradesh.

## MATERIALS AND METHODS

Two revenue divisions in Khammam district of Andra Pradesh were selected purposively, having highest buffalo population. From each revenue division two mandals and from each mandal five villages were selected. Thus, 20 villages from four mandals of two revenue divisions were selected. From each village six farmers who were rearing buffaloes were selected randomly, giving a sample size of 120 farmers for the study. While conducting survey, the assistance of the local Veterinary Assistant Surgeon was sought.

The selected farmers were interviewed by contacting them at their doorstep utilizing a pre-tested interview schedule developed for the purpose. While collecting data sufficient time was given to the farmer to arrive at values by the memory recall method. The family members of the farmers were also involved in collection of the data so as to get accurate information as far as possible. The information regarding management practices such as breeding, feeding, housing, milking, health care including calf management were collected and data were subjected to appropriate statistical analysis (Snedecor and Cochran, 1994).

## RESULTS AND DISCUSSION

Results of buffalo management practices adopted by the farmers in the villages under study are appended in Tables 1, 2, 3, 4 and 5.

### General observations

Occupation: It was observed (Table 1) that agriculture was the main occupation among 84.5% of the farmers and dairying was the secondary occupation of 15.5% of farmers, whereas dairying was the main occupation of 15.5% and agriculture was the secondary occupation of 84.5%. Prasad *et al.* (2001) reported that dairying was the main occupation among 64% of the milk producers and a subsidiary occupation for 36% in urban areas of Andhra Pradesh. Similarly 75% farmers had dairying as secondary occupation in the North east zone of Tamil Nadu (Balusami, 2004). The present study indicated that the majority of the farmers depended on agriculture as the main source of livelihood and also maintained livestock, especially buffaloes, as these enterprises are interdependent on each other. They maintain buffaloes for secondary source of income i.e. through sale of milk or utilizing milk for their home needs. These farmers utilized their agricultural byproducts like paddy, jowar and maize straws and green grasses, either cultivated or natural fodders for their buffaloes, which converted these poor roughages into valuable milk.

Land holding: In the present investigation, it was found that 43.3% farmers possessed between one to three acres of land, 47.5% possessed above three acres of land and 9.2% were landless. Singh and Thomas (1992) and Yadav and Yadav (1995) observed that the land holding was positively associated with the level of adoption of dairy innovations among the respondents. It was observed that, all the farmers irrespective of size

of land holding maintained buffaloes as source of income. The majority of the dairy farmers held land as major source of income.

**Fodders cultivation:** Among the selected farmers, 45.0% grew fodders and 55% did not cultivate fodder but depended on natural grasses from their own fields, common lands, bunds and other sources. Among the fodder growing farmers, 18.3% grew fodders on an area of about 0 to 0.5 acre and 26.6% on an area of about 0.5 acres and above. These findings are in agreement with the results of Garg *et al.* (2005) who reported, about 48.43% farmers grew fodders. The results indicated that almost 55% farmers in this study did not grow any fodders and were dependent on either sole grazing or cut natural grasses for feeding of buffaloes. Most of the farmers grew sorghum as a source of fodder, which may have been due to utilisation of agricultural land for growing regular crops during *kharif* season and sorghum as fodder crop during *rabi* season because of suitable agro-climatic conditions.

### **Breeding Management**

The present study revealed that, 95% farmers were not able to detect heat in animals (Table 2). This observation was not in agreement with Dwaipayan *et al.* (2005), who observed inability of the 6.11% farmers to identify heat symptoms; on the contrary Balusami (2004) reported that 82% farmers were able to detect heat in buffaloes in Tamil Nadu. More than half of the farmers under survey (58%) were able to provide insemination or natural service to their animals in heat at the right time while 42% farmers were unable to inseminate their animals in time due to various reasons. Only 16.66% farmers utilized the facility of artificial insemination, while 37.51% farmers opted for natural service and 45.83%

simultaneously had their animals inseminated and also undertook natural service with the expectation that it would increase the conception rate. Breeding bulls or scrub bulls were accessible to all farmers in their villages for natural service. Sawarkar *et al.* (2001) reported that, most of the farmers preferred natural service only due to various reasons. It was also noticed that as many as 75.83% were unable to detect pregnancy diagnosis at 3 months age. Low adoption of artificial insemination by farmers may have been due to the presence of scrub bulls, the distance to artificial insemination centers, lack of faith in artificial insemination, ignorance of farmers, being busy with agricultural operations and non availability of veterinary staff etc.

