
ORIGINAL ARTICLE

Adoption of Improved Animal Husbandry Practices by dairy farmers in Andhra Pradesh

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ABSTRACT

The present study was carried out in Kadapa district of Andhra Pradesh through 120 dairy farmers to measure the adoption level of improved animal husbandry practices followed by dairy farmers. The various data regarding adoption level of improved calf rearing, breeding, feeding, health care management and clean milk production practices were collected by personal interview method. It was found that 94.58% of the farmers adopted deworming of calves followed by vaccination (92.5%) and only 0.83% of the farmers adopted weaning of calves. The adoption index was more than 90 in case of observation of heat symptoms and artificial insemination. More than 50% of the farmers have adopted the practice of natural service and servicing the milch animals within 60-90 days after calving with mean score of 1.06 and 0.96 respectively but only a few farmers (18.75) have maintained record keeping. The practice of feeding green fodder had obtained the highest mean score of 1.79 and adoption index 89.58. Farmers have felt the need of dry fodder feeding to the dairy animals as a next priority to the green fodder feeding and hence ranked second. Grazing has obtained a mean score of 1.52 with adoption index 75.83 and ranked third. The adoption index of 49.5 was observed for the practice of feeding concentrate mixture to dairy animals. The practice of urea treatment of paddy straw and silage feeding were ranked ninth and tenth with adoption index of 5.83 and 4.16 and mean score of 0.12 and 0.08 respectively. With regard to health care practices, cleaning and disinfection of the sheds got highest mean score of 1.88 and awarded first rank with adoption index of 93.75. The second and third positions were occupied by treatment of sick animals and observation of ailing animals with adoption index of 89.58 and 85.42 and mean score of 1.79 and 1.71 respectively. Approximately 50% of the dairy farmers have adopted the practice of regular washing of dairy animals and segregation of sick animals with mean score of 0.94 and 0.87 to avoid contamination from one animal to other. Farmers were simply throwing away the dead bodies far away to their dwelling place and hence last rank was awarded to burying of dead animals with adoption index of 5.41. The practice of cleaning of udder before milking occupied first rank with mean score of 1.96 followed by full hand method of milking (1.6), washing of milch animal before milking (1.3), cleaning of milk utensils (1.23). Majority of farmers have not aware of preventive measures against mastitis and udder infections. Hence, it is required to create awareness among farmers on adoption of improved animal husbandry practices for increasing knowledge by implementing suitable extension strategies and techniques.

KEY WORDS: Adoption, calf rearing, breeding, feeding, health care, clean milk production

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INTRODUCTION

Dairying is one of the most livelihood options for the rural poor as it generates self employment and increases the income of farmers along with nutritional security to their family. In spite of large livestock population with a vast cooperative infrastructure, average productivity of livestock in Andhra Pradesh is quite low. The productivity depends on four dimensions of animal husbandry practices i.e. breeding, feeding, health care managemental practices. One of the probable reasons for the low productivity is lack of scientific farming knowledge level among dairy farmers. It is a known fact that the large quantity of milk is handled by those farmers who are unaware about economic aspects of profitable milk production. The need for adoption of dairying as commercial enterprise is widely recognized. However, majority of

rural dairy farmers who rear dairy animals do not follow the recommended package of practices of livestock management on the scientific lines. In order to sensitize the dairy farmers about the improved scientific technologies in dairy production, it is necessary to know the existing level of scientific knowledge about livestock rearing among dairy farmers to get maximum production. Hence, the present study was undertaken to study the adoption of improved animal husbandry practices by dairy farmers in Kadapa district of Andhra Pradesh.

MATERIAL AND METHODS

The present study was conducted in Kadapa district of Andhra Pradesh. Multistage sampling technique was used for selection of mandals, villages and respondents of the regions. A complete sampling frame for selection of mandals, village and dairy farmers was developed with the help of secondary data collected from village information centre, thus, three mandals were selected randomly. Further, four villages from each of the selected mandals were retained and finally 10 dairy farmers from each of the villages were selected through randomization method and hence, a total of sample size of 120 dairy farmers were selected for the present study. Information on various improved animal husbandry practices was collected and divided into four broad heads viz. breeding, feeding, health care management and marketing practices which were listed in the interview schedule. The degree of adoption under the head of breeding, feeding, health care management and marketing practices were measured. The score was assigned for adoption of seven standard sub-practices as Always: 2, Sometimes: 1 and Never: 0. The total score for a respondent is obtained by summing up the score obtained on each practice and mean scores were calculated. The adoption level of the respondents was measured by making use of adoption index developed by [2]. The data thus collected, was analyzed as per the procedures laid down by [12].

$$\text{Respondent's Adoption Index (AI)} = \frac{\text{Total Adoption Score (TAS)}}{\text{Total Possible Score}} \times 100$$

