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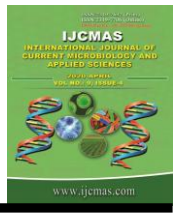

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Field Survey on Extent of Adoption of Improved Dairy Husbandry Techniques in Erode District of Tamil Nadu, India

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A B S T R A C T

The present study was carried out in Erode district of Tamil Nadu to find out the extent of adoption of improved dairy husbandry techniques. A random sample of 300 dairy animal owners were selected and extent of adoption of improved dairy husbandry techniques in six major aspects of housing, feeding, breeding, health care, milking and calf rearing management was studied. Proper orientation of animal shed and housing in separate located place were more adopted in housing techniques. Provide clean and fresh drinking water, feeding balance concentrate mixture on the basis of milk production was more adopted in feeding management. Keeping watch on oestrus cycle and heat symptoms, service/insemination after 12-16 hours since onset of heat and artificial insemination of animals were more adopted by the dairy animal owners. Timely and regularly vaccination and observing animals daily for signs of sickness were more adopted. Hygienic milking and calf rearing techniques were more adopted by the dairy animal owners.

Introduction

Tamil Nadu is an important state in milk production and marketing in India on co-operative dairy system. Production potential of livestock depends mostly on the management practices under which they are reared and these practices vary significantly across various agro ecological regions due to many factors. Understanding of livestock management practices followed by farmers in a region is necessary to identify the strengths and weaknesses of the rearing systems and to formulate suitable intervention policies (Gupta *et al.,* 2008). India has emerged as leading milk producer country in the world,

however productivity per milking animal is very low i.e. wet average kg/day in indigenous cows, crossbred cows and buffalo as 1.98, 6.75 and 4.50 respectively (Hegde *et al.*, 2006). This low production in India is mainly due to lack of low level of knowledge and adoption of improved dairy husbandry practices by dairy farmers. The latest scientific adoption of dairy farming is based on the main pillars of innovative balanced feeding, breeding, proper management and health control, which are the major elements to create ideal and expected conditions in animal husbandry. Various management Practices are important for the health and production of dairy animals. The present study was therefore undertaken with the objective of extent of adoption of improved dairy husbandry techniques in Erode district of Tamil Nadu.

Materials and Methods

A field survey was conducted in Erode district of Tamil Nadu during December 2018 to October 2019. In Erode district five talukas were randomly selected. From each selected taluka 5 villages having functional primary milk producer's co-operative societies were selected at random. Twelve dairy animal owners from each village were randomly selected with the help of village dairy cooperatives which constituted total of 300 respondents. The selected dairy farmers were interviewed with the help of pre-designed and pre-tested questionnaire.

A simple adoption scale was used in the present study (Sharma *et al.*, 1987). The scale contained sixty techniques, ten techniques from each of the area of housing, feeding, breeding, health care, milking and calf rearing management. Against each of the technique, there were three columns representing continued adoption, occasionally adopted and not adopted with weightage of 2, 1 and 0 respectively. The recorded responses were counted and mean score were calculated.

Results and Discussion

Adoption of housing management techniques

Data in Table 1 indicated that out of ten techniques included in adoption of housing management, housing in separate located place got the highest mean adoption score and occupied first rank. The second and third positions were occupied by proper orientation of animal shed and providing proper floor space, respectively. Proper height and ventilation, provision of pucca paved floor in the shed, keeping animals in the shed at night and outside during day time in winter season and vice-a-versa in summer, providing pucca manger, proper drainage and slope of floor, providing bedding material on the floor during winter and loose housing with seasonal modification were awarded 4^{th},5^{th} ,6^{th} ,7^{th} ,8^{th} ,9^{th} and 10^{th} respectively. These present findings are in accordance with the findings of (Chowdhry *et al.*, 2006; Gupta *et al.*, 2008) who observed that majority (76 to 86 %) of the respondents had separate animal sheds. Further, the majority (55 to 60 %) of the houses of animals were in east-west direction reported by Kumar *et al.*, (2011).

