# CORRELATES OF GAP IN ADOPTION OF DAIRY MANAGEMENT PRACTICES AMONG CATTLE OWNERS OF BIKANER DISTRICTS

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**ABSTRACT**

Present study was conducted in hyper arid partially irrigated agro-climatic zone Ic of Rajasthan during the year 2011-12. To find out the gap in adoption of improved practices in dairy management and ascertain the correlation of gap in adoption. The investigation was conducted on five villages of one Panchayat Samiti in district Bikaner. The sample for the study constituted 240 large, medium and small farmers comprising 80 farmers from each category. The study concluded that there was high gap in adoption of improved dairy management practices among all the categories of farmers. Different in gap was also observed from practice to practice and among various categories of farmers. Out 18 characteristics of cattle owners except age and size of land holding all were found significantly and negatively associated with gap in adoption among all categories of farmers. The study further highlighted that variety of constraints erratic rainfall conditions, non-availability of dual purpose fodder varieties, lack of health care centre, optimum results, insufficient forage grasses on pastureland, lack of knowledge about insurance and other Govt. Welfare schemes, not aware about vaccination, improved practices and lack of fund were perceived by the cattle owners while knowledge about deworming of calves, maintain large herd of animals, unavailability of inputs and lack of management ability were least faced by the cattle owners in adoption of improved practices of dairy farming.

***Key words**:* Cattle, dairy practices, adoption

## Introduction

Animal husbandry is the main subsidiary occupation of Indian farmers. It is the chief source of money and employment around the year, India ranks first in cattle population with 204 million cattle, which is about 50 per cent of Asia and 16 per cent of the world cattle population. Despite the fact that India is the highest milk producer in the world, per cattle production as far below, 800-900 kg/lactation as against the average of 4000 to 7000 kg in European countries, 7500 kg in USA and 9000-1000 kg in Israel. The low productivity of livestock is a matter of great concern. This might be due to inadequate supplies of quality feeds and fodder. Global trend in animal production indicates a rapid and massive increase in the consumption of livestock products. It is predicted that meat and milk consumption will increase upto 2.8 and 3.3 per cent per annum, respectively.

In the 11th five year plan (2007-2012) of India, targeted growth in milk, meat and egg production has been projected at the rate of 5.6 and 12.0 per cent, respectively to produce 130 million tonnes milk, 7million tonnes meat and 95 million eggs by 2012. In 2006-2007, this sector contributed 101 million tonnes of milk, 51 billion eggs, 45 million kg wool and 2.3 million tonnes of meat.

The human population in India is expected to reach over 1,400 million by 2025. The 27.8 per cent urban population is supposed to increase by over 58.0 per cent by 2025. In Rajasthan, according to recent livestock census, the state share of cattle population was about 21 per cent and buffaloes constituted about one-fifth of the total cattle population. Hyper arid partially irrigated western plain is characterized by sand dunes and inter denial land with little vegetation. Shares about 18.0 per cent of cattle and about 5.0 per cent of the buffalo total population.

Several factors have been considered to be correlated for such poor productivity like gradual deterioration of breed, poor fertility, poor breeding, feeding and management practices and poor knowledge about improved dairy farming practices of the farmers.Inspite of various technological development and technology transfer efforts being maid, hardly 30 per cent of the available improved dairy farming practices are being put in to practice at the farmers level. It is, therefore, of paramount importance to develop a susceptible extension strategy for the rapid dissemination of improved dairy farming technologies among various categories of farmers. With this point in view the present study was undertaken with the following specific objectives:

(1) To find out the gap in adoption of dairy farming practices among various categories of farmers.

(2) To ascertain the relationship between personal socio-economic and psychological features of cattle keepers with their level of gap in adoption of improved dairy farming technology.