RESULTS AND DISCUSSION

Calf rearing practices

The data on adoption of calf rearing practices by dairy farmers was presented in Table 1. The study revealed that periodic deworming of calves showed the highest mean score of 1.89 and ranked first followed by regular vaccination (1.85), colostrum feeding (1.77), cleaning of the calf immediately after birth (1.69), ligation and disinfection of naval card (1.05), providing anti tetanus serum (ATS) and vitamin-A injection (0.84), dehorning of calves (0.04) and weaning of calves (0.02). It was found that 94.58% of the farmers adopted deworming of calves and only 0.83% of the farmers adopted weaning of calves. Hence the last rank was awarded to practice of weaning of calves and first and second ranks to periodic deworming and vaccination (92.5%) of calves respectively. It might be due to the fact that dairy farmers were well educated about importance of deworming practice and vaccination. Since weaning is not followed under Indian dairy farming conditions it was ranked last. Similar findings were reported by [10], [7] and [13]. About 88.38% of farmers adopted colostrum feeding which indicated the importance of colostrum that provides immunity to the calf.

Breeding management practices

The data on adoption of breeding management practices by the dairy farmers presented in Table 2 and it indicated that observation of heat symptoms got the highest mean score (1.91) and adoption index (95.42) among all breeding practices. Similarly artificial insemination (1.87), pregnancy diagnosis after three months (1.78), insemination within 24 hours (1.71), treatment of repeat breeding and anoestrus (1.68), natural service with bulls (1.07) occupied the ranks of II, III, IV, V and VI respectively. Servicing the milch animals within 60-90 days after calving (0.98) was awarded VII rank, while the last rank was awarded to record keeping (0.38). The adoption index was more than 90 in case of observation of heat symptoms and artificial insemination which indicated that farmers have more awareness about heat detection methods as well as advantage of artificial insemination over natural service by bulls. The present findings were in close agreement with those reported by [1]. However research workers [5] reported much lower level of adoption of artificial insemination (18.75). The adoption indices of pregnancy diagnosis after three months (89.17) and insemination of animals within 24 hours (85.42) were similar to the reports made by [1] but contradictory to the findings of [8] who reported the same as 60.63 and 20.25, respectively. Treatment of repeat breeding and anoestrus ranked fifth with mean score of 1.68. The present findings were in close association with those reported by [1] but slightly lower values (1.13) were recorded by [8].

More than 50% of the farmers have adopted the practice of natural service and servicing the milch animals within 60-90 days after calving with mean score of 1.07 and 0.98 respectively. The study indicated that when the animals were not conceived through artificial insemination, the farmers preferred to natural service. The present findings were in line with those reported by [8]. Marginally lower adoption index (6.50) was recorded by [1] with mean score of 0.13 in case of natural service by improved bull. Only a few farmers (18.75) have maintained record keeping with mean score of 0.38. But the present findings were lower to those reported by [1] and [8].

Feeding management practices

The data on adoption of feeding management practices by dairy farmers was presented in Table 3. It was apparent from the analyzed data that the practice of feeding green fodder had obtained the highest mean score of 1.79 and adoption index 89.58 indicated that the respondents had more awareness about the importance of green fodder and hence it was ranked first. The present findings were comparable with the findings of [1] and [8]. The second rank was occupied by feeding of dry fodder with the mean score and adoption index of 1.69 and 84.58 respectively. The results so appeared may be due to the fact that the farmers have felt the need of dry fodder feeding to the dairy animals as a next priority to the green fodder feeding. The practice of grazing has obtained a mean score of 1.52 with adoption index 75.83 and ranked third. The probable reason might be due to the fact that farmers have sent their animals for grazing to reduce the feeding cost of dairy animals for better profitability. The other reason for sending the animals for grazing might be that the farmers do not have cultivated land for growing fodder crops and hence dependant on grazing. The present findings were reported by the results made by [10]. The adoption index of 49.17 was observed for the practice of feeding concentrate mixture to dairy animals with mean score of 0.98 and ranked fourth. It indicated that farmers have fed their animals with concentrate feed to improve the productive performance particularly milk yield in case of milch animals. The present results were supported by earlier findings reported by [11] and [8]. The practice of chaffing the green fodder was adopted by 42.5 of dairy farmers with mean score of 0.85 which indicated that the respondents have good awareness about saving of green fodder and avoiding wastage by chaffing. Similar findings were made by [10], but contrary to the reports made by [8]. Approximately 1/3rd of the dairy farmers have practised the feeding of mineral mixture and extra allowance to pregnant animals with mean scores of 0.71 and 0.63 and ranked sixth and seventh respectively. The adoption score was less for the above two practices due to the fact that farmers used to feed mineral mixture only to milch animals for the benefit of higher milk yield. Similarly pregnant animals were fed with extra allowance in anticipation of more milk yield for the next calving. Similar reports were found by [4], [10] and [8] in case of mineral mixture feeding and by [8] in case of extra allowance to pregnant animals. Cultivation of fodder crops was ranked eighth with mean score of 0.21 and adoption index of 10.42 indicated that due to non availability of cultivated land the farmers are not showing interest to grow fodder crops. Another reason might be switching over of farmers towards commercial crops. These findings were in line with those reported by [10] in landless labourers (12.5). The practice of urea treatment of paddy straw and silage feeding were ranked ninth and tenth with adoption index of 5.83 and 4.16 and mean score of 0.12 and 0.08 respectively. It revealed that urea treatment of paddy straw was age old practice and silage feeding was less adopted due to non availability of surplus green fodder. The results are supported by [1]. The research workers [8] also reported 2.5 adoption index in case of silage feeding.