Adoption of feeding management techniques

Adoption of feeding management techniques presented in Table 2 revealed that provide clean and fresh drinking water got the highest mean score and occupied first rank. The second and third positions were occupied by feeding balance concentrate mixture on the basis of milk production and feeding extra ration to advance pregnant animals. Cultivation of green fodders, feeding mineral mixture, feeding green fodders to animal

round the year, chaffing of dry fodders before feeding, feeding of common salt occupied the rank of 4th, 5th, 6th, 7th and 8th, respectively. Urea treatment for improving the poor quality paddy straw and preservation of surplus green fodders as hay and Silage jointly obtained last rank as not a single respondent has adopted this technique. The present results of feeding balance concentrates mixture on the basis of milk production are similar to the results reported by Sheikh *et al.,* (2011) and encouraging than Divekar *et al.*(2008) reported by and lower than that observed by Akila *et al.,* (2012). Adoption of feeding of extra ration to advance pregnant animals are similar to the results reported by Chowdhry *et al.,* (2006) but lower than reported by Sharma *et al.,* (1987).

Adoption of breeding management techniques

Data in Table 3 indicated that out of ten techniques included in adoption of breeding management, keeping watch on oestrus cycle and heat symptoms of animals got the highest mean score and got first rank. The second and third positions were occupied by service/ insemination after 12-16 hours since onset of heat and artificial insemination of animals, respectively. Practicing pregnancy diagnosis between 60-90 days after service, treatment of anoestrus/repeat breeder, considering age and weight of heifers at first breeding, breeding after 60-90 day of calving, keeping record of service, calving and heat detection occupied the rank of 4th, 5th, 6th, 7th and 8th, respectively. Adequate exercise to pregnant animal and natural service with bulls of superior breed occupied the rank of 9th and 10th, respectively. The high adoption of keeping watch on oestrus cycle and heat symptoms of animals, service/insemination after 12-16 hours since onset of heat, artificial insemination of animals and practicing pregnancy diagnosis between 60-90 days after service by the respondents were due to the fact that the respondents had more awareness about these techniques as they are directly affecting the economy of farmers.

Adoption of health care management techniques

Adoptions of health care management techniques are presented in Table 4 revealed that out of ten techniques, timely and regularly vaccination got the highest mean score and awarded first rank. The second and third positions were occupied by observing animals daily for signs of sickness and proper cleaning and sanitation of shed, respectively. Deworming of animals, treatment of reproductive disorder, lice and tick eradication, proper treatment of sick animals by veterinarians, proper method of disposing of carcass of dead animals and isolation of sick animals from healthy ones were awarded 4th, 5th, 6th, 7th, 8th, and 9th rank, respectively. While, the last rank was awarded to prompt reporting of outbreak of contagious diseases to local veterinarians.

Adoption of milking management techniques

Data presented in Table 5 indicated that out of ten techniques included in adoption of milking management, washing pails and hands before milking had obtained the highest mean score which revealed that the respondents had adopted these techniques to the extent of 100 percent, hence this was ranked first. Similarly, Practices of milking politely, gently, quickly and quietly, preparation of animal before milking, regularity in milking time, complete milking followed by stripping, keeping milk record, dry hand milking, full hand milking method and proper drying of animal and sealing of teat canal by infusion of intra-mammary ointment had occupied 2nd, 3rd,4th, 5th, 6th, 7th, 8th and 9th, respectively. While the last rank was awarded to milking in clean and separate place.

Table.1 Extent of adoption of improved housing management techniques

Sr. No.	Practices	Total adoption score	Mean score	Rank order
1.	Housing in separate located place	540	1.80	I
2.	Proper orientation of animal shed	436	1 .45	II
3.	Providing proper floor space	298	0.99	III
4.	Proper height and ventilation	282	0.94	IV
5.	Provision of pucca paved floor in the shed	274	0.91	V
6.	Keeping animals in the shed at night and outside during day time in winter season vice-a-versa in summer	254	0.85	VI
7.	Providing pucca manger	200	0.67	VII
8.	Proper drainage and slope of floor	182	0.61	VIII
9.	Providing bedding material on the floor during winter	084	0.28	IX
10.	Loose housing with seasonal modification	000	0.00	X

Table.2 Extent of adoption of improved feeding management techniques

Sr. No.	Practices	Total adoption score	Mean score	Rank order
1.	Provide clean and fresh drinking water	594	1 .98	I
2.	Feeding balance concentrate mixture on the basis of milk production	430	1.43	II
3.	Feeding extra ration to advance pregnant animals	419	1.40	III
4.	Cultivation of green fodders	386	1.29	IV
5.	Feeding mineral mixture	358	1.19	V
6.	Feeding green fodders to animal round the year	219	0.73	VI
7.	Chaffing of dry fodders before feeding	030	0.10	VII
8.	Feeding of common salt	008	0.03	Vlll
9.	Urea treatment for improving the poor quality paddy straw	000	0.00	IX
10.	Preservation of surplus green fodder as hay and silage	000	0.00	IX

