A Study of Knowledge and Attitude of Milk Producers Towards Improved A. H. Practices in Pusa Block of Samastipur District

By

Dr. Prabhat Kumar Singh

A THESIS

SUBMITTED TO THE

RAJENDRA AGRICULTURAL UNIVERSITY

BIHAR, PUSA

In partial fulfilment of the requirements

FOR THE AWARD OF THE DEGREE OF

Master of Veterinary Science

(EXTENSION EDUCATION)

DEPARTMENT OF EXTENSION EDUCATION

RAJENDRA AGRICULTURAL UNIVERSITY, BIHAR

PUSA (SAMASTIPUR)-848 125, INDIA

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Regd. No. M/V.E.E./36/1998-99 of R.A.U.

Dedicated

to

My heavenly

Maa

&

Babujee late S.P. Singh '*Suman*'

Whose perpetual affection, constant encouragement
and everlasting blessings enabled me
to stand the way
where I stand today .....!

➢ **BOBBY**

BIHAR VETERINARY COLLEGE, PATNA
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This is to certify that the thesis entitled **"A STUDY OF KNOWLEDGE AND ATTITUDE OF MILK PRODUCERS TOWARDS IMPROVED A.H. PRACTICES IN PUSA BLOCK OF SAMASTIPUR DISTRICT"** submitted in the partial fulfilment of the requirements for the award of the degree of **MASTER OF VETERINARY SCIENCE (EXTENSION EDUCATION)** of the Faculty of Post-graduate studies, Rajendra Agricultural University, Bihar, is a faithful record of ***bona fide*** research work carried out by **Dr. PRABHAT KUMAR SINGH** under my supervision and guidance.

This is further certified that no part of this thesis has been submitted for any other degree or diploma. The help and information received during the course of thesis investigation and preparation have been duly acknowledged.

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CERTIFICATE

This is to certify that the thesis entitled **"A STUDY OF KNOWLEDGE AND ATTITUDE OF MILK PRODUCERS TOWARDS IMPROVED A.H. PRACTICES IN PUSA BLOCK OF SAMASTIPUR DISTRICT"** submitted by **Dr. PRABHAT KUMAR SINGH** in the partial fulfilment of the requirement for the award of degree of **MASTER OF VETERINARY SCIENCE (EXTENSION EDUCATION)** of the Faculty of Post-graduate studies, Rajendra Agricultural University, Bihar, was examined and approved on 13-4-, 2002.

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ABSTRACT

Our country is endowed with very rich livestock wealth in the form of different important species of domestic animals. India has world's best dairy cattle, draft cattle, buffaloes, carpet wool sheep and prolific breeding goats. Not only this but also in terms of milk production, the country stands Ist rank in the world. The importance of livestock in the agrarian economy of Bihar is borne out with the fact that state supports a population of 16.2 million cattle and 406 million buffaloes having 10.54% and 11.32% of the total livestock population of the species respectively. Presently, the state share in national milk production is being declined from 9.40% to 5.69%, subsequently per capita milk availability has also been reduced from 133 gm to 104 gm which is considered as very meagre rather than the recommended allowance of 280 gm/p/day by the National Advisory Committee of ICMR.

Now-a-days despite the increase in milk production per capita, milk availability is not moving so fast due to rapid increase of growing population. The gap between the requirement and supply of the milk hampering the nutritive and balance dietry system of the people. The scenario in Bihar is also alarming where the milk output is comparatively more lower than the other states of the country.

Although, some efforts has been made to explore the causes for lower milk production in the state through the government sponsored agencies yet no systematic research based information has been generated in this area specially in view of animal husbandry perspective. In view of the same, present study has been proposed to undertake a study to ascertain the extent of knowledge and attitude of milk producers of Pusa block towards their improved A.H. practices i.e. feeding, breeding and management practices.

Specific objectives of the study

(i) To assess the extent of knowledge of the milk producers with respect to improved A.H. practices.

(ii) To measure the attitudinal orientation of milk producers towards different A.H. practices.

(iii) To ascertain the association between selected independent variables and dependent variables.

(iv) To explore the constraints involved in non-adoption of improved A.H. practices.

Methodology

The present study was carried out in Pusa block of Samastipur district. Four villages namely Mahmada, Malikaur, Dighra and Morsand were selected on the basis of milk production (per year) as per the record of Dairy Cooperative Societies (DCS). Further, 25 milk producers from each villages were identified as a sample based on the assumption of their milk production and sale of milk for commercial gain. Thus, the total sample includes 100 milk producers.

Salient findings

The findings of the study have been described under the different group. The first group deals the socio-personal characteristics of milk producers while the 2nd describe the relationship between the selected independent variables and

dependent variables. The last section deliberates the constraints in non-adoption of improved A.H. practices. The salient findings of the study may be discussed here as :

1. The age-wise distribution of sample shows that 72% of the selected milk producers were belong to the age group of 31 to 40 yrs. of age followed by the respondents of young and advanced age group.

2. The results related with the educational level of the respondents indicated that 41% of the total selected milk producers were having their matriculation while 34% of respondents were having graduation and above the college level of education. Only 1% respondent from the group of milk producers was observed as illiterate.

3. With regards to family structure, it was found that 48% of the milk producers were having their medium family whereas 39% of the respondents belonged to large family. Further, with respect to their land holding size, it was observed that only 12% were the marginal farmers, 41% of the respondents were having small holdings whenever only 14% of the respondents were observed from the large land holding group. The 33% of the milk producers were coming from the medium level of land holding group.

4. The findings revealed that 21% of the selected respondents were reported that they opted animal husbandry as their profession whenever 45% were considered themselves as cultivators. The majority *i.e.* 42% were reported their annual income between the Rs 25000 - 40000. The 40% of the selected respondents were reported that they were in possession 6 to 8 milch animals while 34% of the stated then milch animals between 3 to 5.

5. With regards to milk production 34% of the selected milk producers were told that they were producing 11 to 15 ltr. milk p/d. while 28% and 22% of the respondents were reported in between 6 to 10 ltr/p/d and more than 20 ltr p/d respectively.

6. The results revealed that 69% of milk producers were having medium level of knowledge with respect to their improved feeding, 52% of the respondents were shown their medium level of knowledge with respect to the breeding practices and also 46% of respondents were also shown their medium level of knowledge with respect to the A.H. management practices. Although some respondents were reported that they were possessing high level of knowledge *i.e.* 13% in the case feeding and 15% in the case of improved A.H. management practices but none of respondent was reported their high level of knowledge regarding the improved A.H. breeding practices.

7. In terms of attitudinal orientation, it was observed that 33%, 43% and 41% of the total selected respondents were shown their moderate favourable attitude towards improved feeding, breeding and management practices respectively. Some extent of unfavourable attitudinal orientation was observed maximum in breeding practices followed by the feeding and management practices. While 33%, 16% and 28% of the total selected respondents were shown their most favourable attitudinal orientation towards the feeding, breeding and management practices, respectively.

8. The correlation coefficient analysis shows that age and education variables were very closely associated with respect to the knowledge level by the milk producers. The occupation of the milk producers was also found to be correlated with the knowledge level of the respondents. Almost similar results were observed in the case of attitude of the respondents in which age education, occupation and income variables were found to be associated with the attitudinal orientation of the sample.

9. On the basis of study, it was also found that there were five most important constraints involved in non-adoption of improved A.H. practices. According to their ranking they were very low conception rate and other gynaecological problems, lack of loan facility to boost their enterprise, lack of A.I. facility, high price of medicine, concentrate and minerals along with

the untimely availability of vaccine and lack of other managemental practices.

Conclusion

The study dealt with the valuable information with the milk producers who were involved in milk production. The study also provided a much needed feed back information to the A.H. scientist, veterinarians and A.H. extension workers who are engaged in milkout process through their efficient efforts in the areas of feeding, breeding and management practices of animal husbandry programmes. The implication of the research findings were further examined in view of the fact that there is urgent need to repeat such kinds of field studies for better generalization of results for the entire state.

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Introduction

I feel, we are on the brink of an era of expansion of knowledge about ourselves and our surrounding system that is beyond description of comprehension at this time.

- John Glenn

INTRODUCTION

After the independence, several developmental programmes have been launched in India to improve the socio-economic condition and civil position of the farming community. In this regard, dairying is also considered as a most profitable complimentary enterprise in agriculture which constitutes an important activity for accelerating the rural economy of the country. The Indian dairy industry establishes off-farm activities of paramount importance providing vast opportunities for gainful employment and to generate the suitable income for the weaker and under employed section of society. The need for dairy development was realised in view of both for the development of farming community as well as for the development of the nation too. For the former, the establishment of a successful dairy industry would provide them a meaningful employment with regular flow of income from the sale of milk and for the later it would mean additional milk production, influencing positively the balanced nutritional diet through the regular supply to the urban areas and milk processing plants as well as generating additional employment, especially for underemployed who are in the possession of scanty or marginal land in the particular areas of the residence.

India is endowed with such livestock resources which surviving under the environmental stress and inadequate levels of nutrition and management. However, the gross value of output from this sector is estimated at 25.5 per cent (Rs. 51600 crores in 1991-92) of the total agricultural output (excluding the contribution of animal draft output). Thus, the country stands first in the milk production of the world with an estimated milk production of 73.5 million tonnes in 1998-99. The success in raising the level of milk production is ascribed to the operation flood project, world's largest integrated dairy development programme started in 1970 by the National Dairy Development Board (NDDB). Over 65300 dairy co-operative societies have been organised in 170 milk sheds involving

about 8.4 million farmers members under the scheme. Through the effort, our country is characterised by the unique fact that almost every farmer in India is considered as milk producer. Nearly two third of milk producers of our country are small and marginal farmers. The nature has also bestowed India with a huge livestock population besides the highest buffalo population in the world. About one sixth of the cattle and about one half of the buffalo population are found in our country. The National Commission on Agriculture (NCA 1976) has rightly observed that dairying as an additional enterprise is an important instrument of great significance for improving the socio-economic status of the common masses.

In order to improve the productivity potential of our livestock, an extensive infrastructure was developed in our country. The key village schemes, Intensive cattle development projects and different breed improvement programmes were introduced and initiated under rural development process. At present there are 500 key village blocks, 134 intensive cattle development projects (ICDP), 94 cattle breeding farm, 51 buffalo breeding farm, 184 exotic cattle and cross bred farm are smoothly functioning at the country level. Besides these functional units, Agricultural and Veterinary institutions/Universities, veterinary hospitals and dispensaries are also actively engaged in propagation of the relevant and suitable technologies among the rural folk as a result, milk production of India has increased significantly but it is still below at the rate of requirement due to rapid growth of population.

The per capita availability of milk during 1980-81, was 125g. It rose to 178g by 1990-91. During 1993-94 it was 188g while it further increased to 194g by 1994-95 and to 203g by 1997-98. The projected per capita availability by 2000-2001 is 232g where as the present requirement is 280g/capita/day as per ICMR recommendations. It is also worthwhile to mentioned here that there is much difference between the exact per capita availability and recommended requirements of milk in our country. Therefore, number of scientific efforts and activities related with animal husbandry programmes are being initiated to overcome this gap.

The importance of livestock in the agrarian economy of Bihar is borne out with the fact that state supports a population of 16.2 million cattle, 4.6 million buffalo, and 12.2 million goat *i.e.* 10.54 per cent, 11.32 per cent and 8.17 per cent of the Indian population of the species, respectively. The per capita availability of milk in Bihar in 1989 was estimated 90.4 gm/day and during 90-95 it was found 95.2 gm/day which is far lower than the recommended allowance of Indian Council of Medical Research (ICMR).

Even though, the state is rich in total animal strength but the progress of animal husbandry (A.H.) sector does not seem to be satisfactory. The area around Pusa has a distinct characteristic of low per capita land and farmers are forced to undertake subsidiary occupation like animal husbandry as a part of their economic enterprise. Among the group of small and marginal farmers, cattle farming appears to hold the cardinal position for their basic survival. But the yield level of their milch animals is not upto the mark and still a lot of scope exists to increase then productivity potential by way of changing their attitude, providing appropriate suitable knowledge related with the improved feeding, breeding, health care and management practices of animal husbandry. Also a better understanding of the factors operating directly or indirectly, affecting the extent of knowledge and attitude will serve as a base data for initiating an appropriate programme of animal husbandry extension in this area because several studies have revealed that the attitudes and the actions of farming communities are by and large intercorrelated with different situational variables. In fact, no studies of such nature have been conducted in this area so far, however, there are some reports by which sporadic attempts have been made here and there. Therefore, the present study would provide much needed feedback for milk producers as well as for extension workers, involved in diffusion of animal husbandry innovations. Keeping the aforesaid points in view, the present study has been proposed to proceed with following out standing objectives :-

1.2 Objective of the study

(i) To assess the extent of knowledge of the milk producers with respect to improved animal husbandry practices.

(ii) To measure the attitudinal orientation of milk producers towards different improved animal husbandry practices.

(iii) To ascertain the association between selected independent variables and dependent variables.

(iv) To explore the constraints involved in non-adoption of improved animal husbandry practices as perceived by milk producers.

1.3 Scope and importance of the study

The proposed study intends to know the extent of existing level of knowledge of different animal husbandry practices and the type of their attitude towards improved animal husbandry practices. With this effort, it would be possible to observe the level of variation and the factors/constraints which are associated with the variation in the level of knowledge and attitude of the milk producers. With the help of knowledge and attitude of the milk producers alongwith the various factors, the animal husbandry extension workers, planners and policy makers can come across with the behavioural problems of the livestock owners in this particular area (*viz.* feeding, breeding & management).

In order to discover the intrinsic constraints and search out the scientific ways for solving the prevailing animal husbandry problems among the milk producers, this study would provide a meaningful information through which suitable strategies can be formulated for the benefits of people through the responsible agencies. If it can be precisely known as to who are the farmers those lag behind compared to others in respect of their knowledge and attitude towards improved animal husbandry practices and what are their socio-economic characteristics, then only appropriate steps can be fruitful to focus the attention on these laggards.

Thus, it seems desirable to assess the status of the knowledge of the livestock owners through a systematic and scientific study. The proposed study on knowledge and attitude towards improved animal husbandry practices would certainly focus its light on the inter-connected approach of animal husbandry development in comprehensive way.

Limitations of the study

1. As the entire investigation is based upon the expressed opinion of the respondents, individual's attitude which he himself perceived, individual biases might have crept up as it happens in most of the cases in such investigations.

2. Though utmost efforts were made to make best use of standardized tools and techniques of data collection yet their accuracy may not be guaranteed.

3. Though, all possible precautions were taken to make the study precise, objective and reliable but because of limited time and resources at the disposal of the student investigator, the study was restricted to a few villages of Samastipur district. Therefore, findings might not hold the universality for the areas not resembling with the present setting.

Organization of the thesis

This thesis dissertation is presented here in five chapters. The first one of which, gives an introduction to the topic, the specific objectives of the investigation, statement of the problem, importance and scope of the study and states the limitations of the study. A review of the relevant past studies and observations are incorporated in the second chapter. Research methods and techniques have been discussed in third chapter. The analysis and interpretation of data alongwith suitable discussion of findings constitute the content of fourth chapter. The fifth chapter appears with the summary and implications of the study. The literature consulted and cited in the body of the presentation have been enlisted in other section after the summary and implications. Relevant appendices have also placed at the end of the dissertation.

Review of Literature

Practically all human knowledge can be found in books and libraries. Unlike other animals, that most start a new with each generation, man builds upon the accumulated and recorded knowledge of the past.

- John W. Best

REVIEW OF LITERATURE

A comprehensive review of literature is regarded as an essential part of any scientific investigation. It is also necessary for the researcher to acquaint himself with the work done in the past in order to delineate the important problem areas. In fact, there are very few studies available on the pattern of the proposed investigation in the field of animal husbandry. However, they provided much help in formulating conceptual frame work, devising research methodology and drawing inferences for the study. In the present chapter, past researches related to the present investigation have been reviewed with the following objectives :

(i) Determination of the prior works (theoretical as well as practical) carried out and stating the problems.

(ii) To give a basis for the theoretical framework for the study area.

(iii) To provide an insight into the procedures and methods for various studies by which the methodological issues has to be borne out.

(iv) To suggest operational definitions related with major concepts used during the study.

(v) To provide a basis for interpretation of the results.

(vi) To provide opportunity for the comparison of the obtained findings.

For the sake of convenience, the review of relevant literature are being presented here under the following sections :

2.1 Section I : Factors influencing the socio-personal characteristics of milk producers towards improved A.H. practices.

2.2 Section II: Factors influencing the knowledge level of the respondents.

2.3 Section III: Factors influencing the attitudinal orientation of the respondents.

2.4 Section IV: Miscellaneous review of studies regarding constraints involved in non-adoption of animal husbandry innovations

Section I

2.1 Factors influencing the socio-personal characteristics of milk producers towards improved A.H. practices

2.1.1 Age

Mahipal (1983) reported that age was found to be positively but non-significantly correlated with breeding, feeding, health care, management and overall adoption of dairy innovations of the medium farmers. However, age was significantly but negatively correlated with adoption of health care practices in case of small farmers.