### **Feeding Practices**

From the present investigation it was observed that only 11.67% farmers fed balanced rations to their animals; the rest of the farmers (88.33%) had not adopted this practice (Table 3). It was found that on an average 9.17, 5 and 85.83% farmers fed only green fodder, dry roughages and both in combination, respectively, and 36.67% farmers fed 1 - 10 kg dry roughages per day while 63.33% farmers fed more than 10 kg. Out of the total selected farmers, the majority (71.67%) fed 1 kg of concentrate mixture as feed supplement, whereas 28.33% of them were feeding 2 kg. Kamboj and Tomar (2000) and Sahu (2001) reported that farmers were not feeding or feeding minimum quantities of concentrates to their buffaloes. About 85.83% of the farmers were feeding green and roughage fodder in combination and provided clean drinking water to their animals, but none of the farmers practiced silage making or any other special treatments like chaffing, soaking or urea treating paddy straw. Most of the farmers collected fodder from the fields. Dwaipayan *et al.* (2005) reported that,

59.72% farmers fed poor quality concentrates. The present results clearly indicated that there is a lot of scope for improvement of buffalo performance by better feeding. Only 3.5% farmers fed additional concentrates to pregnant animals; the rest did not. Similarly, 11.25% farmers providing additional concentrates to pregnant animals was reported by Garg *et al.* (2005) in rural areas of Baran district of Rajasthan. About 13.33% farmers provided a supplementary mineral mixture to their animals while 86.67% did not follow this practice. Garg *et al.* (2005) also observed that 62.5% farmers did not feed mineral mixture or feed supplements to their dairy animals. The non-feeding of additional supplements to the pregnant animals and of mineral mixture to all animals clearly indicates that productive animals were facing shortages of nutrients which would inhibit their exhibiting their performance. This might have been due to a lack of scientific feeding knowledge among the buffalo farmers, high costs and feed and mineral mixtures or non-availability etc.

### **Housing Management**

Among the farmers who provided housing, 60% provided thatched roof sheds, 36.66% provided asbestos roof sheds and 3.34% provided no housing. Among the sheds, 84.17% had *kutchha* type flooring and 15.83% had *pucca* type (cement concrete) flooring. The present study is in agreement with the reports of Deoras *et al.* (2004), who reported similar types of housing for the animals of the majority of farmers. On the contrary, Sohi and Kherde (1980) reported that a large number of dairy farmers had sheds for their animals as they were commercial dairy farmers. The results of the present study do not agree with the findings of the said authors as this study was conducted in rural areas. The majority of the farmers (62.5%) maintained cleanliness in the

shed, and the floor space available to the animals of almost all (98.24%) was adequate. Similarly, 94% of the farmers provided proper ventilation for their animals. These findings were similar to the results of Deoras *et al.* (2004) who reported, 100 percent of the farmers provided adequate floor space and ventilation for their dairy animals in rural areas. Srivastava *et al.* (2000) also reported that 99.5% the farmers studied kept their animals in well-ventilated houses. It was also found that locally made mangers were used by 83% farmers, and 17% farmers maintained cement mangers. Improper or no mangers may lead to wastage of feed and fodder, which is already in short supply. The majority of farmers (> 94%) provided adequate drainage systems for their animals. It was noticed that application of disinfectants was occasional by most (88.33%) of the farmers, and about 11.67% of them applied disinfectants to their sheds rarely. Similarly, low use of disinfectants was also reported by Lal (1999). One hundred percent of the farmers in the present study had manure pits nearer to their dwellings or farms and dumped solid manure into these pits, which was used by them for agricultural purposes. The reasons for disinfectants were not used might have been a lack of awareness among farmers, a high disinfectant cost, and an additional burden which did not give any immediate return to the farmer. As a part of summer management, 50.84% of the farmers allowed their buffaloes to wallow in village tanks during hotter parts of the day and 49.16% of the farmers washed their animals by splashing water on them manually. Tailor and Pathodiya (2000) reported 4.67% of the farmers they studied in Rajasthan allowed their buffaloes to wallow. Hot and dry climatic conditions and heat intolerance of buffaloes requires summer management like wallowing, sprinkling and splashing of water etc. to improve the performance

of buffaloes during the summer.