Health care management practices

The data on adoption of health care management practices by dairy farmers was presented in Table 4. The corresponding data indicated that out of eight improved health care practices cleaning and disinfection of the sheds got highest mean score of 1.88 and awarded first rank with adoption index of 93.75. This revealed that farmers have given top priority to keep the animal sheds in good hygienic and sanitary condition for disease free environment. The results were in consonance with those reported by [1] and [8]. The second and third positions were occupied by treatment of sick animals and observation of ailing animals with adoption index of 89.58 and 85.42 and mean score of 1.79 and 1.71 respectively. The dairy farmers have more awareness about treatment of sick animals and identification of ailing animals because of the availability of veterinary services in the study area. The present findings were in close agreement with [1] and contradictory to the findings of [8]. The scientists [9] also reported similar observations in case treatment of sick animals.

Approximately 50% of the dairy farmers have adopted the practice of regular washing of dairy animals and segregation of sick animals with mean score of 0.94 and 0.87 respectively. It revealed that farmers are maintaining their animals to avoid contamination from one animal to other. The research workers [8] and [10] also reported similar findings with isolation of sick animals from healthy animals. Protection from cold weather was ranked sixth with mean score of 0.38 indicated that farmers were not taking

proper care about inclement weather conditions. However, lower adoption score was reported by [10]. The practice of control of ectoparasites occupied seventh rank with mean score of 0.23 and adoption index of 11.67. The probable reason for less adoption might be due to lack of awareness among dairy farmers. Present findings were similar with those reported by [11] but contradictory to the reports of [1] and [8]. Last rank was awarded to burying of dead animals with adoption index of 5.41 indicated that the farmers were simply throwing away the dead bodies far away to their dwelling place and also due to lack of proper knowledge regarding the disposal of dead bodies and about spread of diseases.

Table 1: Adoption of calf rearing practices by the dairy farmers

S.No	Calf rearing practices	Always	Sometimes	Never	TAS	MS	AI	Rank
		(2)	(1)	(0)				
1.	Cleaning of calf immediately after birth	92	19	9	203	1.69	84.58	IV
2.	Colostrum feeding	98	16	6	212	1.77	88.33	III
3.	Cutting and disinfection of naval cord	38	50	32	126	1.05	52.50	V
4.	Providing ATS and Vit.A injection	21	59	40	101	0.84	42.08	VI
5.	Weaning of calves	0	2	118	2	0.02	0.83	VIII
6.	Dehorning of calves	0	5	115	5	0.04	2.08	VII
7.	Periodic deworming	109	9	2	227	1.89	94.58	I
8.	Regular vaccination	105	12	3	222	1.85	92.50	II

Table 2: Adoption of breeding managerial practices by the dairy farmers

S.No	Breeding practices	Always	Sometimes	Never	TAS	MS	AI	Rank
		(2)	(1)	(0)				
1.	Observation of heat symptoms	111	7	2	229	1.91	95.42	I
2.	Insemination within 24 hours	94	17	9	205	1.71	85.42	IV
3.	Natural service	39	50	31	128	1.07	53.33	VI
4.	Artificial Insemination	106	12	2	224	1.87	93.33	II
5.	Pregnancy Diagnosis after 3 months	99	16	5	214	1.78	89.17	III
6.	Servicing the milch animals within 60-90 days	30	58	32	118	0.98	49.17	VII
7.	Treatment of repeat breeding and anoestrus	92	18	10	202	1.68	84.17	V
8.	Record keeping	5	35	80	45	0.38	18.75	VIII