## Methodology

The present investigation was carried out in Agro climatic zone 1c of Rajasthan (Hyper and Partially Irrigated Western Plain) during the year 2011-12. The zone comprises of three districts namely, Bikaner, Churu and Jaisalmer. Out of total ten Panchayat Samitiesof the zone twoPanchayat Samities namely Bikaner and Sardarshahar were selected purposely on the basis of higher population of livestock and assured irrigation facilities. Five villages were selected from each

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Panchayat Samiti. Therefore, twenty four cattle owners (8 small, 8 medium and 8 large farmers) were selected randomly from each of the selected village. Thus, a sample of 240 cattle keepers constituted for the study. Data were collected by personal interview method with the help of a structured schedule constructed for the purpose. The analysis and interpretation of data will be made using appropriate statistical tools like frequency, percentage, mean, standard deviation and correlation coefficient.

Technological gap index developed by the All India Coordinated Research Programme in extension education; IARI, New Delhi was used to measure the technological gap.

$$\text{Technological gap index} = \frac{R - A}{R} \times 100$$

Where, R = Recommended practices

A = Practice actually adopted by the farmers.

The technological gap index was treated in this study as dependent variables.In all 18 independent variables were included in this study in order to analyse their relationship with the dependent variable i.e., technological gap index. The independent variables choose for the study were age, income, extension contact, knowledge of improved dairy practices, education, caste, income, farm power, family composition, Herd size, social participation, socio-economic status, risk orientation, level of aspiration, economic motivation, cosmopoliteness, achievement motivation and attitude towards dairy farming, innovations and agricultural infrastructures.

## Results and Discussion

### Extent of gap in adoption of improved dairy management practices

The frequency distribution of the respondents on the basis of basis of their technological gap index is presented in Table 1. It is evident from that the adoption gap was found higher in case of small farmers (66.25%) than that of medium (60.00%) and large farmers (45.00%). Further, the adoption gap was greater in medium farmers (82.50%) than that of large farmers (75.00%). Khan (2006), Dharate *et al*. (2008) and Lawrence and Ganguli (2012) were also reported more or less similar findings.

### Practice wise extent of gap in adoption of improved dairy management practice

The result with regards to the practice wise extent of gap in adoption of improved dairy management practice are presented in Table 2 revealed that all most all the categories of farmers had high gap in adoption of improved dairy management practices. It is also evident from the findings of this study that the adoption gap was found to be higher incase of small farmers than medium farmers and at the same time the adoption gap of medium farmers was higher than large farmers in all the selected seven improved dairy management practices in overall, Maximum gap was observed in insurance of animals (82.10%) followed by breeding (75.52%), feeding (72.45%) and health care (71.22%). However, cattle shed management practice (62.34%), clean milk production (67.31%) and disposal of dead animals (67.08%) were reported least gap by the respondents and awarded rank VI and VII, respectively. Similar findings were also reported by Khan (2006), Lavania (2009) and Aulakh and Sharma (2012).

### Correlates of gaps in adoption

The 18 independents variables in the investigation were included to know relationship with the dependent variable i.e., gap in adoption of dairy farmers was found by computing correlation coefficient (r). The results presented in this regard in Table 3. Table 3 indicated that out of 18 personal, socio-economic and psychological and situational independent variables. 15 variables were found to be significantly and negatively related with the gap in adoption of improved dairy management practices except age and caste. In small and medium categories of cattle owners, the family composition was found positively and significantly related with the adoption gap of improved management practices while in category of large farmer it was found to be non-significantly related with the gap in the adoption of dairy management practices. This indicated that with the increase in the independent variables the gap in adoption of improved animal husbandry practices decreased correspondingly. However, age and caste nothing to do with the gap in adoption amongst all the categories of farmers.Similar findings were reported by Marwale *et al.* (1995), Khan (2006), Gupta *et al.* (2007) Soni and Mathur (2011) and Lawrence and Ganguli (2012).