Sayeedi (1983) found no significant relationship with age and adoption of scientific dairy innovations.

Sheoran (1987) found no significant relationship with age of the beneficiaries and breeding, feeding, health care and management practices but it had positive and significant correlation with overall adoption.

2.1.2 Education

Hazarika (1983) revealed that the knowledge of dairy farmers was positively correlated with the education status. Sayeedi (1983) indicated that educational status of the family was found to influence either negatively or positively with the level of knowledge of dairy farmers.

Singh (1987) found positive and significant relationship with the educational status and level of knowledge about milk producers co-operative societies and adoption of scientific dairy farming practices. He further reported that majority of the respondents from high family education status had more medium level of knowledge and it was followed by medium level and low level of educational status. The respondents with high family educational status had high level of adoption of scientific dairy farming practices as compared to low and medium family education.

Goswami (1987) observed that in comparison to small and medium-large categories of livestock owners, the landless had significantly lower educational status. In comparison to small and medium-large categories of the livestock owners, the marginal categories of livestock owners had significantly lower educational status. He further reported that educational status was found positively and significantly correlated with the knowledge level of AI, vaccination against HS, FMD and RP, deworming and green fodder cultivation.

Kumar (1997) reported that education was highly significant with adoption behaviour of milk producers towards improved A. H. practices.

2.1.3 Family size

Kapse (1976) found that family size had positive correlation with the knowledge of dairy husbandry practices.

Sidhu (1980) stated that the knowledge and family size in case of dairy husbandry practices were independent.

Hazarika (1983) observed that the knowledge of dairy farmers was found correlated positively with the family size. Sayeedi (1983) reported that family size was found to influence negatively and positively with the level of knowledge of dairy farmers towards acceptance and practising new practices for their own benefits.

Babu (1992) reported that majority of the livestock owners had medium family size, medium herd size and medium level of milk production.

Goswami (1987) found that family size had no significant association with the knowledge level about AI, vaccination against HS, FMD and RP, deworming, cultivation of green fodder crops, feeding of green fodder, feeding of concentrates and over all knowledge level about animal husbandry practices.

2.1.4 Land holding

Subramanian (1982) in his study observed that out of 5 practices studied under breeding, the practice of service at proper time of heat was adopted by majority of small and big farmers/milk producers of both the less and more successful societies.

Sayeedi (1983) concluded that the farmers with the small land size had high level of adoption as compared to the farmers with medium and large land size.

Kokate (1984) found that size of land holding had significant association with adoption of dairy innovations.

Sheoran (1987) reported that farm size had no significant relationship with breeding, health care, management and adoption but it had positive and significant correlation with feeding and overall adoption.

2.1.5 Occupation

Singh *et al.* (1985) reported that the socio-personal and economic variables e.g. education, social participation, occupation and total milk production are important factors for adoption of dairy innovation.

Singh and Singh (1988) revealed that the effect of family main occupation on the adoption rate of A.I. in buffaloes was significant.

Rahman *et al.* (1990) shared the opinion that occupation was significantly related with the family who occupied agriculture as their main occupation.

Mandal (1995) reported that the farm youth who are holding agriculture as their occupation, were having favourable attitude towards adoption of A.I.

2.1.6 Income from different sources

Vishnoi and Bose (1961) claimed that there was no association between family income and gain in knowledge of new technology.

Jetley (1977) revealed a positive and significant association between non-farm income and innovativeness in highly developed villages.

Shethy *et al.* (1984) reported that farm income influenced the knowledge level of only big farmers substantially.

Singh (1987) observed that knowledge and adoption of scientific jute production technology was significantly and positively associated with the total income of family.

2.1.7 Number of milch animals

Rao (1975) concluded that there was no relationship between herd size and knowledge of respondents. Tyagi (1975) reported that the adoption of breeding, feeding, disease control and management practices were influenced by the herd size and knowledge.

Chandra (1976) revealed that herd size influenced gain in knowledge of dairy innovations but not adoption.

Sohal and Tyagi (1978) reported that herd size had positive and significant association with the knowledge in rural areas, whereas in urban areas herd size had no significant association with knowledge in dairying. Kherde *et al.* (1978), while studying the impact of rural training programme on knowledge about milk production of rural ladies near Karnal observed that knowledge in clean milk production had no significant relationship with the herd size.

Hazarika (1983) concluded that the knowledge of dairy farmers was

positively correlated with the breedable herd size. Sayeedi (1983) reported that herd size was found to influence negatively or positively with the level of knowledge of dairy farmers.

As revealed by Chung (1986), herd size did not influence adoption as well as awareness knowledge of dairy farmers.

Goswami (1987) found that herd size was positively and significantly correlated with the knowledge level about deworming, cultivation of green fodder crops, feeding of green fodder and overall knowledge level about animal husbandry practices, except the knowledge level about AI, vaccination against HS, and feeding of concentrates where it was not significantly correlated.

2.1.8 Milk production

Pawar (1979) found that milk production was negatively and significantly correlated with knowledge gap. He further reported that majority of the respondents had high and low knowledge level in breeding, low and medium knowledge in feeding and low knowledge in fodder production and management.

Sidhu (1980) in his investigation, found that knowledge and milk production had a positive association to a significant extent.

Patil (1981) revealed that the personal traits like land holding, socio-economic status, extension contact, milk production, milk consumption, average modernity and annual income were significantly related to knowledge.

Chauhan and Chauhan (1982) showed that level of aspiration in farmers getting low milk production from cattle was positively and significantly associated with their knowledge about dairying.

Section II

2.2 Factors influencing the knowledge level of the respondents

Pal (1970) reported that age of the farmers was significantly associated with the change in knowledge, attitude and adoption behaviour of the farming community. He was also found that respondents of middle group had high knowledge level.

Rao (1975) reported that the knowledge levels in respect of breeding, improved fodder cultivation, housing and management, animal health and disease control were found to be higher among the members of co-operative society than the non-cooperative members. He further observed a positive and significant relationship between hard size and knowledge among the members of co-operative societies but it was not significant among the members of non-cooperative.

Tyagi (1975) revealed that the adoption of breeding, feeding, disease control and management practices were influenced by the level of knowledge about these practices. Supe and Salode (1975) revealed that formal education increases knowledge and adoption level of the farmers. In another study they reported that formal education was found to be effective in increasing the level of the knowledge but not their adoption level. Findings of the study showed that scientifically oriented participants had high level of knowledge and adoption. Kakoty (1975) concluded that 60 per cent of the respondents were not even aware of green fodders like Para, Hybrid Napier or Cowpea.

Chauhan and Sinha (1976) in their study in Karnal district found that poor knowledge of cattle owners was mainly responsible for low milk production.

Kapse (1976) found that age and land size of cattle owners were negatively correlated with the knowledge level of dairying husbandry practices. Strong correlation was observed between income of cattle owners and their knowledge level. Non-significant relationships were observed between the

farmer's education, family education status and land size with knowledge. However, he found that family size had positive correlation with the knowledge of dairy husbandry.

Mikkilineni (1976) found a positive and significant correlation between knowledge of improved practices and personal traits of farmers such as education, farm size, mass media exposure, extension contact and social participation.

Minhas (1976) reported that knowledge of dairy farmers in the area of breeding, feeding, housing and health care was low and in management and marketing of milk, it was of medium level.

Somasundaram (1976) found that adopters and non-adopters were significantly different in their knowledge level.

Samasundaram (1976) while studying farmers with respect to new agricultural technology, found that out of the three important discriminating variables, knowledge was the most important variable which contributed 41.25 per cent for discriminates between adopter and non-adopter of small farming group.

Gill and Singh (1977) found that knowledge of dairy farmers in breeding, feeding, housing and animal health was low. Their knowledge in management and marketing of milk were at medium level only. He also reported that the knowledge of selection of breeds, breeding, programmes and reproductive efficiency of dairy animals was low. The knowledge level regarding the selection of adult animals and dairy heifers was medium. He also added that the respondent's knowledge about feeding of calves and young heifers, feeding of pregnant cows and preservation of fodders were low and about fodder production it was medium.

The respondents' knowledge-level in animal health was low in precaution against contagious diseases, vaccination schedule and treatments against common animal diseases. However, their knowledge about prophylactic measures against parasitic diseases were medium. The knowledge level of dairy farmers in weaning

and dehorning of calves, general cleanliness of cattle-shed and maintenance of farm records was medium, knowledge level about care at the time of the calving was, however, found high.

Rath (1977) found that 88 per cent and 12 per cent of the farmers possessed medium and high level of knowledge of diseases, 36 per cent and 4 per cent of the farmers had medium level of knowledge, while only 3 per cent and 5 per cent of farmers had high and low level of knowledge, regarding management practices, respectively.

Bhanja and Kumar (1978) revealed that the knowledge score of adopter in higher group was comparatively more than other group. Illiterate though had comparatively less favourable attitude but had better AI knowledge among the farmers of different land holding groups in adopter category, however, the difference was quite marked in non-adopters. In case of non-adopters, the knowledge score for AI was higher in large cattle holding, farmer with smaller hard size had comparatively less knowledge in AI. This was observed in case of both adopters and non-adopters.

Das and Chatterjee (1978) revealed that as many as 57 cattle owners out of total 84, had acquired knowledge about vaccination as a measure to protect their crossbred cows from the major contagious and other serious diseases.

Rath (1978) concluded that the knowledge was associated with the adoption of breeding, feeding, disease prevention and management practices.

Mallik (1978) indicated that most of the respondents had medium and low level of knowledge and adoption of animal husbandry innovations. Knowledge of farmers was not so high. Most of the cattle owners had no knowledge about some practices. Most of the farmers had correct knowledge about A.I., pregnancy diagnosis, correct method of milking, improved green fodder, dehorning, deworming and vaccination.

Sohal and Tyagi (1978) observed that the composite knowledge of the

farmers regarding breeding, feeding and veterinary services were higher in case of urban areas than in rural areas. Further, they indicated that the increase in knowledge of dairy innovations would increase their adoption in both the rural and urban areas. Their study revealed that the level of knowledge of dairy innovations was extremely poor in the labour group. The knowledge of the innovations with respect to breeding and veterinary care seemed to be satisfactory.

Mishra (1979) while studying the farm enterpreneurship in a backward district of Bihar found that knowledge of farm technology was the most dominant variable leading to adoption of the technology.

Panwar (1979) observed that about 25 per cent respondents had medium level of knowledge about breeding practices.

Sharma (1979) indicated that the big farmers had highest awareness knowledge and principle knowledge than the medium, small, marginal farmers and landless labourers. The medium farmers also differed from the rest of the category in the knowledge level but there was no difference between landless labourers and marginal farmers. He also reported that the gap in knowledge level for the practices, diseases control and vaccination in big farmers was high.

Gite (1980) found that in dairy farming majority of the respondents had low level of knowledge in areas like breeding, feeding, health care and management. Perceived training needs of respondents were, however, high in these areas. He further pointed out that knowledge level was not significantly related to perceived training needs of the respondents.

Saini (1980) found that a large number of small and marginal farmers had low level of knowledge about dairy husbandry innovations.

Singh and Dhaliwal (1980) observed medium level of overall knowledge among the respondents regarding dairy innovations such as the AI of cows and buffaloes, the use of minerals, cattle feed, the dehorning of calves and vaccination against contagious diseases.

Patil (1981) revealed that the personal traits like land holding, socio-economic status, extension contact, milk production, milk consumption, average modernity and annual income were significantly related to knowledge.

Singh (1982) reported that awareness and knowledge had positive and significant correlation with the adoption of dairy husbandry practices whereas principle knowledge had no significant correlation with the same.

Subramanian (1982) revealed that none among the small as well as big farmers in the control group appeared to possess high level of knowledge. Eighty per cent small and 98 per cent big farmers of both less successful as well as more successful societies possess medium to high level of knowledge. More than three-fourth of the small farmers of control group had low level of knowledge level. The small and big farmers of the LSS and MSS differed significantly from the control. The small as well as big farmers of the MSS group possessed significantly more level of knowledge than the LSS group.

Hazarika (1983) observed that most of the respondents possessed medium to high level of knowledge in feeding and health care areas whereas in the breeding areas most of them had poor knowledge level, he concluded that fairly large number of farmers had very poor knowledge. He also observed positive and significant relationship between knowledge of dairy farmers and their occupation, family size, education, family education status and breedable herd size. The contributing variables which were delineated as crucial to the adoption of improved practices were knowledge and social participation.

Nataraju and Channegowda (1985) revealed that 67.3 per cent of dairymen had high knowledge level while the remaining had low knowledge level. Among the categories of dairyman, 86 per cent of small farmers, 68 per cent of marginal farmers and 52 per cent of agricultural labourers had high level of knowledge of recommended dairy management practices.

Nataraju and Channegowdo (1986) reported that the majority of dairymen have medium knowledge level regarding their Animal Husbandry practices. A

large percentage of agricultural labourers were found to be in low to medium knowledge group. More than 80 per cent of dairymen were aware improved milch breed and A.I. to cows. Extension work appears to be inadequate with dairy farmers in general and particularly with agricultural labourers.

Goswami (1987) found that family educational status and utilization of mass media were positively and significantly correlated with the knowledge level of AI; vaccination against HS, FMD and RP; deworming; cultivation of green fodder crops; feeding of green fodder; feeding of concentrates and overall knowledge about animal husbandry practices. Herd size was positively and significantly correlated with the knowledge level about deworming, cultivation of green fodder crops, feeding of green fodder and overall knowledge level about animal husbandry practices, except the knowledge level about AI, vaccination against HS, FMD & RP and feeding of concentrates whereas it was not significantly correlated.

Kumar (1987) reported that the average level of knowledge of beneficiaries was found to be 71.93, 64.53, 58.80, 65.06 and 65.18 per cent in case of breeding, feeding, health care, management and overall dairy innovations, respectively. But in case of non-beneficiaries the corresponding average knowledge was found to be 61.73, 59.33, 45.06, 60.53 and 56.90 per cent, respectively. The mean score related with the knowledge of beneficiaries of breeding and health care practices was found to be significantly high as compared to non-beneficiaries.

Kunzru *et al.* (1987) argued that there is need for taking up appropriate education and training programme for the livestock owners in order to educate them so that necessary change in their knowledge and attitude could be brought about and their conviction in the modern prophylactic disease control methods and technologies could be initiated for a sustained change in behaviour

Kaushik (1988) revealed that education, herd size, milk production, milk consumption and milk sale were found to be positively and significantly correlated with knowledge level of respondents of non-MPCS area. He further revealed that knowledge of the dairy farmers of MPCS area was low in respect of management,

medium in terms of breeding, feeding and health care and high in overall knowledge whereas dairy farmers of non-MPCS area had low level of knowledge in all the components of knowledge.

Singh (1989) revealed that maximum extent of knowledge was found in the area of breeding practices as compared to other areas for all the categories of dairy farmers. Extent of knowledge increases with the size of holding. In case of small farmers, total milk production, milk consumption, mass media exposure, adoption of breeding, feeding, management and overall dairy innovations was found to be positively and significantly correlated with the overall knowledge of dairy innovations. In case of medium farmers, total milk production, milk consumption, extension agency contact, adoption of breeding, health care and overall dairy innovations were found to be positively and significantly associated with the overall knowledge of dairy innovations. In case of large farmers, informal sources utilization, adoption of breeding, health care and overall dairy farming practices were found to be positively and significantly correlated with their overall knowledge of dairy farming practices.

Jamal (1989) reported that knowledge about AI; HS, FMD, RP and vaccination against them and cultivation of green fodder crops were found to be positively and significantly correlated with the productivity of milk of dairy cows and buffaloes of the participant and non-participant livestock owners. For high milk production it is essential for the milk producers (livestock owners) to have the basic knowledge required for adoption of animal husbandry practices. This can be achieved through education and training programme.

Singh and Patel (1990) reported that age was not related to the level of knowledge regarding improved practices of farming.

Singh and Patel (1990) also stated that land holding significantly influence the knowledge level and adoption behaviour of farmers.

Tripathi (1991) found that high level of knowledge about dairy farm technologies, *viz.*, AI (27.08%), vaccination against contagious diseases (27.10%)

and feeding green fodder (34.38%) and concentrate to dairy animals (38.54%) was observed among the rural women of member co-operative system as compared to 10.41; 3.12, 7.30 and 3.12 per cent respectively in NMC system. High level of knowledge about fodder cultivation was, however, found more in NMC system (50.20%) than in MC system (16.66%).

Mandal (1995) found that knowledge level of farm youths towards artificial insemination was directly influenced by their educational status.

Kumar (1997) observed that education and cosmopoliteness hold significant relationship with the knowledge level in all the four villages under study (t values were 3.206 & 8.118 respectively). All the variables taken together explained 89.12 per cent variability towards the dependent variables depicting their significant contribution towards the dependent variables.

Section III

2.3 Factors influencing the attitudinal orientation of the respondents

Fliegal (1956), Hobbs (1960), Verma (1965), Jaiswal (1965), Jhakur (1976), Nair (1969), Chaubey (1972), Chattopadhyay (1976) and Tripathy (1977) also reported that attitude of farmers towards the different package of practices were positively and significantly associated with the adoption of new farm innovations.