Table.3 Extent of adoption of improved breeding management techniques

Sr. No.	Practices	Total adoption score	Mean score	Rank score
1.	Keeping watch on oestrus cycle and heat symptoms of animals	593	1 .98	l
2.	Service/insemination after 12-16 hours since onset of heat	575	1 .92	II
3.	Artificial insemination of animals	538	1 .79	III
4.	Practicing pregnancy diagnosis between 60-90 days after service	536	1.78	IV
5.	Treatment of anoestrus/repeat breeder	453	1.51	V
6.	Considering age and weight of heifers at first breeding	374	1 .25	VI
7.	Breeding after 60-90 day of calving	346	1.15	VII
8.	Keeping record of service, calving and heat detection	243	0.81	VIII
9.	Adequate exercise to pregnant animal	179	0.60	IX
10.	Natural service with bulls of superior breed	062	0.21	X

Table.4 Extent of adoption of improved health care management techniques

Sr. No.	Practices	Total adoption score	Mean score	Rank order
1.	Timely and regularly vaccination	580	1.93	I
2.	Observing animals daily for signs of sickness	544	1 .81	II
3.	Proper cleaning and sanitation of shed	441	1 .47	III
4.	Deworming of animals	410	1 .37	1V
5.	Treatment of reproductive disorder	326	1.09	V
6.	Lice and tick eradication	309	1 .03	VI
7.	Proper treatment of sick animals by veterinarians	227	0.76	VII
8.	Proper method of disposing of carcass of dead animals	109	0.36	VIII
9.	Isolation of sick animal from healthy ones	097	0.32	IX
10.	Prompt reporting of outbreak of a contagious diseases to local veterinarians	050	0.17	X

Table.5 Extent of adoption of improved milking management techniques

Sr. No.	Practices	Total adoption score	Mean score	Rank order
1.	Washing pail and hands before milking	600	2.00	I
2.	Practices of milking politely, gently, quickly and quietly	590	1.97	II
3.	Preparation of animal before milking	586	1.95	III
4.	Regularity in Milking time	581	1.94	IV
5.	Complete milking followed by stripping	414	1.38	V
6.	Keeping milking record	131	0.44	VI
7.	Dry hand milking	074	0.25	VII
8.	Full hand milking method	056	0.19	VIII
9.	Proper drying of animal and sealing of teat canal by infusion of intra-mammary ointment	004	0.01	IX
10.	Milking in Clean and separate place	000	0.00	X

Table.6 Extent of adoption of improved calf rearing management techniques

Sr. No.	Practices	Total adoption score	Mean score	Rank order
1.	Attending newly born calf and proper cleaning of mucous from mouth and nostrils	572	1.91	I
2.	Early solid feeding	529	1.76	II
3.	Trimming of hooves	473	1.58	III
4.	Regular Deworming of calf	414	1.38	IV
5.	Milk feeding to calf upto three months	397	1.26	V
6.	Right time and method of dehorning	222	0.74	VI
7.	Feeding of colostrums to newly born calf within one hour after birth	204	0.68	VII
8.	Right time and method of castration	153	0.51	VIII
9.	Providing bedding material on floor in winter season	074	0.25	IX
10.	Ligating and disinfection of naval cord	031	0.10	X

Adoption of calf rearing management techniques

Adoption of calf rearing management presented in Table 6 revealed that out of ten techniques, attending newly born calf and proper cleaning of mucous from mouth and nostrils got the highest mean adoption score and occupied first rank. The second and third positions were occupied by early solid feeding and trimming of hooves, respectively. Regular deworming of calves, milk feeding to calves upto three months of age, right time and method of dehorning, feeding of

colostrums to newly born calves within one hour after birth, right time and method of castration, Providing bedding material on floor in winter season and legating and disinfection of naval cord were awarded 4th, 5th, 6th, 7th, 8th, 9th and last rank respectively.

It can be concluded that provision of bedding material on the floor during winter, providing pucca manger and proper drainage and slope of floor in animal shed were least adopted by the dairy animal owners. Very few respondents adopted the chaffing of dry fodders, feeding of common salt and feeding of green fodders. Records keeping and other routine farm operations were least adopted technique in breeding and health care management. Very few respondents adopted feeding of colostrums to new born calf within one hour after birth and ligating and disinfection of naval cord.

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