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

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**Abstract**

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.

**Keywords**

Adoption, Dairy husbandry technique, Erode District

**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
taluca 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 4th,5th,
6th, 7th, 8th, 9th and 10th 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       | VIII       |
| 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       | I          |
| 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       | IV         |
| 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          |

Adoption of calf rearing management techniques

Adoption of calf rearing management techniques 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 up to 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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