Singh (1966); Sidhu and Patel (1968) also observed that farmers younger in age attending the farmers training courses would obtain more knowledge having change in there attitude and inclined to adopt more recommended practices.

Pal (1970) reported that age of the farmer was significantly associated with the change in knowledge, attitude and adopted behaviour.

Gupta (1976) found that favourable attitude towards dairy farming had significant influence on adoption.

Chattoraj and Das (1978) observed that attitude score towards green fodder was only 10.08 with coefficient of variation as 47.47 per cent.

Singh (1978) concluded that marginal dairy farmers had relatively more favourable attitude towards dairy farming than the small and landless dairy farmers.

Garde (1980) found that 57.00 per cent of dairy farmers had favourable attitude while 43.00 per cent indicated unfavourable attitude towards dairy farming.

Sidhu (1980) observed a highly significant and positive association between attitude towards dairying with knowledge level of the livestock owners.

Chouhan and Chouhan (1982) reported that the caste, mass-media exposure, extension contact, attitude and knowledge about dairying were highly and positively associated with the respondent's level of aspiration in low milk producers, whereas occupation, mass-media exposure and knowledge about dairying were significantly associated in case of high milk producers. In pooled sample basis variables like costs, number of herd, media exposure, attitude towards dairying were found to be positively and significantly associated with their level of aspiration.

Hazarika (1983) reported that attitude towards dairy farming was mostly (60%) unfavourable. His finding revealed that respondents who had favourable attitude towards dairy farming were possessing considerably high knowledge as compared to respondents of other categories. Sayeedi (1983) reported that attitude had negative and highly significant relationship with adoption of dairy innovations. Singh (1983) observed that attitude of the progressive and non-progressive farmers was positively, highly and significantly correlated with adoption of dairy innovations.

Pawar and Kherde (1983) observed that the areas for training were fodder production, management health care, feeding and breeding. The overall knowledge gap of the respondents was estimated to be 51.41 per cent in the Satara district of

Maharastra. He also reported that the education, size of land holding, social participation, mass-media exposure, milk production and attitude towards dairy farming were found to have negative relationship with knowledge gap whereas extension contact, herd size, and age were found to be non-significantly related with knowledge gap. Then further pointed out that the majority of milk producers gave their preference for the month of March for organising training programme in dairy farming for 3 to 5 days duration.

Tiwary (1983) revealed significant and positive association of attitude towards the package of practices with adoption.

Singh *et al.* (1985) reported that the socio-personal and economic variables e.g. age, education, social participation, occupation, herd size, total milk production, milk marketing and total annual income were important factors for adoption of dairy innovation. They also reported that caste, operational land holding and milk consumption has no significant relationship with adoption of improved farming practices.

Chandra (1987) in his study found that attitude of farmers of high adoption villages was positively but non-significantly related with their adoption behaviour. Whereas, in low adoption villages, attitude of farmers was positively and highly correlated with their adoption behaviour. However, socio-economic status was negatively but non-significantly related with the adoption behaviour of farmers of low adoption villages.

Dakhore and Bhilegaonkar (1987) reported that the existing level of job performance of veterinary extension personnals had medium to low level of their job performance. This might be due to lack of training opportunities to improve the competence. Therefore, it can be suggested that regular inservice training programmes need to be organized in order to equip them to handle job areas effectively.

Dana (1987) revealed that the literacy level and attitude of the livestock owners were significantly and positively correlated. The majority of literate

livestock owners were having unfavourable attitude towards AI, which may be due to the fact that generally illiterate livestock owners adhere to the conventional ideas and have traditional outlook towards life. The livestock owners with high school and above education level, however, showed significantly favourable attitude towards A.I. in cattle. This further suggest that higher the educational level, more the progressive outlook and belief in science and scientific technology.

Goswami (1987) reported that attitude towards dairy farming had no significant relationship with knowledge level about AI; vaccination against HS, FMD and R. P., deworming; cultivation of green fodder crops; feeding of green fodder; feeding of concentrates and overall knowledge level about animal husbandry practices. Singh (1987) reported that mass media exposure was having significant relationship with the attitude towards scientific dairy farming.

Kaushik (1988) reported that the attitude towards dairying was positively, highly and significantly correlated with knowledge and adoption of scientific dairy husbandry practices of the dairy farmers in MPCS area and non-MPCS area.

Mandape (1988) in a study on mixed farming in Maharastra, UP and Haryana concluded that regardless of the size of land holding, farmers, in general, had highly favourable attitude towards dairy farming and dairy co-operatives.

Verma (1988) observed that beneficiaries had more favourable attitude towards scientific dairy farming practices as compared to non-beneficiaries.

Dixit *et al.* (1990) reported that the farmers of the adopted village had reacted more favourably and also herd higher knowledge related with the management practices. They observed that farmers had unfavourable reactions towards weaning and deworming practices.

Sagar (1991) reported that attitude of livestock owners towards crossbreeding in cattle and green fodder cultivation were found to be positively and significantly correlated with the productivity of milk. The relationship was not significant in respect of non-participant livestock owners attitude towards

crossbreeding in cattle. Attitude being a psychological phenomenon milk producers should be motivated through education and training to change their attitude towards animal husbandry for high adoption.

Saxena and Tripathi (1998) has observed the entrepreneurial behaviour of milk producers according to their social, personnel, economic and psychological attributes taking sample of Bareilly district of U.P. On the basis of their systematic study entrepreneurial behaviour was found significantly higher amongst those who belonged to middle age group and higher caste group. The entrepreneurial behaviour of respondents with higher level of milk production was differed significantly from that with lower and medium level of milk production.

Shinde *et al.* (1998) revealed on the basis of their study that the level of knowledge and attitude of the farmers can be improved by skill oriented training camps. They also found that formal education is not necessary in adoption of dairy practices.

Section IV

2.4 Miscellaneous review of studies regarding constraints involved in non-adoption of animal husbandry innovations

Tyappa and Setty (1976) reported that ignorance of the importance of balanced feeding and lack of experience in the selection of animal were the main reasons for non-adoption of different animal husbandry practices.

Malik (1978) found during their study that the practices like loose housing, molasses feeding, deworming and feeding of mineral mixture was not adopted by any of the respondents.

Rath (1978) observed that lack of knowledge was the main reason for non-adoption of breeding practices whereas lack of knowledge, higher cost, poor quality of feed, ignorance about colestrum feeding, were the main reason for non-adoption of feeding and management practices.

Sohi and Kherde (1978) stated that higher risks, unprofitability, lack of facility related with supply of semen were the main reason for non-adoption of artificial insemination.

Ansari (1980) reported based on his systematic study that ready-made cattle feed and mineral mixture had not yet made an impressive impact on milkshed areas as majority of the farmers had not adopted it so far.

Balsubramanian and Knight (1982) stated that the repeater/poor conception was the most important constraint for partial and non-adoption of artificial insemination by the farmers. The other constraints were the easy availability of facilities for natural services. There distance to veterinary hospital, unsuitable to buffaloes, inadequate facilities for artificial insemination and limited hours of artificial insemination service in the veterinary hospital were also considered as the constraints.

Srivastava and Kharde (1983) reported based on their tribal study that the Mundas consider artificial insemination as something unusual. They believe in purity of breed and consider cross-bred through artificial insemination as impure animals. They also believed that producing calves through injection would spoil their cows. Some of the tribals ascribed it as a cruel act; as it deprives to the cows and she-buffaloes with the normal sexual pleasure.

Singh *et al.* (1985) found that majority of the non-adopters do not go for artificial insemination as they considered it to be unhuman, they had unscientific value associated with their culture which is considered as the unreasonable opinion related with artificial insemination practice.

Nayak *et al.* (1986) suggested that the dairy co-operative societies should arrange its supply of cross-bred animals, cattle feed, providing artificial insemination facility, veterinary aid at the village level and also arrange to supply concentrates at subsidised rate.

Nayak *et al.* (1986) also reported that the Govt. should encourage the dairy development by providing sufficient credit facilities with low interest rate and subsidised rates of concentrates in order to augment the milk production and to increase their socio-economic status particularly among the weaker section of the society.

Rao *et al.* (1986) observed that under the major area of breeding, a large majority perceived selection of dairy animal as very important with 87.27 per cent of the respondents followed by identifying symptoms of pregnancy in cows and buffaloes with 70 per cent of the response whereas appropriate period for inseminating the animal after observing heat symptoms was perceived by majority of the respondents (69.09%) as the important constraints involved in animal husbandry.

Sheoran and Kumar (1988) observed that herd size had no significant relationship with breeding, health care, management and overall adoption but it has led positive and highly significant correlation with the feeding practices.

Singh and Singh (1988) revealed that the adoption of breeding, feeding, disease control and animal management practices were influenced by herd size, knowledge level, family education, sale of milk and occupation of the farming group.

Kulkarni *et al.* (1990) found that the dairy farmers expressed about non-availability of loan facilities for purchase of milch animals, fodder for animals, construction of animal byre, lack of capital for purchase of improved animals and fodder were prominent constraints involved in their adoption.

Dusai *et al.* (1993) shared the opinion that the mass media exposure strongly influenced the adoption behaviour of farmers.

Waris (1994) in his study of DCS of North Bihar found that dairying under the prevailing situation in the villages did not appear to be profitable mainly due to

lack in inputs like artificial insemination facility, high cost of cattle feeds, fodders and veterinary health care services.

Kumar (1996) observed based on his systematic study that lack of timely availability of agricultural inputs was the major constraints as perceived by agricultural scientists.

Kumar (1997) in his study reported that very low conception rate and sterility in crossbred animals were considered as the main constraint in the field of adoption which was perceived by 69 per cent of the respondents. The lack of loan facilities by Govt. agencies and their red tappism towards animal husbandry sector was second major constraint in the way of adoption (48 per cent). Lack of artificial insemination facilities and high price rates of veterinary aids emerged as third and fourth potential constraints, respectively.

Shinde *et al.* (1998) reported that lack of village level training facility was most serious constraint as it was expressed by 94% of respondents. Lack of credit for purchasing dairy animals was found second position as it was expressed by 92.5% of respondents of the study.

❁❁❁❁❁

Methodology

The greatest invention of the nineteenth century was the invention of the method of invention.

- John W. Best

The world is moving so fast these days that the man who says it can't be done is generally interrupted by someone doing it.

- Elbert Hubbard

METHODOLOGY

The main purpose of this chapter is to describe the methods and research procedures used during the study. The chapter deals with the locale of research, selection of respondents, procedures adopted for data collection. The suitable statistical methods were also given which were applied in the analysis of the data. For the convenience, the chapter divided into different sub-components which are being presented here as :-

3.1 Locale of research

3.2 Selection of respondents

3.3 Variable and their measurements

3.4 Procedure for data collection

3.5 Analysis of data

3.1 Locale of research

The present study was carried out in four villages namely; Mahmada, Malikaur, Dighra and Morsand of Pusa block of Samastipur district which were selected purposely based on the following assumption.

i) Since, the main objective of the study was to ascertain the knowledge level and attitude of milk producers towards improved A.H. practices, hence these selected villages were considered most suitable because of the fact that majority of farmers belonging to the villages were practising A.H. as their main or subsidiary occupation.

ii) These villages were located with the adjacent vicinity of the Rajendra Agricultural University which is also having an established Animal Production Research Institute (APRI) and block headquarter. Since, these

institutions are regarded as knowledge disseminator, hence the selected neighbouring villages of this area were considered as the most suitable locale for the purpose of study.

iii) The selected villages were under operation of animal production and breed improvement programmes since the British period. Therefore, it was thought essential to have scientific feedback related with the status of A.H. programme in term of the knowledge and attitude of the milk producers.

iv) The researcher was also well aquinted with the selected area, local language used for conversation and had very easy accessibility and free from other constraints operating with a student research. Hence, the study was concentrated with this particular region taking the four village namely : Mahmada, Malikaur, Dighra and Morsand.

Fig. 1 Shows the location of the particular selected villages where the proposed research has been carried out.

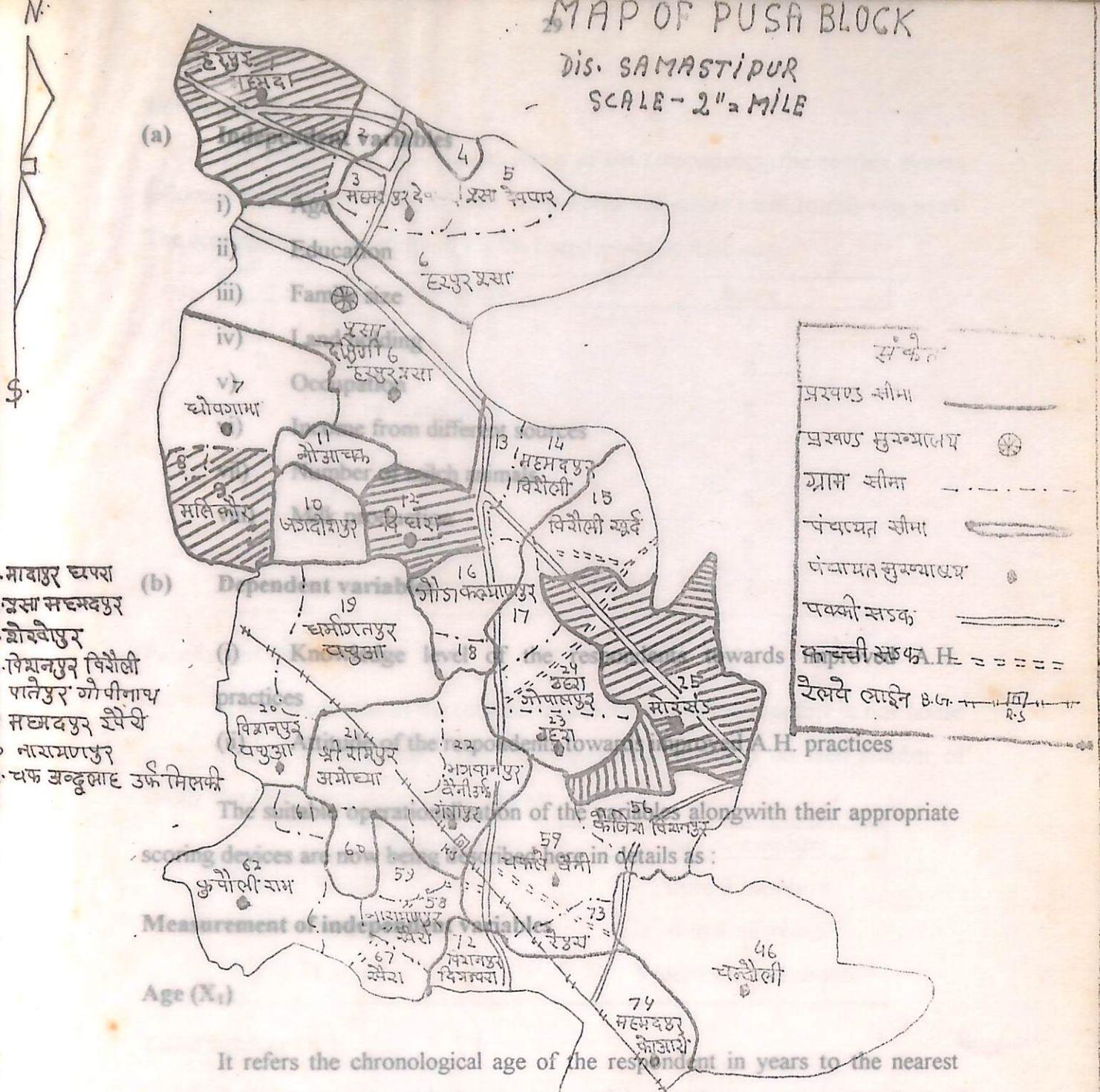
3.2 Selection of respondents

The livestock owners who were engaged in rearing of milch animals and producing milk for commercial purpose were known as milk producers during the study. A group of 100 milk producers, 25 each from all selected villages were comprise as a sample for the study. They were randomly selected from the prepared list of milk producers residing in all four villages taken for the purpose of study. During the study, efforts has also been made to select only those milk producers who sold their milk per day. The quantity of milk production has been also checked and verified through record output of Dairy Cooperative Societies (DCS) operating in these villages.

3.3 Variables and their measurements

Based on the review of literature related with the study, the conceptual framework of the investigation was based on the following variables.

MAP OF PUSA BLOCK
Dis. SAMASTIPUR
SCALE - 2" = MILE



Locale of study

Fig. 1 Showing the location of selected villages.