### **Milking Practices**

In the present study, all the buffalo farmers allowed their calves to suckle their mothers before and after milking twice a day and also used the calf to let down milk from the udder (Table 5). It was observed that 100 percent of the farmers were following a regular milking interval, which is in agreement with the reports of Malik and Nagpaul (1999) wherein 88.88% of the farmers followed a similar practice in Murrah buffaloes in Haryana. In the present study, 88.33, 4.17 and 7.5% of farmers used steel utensils, iron buckets and plastic vessels, respectively. Very few farmers (8%) followed the full hand method of milking; the remainder (92%) followed the knuckling method, which was not a recommended practice. Khupse *et al.* (1980) reported that 8.18% of the farmers studied had adopted full hand milking, whereas Malik and Nagpaul (1999) reported that 36.11% farmers followed the knuckling method of milking in Haryana. These results indicate lack of awareness among farmers and the urgent need for education on the correct method of milking. Washing of animals

before milking and of the udder after milking was practiced by 15.68 and 1.6% farmers, respectively, whereas 76.66% farmers did not follow any sanitary practices before and after milking, and the majority (95%) did not follow any mastitis prevention programme. The majority of the farmers did not wash the entire body of their buffaloes before milking even in the summer (Verma and Sastri, 1994). The practice of not washing the udder after milking might have been due to allowing the calf to suckle after milking, when the calf consumes all the leftover milk and leaves a layer of saliva on the teats, or it might have been a way to save labour.

The present study concludes that management practices had a significant role on the performance of buffaloes in the divisions of Khammam district under study. Non-descript buffaloes were predominant in this region, and majority of the farmers were poor in certain aspects of scientific feeding, breeding, housing and milking practices and need to be educated. Artificial insemination should be made available to all the farmers, and this would result in upgrading of the local buffaloes and improvement in their performance.

Table 1. General information about the selected farmers.

| Sl. No. | Observation             |                 | Number of farmers | Percentage |
|---------|-------------------------|-----------------|-------------------|------------|
| 1       | Main occupation         | Agriculture     | 101               | 84.50      |
|         |                         | Dairying        | 19                | 15.50      |
| 2       | Subsidiary occupation   | Agriculture     | 19                | 15.50      |
|         |                         | Dairying        | 101               | 84.50      |
| 3       | Land holding (acres)    | Landless        | 11                | 9.20       |
|         |                         | Medium( 1-3)    | 52                | 43.30      |
|         |                         | Large (> 3)     | 57                | 47.50      |
| 4       | Area under fodder crops | No fodder crops | 66                | 55.10      |
|         |                         | 0- 0.5 acres    | 22                | 18.30      |
|         |                         | > 0.5 acres     | 32                | 26.60      |

Table 2. Breeding management practices followed by the selected farmers.

| Sl. No. | Breeding management practices                |                         | Number of farmers following the practice | Percentage |
|---------|--|-------------------------|--|------------|
| 1       | Proper heat detection procedures and methods | Adopted                 | 6  | 5.00       |
|         |  | Not adopted             | 114                                      | 95.00      |
| 2       | Insemination of buffaloes at right time      | Followed                | 62                                       | 58.00      |
|         |  | Not followed            | 58                                       | 42.00      |
| 3       | Method of Insemination                       | Artificial Insemination | 20                                       | 16.66      |
|         |  | Natural service         | 45                                       | 37.51      |
|         |  | Both                    | 55                                       | 45.83      |
| 4       | Availability of breeding bull in village     | Yes                     | 120                                      | 100.00     |
|         |  | No                      | 0  | 0.00       |
| 6       | Pregnancy diagnosis at the age of 3 months   | Adopted                 | 29                                       | 24.16      |
|         |  | Not adopted             | 91                                       | 75.83      |

Table 3. Feeding management practices followed by the selected farmers.

| Sl. No. | Feeding management practices   | Farmers following the practice     | Percentage |        |
|---------|--|------------------------------------|------------|--------|
| 1       | Feeding balanced ration  | Yes                                | 14         | 11.67  |
|         |  | No                                 | 106        | 88.33  |
| 2       | Feeding dry roughages per day  | 1-10 kgs                           | 44         | 36.67  |
|         |  | Above 10 kgs                       | 76         | 63.33  |
| 3       | Feeding concentrate supplements  | Not feeding at all                 | 0          | 0.00   |
|         |  | Up to 1 kg                         | 86         | 71.67  |
|         |  | 2 kg                               | 34         | 28.33  |
| 4       | Combination of roughages fed   | Dry only                           | 6          | 5.00   |
|         |  | Green only                         | 11         | 9.17   |
|         |  | Both combined                      | 103        | 85.83  |
| 5       | Feeding of silage fodder   | Yes                                | 0          | 0.00   |
|         |  | No                                 | 120        | 100.00 |
| 6       | Clean drinking water access  | Yes                                | 115        | 95.83  |
|         |  | No                                 | 5          | 4.16   |
| 7       | Special treatment given to feed and fodder                                   | Chaffing                           | 0          | 0.00   |
|         |  | Soaking                            | 0          | 0.00   |
|         |  | Urea treated paddy straw           | 0          | 0.00   |
|         |  | Mixture of green+ dry +concentrate | 120        | 100.00 |
| 8       | Source of fodder   | Home grown                         | 26         | 21.67  |
|         |  | Purchased                          | 0          | 0.00   |
|         |  | Collected from the fields          | 94         | 78.33  |
| 9       | Additional allowance of concentrates during advanced pregnancy and lactation | Yes                                | 3          | 3.50   |
|         |  | No                                 | 117        | 97.50  |
| 10      | Feeding mineral supplements  | Yes                                | 16         | 13.33  |
|         |  | No                                 | 104        | 86.67  |