From Table 4 it could be inferred that most important factors for non adoption of improved dairy management practices of dairy farming were erratic rainfall condition (62.50%) followed by non-availability of dual purpose fodder varieties (60.41%) and lack of health care centre in nearby (57.08%). Table further reveals that about half of the respondents were found in optimum results (49.58%), un-sufficient forage grasses on pasture land (49.16%) and lack of knowledge about insurance and other government welfare scheme (48.75%) awarded IVth, Vth, and VIth ranks respectively.Less than half of the respondents were facing problems like not aware about vaccination against HS, EMD, B.Q. disease regularly (44.16%), lack of knowledge about improved practices (42.08%), lack of fund (40.41%) and lack of facilities to store milk (39.58%) and accorded VIIth, VIIIth, IXth and Xth ranks, respectively. However, about one-third of the respondents faced the problems like not aware about the practice of A.I. (36.25%) and pregnancy diagnosis (33.34%), about feeding of mineral mixture regularly (32.91%), unavailability inputs (32.04%), knowledge about deworming of calves (31.25%) and farmers maintain large herd of animals (28.75%) and stood placed XI, XII, XIII, XIV, XV and XVIth ranks, respectively. Thakur *et al.* (2011) had also given the same results.

Problem like lack of managerial ability (24.16%) were least perceived by the respondents about adoption of improved management practices of animal husbandry (Table 4) and exhibited minimum adoption gap was observed in this technology. This may be due to the facts that majority of the respondents were having education upto middle school. This type of results arrived in the study area due to most of small farmers were rearing the animals to meet out their daily requirement of the milk and milk product. The results

are in conformity with the results of Kokate and Tyagi (1991), Meena *et al*. (2004), Meena *et al.* (2007), Dharate *et al*. (2008), Lavania (2009), Chauhan and Singh (2011) and Thakur *et al*. (2011).

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Table 1: Distribution of respondents according to their technological gap index about improved dairy management practices (N = 240)

| Category | Small farmers (N=80) | | Medium farmers (N=80) | | Large farmers (N=80) | | Total (N=240) | |
|---|---|---|---|---|---|---|---|---|
| | F | % | F | % | F | % | F | % |
| High | 53 | 66.25 | 48 | 60.00 | 36 | 45.00 | 137 | 57.08 |
| Medium | 22 | 27.50 | 18 | 22.50 | 24 | 30.00 | 64 | 26.67 |
| Low | 05 | 6.25 | 14 | 17.50 | 20 | 25.00 | 39 | 16.25 |

Table 2: Adoption gap large, medium and small farmers on improved dairy management practices

| S. No. | Improved dairy management practices | Adoption gap | | | | Rank |
|---|---|---|---|---|---|---|
| | | Small farmers (N=80) | Medium farmers (N=80) | Large farmers (N=80) | Overall (n=240) | |
| 1. | Breeding practices | 84.60 | 79.70 | 62.25 | 75.52 | II |
| 2. | Feeding practices | 81.65 | 75.20 | 60.50 | 72.45 | III |
| 3. | Improved housing | 69.25 | 62.50 | 55.25 | 62.34 | VII |
| 4. | Health care & Immunization | 82.60 | 73.25 | 57.80 | 71.22 | IV |
| 5. | Clean milk production | 75.00 | 66.67 | 60.25 | 67.31 | VI |
| 6. | Disposal of dead animals | 70.20 | 78.25 | 55.50 | 67.98 | V |
| 7. | Insurance of animals | 89.50 | 81.50 | 75.25 | 82.10 | I |
| | | | | | | |

Table 3: Correlates of gap in adoption of improved dairy management practices by the cattle owners.