(a) Independent variables

i) Age

ii) Education

iii) Family size

iv) Land holding

v) Occupation

vi) Income from different sources

vii) Number of each farm implement

(b) Dependent variable

(i) Knowledge level of the respondents towards improved A.H. practices

(ii) Adoption of the respondents towards improved A.H. practices

The single operationalisation of the variables alongwith their appropriate scoring devices are now being described herein details as :

Measurement of independent variables

Age (X_1)

It refers the chronological age of the respondent in years to the nearest whole number at the time of investigation. The classified group alongwith their assigned scores were fixed as :

	Age groups	Age in years
1.	Young	Upto 30
2.	Middle	31 to 40
3.	Advanced	41 - 50
4.	Old	Above 50

योगेन्द्र
अंचल अमीन
प्रसा

प्रखण्ड विकास पदाधिकारी,
प्रसा

(a) Independent variables

i) Age
ii) Education
iii) Family size
iv) Land holding
v) Occupation
vi) Income from different sources
vii) Number of milch animals
viii) Milk production

(b) Dependent variables

(i) Knowledge level of the respondents towards improved A.H. practices

(ii) Attitude of the respondents towards improved A.H. practices

The suitable operationalization of the variables alongwith their appropriate scoring devices are now being described here in details as :

Measurement of independent variables

Age (X_1)

It refers the chronological age of the respondent in years to the nearest whole number at the time of investigation. The classified group alongwith their assigned scores were fixed as :

	Age groups	Age in years
1.	Young	Upto 30
2.	Middle	31 to 40
3.	Advanced	41 - 50
4.	Old	Above 50

Education (X_2)

To quantify the educational status of the respondents, the scoring system followed by Trivedi (1963) in their socio-economic status scale (rural) was used. The scoring procedure adopted for the purpose was as follows :

	Levels of education	Score
1.	Illiterate	1
2.	Can read only	2
3.	Can read and write	3
4.	Primary	4
5.	Middle	5
6.	High School	6
7.	College Education	7

Family size (X_3)

It was measured as the total no. of members residing together in one house at the time of investigation. The family classification based on their number of family members were grouped as follows :

	Size of family	No. of members
1.	Small	Upto 3 members
2.	Medium	4 to 8 members
3.	Large	9 members and above.

Land holding (X_4)

It refers to the cultivable land owned by cattle owners at the time of interview. The owned land was recorded in acres. On the basis of land holding of the respondents, they were categorised in different groups on the basis of their assigned scores.

	Farming group	Land holding (in acres)
1.	Marginal	Upto 2.5
2.	Small	2.6 to 5
3.	Medium	5.1 to 10
4.	Large	More than 10

Occupation (X_5)

Saxena (1969) defined main occupation as "the actual occupation of a person in which he remains employed or engaged and the period of which does not fall below 50 per cent of the total numbers of days actually worked during the past twelve months" and subsidiary occupation as all other occupations in which the person have actually worked less than 50 per cent of the total number of days. In the present investigation, the term occupation refers to the main occupation of the respondents. For the purpose of objective the occupation has been categorised under the different group and relevant assigned scores were given in the following order :

	Main occupational group	Score
1.	Labourer	1
2.	Cultivation	2
3.	Animal husbandry	3
4.	Business	4
5.	Service	5

Annual income from different sources (X_6)

It refers to the total income of the respondents family during the last financial year. The selected respondents were categorised into different group based on their total annual income. Accordingly different assigned scores were given in order to quantify the component.

	Annual income group	Score
1.	Upto Rs. 20,000/-	1
2.	Rs. 21,000/- to Rs. 40,000/-	2
3.	Rs. 41,000/- to Rs. 60,000/-	3
4.	Rs. 60,000/- and above	4

Number of milch animal (X_7)

It refers to the total number of cows, buffaloes and other crossbred animals owned by the respondents and were in lactating stage at the time of investigation.

The schemata related with this aspect alongwith their assigned scores were presented as follows :

	Number of milch animals	Score
1.	Upto 2	1
2.	3 - 5	2
3.	6 - 8	3
4.	More than 8	4

Milk production (X_8)

It comprises the total amount of milk produced per household per day. It was assessed by taking the mean of the six milk readings of three consecutive days. The assigned scores based on the milk production of the respondents were described here as follows :

	Average milk production (per day per family)	Score
1.	Low (Upto 5 lt.)	1
2.	Medium (6 to 10 lt.)	2
3.	High (11 to 15 lt.)	3
4.	Very high (16 lit. and above)	4

Measurement of Dependent Variables

Knowledge about different improved animal husbandry practices

In social science knowledge is often referred as the totality of cognitive behaviour with reference to a physical and hypothetical object. In other words, knowledge is the totality of understood information possessed by a person through the experience. Bloom *et al.* (1956) defined knowledge "As those behaviours and test situations which emphasized remembering either by recognition or recall of ideas, material or phenomenon".

In the present investigation knowledge of milk producers refer to a test situation and considered as a response to a set of questions based on their recalling method.

Determination of knowledge level towards different improved A.H. practices (Y_1, Y_2, Y_3)

For setting of the questions to test the knowledge of the respondents, all available and relevant literatures about improved animal husbandry practices in the area of feeding, breeding and management practices were collected. A broad frame-work has been developed. Discussion related with the recommended animal husbandry practices were held with the reputed Veterinary and animal husbandry experts working at the grass root level.

Based upon the particular information obtained through the process, a list of questions on different animal husbandry practices was prepared. It was decided to ask only those questions which would neither be too difficult nor too easy for respondents to answer. For this, pretesting was also made on 20 milk producers other than the respondents of the study. The questions which could not be answered by any respondents were excluded from the knowledge test. However, those questions which had their own importance in the recommended animal husbandry practices were not excluded from the knowledge test. Thus, based on the pretest, suitable modifications and deletion in the content of the questions were made. Finally, all the question included in the test were considered to be reflected with the cognitive domain of respondent in relation to their different animal husbandry practices.

For the purpose of quantification related with the knowledge level of the respondents, a score of one (1) was assigned to each correct answers and zero (0) to wrong or no response answers. The total number of question in the knowledge test were incorporated 20 for each practices *i.e.* feeding, breeding and management.

In this way, each respondent would get a maximum of 20 and minimum of zero score on their knowledge test. The score obtained by the respondents were converted into percentage and further based upon their percentage score,

respondents were classified into different group as given below :

Knowledge levels	Percentage scores
1. Low	0 - 25%
2. Medium	26 - 50%
3. High	51 - 75%
4. Very high	76 - 100%

Attitude of respondents towards different improved animal husbandry practices

An attitude, according to Krech and Crutchfield (1948) is an enduring organization of motivational, perpetual and cognitive processes with respect to some aspects of the individual's world.

Thurstone (1946) defined attitude as "the degree of positive or negative effect associated with some psychological object."

According to Mayer (1955) an attitude is a king of mental set, it represents a predisposition to form certain opinion. To put it another way, according to him, it is a frame of reference that influence individual's views or opinions on various topics and that influences his behaviour.

An attitude is a set of action with an emotional overtone (Harnell, 1967). In other words, it is a liking or disliking. Thus, the defining characteristics of attitude is the way by which they express an evaluation of some objects.

(i) Attitude towards feeding and breeding practices (Y_4 & Y_5)

The attitude towards improved feeding and breeding practices was measured by a modified and adopted version of the originally scale developed by Sagar and Kunzru (1988). This scale consisted of 14 statements of which 7 were positive and remaining 7 statements were negative. The weightage score of 3, 2 and 1 were given to the responses in positive statement for agree, undecided and disagree components whereas it was just reverse in the case of negative statements.

The agreement refers the amount of favourable attitude of the respondents while the disagreement indicates the amount of less favourable attitude towards different A.H. practices.

ii) Attitude towards management practices (Y_6)

Attitude towards dairy farming was assessed with the help scale developed by Gupta and Sohal (1976). It is being used to measure the attitude of livestock owners towards their animal husbandry management practices. The scale consisted with the eight statements which were rated on three point response continuum ranging from agree, undecided to disagree. The same scale was used during the study with its slight modification in context of the field area.

There were eight questions four each on positive and negative side in the scale. The weightage scores of 3, 2 and 1 were assigned to positive statement for agree, undecided and disagree, respectively, whereas it was just reverse in case of negative statements.

In view of the objectives of the study a structured schedule was developed, incorporating the selected tools and techniques of measurements related with different variables. The schedule was pretested in a Harpur village of the Pusa block, other than selected villages taken for the study. On the basis of experiences learned in pretesting, appropriate modification were made in the sequence and order of questions.

3.4 Procedure for data collection

The data were collected from the respondents in face to face situation. Every care was taken to build-up good rapport with each of the respondent before the interview was started. After making proper rapport, the structured interview schedule was administered to each respondent individually and their responses were recorded on the schedule at the spot. The data collection process were continued through frequent visit to the selected villages with long stay at the field till the study required appropriate necessary information for the purpose of study.

3.5 Analysis of data

Keeping in view, the objectives of the study the frequency, percentage, average, co-efficient of co-relation and significance of regression were used for the purpose of analysis and interpretation of data in order to get the meaningful conclusions.

Frequency

It was used to find out the number of respondents in a particular cell.

Average

It was calculated by adding the total scores obtained by the respondents and divided by the total number of the respondents.

Co-efficient of co-relation

When two variables change together in such a way that an increase in one variable is accompanied by an increase in the other, the variables are said to be the positively correlated (Panse and Sukhatne 1967).

The intensity of co-relation was measured by a co-efficient, usually indicated by the symbol which is computed according to the following formula.

$$r = \frac{\Sigma xy - (\Sigma x - \Sigma y)/n}{[\{\Sigma x^2 - ((\Sigma x)^2/n)\}\ \{\Sigma y^2 - ((\Sigma y)^2/n)\}]^{\frac{1}{2}}}$$

Where,

n = no. of respondents

x & y are two variables

For testing the significance of r, t was worked out by employing the formula :

$$t = \frac{r}{\sqrt{1 - r^2}} \cdot \sqrt{n - 2}$$

Test of significance of regression

It has been calculated through the application of t-test as :

$$t = \frac{\text{Regression co-efficient (by x)}}{\text{Standard Error (b)}}$$

calculated t-value is to be compared with t-value from table at the desired level of significance with the degree of freedom of S.E. (b) *i.e.* (n-2), where n = number of independent variables.

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Results and Discussion

You must know better than I do Inspector, how very rarely two people's account of the very some thing agrees. In fact, if three people were to agree exactly. I should regard it as suspicious, very suspicious indeed.

-Agatha Christie

We can reasonable hope to raise to its maximum the probability of discovering the real causes and relations of things ..... When we are accurate in observing facts, cautions in generalizing from them fertile in inventing hypothesis. Ingenious and impartial in testing their validity. Skilful in securing their confirmation or ..... revision and judicial in formulating ultimate interpretations.

- Douglas Johnson

RESULTS AND DISCUSSION

This chapter deals with the findings of investigation and subsequent discussion thereon. Keeping in view the objective of investigation the finding have been presented into three sections.

The first section deals the villagewise and pooled distribution of respondents with respect to the selected independent and dependent variables. The second section describes the findings along with discussion relating to nature and degree of relationship between the independent variables and the selected dependent variables. The third section leads with the findings on different constraints involved in non-adoption of improved A.H. practices.

Section I

The frequency distribution of respondent with respect to the selected independent and dependent variables are being presented herewith through different tables. This section provides a morphological view of the villages selected for the study as well as it creates a skeletal system for the present investigation.

4.1.1 Distribution of respondents according to their age

Table 1. Showing the age groups of selected milk producers

Age group		Mahmada	Malikaur	Dighra	Morsand	Pooled
Young	f	8	4	1	2	15
(20-30 yrs.)	%	32	16	4	8	15
Middle	f	15	16	21	20	72
(31-40 yrs.)	%	60	64	84	80	72
Advanced	f	2	5	3	3	13
(41-50 yrs.)	%	8	20	12	12	13

N=100

The perusal of table 1 reveals that out of the total sample selected for the purpose of study only 15% of the milk producer belonged to the age group of 20-30 years which has been conceptualised as young age group during the study. It was followed by 13% of the respondents in the age group of 41-50 years of age. The majority of the selected respondents *i.e.* 72% belonged to the age group of 31-40 years. Similar observation was also made on the basis of other studies indicating the universal fact that this middle age (31-40 yrs.) was considered as the most active and potential age group for any agrobased operations including animal husbandry activities. The villagewise distribution with respect to the age group has been also delineated the similar trend in which 60% of the respondents of village Mahmada, 64% of village Malikaur 84% of village Dighra and again 80% of respondent of village Morsand were belonging to the middle age group. During the study it was commonly observed that A.H. operation were required the intensive hard work which has been carried out largely by this particular age group of the respondents. Therefore least percentage score of the respondent from the group of young and advance age groups were considered as non-participants in the A.H. enterprise. Several studies *e.g.* Pal (1970), Mandal (1995) and Kumar (1997) also supported the observed trends of the findings.

4.1.2 Distribution of respondents according to their education

Table 2. Showing the educational levels of selected milk producers

Educational levels		Mahmada	Malikaur	Dighra	Morsand	Pooled
Illiterate	f	1	0	0	0	1
	%	4	0	0	0	1
Up to primary	f	7	8	3	6	24
	%	28	32	12	24	24
Up to high school	f	11	9	10	11	41
	%	44	36	40	44	41
Graduate & above the college level	f	6	8	12	8	34
	%	24	32	48	32	34

N=100

Table 2 depicts the educational level of the respondents. It is evident from the table that majority of the selected respondents were having their educational level upto the high school (Pooled value = 41%). This level of education was also found highest in village wise study except among the respondents of Dighra village. However 24% respondents of village Mahmada, 32% respondents of villages Malikaur and Morsand and 48% respondents of village Dighra were found in the group of graduate and above the college level. This might be due to the fact that these villages were situated in close proximity of academic institutions. The several high schools, colleges and academic environment of agriculture University also effected the whole scenario of the selected block. On the other hand only four per cent milk producers of village Mahmada were under the illiterate category while none of the respondents of rest of three villages were observed in this group. The pooled percentage value depicts that only 1 per cent and 24% of milk producers were belonged under the illiterate and up to primary level of educational categories. This very low of illiteracy is due to the fact that there are on an average 5-6 primary and middle schools (Private and Govt.) in each of the villages taken under study and also done to peoples are of cosmopolite nature. The findings are in conformity with Mikkilineni (1976), Minhas (1976), and Goswami (1987).

4.1.3 Distribution of respondents according to their family size

The villagewise distribution of the respondents as per their family size indicated that the majority of the respondents were coming from the medium size of family, having their membership between 4-8. The 60, 48, 48 and 36 per cent of milk producers of villages Mahmada, Malikaur, Dighra and Morsand respectively were having the medium size of family. The pooled value also revealed the same trend (48 per cent). The findings also indicated that only 13 per cent of the total selected respondents were having small type of family comprising up to three members in their family. The villagewise distribution showed that 16 per cent respondents of village Mahmada and 12 per cent respondents of rest of the three villages namely Malikaur, Dighra and Morsand were having their small family size,

on the other hand, 24 per cent respondents of village Mahmada, 40 per cent respondents of Malikaur, and Dighra and 52 per cent respondents of village Morsand were having large size of family which comprised more than 8 members. The pooled percentage value indicated 39 per cent in this group.

Table 3. Showing the family size of selected milk producer

Family size		Mahmada	Malikaur	Dighra	Morsand	Pooled
Small	f	4	3	3	3	13
	%	16	12	12	12	13
Medium	f	15	12	12	9	48
	%	60	48	48	36	48
Large	f	6	10	10	13	39
	%	24	40	40	52	39

N=100

The results on the basis of table 3 depicted that majority of the respondents were belonged under the medium and large family size group. This might be due to the fact that still there is the concept of joint family in the rural areas. The another reason behind this observed fact might be explained that, the agriculture and animal husbandry activities were the primarily labour based occupation which are generally sustained through the such type of family structure.

The finding were in consistent with results obtained by Kapse (1976), Hazarika (1983), Babu (1992) and Mandal (1995).

4.1.4 Distribution of respondents according to their land holding pattern

The perusal of table 4 related with the land holding pattern of the selected milk producers revealed that majority of the respondents were belonged under the small land holding group. The pooled percentage was observed 41. The villagewise distribution were shown that 32%, 40%, 44% and 48% of the selected milk producers of Mahmada, Malikaur, Dighra and Morsand villages respectively were possessing their land between the 2.6 to 5 acres. On the other hand 12% and 14% of total selected respondents were fallen under the marginal and large farming

groups respectively. When data were pooled together 33% of the respondents were found to be the medium level of farmers owned their land between 5.1 to 10 acres.

Table 4. Showing the land holding pattern of the selected milk producers

Land holding		Mahmada	Malikaur	Dighra	Morsand	Pooled
Marginal	f	4	3	3	2	12
	%	16	12	12	8	12
Small	f	8	10	11	12	41
	%	32	40	44	48	41
Medium	f	8	9	8	8	33
	%	32	36	32	32	33
Large	F	5	3	3	3	14
	%	20	12	12	12	14

N=100

The results of table 4 revealed that land holding size has not shown very clear trend in the selected villages under the study. Whenever Kokate (1984) found that size of land holding had significant association with adoption of dairy innovation. In contrary to that Sheoran (1987) has reported that farm size had no significant relationship with the breeding, health care and management practices of adoption.