Table 4. Housing management practices followed by the selected farmers.

| Sl. No. | Housing management practices      | No. of farmers                   | Percentage |        |
|---------|-----------------------------------|----------------------------------|------------|--------|
| 1       | Type of housing                   | Thatched roof shed               | 72         | 60.00  |
|         |                                   | Asbestos roof shed               | 44         | 36.66  |
|         |                                   | Pucca shed                       | 0          | 0.00   |
|         |                                   | No shed                          | 4          | 3.34   |
| 2       | Type of flooring                  | Kutchha                          | 101        | 84.17  |
|         |                                   | Pucca (Concrete)                 | 19         | 15.83  |
| 3       | Cleanliness in the shed           | Satisfactory                     | 75         | 62.50  |
|         |                                   | Not satisfactory                 | 45         | 37.50  |
| 4       | Adequacy of floor space           | Adequate                         | 118        | 98.24  |
|         |                                   | Not adequate                     | 2          | 1.76   |
| 5       | Proper ventilation to the animals | Available                        | 112        | 94.00  |
|         |                                   | Not available                    | 8          | 6.00   |
| 6       | Type of manger                    | Cement trough                    | 20         | 17.00  |
|         |                                   | Local made trough                | 100        | 83.00  |
| 7       | Drainage system                   | Proper                           | 113        | 94.16  |
|         |                                   | Not proper                       | 7          | 5.84   |
| 8       | Manure disposal                   | Manure pit                       | 0          | 0.00   |
|         |                                   | Bio gas                          | 0          | 0.00   |
|         |                                   | Direct application to the fields | 120        | 100.00 |
| 9       | Use of disinfectants              | Regular                          | 0          | 0.00   |
|         |                                   | Occasional                       | 106        | 88.33  |
|         |                                   | Rare                             | 14         | 11.67  |
| 10      | Summer management                 | Wallowing                        | 61         | 50.84  |
|         |                                   | Splashing of water               | 59         | 49.16  |
|         |                                   | Sprinkling of water              | 0          | 0.00   |
| 11      | Intervals of the cleaning sheds   | Once in a year                   | 13         | 10.84  |
|         |                                   | Occasional                       | 107        | 89.16  |

Table 5. Milking management practices followed by the selected farmers.

| Sl. No. | Milking management practices                         | Number of farmers following the practice | Percentage |        |
|---------|--|--|------------|--------|
| 1       | Let down of milk                                     | Use of calf                              | 120        | 100.00 |
|         |  | Use of oxytocin                          | 0          | 0.00   |
|         |  | Use of a phantom calf                    | 0          | 0.00   |
| 2       | Number of times animals are milked                   | Twice                                    | 120        | 100.00 |
| 3       | Interval between each milking                        | Regular                                  | 120        | 100.00 |
|         |  | Irregular                                | 0          | 0.00   |
| 4       | Type of utensils used for milking and storage        | Stainless Steel                          | 106        | 88.33  |
|         |  | Iron buckets                             | 5          | 4.17   |
|         |  | Plastic vessels                          | 9          | 7.50   |
| 5       | Full hand milking                                    | Adopted                                  | 10         | 8.00   |
|         |  | Not adopted                              | 110        | 92.00  |
| 6       | Sanitary practices followed before and after milking | Yes                                      | 28         | 23.34  |
|         |  | No                                       | 92         | 76.66  |
| 7       | Care against mastitis                                | Followed                                 | 6          | 5.00   |
|         |  | Not followed                             | 114        | 95.00  |
| 8       | Washing of animals before milking                    | Followed                                 | 19         | 15.68  |
|         |  | Not followed                             | 101        | 84.32  |
| 9       | Washing of udder after milking                       | Followed                                 | 2          | 1.60   |
|         |  | Not followed                             | 118        | 98.40  |

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