| S. No. | Socio-economic and psychological features | Correlation coefficient (r) | | |
|---|---|---|---|---|
| | | Small farmers | Medium farmers | Large farmers |
| 1. | Age | -0.314NS | -0.108NS | -0.085NS |
| 2. | Education | -0.657* | -0.871** | -0.475** |
| 3. | Caste | -0.037NS | 0.073NS | 0.012NS |
| 4. | Family composition | 0.227** | 0.337** | -0.319NS |
| 5. | Farm power | -0.103* | -0.240* | -0.361* |
| 6. | Social participation | -0.706** | -0.516** | -0.547** |
| 7. | Socio-economic status | -0.841** | -0.941** | -0.825** |
| 8. | Risk orientation | -0.360* | -0.741** | -0.673** |
| 9. | Knowledge of improved A.H. practices | -0.88** | -0.68** | -0.84** |
| 10. | Level of aspiration | -0.612** | -0.630** | -0.650** |
| 11. | Economic motivation | -0.581* | -0.701** | -0.510** |
| 12. | Cosmopoliteness | -0.690* | -0.601** | -0.572** |
| 13. | Achievement motivation | -0.530** | -0.895** | -0.901** |
| 14. | Cosmopoliteness | -0.531** | -0.480** | -0.507** |
| 15. | Income | -0.387** | -0.256** | -0.224* |
| 16. | Attitude towards dairy farm innovations | -0.973** | -0.832** | -0.671** |
| 17. | Agril. Infrastructures | 0.0253** | -0.466* | -0.591** |
| 18. | Herd size | -0.456** | -0.425* | -0.326** |

* Significant at 0.05 level of probability;** Significant at 0.01 level of probability; NS = Non-significant

Table 4: Probable reasons realized for gap in adoption of dairy management practices

| S. No. | Constraints/ Reasons | Small farmers (N=80) | | Medium farmers (N=80) | | Large farmers (N=80) | | Pooled (N=240) | | Rank |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | % | F | % | F | % | F | % | |
| 1. | Lack of knowledge about improved practices | 45 | 56.25 | 33 | 41.25 | 22 | 28.75 | 101 | 42.08 | VIII |
| 2. | Unawarness about practice of artificial insemination | 32 | 40.0 | 30 | 37.50 | 25 | 31.25 | 87 | 36.25 | XI |
| 3. | Lack of fund | 43 | 53.75 | 36 | 45.00 | 18 | 22.50 | 97 | 40.41 | IX |
| 4. | Unawaress about vaccination against H.S., EMD, BQ disease regularly | 54 | 67.50 | 40 | 50.00 | 12 | 15.0 | 106 | 44.16 | VII |
| 5. | Unavailability of inputs | 33 | 41.25 | 29 | 36.05 | 15 | 18.75 | 77 | 32.00 | XIV |
| 6. | Unawaress about mineral mixture regularly | 36 | 45.00 | 24 | 30.00 | 19 | 23.75 | 79 | 32.44 | XIII |
| 7. | Lack of knowledge about insurance policy | 59 | 73.75 | 49 | 61.25 | 09 | 11.25 | 117 | 48.75 | VI |
| 8. | Erratic rainfall conditions` | 66 | 82.50 | 32 | 40.00 | 52 | 65.00 | 150 | 62.50 | I |
| 9. | Non-availability of dual purpose fodder varieties | 56 | 70.00 | 58 | 72.50 | 31 | 38.75 | 136 | 62.50 | II |
| 10. | Unawaress about pregnancy diagnosis | 32 | 40.0 | 35 | 43.75 | 13 | 16.25 | 80 | 33.33 | XII |
| 11. | Lack of health care centres nearby | 64 | 80.00 | 38 | 47.50 | 35 | 43.75 | 137 | 57.08 | III |
| 12. | Knowledge about deworming of calves | 33 | 41.25 | 25 | 31.25 | 17 | 21.25 | 75 | 31.25 | XV |
| 13. | Un-sufficient forage grasses on pasture land | 55 | 68.75 | 29 | 36.25 | 34 | 42.50 | 118 | 49.16 | V |
| 14. | Farmers maintain a large herd of animals | 05 | 6.25 | 15 | 18.75 | 49 | 61.25 | 69 | 28.75 | XVI |
| 15. | Lack of managerial ability | 29 | 36.25 | 18 | 22.50 | 11 | 13.75 | 58 | 24.16 | XVII |
| 16. | Lack of facilities to store milk in cool and dry place | 52 | 65.00 | 31 | 38.75 | 12 | 15.00 | 95 | 39.58 | X |
| 17. | Optimum results | 48 | 60.00 | 39 | 48.75 | 32 | 40.00 | 119 | 49.58 | IV |

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