4.1.5 Distribution of respondents according to their occupational status

Perusal of table 5 reveals that only 2% and 9% of total selected respondents were shown the labour and business in term of their main occupation whereas maximum number of respondents were under the main occupation group of cultivation and animal husbandry. The pooled percentage value were recorded as 45 and 21 respectively. Villagewise investigation regarding this variable indicated that 40% respondents of village Malikaur and 56% respondents of village Dighra and Morsand were adopted the cultivation as their main occupation with the maximum score among the different types of occupation selected for the purpose of study. In the other hand 40% respondents of village Mahmada, 28%

respondents of village Malikaur and 8% respondents of each of the village Dighra and Morsand respectively had occupied the animal husbandry as their main occupation. The observed facts might be explained that the farmers of this area were more conscious and had developed a sense of responsibility to take up cultivation and animal husbandry both as their career project, specially in the situation where unemployment and underemployment prevails. Therefore these farmers were more capable in managing handling and solving the problems concerning their agriculture and allied activities including improved A.H. practice.

Table 5. Showing the occupational status of the selected milk producers

Occupational status		Mahmada	Malikaur	Dighra	Morsand	Pooled
Labourer	f	2	0	0	0	2
	%	8	0	0	0	2
Cultivation	f	7	10	14	14	45
	%	28	40	56	56	45
Animal husbandry	f	10	7	2	2	21
	%	40	28	8	8	21
Business	f	2	2	2	3	9
	%	8	8	8	12	9
Service	f	4	6	7	6	23
	%	16	24	28	24	23

N=100

Since these areas were located in close contact of Agricultural University, animal production research institute, key village centre and dairy cooperative societies hence such trends were found during the study.

Choudhary (1976), Natraju and Channegowda (1987), Rahman *et al.* (1990), Mandal (1995) and Kumar (1997) also found the similar observation based on their systematic studies. The study conducted by Singh & Singh (1988) revealed that the effect of family main occupation was significantly correlated with the adoption of A.H. practices.

4.1.6 Distribution of respondents according to their annual income

Table 6. Showing the annual income of the selected milk producers

Annual income (Rs.)		Mahmada	Malikaur	Dighra	Morsand	Pooled
Low	f	5	4	5	5	19
(Upto Rs 20000)	%	20	16	20	20	19
Medium	f	5	13	11	13	42
(21000-40000)	%	20	52	44	52	42
High	f	11	6	7	6	30
(41000-60000)	%	44	24	28	24	30
Very high	f	4	2	2	1	9
(61000 & above)	%	16	8	8	4	9

N=100

Distribution of the respondents as per their annual income has been displayed through the table 6. It denotes that majority of respondents were under medium income group (Pooled value was observed 40%). The villagewise distribution revealed that 52%, 44% and 52% of respondents of Malikaur, Dighra and Morsand villages respectively were under the same category *i.e.* medium annual income group. However, 44% respondents of village Mahmada were belonged to the high annual income group. The obtained results might be explained in view of the fact that these villages were adopted the profession like cultivation and A.H. as their main and subsidiary occupation. Therefore the annual family income of these groups were bound to be higher than the other group of farming. On the other hand only 16% respondents of village Mahmada, 8% of village Malikaur and Dighra each, and 4% of respondents from Morsand village were under very high annual income group. The percentage score of low annual income group was found only 19% on pooled data of this respondent. It was evident that selected respondents were neither having the very low annual family income nor having very high annual family income. They were possessing a moderate annual family income supported by their agricultural and animal husbandry enterprises.

In support of the findings controversial facts were observed through the several studies. Vishnoi and Bose (1961) claimed that there was no association between family income and gain in knowledge of new technology whenever Jetley (1977) revealed a positive and significant association between non-farm income and innovativeness is highly developed villages.

4.1.7 Distribution of respondents according to their number of milch animals

Table 7. Showing the number of milch animals under possession of selected milk producers

No. of milch animals		Mahmada	Malikaur	Dighra	Morsand	Pooled
Up to 2 animals	f	8	4	2	1	15
	%	32	16	8	4	15
3-5 animals	F	7	11	8	8	34
	%	28	44	32	32	34
6-8 animals	f	8	8	11	13	40
	%	32	32	44	52	40
More than 8	f	2	2	4	3	11
	%	8	8	16	12	11

N=100

Depiction of table 7 shows that 32% respondents of Mahmada, Malikaur villages and 44% of Dighra and 52% of Morsand village were having 6 to 8 milch animal under their possession. This percentage score was observed 40% when data were put under pooled analysis. Under the 3 to 5 milch animals group the respondent Malikaur village was on highest position showing 44% whereas the respondents of village Mahmada were on lowest position indicating the 28% score made the category contrary to this, in the milch animals group of more than 8, the respondents of Mahmada and Malikaur villages had only 8% while the village Dighra had 16% and Morsand had 90% of respondents under this category who were possessing their milch animals more than 8 in number.

It was evident from the table that there was no organised farming system in these villages under the study. The majority of respondents were produced milk in small scale level. But they were not inclined towards large dairy farming practices even though the farming community of this area were engaged in milk production activity since the British period. This was probably due to the fact that the planners and A.H. Extension workers had not paid adequate attention towards the adoption of different A.H. practices.

The findings are in conformity with observed trends obtained by Rao (1975), Chandra (1976), Sohan and Tyagi (1978), Hazarika (1983), Goswami (1987) and Mandal (1995).

4.1.8 Distribution of the respondents according to their milk production

Table 8. Showing the milk production (per day) of the selected milk producers

Milk production (litre/day/family)		Mahmada	Malikaur	Dighra	Morsand	Pooled
Low	f	6	4	3	3	16
	%	24	16	12	12	16
Medium	F	5	9	8	6	28
	%	20	36	32	24	28
High	f	7	9	7	11	34
	%	28	36	28	44	34
Very high	f	7	3	7	5	22
	%	28	12	28	20	22

N=100

Perusal of table 8 indicates that altogether 62% respondents were belonged to medium and high milk production group. Villagewise analysis depicts that under high milk production category village Morsand ranked at 1st position showing the 44% of respondent of this village came under this group and Mahmada village acquired the lowest position indicating that 28% of respondents were having higher daily milk production. Pooled analysis revealed that 16% of respondents belonged under low milk production category and only 22% of

respondents were in very high milk production group. The villagewise distribution indicated that 28% respondents of village Mahmada and Dighra and 12% and 20% respondents of village Malikaur and Morsand respectively were standing under the very high milk production group on per day milk production basis.

The observed finding borne out with the fact that the respondents of these village were having crossbred milch animals. They were mostly adopted the cross bred farming system through the Breed improvement programmes either with the help of key village scheme or A.P.R.I. The active involvement of dairy co-operative societies in these areas were also identified as one of main initiator for their purpose.

Sidhu (1980), Patil (1981) and Chauhan and Chauhan (1982) were shown that herd site in relation to milk production had significant relationship with the adoption of improved A.H. practices.

4.1.9 Distribution of the respondents according to their knowledge level towards improved feeding practices

Table 9. Showing the knowledge level of the selected milk producers towards improved feeding practices

Knowledge level		Mahmada	Malikaur	Dighra	Morsand	Pooled
Low	f	6	7	3	2	18
(1-3)	%	24	28	12	8	18
Medium	F	18	16	19	16	69
(4-7)	%	72	64	76	64	69
High	f	1	2	3	7	13
(more than 7)	%	4	8	12	28	13

N=100

The table 9 highlights that out of 100 respondents only 18% had low, 69% had medium and 13% high level of knowledge towards improved animal husbandry feeding practices. It was interesting to note that out of 69% respondents of medium knowledge level group, 72% of the respondents were from Mahmada village alone, 64% from Malikaur and Morsand each and 76% of the respondents

were belonged from Dighra village. Contrary to this only 4% of respondents of village Mahmada 8% of Malikaur 12% of Dighra and 28% of the respondents of Morsand village had the high level of knowledge with respect of the improved A.H. feeding practices.

This might be due to that the farmers acquired themselves with the latest knowledge regarding different feeding practices through several means of extension efforts like mass media, farm magazine etc. and also because of the scientific efforts made by RAU scientist which were concentrated mainly in these area. The findings were mostly consistent with the facts observed by Tyagi (1975), Chauhan and Sinha (1976), Somasundaram (1976), Rath (1978) and Kumar (1997) through their studies.

4.1.10 Distribution of the respondents according to their knowledge level towards improved breeding practices

Table 10. Showing the knowledge level of the selected milk producers towards improved breeding practices

Knowledge level		Mahmada	Malikaur	Dighra	Morsand	Pooled
Low	f	10	20	10	8	48
(1-3)	%	40	80	40	32	48
Medium	F	15	5	15	17	52
(4-7)	%	60	20	60	68	52
High	f	0	0	0	0	0
(more than 7)	%	0	0	0	0	0

N=100

Perusal of the table 10 revealed that 52% of selected respondents had medium level of knowledge and 48% of respondents were having low level of knowledge with respect to different improved A.H. breeding practices. The villagewise analysis highlights that 40% respondents of village Mahmada and Dighra each, 80% respondents of village Malikaur and 32% respondents of village Morsand were possessing low level of knowledge with respect to this practice. On the other hand 60% respondents of Malikaur and 68% respondent of Morsand

villages were under the category of medium level knowledge. Surprisingly, none of the respondents were found under the high knowledge level group in relation to their improved A.H. breeding practices. The observed findings might explained in view of this fact that the selected respondents of this area were not having their much interest towards improved breeding practices due to its complexities in nature. The knowledge related with improved breeding practices covers an intensive knowledge on different A.H. segments *viz.* oestrous period, heat detection, exact timing of A.I. etc. The obtained facts were also supported by the findings of Hazarika (1983), Natraju and Channegowda (1985), Babu (1992), Mandal (1995) and Kumar (1997).

4.1.11 Distribution of the respondents according to their knowledge level towards improved management practices

Table 11. Showing the knowledge level of the selected milk producers towards improved management practices

Knowledge level		Mahmada	Malikaur	Dighra	Morsand	Pooled
Low	f	14	20	1	4	39
(1-3)	%	56	80	4	16	39
Medium	f	11	5	15	15	46
(4-7)	%	44	20	60	60	46
High	f	0	0	9	6	15
(more than 7)	%	0	0	36	24	15

N=100

It is evident from the table 11 that majority of respondents were in possession of medium level of knowledge (Pooled percentage value 46) with respect to improved A.H. managemental practices. Furthermore villagewise analysis shows that 60% of respondents of each village *i.e.* Dighra and Morsand, 44% of respondent of Mahmada village and 20% respondents of Malikaur village were possessing the medium category of knowledge level towards improved A.H. management practices. On the other hand 56%, 80%, 4% and 16% respondents of

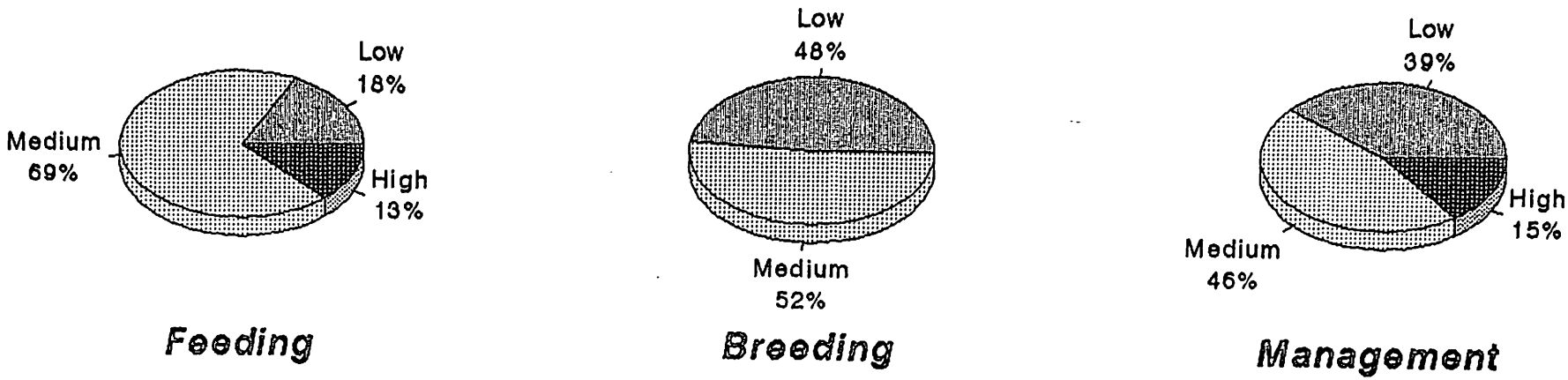


Fig. 2 Knowledge level of milk producers towards improved A.H. practices.

the selected Mahmada, Malikaur, Dighra and Morsand villages respectively were belonged under low knowledge level group with respect to improved A.H. management practices (Pooled percentage value was observed 39). Apart from this, only 36% respondent of Dighra village and 24% respondent of Morsand village were found their place in high knowledge level group. Surprisingly also none of the respondent of village Mahmada and Malikaur was found in this category (Pooled percentage value was shown 15). The basic explanation of the observed findings could be stated as milk producers of village Dighra and Morsand were found more conscious towards different managemental practices because these villages had functional dairy co-operative societies (DCS) by which farmers were directly benefited. In the other hand, respondents of village Mahmada and Malikaur were found to be more traditional in terms of their livestock farming. Also during the study it was observed that not a single functional dairy co-operative society was under operation in these villages. These villages were dependent neighbouring villages with regard to DCS in this matter.

The findings of Kapse (1976), Somasundaram (1976), Rath (1978), Mallik (1978), Ansari (1980), Hazarika (1983), Natraju and Channegowda (1985) Goswami (1987), Kaushik (1988), Mandal (1995) and Kumar (1997) were observed in support of the present research trends.

4.1.12 Distribution of the respondent according to their attitude towards improved feeding practices

The perusal of table 12 indicates that maximum respondents village Dighra and Morsand showed their of most favourable attitude with percentage scores of 68 and 44, respectively towards improved A.H. feeding practices. On the other hand majority of respondents of village Mahmada and Malikaur had least favourable attitude showing their percentage score of 40 and 80, respectively towards feeding practices. However, pooled analysis was unable to represent the clear picture between these three parameters of attitude towards feeding practices.

Table 12. Showing the attitude of selected milk producers towards improved feeding practices

Attitudinal orientation		Mahmada	Malikaur	Dighra	Morsand	Pooled
Least favourable	f	10	20	2	2	34
(0-5)	%	40	80	8	8	34
Favourable	f	11	4	6	12	33
(6-10)	%	44	16	24	48	33
Most favourable	f	4	1	17	11	33
(more than 10)	%	16	4	68	44	33

N=100

The possible reasons behind the observed differences in most favourable attitude among the respondents of these four selected villages were the availability of different feeds and fodder seeds, mineral mixture, salt bricks etc. through dairy co-operative societies (DCS) which situated in the village of Dighra and Morsand. The frequent visit of higher officials of DCS were probably the second cause which influenced their attitudinal orientation towards the adoption of different A.H. feeding practices.

The findings were in tune with the studies of Choudhary (1976), Natraju and Chanegowda (1987) and Mandal (1995).

4.1.13 Distribution of respondents according to their attitude towards improved breeding practices

It is evident from table 13 that out of 100 selected milk producers, 16 were found to be have the most favourable attitude, 43 had favourable attitude and 41 had possessed the least favourable attitude towards improved A.H. breeding practices. When data were put under villagewise analysis it appeared that 56% of respondents of Dighra village and 48% respondents of Morsand village had favourable attitude towards improved A.H. breeding practices, whereas the percentage scores were 36 and 32 for the villages of Mahmada and Malikaur,

respectively. In addition to this, it was found that majority of the respondents of Mahmada and Malikaur village (*i.e.* 40% and 64%, respectively) had shown their least favourable attitude towards improved breeding practices. But the percentile score for this group in the villages Dighra and Morsand were observed 32 and 28, respectively.

Table 13. Showing the attitude of selected milk producers towards improved breeding practices

Attitudinal orientation		Mahmada	Malikaur	Dighra	Morsand	Pooled
Least favourable	f	10	16	8	7	41
(0-5)	%	40	64	32	28	41
Favourable	f	9	8	14	12	43
(6-10)	%	36	32	56	48	43
Most favourable	f	6	1	3	6	16
(more than 10)	%	24	4	12	24	16

N=100

The possible explanation behind this sharp difference in favourable attitude of milk producers residing in both the villages *i.e.* Dighra and Morsand from another two villages Mahmada and Malikaur could be given as that the milk producers of Mahmada and Malikaur were still rely on natural services/insemination and followed traditional way of breeding practices with respect of heat detection and pregnancy diagnosis etc. Further the lack of A.I. centre in these villages also observed as the second important cause for the observed differences in the attitudinal orientation of selected milk producers.

The A.I. centre located in the villages of Dighra and Morsand were recognised as most functional not with the help of government but they were smoothly running with the help of DCS (Dairy Co-operative Societies). The observed trends were further confirmed with the findings of Hazarika (1983), Goswami (1987), Kaushik (1988), Verma (1988), Sagar (1991) and Mandal (1995).