Table 3: Adoption of feeding managerial practices by the dairy farmers

S.No	Feeding practices	Always	Sometimes	Never	TAS	MS	AI	Rank
		(2)	(1)	(0)				
1.	Feeding of dry fodder	91	21	8	203	1.69	84.58	II
2.	Feeding of green fodder	100	15	5	215	1.79	89.58	I
3.	Feeding of silage	4	6	110	14	0.12	5.83	IX
4.	Chaffing of green fodder	22	58	40	102	0.85	42.50	V
5.	Urea treatment of paddy straw	3	4	113	10	0.08	4.16	X
6.	Feeding of concentrate mixture	29	60	31	118	0.98	49.17	IV
7.	Extra allowance to pregnant animals	13	49	58	75	0.63	31.25	VII
8.	Feeding of mineral mixture	17	51	52	85	0.71	35.42	VI
9.	Grazing	85	12	23	182	1.52	75.83	III
10.	Cultivation of fodder crops	7	11	102	25	0.21	10.42	VIII

Clean milk production

The data on adoption of clean milk production practices by dairy farmers was presented in Table 5. The practice of cleaning of udder before milking occupied first rank with mean score of 1.96 followed by full hand method of milking (1.6), washing of milch animal before milking (1.3), cleaning of milk utensils (1.23). The results indicated that washing of the udder with clean water is an essential step during the process of milking and hence this practice has ranked first. About 80% of the dairy farmers have practised full hand method of milking which indicated the good awareness of the dairy farmers among the milking methods. Even though hygienic and sanitary conditions are prerequisite for clean milk production, only 65% of the farmers have adopted the practice of washing of milch animals before milking. Similar findings were reported by [6] and [3]. The practice of cleaning of milk utensils has obtained fourth rank with adoption index and mean score of 61.67 and 1.23 respectively. The present findings were close agreement with those reported by [6]. Least adaption indices of 6.66 and 5.0 were

recorded in the practices of testing milk against mastitis and teat dipping in antiseptic lotion with mean score of 0.13 and 0.1 respectively. This indicated that majority of farmers have not aware of preventive measures against mastitis and udder infections.

Table 4: Adoption of improved health care managerial practices by the dairy farmers

S.No	Health care practices	Always	Sometimes	Never	TAS	MS	AI	Rank
		(2)	(1)	(0)				
1.	Observation of ailing animals	93	19	8	205	1.71	85.42	III
2.	Segregation of sick animals	24	56	40	104	0.87	43.33	V
3.	Treatment of sick animals	97	21	2	215	1.79	89.58	II
4.	Regular washing of dairy animals	27	59	34	113	0.94	47.08	IV
5.	Cleaning and disinfection of sheds	109	7	4	225	1.88	93.75	I
6.	Control of ectoparasites	8	12	100	28	0.23	11.67	VII
7.	Protection from cold/winter	12	21	87	45	0.38	18.75	VI
8.	Burying of dead animals	4	5	111	13	0.11	5.41	VIII

Table 5: Adoption of clean milk production practices by the dairy farmers

S.No	Practices	Always	Sometimes	Never	TAS	MS	AI	Rank
		(2)	(1)	(0)				
1.	Washing of milch animal before milking	38	80	2	156	1.3	65.0	III
2.	Cleaning of udder before milking	115	5	0	235	1.96	97.92	I
3.	Full hand method of milking	81	30	9	192	1.6	80.0	II
4.	Cleaning of milk utensils	39	70	11	148	1.23	61.67	IV
5.	Removing of first two streams of milk	10	18	92	38	0.32	15.83	V
6.	Teat dipping in antiseptic lotion	2	8	110	12	0.1	5.00	VII
7.	Testing milk against mastitis	2	12	106	16	0.13	6.66	VI

CONCLUSION

On the basis of the findings of the study it can be concluded that higher adoption was observed in periodic deworming and vaccination of calves whereas poor adoption in weaning of calves. More than 90% of farmers adopted observation of heat symptoms and artificial insemination and the farmers preferred to natural service when the animals were not conceived through artificial insemination. The practice of feeding green and dry fodder was adopted by majority of the farmers. Grazing is adopted to reduce the feeding cost of dairy animals for better profitability. The farmers have chaffed the fodder to avoid wastage. Only a few farmers cultivated fodder crops due to non availability of cultivated land and switching over of farmers towards commercial crops. Urea treatment of paddy straw and silage feeding were least adopted due to age old practice and non availability of surplus green fodder respectively. Farmers have given top priority to keep the animal sheds in good hygienic and sanitary condition for disease free environment. The dairy farmers have more awareness about treatment of sick animals and identification of ailing animals because of the availability of veterinary services in the study area, but farmers were not taking proper care about inclement weather conditions. The dairy farmers were simply throwing away the dead bodies far away to their dwelling place and also due to lack of proper knowledge regarding the disposal of dead bodies and about spread of diseases. Dairy farmers have good awareness about milking methods. Even though the practice of cleaning of udder before milking occupied first rank majority of farmers have not aware of preventive measures against mastitis and udder infections. Hence, it can be concluded that the extension agencies in study area need to take initiatives to carry out extension programmes for enhancing adoption level of the dairy farmers through different modern and folk media and also need to increase the rate of contact with the dairy farmers which may increase knowledge about scientific dairy farming practices.

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