4.1.14 Distribution of the respondents according to their attitude towards improved management practices

Table 14. Showing the attitude of selected milk producers towards improved A.H. management practices

Attitudinal orientation		Mahmada	Malikaur	Dighra	Morsand	Pooled
Least favourable	f	8	19	2	2	31
(0-5)	%	32	76	8	8	31
Favourable	F	10	4	15	12	41
(6-10)	%	40	16	60	48	41
Most favourable	f	7	2	8	11	28
(more than 10)	%	28	8	32	44	28

N=100

The analysis of the table 14 leads to infer that out of 100 selected respondents under the study, 31 exhibited their least favourable attitude, 41 had favourable and 28 had more favourable attitude towards their improved A.H. management practices. The villagewise analysis led the image that 32%, 76%, 8% and 8% selected milk producers of villages Mahmada, Malikaur, Dighra and Morsand, respectively were expressed their least favourable attitude towards improved management practices. On the other hand 40%, 16%, 60%, 48%, respondent of these village expressed their favourable attitude towards management practices. Apart from this, the percentage scores were observed very low in these villages for most favourable component which were shown as 28%, 8%, 32%, and 44%, respectively for all the four selected villages.

The findings provided a mixed picture of the selected respondents of all the four villages with respect to their improved management practices. Probably this might be due to the fact that milk producers were more conscious and they had developed a sense of responsibility to undertake the A.H. enterprise as their career project. They were also found to be much capable in managing and handling the milch animals as they might have equipped with much more latest information

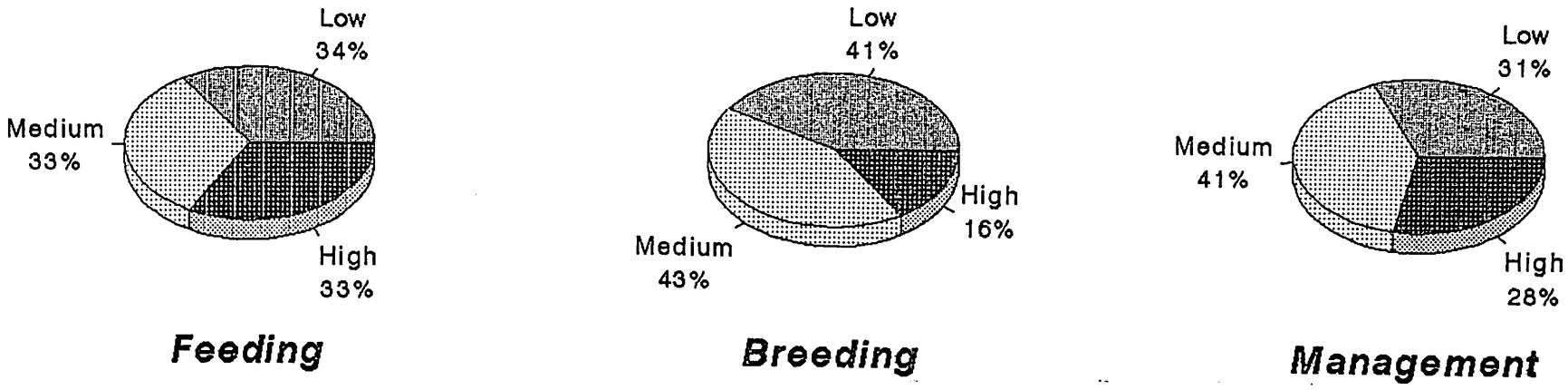


Fig. 3 Attitude of milk producers towards improved A.H. practices.

regarding the different managemental practices. In fact these areas are situated in the close proximity of RAU headquarter.

The observed facts confirmed the findings of the studies carried out by Goswami (1987), Mandape (1988), Sagar (1991) and Mandal (1995).

The findings reported by the above studies highlighted that attitude of the respondents varied because of the variation in socio-economic condition of the respondents. It was expedient, therefore, to examine the level of attitude across the socio-economic status of the respondents which may helpful in formulating suitable plan of action for re-organising the different dairy development programmes. Since an attitude is an emotionalised system of ideas which predisposes us to act in a certain way under certain conditions. Hence, it is treated very important component of behaviour as it played a very significant role in farming the overt and covert behaviour of the farming community.

Section II

The section deals the nature and degree of relationship between the selected independent variables and the selected dependent variables of the study. The knowledge and the attitude which have been considered as the important parameters in affecting the milk production under this study. But it is proven fact also that knowledge and the attitude of the milk producers towards different improved A.H. practices are governed by number of socio-personal correlates of the respondents because these factors have a definite bearing on the level of knowledge and the attitude formation. The variable selected for the analysis were Age (X_1), Education (X_2), Family size (X_3), Land holding (X_4), Occupation (X_5), Income from different sources (X_6), Number of milch animals (X_7) and Milk production (X_8). In order to assess the extent of relationship the data was suggested to correlation analysis. Further, these variables were put to analysis to assess the prediction potencies and for that regression analysis was done.

4.2.1 Relationship between the selected independent variables and knowledge level of milk producers towards improved A.H. practices

Table 15. Correlation coefficient showing the nature and extent of relationship between independent variables and the knowledge level of milk producers towards different improved A.H. practices

Independent variables		r-value feeding	r-value breeding	r-value management	Pooled r-value
X_1	Age	-0.401*	-0.254*	-0.115	-0.294*
X_2	Education	0.807**	0.484**	0.539**	0.729**
X_3	Family size	0.146	-0.099	-0.004	0.023
X_4	Land holding	0.008	0.044	0.003	-0.010
X_5	Occupation	0.375*	0.158	0.257*	0.320*
X_6	Income from different sources	0.157	0.173	0.134	0.181
X_7	Number of milch animals	0.472*	0.062	0.151	0.120
X_8	Milk production (per day per family)	0.143	0.298*	0.296*	0.214*

** Significant at 0.01 per cent level of probability
* Significant at 0.05 per cent level of probability.

The data recorded in the table 15 projected the r-value obtained for knowledge level of 3-different aspects *i.e.* Feeding Breeding and Management practices of improved A.H. practices and the variables under study. The perusal of table 15 denotes that the variables under study were found to be correlated at varying levels. A glance over the r-value reveal that education was the only variable which was found to be significantly and positively related with the Feeding, Breeding and Management aspect alike because the r-values were found to be statistically significant at 0.01 level of probability. The pooled r-value in this case also was found to be highly significant. It can be

infer from such relationship that with the increase in the level of education there is every chance that the knowledge level of the respondents will move further in positive direction. The variable age was found to be negatively and significantly correlated with the knowledge level of Feeding and Breeding practices but its relation was found non-significant with the management aspect. However, the pooled r-value was found to be significant at 0.05 level of probability. This indicates that young group of milk producers were non-receptive towards the knowledge related with the improved A.H. practices. The variable occupation was found to be positively and significantly correlated with the Feeding and Management aspect but its r-value was non-significant with breeding aspects. The pooled r-value in the case was found to be significant indicating there by that variable might have hold the significance in affecting the dependent variables. A look at the r-value obtained in case of milk production and different aspect of A.H. practices indicate the existence of positive relationship with the knowledge level with regard to breeding and management aspect. However, the relationship was found to be non-significant with the knowledge level of feeding aspect. The pooled r-value was worked out to the level of 0.214 which was significant at 0.05 level of probability. The data related with number of milch animal and the knowledge level about the feeding aspect of the age practices when put to analysis than it was found that the r-value was positive and significant. It clearly indicated that this parameter is very important in affecting the level of knowledge. But in other two cases this variables could not produce a significant relationship indicating that this variable is not very important. The pooled data of these three aspect of the age practices and the independent variables (Number of milch animal) also refers the existence of non-significant association. It can be suggested therefore that the variable is not of much significant on the pooled basis. However, the remaining variables which were tested for its relationship did not produce any significant relationship in either of the all three aspect *i.e.* Feeding, Breeding and Management practices. The pooled r-value also were found in more or less of similar magnitude.

Table 16. Regression coefficient showing the degree of potencies variables under study on the knowledge level of milk producers towards different improved Feeding A.H. practices

Independent variables		a-value	Partial b-value	S.E.	t-value	R^2
X_1	Age		-0.697	0.290	2.403*	
X_2	Education		7.414	0.733	10.110**	
X_3	Family size		0.636	0.642	0.911	
X_4	Land holding	18.20	1.189	0.805	1.478	0.690
X_5	Occupation		1.836	0.726	2.528*	
X_6	Income from different sources		0.755	0.790	0.956	
X_7	Number of milch animals		1.966	0.932	2.108*	
X_8	Milk production (per day per family)		0.759	0.929	0.818	

** Significant at 0.01 per cent level of probability
* Significant at 0.05 per cent level of probability.

Table 16 depicts the prediction potencies of the variables under study towards the knowledge level of milk producers with regard to feeding aspect of improved A.H. practices. As it appears from the data the variable varied according to their contribution towards the dependent variable both in terms of magnitude and direction. This is reflected through the partial b-value obtained in this analysis. The highest β-coefficient was found in the case of variable education and it was also significant at 0.01 level of probability. This provides ample ground to take advantage of this findings which contemplate to bring the desirable changes towards the dependent variables inquisition. The number of milch animals and the occupation of the milk producers also turned out as the potential predictors because the b-values were statistically significant at 0.05 level of probability. It also gives the ample evidence to take into consideration of both the parameter in improving the knowledge component with respect to age practices. The variable education emerged as significant predictors towards the feeding practices.

However, its direction was in negative side. It can therefore be conclude that the change agents should be intimated to take the advantage of this findings in field condition where this study was carried out. The remaining variables could not produce any tangible impact on the dependent variable. This generalisation were made while looking into the b-values and there significance level. All the variable when subjected to multiple correlation analysis to assess the amount of variability explained by the factors under analysis than it was observed that they were being able to count for 69% variation in the dependent variable which seems to be fully justified.

Regression co-efficient showing the degree of potencies of the independent variable on the knowledge level of the milk producers towards the improved breeding practices have been presented in table 17.

Table 17. Regression coefficient showing the degree of potencies of variables under study on the knowledge level of milk producers towards improved Breeding

Independent variables		a-value	Partial b-value	S.E.	t-value	R^2
X_1	Age		-1.031	0.398	2.591*	
X_2	Education		5.057	1.086	4.661*	
X_3	Family size		1.410	0.951	1.483	
X_4	Land holding	9.592	1.282	1.920	1.078	0.520
X_5	Occupation		0.222	1.075	0.206	
X_6	Income from different sources		0.814	1.169	0.697	
X_7	Number of milch animals		1.012	1.528	0.662	
X_8	Milk production (per day per family)		3.111	1.374	2.264*	

* Significant at 0.05 per cent level of probability.

A careful analysis of the data reported in the table brings to the native that all the variables were not equally effective in exerting the influence over the dependent variable. Some of the variables were found to be making sizeable contribution while the others lagged behind. The notable among them is the education variable and the level of milk production which were found influencive positively. In both the case β-coefficient were significant at 0.05 level of probability. While looking the importance of breeding aspect both the variable were very important for the farmers who were educated enough and have a chance of good milk harvest probably they will not be much inclined towards acquiring knowledge on the breeding aspect. The variable age was also found as a potent predictor but its direction was in negative side. The basic implication emerge from such figures that we should promote the young milk producer for taking this vocation as a source of their livelihood and generating additional income. The rest of the variables which have been included in their analysis did not emerge as potential predictor. The drawing of such type of inference could be possible because all the b-values were non-significant hence these remaining factors other than three were not at all important for making any impact on the dependent variables. All the variables collectively explained 52% of the variability towards the dependent variables.

Table 18 projects the results of regression analysis administered to assess the prediction potential of variables under study on the dependent variable *i.e.* knowledge level of milk producer towards improved management practices. A careful analysis of the Age, Education and the level of Milk production none of the variables emerged as potential predictors. The t-value were found to be statistically significant in these three cases only. Out of these three variables age was found main contributor towards positive direction whereas the remaining both the variables of milk producers were found to be positive contributors. This suggest the utility of these three variables in making improvement for management abilities of the milk producers. A case worth mentioning here is the importance of the education variable, unless and until the milk producers have a quite high formal degree they may not

be in a position to acquire and retest the knowledge aspect of the management practices.

Table 18. Regression coefficient showing the degree of potencies of variables under study on the knowledge level of milk producers towards improved Management practices

Independent variables		a-value	Partial b-value	S.E.	t-value	R^2
X_1	Age		-2.160	0.978	2.208*	
X_2	Education		6.067	1.029	5.894*	
X_3	Family size		0.818	0.902	0.907	
X_4	Land holding	10.635	1.473	1.131	1.304	0.589
X_5	Occupation		1.264	1.019	1.240	
X_6	Income from different sources		0.203	1.108	0.183	
X_7	Number of milch animals		1.054	1.449	0.727	
X_8	Milk production (per day per family)		1.818	0.803	2.189*	

* Significant at 0.05 per cent level of probability.

The other variables, however, made positive contribution but there presence could not be utilize safely because of the fact that all the t-value were found insignificant. When the variables were tested for ascertaining the amount of variability it was found that they were collectively responsible for the accounting 58.9% variability towards the dependent variable. From looking R^2 value just above it can be argued that almost 40% of the variability remain unexplained and therefore suggested that the future study in these lines may be planned to have still better explanation of the these variability.

4.2.2 Relationship between selected independent variables and attitudinal orientation of milk producers towards improved A.H. practices

Table 19 depicts the correlation coefficient obtained between the independent variables under study with the level of attitude possessed by the respondents pertaining to the feeding, breeding and management practices.

Table 19. Correlation coefficient showing nature and extent of relationship between independent variables and attitude of milk producers towards different improved A. H. practices

Independent variables		r-value feeding	r-value breeding	r-value management	Pooled r-value
X_1	Age	-0.184	-0.235*	-0.244*	-0.248*
X_2	Education	0.650**	0.611**	0.632**	0.710**
X_3	Family size	0.178	-0.031	0.087	0.091
X_4	Land holding	0.165	0.078	0.054	0.113
X_5	Occupation	0.211*	0.287*	0.184	0.254*
X_6	Income from different sources	0.210*	0.237*	0.135	0.218*
X_7	Number of milch animals	0.235*	0.046	0.123	0.155
X_8	Milk production (per day per family)	0.223*	0.071	0.168	0.176

** Significant at 0.01 per cent level of probability
* Significant at 0.05 per cent level of probability.

A cursory look at the r-value indicates the existence of varying level of relationship between independent and dependent variables. Some of the variables were found to be significantly correlated whereas some others were found having non-significant association. A case in point is the variable education which was found to be bearing significance and positive relationship with the level of attitude in all the three component. It gets further support from a look at the r-value of the pooled data of feeding, breeding and management. It reflects therefore that

variable education has determining role in attitude formulation and infact it goes hand in hand with each other. None of the variables under study were noticed to have relationship of similar magnitude in all the three cases of the practices.

The variable occupation and income from different sources were found to be play a decisive role in attitude formation specially with feeding and breeding aspect. It could be possible to draw such inference by looking in to the r-value obtained for the variables with feeding and breeding aspects. The r-value in case of management aspect, it was found that the r-value was positive but at a non-significant level. Therefore, it could not be possible to draw a reliable conclusion when the data of these three aspect were put under pooled analysis to test the relationship it was observed the r-values were significant. A generalised conclusion can therefore be made that these two parameter deserve to be considered in making improvement of the attitudinal orientation of the respondents under the study. The level of milk production was found to be correlated with the attitude with regard to feeding aspect only. This indicates that milk producers having more milk yield per day per family are bound to have a positive attitude with the feeding aspect but the other variable could not produces a significant relationship with other two aspects. The pooled r-value were found in other cases as non-significant.

The age of the respondent was found to be negatively correlated with all the three aspects but it was significant only with breeding and management practices. This provides the sufficient ground to believe that the young aged milk producers have tendency to have positive attitude with breeding and management component. The rest of the other variable under study could not be found to have significant relationship with all the three selected components of animal husbandry.

Table 20 depicts the potencies of the variables under study on the attitudinal orientation of milk producers towards improved feeding practices. This has been reflected through the β-coefficient values. From perusal of the t-values it appears that out of eight variables only three *i.e.* age, education and number of milch animals have turned out as the potent factors. However the b-value in case of age was found to be in negative side. The most important among the potent

factors is the variable education because its b-value was comparatively high in comparison to other two potent factors. It was also found highly significant.

Table 20. Regression coefficient showing degree of potencies of variables under study on the attitudinal orientation of milk producers towards improved Feeding practices

Independent variables		a-value	Partial b-value	S.E.	t-value	R^2
X_1	Age		-1.865	0.882	2.113*	
X_2	Education		7.085	0.928	7.633**	
X_3	Family size		0.580	0.813	0.713	
X_4	Land holding	8.226	0.549	1.019	0.539	0.603
X_5	Occupation		0.065	0.919	0.071	
X_6	Income from different sources		0.973	0.999	0.973	
X_7	Number of milch animals		1.706	0.607	2.810*	
X_8	Milk production (per day per family)		0.739	1.175	0.629	

** Significant at 0.01 per cent level of probability
* Significant at 0.05 per cent level of probability.

Undoubtedly the variable education has made much of contribution towards the dependent variable and therefore this variable can be gainfully exploited in improving the attitudinal orientation of the milk producers towards the feeding practices. As the number of milch animals variable have a definite shift towards positive side of the attitudinal level of the milk producers. Inference of such nature is clearly visible from looking to its β-coefficient alongwith its corresponding t-value. However, it is a bare truth that number of milch animals cannot be lead in such a manner as has been found in this analysis but it is an important parameter for enhancing the level of attitude towards feeding. Here again the young aged milk producer seems to have more favourable attitudinal orientation indicating the t-value statistically significant. Rest of the variable which were put to test about

their potency reveal positive contribution but their t-value were observed non-significant. Hence, any valid conclusion with reasonable statistical probability cannot be drawn. All the variables put together were found to explain the 60.3% of variability towards dependent variable.

This table elucidates the result of analysis undertaken to analyse the prediction potentialities of the independent variables of the study with the attitudinal orientation of milk producer towards improved breeding practices.

Table 21. Regression coefficient showing degree of potencies of variables under study on the attitudinal orientation of milk producers towards improved Breeding practices

Independent variables		a-value	Partial b-value	S.E.	t-value	R^2
X_1	Age		-1.092	0.964	1.133	
X_2	Education		6.419	1.014	6.328**	
X_3	Family size		1.335	0.885	1.502	
X_4	Land holding	3.006	0.173	1.114	0.155	0.407
X_5	Occupation		0.589	1.005	0.586	
X_6	Income from different sources		0.556	1.092	0.509	
X_7	Number of milch animals		0.344	1.428	0.241	
X_8	Milk production (per day per family)		0.414	1.284	0.322	

** Significant at 0.01 per cent level of probability.

From the face of facts through the table 21 it appears that except variable education it can be concluded that this variable is the most important one because it had the highest β-coefficient vis-à-vis other parameter run for the analysis. The manipulation of statistical data is difficult task in field situation but the study suggest to utilize this factor whenever situation permits. The remaining variables were not of much significance owing to the reason that all the t-value were found

to be non-significant. The non-significant level of the t-values can be explained in either way. On the one side their b-values were relatively low but the S.E. is proportionately high. The age variable deserve the special attention because it was the only factor whose b-values was found negative side. But again this was considered as non-significant. The value of R^2 indicating the amount of variability also justify the notion that all the variables explained only 40.7% of the variability. This trend provides a lot of scope for future study to explain some of the variables which may provide better explanation in explaining the variability towards the dependent variables.

Table 22. Regression coefficient showing degree of potencies of variables under study on the attitudinal orientation of milk producers towards improved Management practices

Independent variables		a-value	Partial b-value	S.E.	t-value	R^2
X_1	Age		-1.027	0.945	1.086	
X_2	Education		6.901	0.994	6.940*	
X_3	Family size		0.062	0.871	0.071	
X_4	Land holding	2.911	0.492	1.092	0.450	0.430
X_5	Occupation		0.187	0.985	0.190	
X_6	Income from different sources		0.087	1.071	0.081	
X_7	Number of milch animals		0.023	1.399	0.016	
X_8	Milk production (per day per family)		1.594	1.259	1.266	

** Significant at 0.05 per cent level of probability.

Table 22 explains the prediction potentialities of the selected variables under study towards the attitudinal orientation of milk producer in context of their A.H. management practices. A critical look at the b-values reveal the fact that almost all the variables except education could not emerge as potential factor in

influencing the dependent variables. The variable education again emerged as the potential predictor in affecting the attitudinal orientation towards the management practices. The change agency can be safely advocated to use this parameter, in the field of animal husbandry without any doubt. Logically also it seems imperative that unless the respondents have sound educational background they might not be having a favourable attitudinal orientation towards the management practices. Because management as such is an art and science in itself for taking decision and choosing the best course of alternatives. The remaining variables could not produce perceptable influence on the dependent variable as it was observed that all the t-values were non-significant. The value of R^2 indicating the amount of variability towards the dependent variable projects the fact that some of the important parameter could not find place as part of the analysis. The R^2 value was computed to the tune of 43% leaving much to be explained by the other factors. This creates the avenues for future study.

Table 23. Regression coefficient showing degree of potencies of variables under study on the knowledge level of the milk producers towards different improved A. H. practices (Pooled data)

Independent variables		a-value	Partial b-value	S.E.	t-value	R^2
X_1	Age		-0.997	0.399	2.494*	
X_2	Education		7.424	0.841	8.823**	
X_3	Family size		0.595	0.737	0.808	
X_4	Land holding	16.860	1.581	0.924	1.711	0.592
X_5	Occupation		1.246	0.833	1.495	
X_6	Income from different sources		0.064	0.906	0.071	
X_7	Number of milch animals		0.941	1.185	0.794	
X_8	Milk production (per day per family)		1.573	0.365	4.308*	

** Significant at 0.01 per cent level of probability
* Significant at 0.05 per cent level of probability.

This table presents the result of analysis to measure the prediction potentialities of the variables under study with the knowledge level of the milk producers when the data of feeding, breeding and management practices were pooled together.

The scrutiny of the partial β-coefficient alongwith corresponding t-value reveals that all the variables behaved differently in showing the prediction potencies. The variable education emerged as the most potent factor in affecting the knowledge level of the milk producer because it had the highest b-value and a significant t-value also. It signifies the importance of this variable in producing a tangible result in improving the knowledge level of the feeding, breeding and management aspect. The other two variables which emerged as a potent factors in affecting the dependent variables were variable age and the level of milk production. Here the b-values were found to be statistically significant. This indicates that a farmer of young age with good milk yield harvest have a definite tendency to acquire more knowledge about all the three aspect of animal husbandry. Further, it was found that the rest of the other variables under study did not turned out as potential predictors. This inference is drawn looking in to the respective t-value which were found to be statistically insignificant. It means that all the other variables barring three just mentioned above were not of any significance for affecting the knowledge level of the milk producer. When data were put to work out the amount of variability explained by them, than it was found that they collectively explained 59.2% of the variability towards the dependent variable.

This table presents the result of regression analysis performed to assess the prediction potential of the variables under study with the attitudinal orientation of the milk producers.

A glance over the b-values indicate varying level of contribution towards the dependent variable. The variable age was found to be a potent factor but in a negative direction. This is a because of the reason its t-value was found to be statistically significant. It is all together a different case to manipulate this variable

in field condition. As such it can be concluded that in order to utilize this variable efforts should be made to select young group of milk producer. On the contrary, the variable education emerged as the most important factor from the point of view this study. The β-coefficient was highest when compared to other b-values of different variables and its level of significance also was at 0.01 level. This indicates that this variable can be safely utilized for creation of positive attitude of the milk producer towards different A.H. practices. The other variable which turned out as a potent factor is the level of milk production. The b-value was found to be statistically significant indicating that farmers obtaining more milk yield have tendency to form a positive attitude towards the dependent variable under study. The remaining variables as the data indicated could not emerged as a potential predictor towards the variable taken together explained 64.5% of the variability towards the dependent variables.

Table 24. Regression coefficient showing degree of potencies of variables under study on the attitudinal orientation of the milk producers towards different improved A.H. practices (Pooled data)

Independent variables		a-value	Partial b-value	S.E.	t-value	R^2
X_1	Age		-1.506	0.644	2.339*	
X_2	Education		7.654	0.888	8.616**	
X_3	Family size		0.274	0.778	0.353	
X_4	Land holding	14.145	0.337	0.975	0.345	0.645
X_5	Occupation		0.116	0.879	0.132	
X_6	Income from different sources		0.549	0.956	0.574	
X_7	Number of milch animals		0.785	1.250	0.627	
X_8	Milk production (per day per family)		1.032	0.424	2.433*	

** Significant at 0.01 per cent level of probability
* Significant at 0.05 per cent level of probability.

The results reported through table 15 to 24 have brought to sharp focus over the varied contribution of the independent variables towards the improved A.H. practices. Hence, it was found that most of the variables behaved differently in showing the relationship with the knowledge and attitudinal orientation with regard to feeding, breeding and management practices. The most striking findings which emerged from the study just reported above finds ample supports from large number of empirical studies conducted in the similar argues by the past researcher. Hence, it provides enough ground to take advantage of this finding to accelerate the knowledge level and attitudinal orientation of milk producers. The another important revealing facts emerged out of the study is that the size of family and the size of holding did not emerge as a potential predictor. The correlation at analysis also testified the above hypothesis. This means that the knowledge level and the attitudinal orientation towards the improved A.H. practices are not governed in any way by these two parameter. In other words both the variable cannot be taken in to consideration while making any efforts for improving the knowledge and attitudinal components.

The R^2-value obtained in this study also varied remarkably. In case of knowledge and attitudinal orientation with regard to feeding practices the selected variables were quite effective but in other two cases the same set of variables could not be found equally effective. This is might be due to reason that some more potent factor need to be identified for better explanation of the variability specially for breeding and management practices. Thus based on logical explanation out of the field experience it could be concluded that there will be definite improvement in the knowledge level and attitudinal orientation of the milk producers towards the adoption of these A.H. practices through these operating variables.

Section III

This is the experience of veterinary extension workers that when cattle owners were approached with latest technologies of A.H., some of them responded promptly, some required a lot of persuation and still there were others, who resisted to adopt till the end. The basic cause behind all these problems were the different factors influencing adoption or rejection of new A.H. innovation.

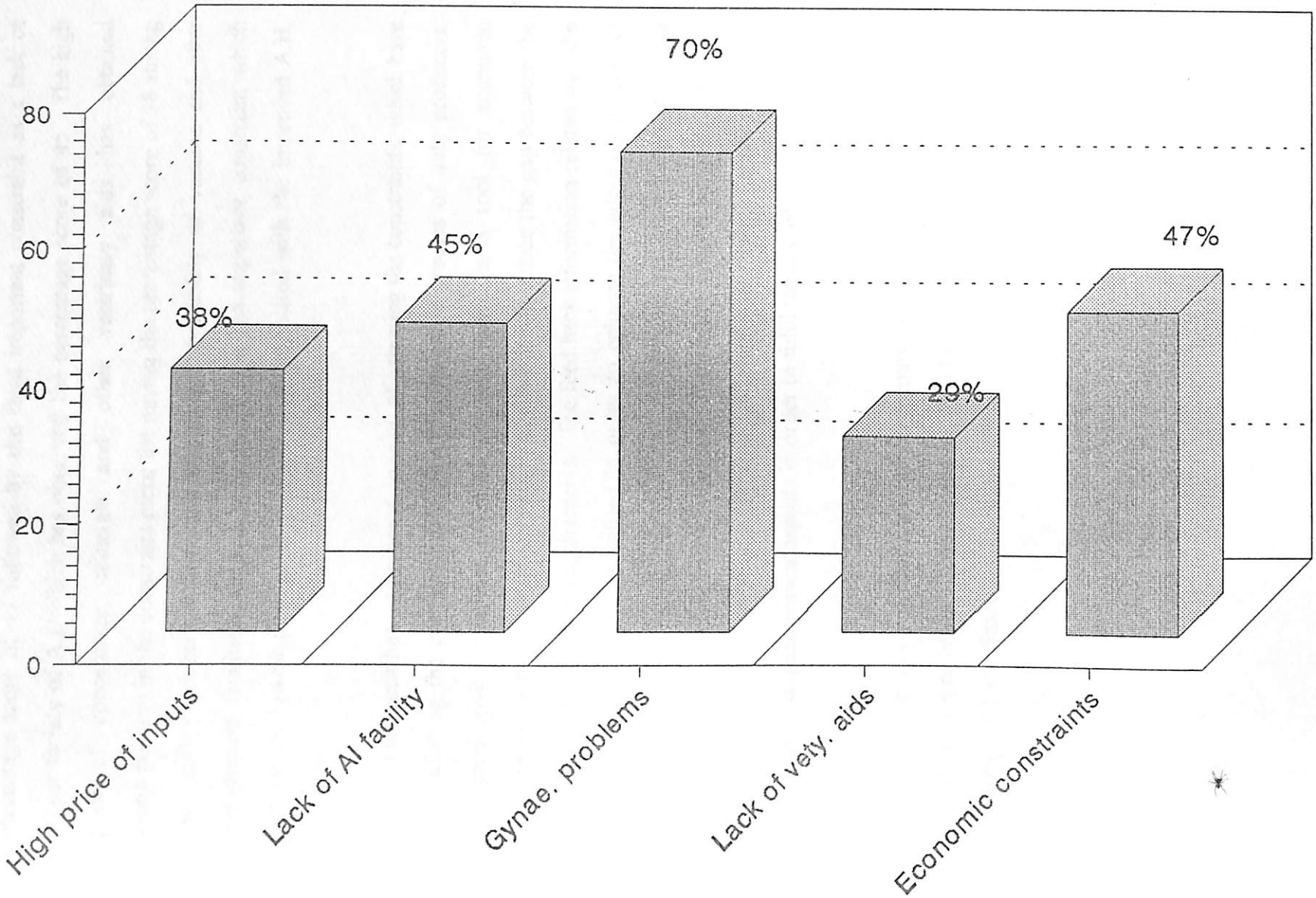
This section deals with the constraints which influenced the adoption of improved A.H. practices. In order to find out the constraints, the responses of farmers (with respect to constraints) has been categorised in table 25.

4.3.1 The important constraints involved in non-adoption of improved A.H. practices as perceived by the selected milk producers

Table 25. Showing the constraints as perceived by the respondents

Sl. No.	Constraints	Percentage score	Rank
1.	High price of medicines, concentrates and minerals	38%	IV
2.	Lack of proper facility of A.I.	45%	III
3.	Very low conception rate & other gynaecological problems in milch animals	70%	I
4.	Timely unavailability of vaccines and lack of after management facility as well as treatment	29%	V
5.	Lack of loan facility and other help by Govt. officials	47%	II

The perusal of the table 25 depicts that very low conception rate and other gynaecological problems in milch animals were observed as the most serious constraint during the study. As it was expressed by 70% of the selected respondents. The second important constraint as perceived by the respondent was


80
60
40
20
0
38%
45%
70%
29%
47%
High price of inputs
Lack of AI facility
Gynae. problems
Lack of vety. aids
Economic constraints

the lack of loan facility and other help by Govt. officials. It has borne out the percentage score of 47 followed by the third important constraint as a lack of proper facility of A.I. which has observed the percentage score of 45. The high price of concentrate, minerals and other veterinary aids has obtained fourth position in the constraint merit list having the percentage score of 38 among the milk producers. Also, the insufficient availability of vaccine and after management facilities etc. was considered as a last important constraint which secured the lowest position in the constraint list related with the improved A.H. practices.

The result has a significant, in view of assessing the constraints, which have been affecting the complexities involved in adoption process of milk producers. The productivity potential of milk not only serve as a tool for economic regeneration of the farming community but also it will reduce the gap between the milk availability and milk requirements. The feed back information related with the study can be very well be utilised in order to enhance the adoption process of improved A.H. practices in terms of feeding, breeding and management practices related with the milch animals of the area. The observed trend suggests that there is an urgent need to develop an appropriate strategy mainly on gynaecological & health care and management aspects in order to fulfil the cherished dream of white revolution.

The obtained findings are in conformity with results of Sharma *et al.* (1989), Kulkarni *et al.* (1990), Supe *et al.* (1990), Tripathi & Krunzu (1993), Kumar (1997) and Saxena & Tripathi (1998).

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Summary and Conclusions

If a man will begin with certainties he shall end in doubts; but if he will be content to begin with doubts he shall certainly end and conclude in certainties.

- Francis Bacon

SUMMARY AND CONCLUSIONS

Animal husbandry in India has been an age-old practice mainly due to its complementary with agriculture and vegetarian dietal habit of the majority of the people. Milk and milk products play a vital role not only in our dietry system but also in moulding our way of life. It has great potential in generating employment opportunities and supplementing the income of the weaker section of the rural community. In general, the knowledge and attitude of livestock owners towards scientific dairy activities like feeding breeding, health case and management practices are considered as the important factors having definite impact on the productive and reproductive potentials of animals.

The present research enterprise deals with knowledge and attitudinal orientation of the milk producers. As the attitude and knowledge level are by and large intercorrelated variables. Therefore with the help of present study an effort has been made to measure the attitude and knowledge level of respondents towards different improved A.H. practices. In fact, presently, the Government of Bihar have shown a concern for developing animal husbandry in the state and efforts are being made to bring white revolution in the more effective manner. However, a programme of this magnitude cannot be successfully implemented unless and until the level of knowledge and attitudinal orientation of livestock owners be changed accordingly. Attitude and knowledge components of an individual can be influenced by a host of factors. Therefore, with this end in view the present study has been proposed to undertake with the following specific objectives :

1. To assess the extent of knowledge of the milk producers with respect to improved A.H.A practices;

2. To measure the attitudinal orientation of the milk producers towards different improved A.H. practices;

3. To ascertain the association between selected independent variables and dependent variables;

4. To explore the constraints involved in non-adoption of improved A.H. practices as perceived by milk producers.

Methodology

The study was conducted in four villages of Pusa block of Samastipur district with 100 milk producers (25 from each selected villages). Data were collected in face to face situation with the help of structured interview schedule concerning the feeding, breeding and management practices of A.H. The suitable statistical measures were used to analyse the data in order to get the meaningful results.

Salient findings

The salient findings of the study are as follows :

1. Majority of the livestock owners were found under middle age group of 31 to 40 years *i.e.* 72 per cent of the respondents. 41 per cent of respondents had acquired their formal educational standard of upto high school where as only one per cent were fallen under illiterate category;

2. 48 per cent of the selected milk producers were having their medium family size alongwith the possession of small land holding;

3. During the study of livestock owners it was found that 45% of the respondents had adopted cultivation as their profession whenever 21% had adopted animal husbandry and only 2% of the selected milk producers were observed as the labourer in term of their main occupation. On the basis of annual income it was found that 42% of the selected milk producers belonged under medium family income group (*i.e.* in between Rs. 21,000 to 40,000/-) followed by high income group (*i.e.* in between Rs. 41,000 to 60,000/- annually);

4. The maximum respondents (40%) under study were having 6 to 8 milch animals under the possession whereas only 11% of respondents had more than 8 milch animals. On the other hand, 34% of the total respondents were came under the category of high milk production per day followed by the respondents of medium milk production group;

5. The study denotes that the majority of the respondents had medium level of knowledge with respect to the improved animal husbandry feeding, breeding and management practices. Whereas, it was observed that the respondents had possessed high level of knowledge in relation to improved animal husbandry breeding practices;

6. It is evident from the attitudinal orientation of the milk producers in relation to different improved animal husbandry practices that majority of the respondents shown their least favourable attitude (34%) towards feeding practices, favourable attitude (43%) towards breeding practices and 41% respondents had shown their favourable attitude towards management practices;

7. The results related with correlation coefficient showing the nature and extent of relationship between the selected independent variables and the knowledge level of milk producers denote that education, occupation and number of milch animal variables were significantly correlated with the knowledge related with feeding practices whenever in the case of breeding practices education and amount of milk production variables were led significantly positive relationship with the knowledge level of the milk producers. While in the case of management practices again education, occupation and milk production variables were created significant positive relationship with the knowledge level of the respondents;

8. With regards to attitudinal orientation of the selected milk producers, it was observed that education was universally emerge as potent variable to determine the relationship with the attitude concerning their feeding,

breeding and management practices. The variables like occupation and income were also playing very important role in shaping the attitudes of the selected milk producers. In the case of improved animal feeding practices the amount of milk production variable also related with the attitudinal orientation of the respondents; and

9. In aggregate, education variable was recognised as the most potential factor in shaping the relationship between the selected socio-personal factors and knowledge level of the selected milk producers. Similar observation was also borne out with attitudinal orientation of the respondents. Age variable was also found to be negatively correlated with the knowledge and attitude of the selected milk producers. Since, knowledge and attitude are the psychological attributes which play important role in human behaviour, hence it was observed that age, education, occupation and income variables were closely related with these two selected attributes during the study.

10. On the basis of study, it was also found that there were five most important constraints involved in non-adoption of improved A.H. practices. According to their ranking they were very low conception rate and other gynaecological problems, lack of loan facility to boost their enterprise, lack of A.I. facility, high price of medicine, concentrate and minerals along with the untimely availability of vaccine and lack of other managemental practices.

Conclusions

Based on the results and findings as revealed by the present study, some pertinent conclusions were drawn which are summarised here as follows :-

1. The livestock owners of study area are practising their livestock enterprise with keen interest and a great zeal with sizeable herd size and fairly good level of milk production. Also they have gained good experience of A.H. with their advancement of educational status. Therefore, milk producers of

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middle age group should be the target for the efforts of livestock development;

2. The Small and Medium category of milk producers have relatively shown better knowledge stated with A.H. practices, therefore, it is suggested that the marginal category of respondents requires special attention in order to derive more benefits of development. More intensive efforts need to be directed towards this group;

3. The favourable attitude of milk producers towards A.H. practices is indicative of the fact that dairying are highly preferred and it is found popular activity among them. Majority of the respondents had shown to have fairly good knowledge of different A.H. practices, which subsequently shape their attitudinal orientation in term of favourable attitude towards A.H. practices. In this regard, a periodical evaluation is needed so that efforts should be made to change their neutral attitude into positive and favourable one;

4. The results of the study are more useful to training institutes, K.V.Ks. and other related organisations, keeping in view the facts appropriate suitable training programmes for livestock owners can be formulated based on their knowledge level with respect to different A.H. practices and also the study has immense value to the extension agencies engaged in transfer of technology more particularly in livestock development;

5. On the basis of study, it can be concluded that milk producers have gained knowledge in several A.H. areas and also have favourable attitude towards dairy farming, but further efforts are needed to enhance their competency so that it helps them in boosting the milk production and its productivity.

Implications of the research

A comprehension study may be designed to explore all possible factors that might influence the livestock owner's knowledge level and attitudinal orientation

which could include a larger sample (milk producers) for better generalisation of the results across the selected area.

The study also highlights that the required efforts should be made to improve upon the existing scales and develop standardized tools and techniques for suitable measurement of the dependent and independent variables. There may be more socio-psychological and personal variables other than those considered in the study which might be influencing livestock owner's knowledge and their attitude. Such factors should also be unearthed and their influence be studied. So far, much attention has not been paid to the studies of this nature particularly in the state Bihar where A.H. extension programmes were taken up seriously in recent time. Moreover, to draw valid conclusion and to give more appropriate suggestion it is advisable to repeat the similar kinds of studies in other different parts of the state. In view to examine whether attitude and knowledge of livestock owners affect the success of animal husbandry programmes in the villages, the impact of attitude on adoption of different improved A.H. practices among the milk producers should also be measured in order to have their real felt needs in this area.

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Bibliography

We shall be well content if, some at least of our readers, while glad enough to be rid of the present author and his efforts, will at any rate have seen sufficient of the light to wish to go to those better teachers whose names have been placed in this section as if in a roll of honour.

-Anonymous

BIBLIOGRAPHY

Anonymous (1982). *Livestock Census Report.* Deptt. of A.H., Govt. of Bihar.

Ansari, A.W. (1980). *The changing village India.* M/s Chetana Publication, Greater Kailash II, N. Delhi, pp. 109-111 & 302-309.

Babu, M. (1992). Knowledge, Attitude of livestock owners and their perceived incentives towards dairy farming in Bithrichainpur block of Bareilly district. *Unpublished M.Sc. Thesis*, IVRI, Izzat Nagar.

Balasubramanian, R. and Johan Khight, A. (1982). Bottleneeks in modern dairying. *Ind. Journal of Extn. Edn.* **18** (1&2) : 102-104.

Bhanja, S.K. and Kumar, Krishna (1978). A study of knowledge and attitude difference among adopters and non-adopters of AI practices in villages. Demonstration Centre of NDRI, Karnal.

Bloom, B.S.; Engelhadt, M.; Furnst, E.; Hill, W. and Kraihwohol, D.R. (1956). *Taxonomy of education objectives.* The cognitive, Domain, Longmans Green, New York.

Chandra, K. (1976). Differential adotion of dairy innovation by the farmers of ICDP, Karnal (Haryana). *Unpublished Ph. D. Thesis*, Punjab Univ. Chandigarh.

Chandra, N. (1987). A study of adoption behaviour of livestock owners and their source utilization pattern in relation to fodder production programme. *Unpub. M.Sc. Thesis*, IVRI, Izatnagar, UP.

Chattopadhyay, B.N. (1976). Diffusion of wheat technology in traditionally rice growing state - An analysis. *Unpub. M.Sc. (Ag) Thesis*, Divn. of Agril. Extn. IARI, N. Delhi.

Chattoraj, J. and Das, P. (1978). Attitude of cattle owners towards AI and fodder cultivation in I.C.D.P. and non ICDP area of West Bengal. *Annual Report*, NDRI, Karnal.

Chaubey, C.L. (1972). A study of differential adoption of high yielding wheat varieties technology as related to and influenced by selected demographic, socio-psychological and political variables in Sohoro distt., Madhya Pradesh. *Unpub. Ph.D. Thesis*, IARI, New Delhi.

Chauhan, J.P.S. (1979). "A study of some socio-personal, economic and enterpreneurial characteristics in relation to enterpreneurial role performance of milk producers of Karnal city. *Unpub. M.Sc. Thesis*, NDRI, Karnal.

Chauhan, J.P.S. and Chauhan, K.N.K. (1982). Correlation of level of aspiration of high and low milk producers. *IJEE*, **18** (3&4) : 40-44.

Chauhan, K.N.K. and Sinha, B.P. (1976). Impact of SITE on adoption of farm technology. *IJEE*, **13** (3&4) : 14-20.

Chung, D.S. (1986). Suitability of dairy farming technology and factors affecting knowledge and adoption. *Unpub. M.Sc. Thesis*. G.B. Pant Univ. of Agril. & Tech., Pantnagar, UP.

Dakhore, K.M. and Bhilegankar, M.G. (1987). Self-assessed levels of job performance of the Veterinary Extension personnel. *Maharashtra Journal of Extn. Edn.* **6** : 139-146.

Dana, S.S. (1987). Attitude of livestock owners towards A.I. in cattle. *Unpub. M.V.Sc. Thesis*, IVRI, Izatnagar, UP.

Das, P. and Chattoraj, J. (1978). Impact of Intensive cattle development on small farmers in West Bengal. *Annual Report*, NDRI, Karnal.

Dixit, V.B.; Narwal, R.S. and Sethi, N. (1990). Farmers knowledge about the attitude towards management practices in buffaloes. *Maharashtra Journal of Extn. Edn.* **9** : 174-177.

Dusai, B.R.; Girase, K.A. and Bajaj, S.S. (1993). Expectation of farmers from agricultural Universities. *M.J. Extn. Edn.* **12** : 377-379.

Enizele and Sohal, T.S. (1986). Impact of KVK training programme on knowledge skill and adoption of recommended practices. *Indian Dairymen*. **38** (8) : 411.

Fliegal, F.C. (1956). A multiple correlates analysis of factors associated with adoption of farm practices. *Rural Sociology*, **21** : 281-92.

Garde, S.K. (1980). A study of technological gap of different categories of dairy farmer in O.R.P. area of N.D.R.I., Karnal, *Unpub. M.Sc. Thesis*, NDRI, Karnal.

Gill, S.S. and Singh, P. (1977). Professional knowledge of dairy farmers of Ludhiana Distt. *IJEE*, **13** (3&4) : 77-79.

Gite, N.R. (1980). Study of training needs of landless crossbred cattle owners under lab. to land programme. *Unpub. M.Sc. Thesis*, NDRI, Karnal.

Goswami, A. (1987). A study of the knowledge level of the livestock owners about selected animal husbandry practices. *Unpub. M.V. Sc. Thesis*, IVRI, Izatnagar, UP.

Gupta, C.L. (1976). Differential motives of dairy farmers of milk cooperative societies of ICDP, Karnal towards dairy innovations, *Unpub. Ph.D. Thesis*, Punjab Univ., Chandigarh.

Hazarika, P. (1983). A study of correlation of knowledge and adoption behaviour of dairy farmers under intensive Cattle Development Project, Khanapra (Assam) *M.Sc. Thesis*, Research report of Division of Dairy Extension, NDRI, Karnal.

Jaiswal, N.K. (1965). A study of factors associated with low level of adoption of improved Agril. practices. *Unpub. Ph.D. Thesis*, Divn. of Agril. Extn. IARI, New Delhi.

Jamal, S. (1989). A study of role dynamics of farm women in relation to productivity of dairy animals, *Unpub. Ph.D. Thesis*, IVRI, Izatnagar, UP.

Jettley, S. (1977). Modernizing Indian Peasent : A study of six villages in eastern U.P. Asian Educational Service, India.

Kakoty, H.N. and Sohal, T.S. (1989). A scale to measure small dairy farmer's perceived incentives towards dairy innovations. *IJEE*, **25** (1&2) : 88-72.

Kapse, S.S. (1976). Adoption of selected dairy husbandry practices of cattle owners in the ICDP area, Dhulia (Maharastra) *Unpub. M.Sc. Thesis*, NDRI, Karnal.

Kaushik, S.K. (1988). A study on impact of milk producers cooperative societies on the knowledge and adoption practices in Hissar Distt. *Unpub. M.Sc. Thesis*, NDRI, Karnal.

Kherde, R.L. and Subramanian, R. (1986). Impact of milk marketing through dairy co-operatives. *Indian Dairymen*, **38** (8) : 405.

Kokate, K. D. (1984). A study on dairy farming technology gap in a tribal setting. *Unpub. Ph. D. Thesis*, NDRI, Karnal.

Kologi, S.D. and Anand, U. (1985). Adoption of dairying innovations among selected Tibetan Refugees of Karnataka. *Dairy Guide*, **7** (6) : 37-41.

Kulkarni, V.V.; Bhopale, R.S. and Chede, P.N. (1990). Constraints in adoption of dairy technologies by dairy farmers. *Maharashtra Journal of Extn. Edn.* **9** : 137-140.

Kumar, A. (1987). A study of adoption of dairy innovations of beneficiaries and non-beneficiaries of lab to land programme. *Unpub. M.Sc. Thesis*, NDRI, Karnal.

Kumar, P. (1997). Adoption of improved A.H. practices among milk producers of Pusa block of Samastipur district. *Unpub. M.V.Sc. Thesis*, Deptt. of Extn. Edn., RUA, Bihar, Pusa.

Kumar, R. (1996). Effectiveness of FLD conducted by the scientists of RAU. *Unpub. M.Sc. (Ag) Thesis*, RAU, Bihar, Pusa.

Kunzru, O.N.; Sagar, R.L.; Srivastava, N.K. and Singh, P. (1987). Constraints in adoption of Haemorrhagic septicaemia vaccine. *IJEE*, **23** (3&4) : 74-76.

Mallik, B.S. (1978). A study of differential knowledge and adoption of animal husbandry innovations among cattle owners of ORP area under N.D.R.I., Karnal, *Unpub. M.Sc. Thesis*, Kurukshetra University, Kurukshetra.

Mallik, B.S. and Sohal, T.S. (1980). Field adoption of improved animal husbandry practices. Indian Dairyman **33** (3).

Mandal, B.K. (1995). Attitude of farm youths towards A.I. program in Samastipur distt. of Bihar. *Unpub. M.Sc. (Ag) Thesis*, Deptt. of Extn. Edn., RAU, Bihar, Pusa.

Mandape, M.K. (1988). A multidimentional study of mixed farming amongst small and marginal farmers. *Unpub. Ph.D. Thesis*, IARI, New Delhi.

Manipal (1983). A study of socio-economic and psychological correlates in adoption of dairy innovation in the ORP area of NDRI, Karnal. *Unpub. Ph. D. Thesis*, NDRI, Karnal.

Mikkilineni, V.K. (1976). A study of adoption of few selected dairy practices in upland and delta area of Vijaywada Taluka (AP), *Unpub. M.Sc. Thesis*, NDRI, Karnal.

Minhas, P.S. (1976). A study of training needs of dairy of Ludhiana Distt. *Unpub. M.Sc. Thesis*, P.A.U., Punjab.

Mishra, S.P. (1979). Study of farm entrepreneurship in a backward district of Bihar. *Unpublished M.Sc. Thesis*, Divn. of Agril. Extn. IARI, New Delhi.

Nair, G.T. (1969). A multivariate study on adoption of HYVs by farmers of Kerala state. *Unpub. Ph.D. Thesis*, Divn. of Agril. Extn. IARI, N. Delhi.

Nataraju, M.S. and Channegowda, M.B. (1985). A comparative study of knowledge and adoption behaviour of small, marginal farmers and agricultural labourers practicing dairying. *Dairy Guide*, 7 (12) : 31-39.

Nataraju, M.S. and Channegowda, M.B. (1987). Socio-economic characteristics of dairyman in relation to their extension participation. *Ind. Jour. of Extn. Edn.*, **23** (1&2) : 36-41.

Nataraju, M.S. and Channegowda, M.D. (1986). Knowledge level of dairy farmers and their personal characteristics. *Ind. Jour. of Extn. Edn.* **22** (1&2) : 47-55.

National Commission on Agriculture (1976). Animal husbandry. Part II. Ministry of Agril. and Irrigation, Govt. of India, New Delhi.

Nayak, H.S.; Bajaj, S.S. and Rout, D.R. (1986). Problems of dairy farmers in Ahmadnagar district of Maharashtra. *Maharashtra Journal of Extn. Edn.*, **5** : 107-111.

Pal, R.S. (1970). A critical study of farmers training and education programme in relation to the changes in their behavioured components. *Unpub. Ph.D. Thesis*, IARI, New Delhi.

Panwar, S.G. (1979). A study on training needs of members of primary milk producers society in Satara district, Maharashtra. *IJEE*, **15** (12) : 19.

Pareek, U. and Trivedi, G. (1964). Manual of the socio-economic status scale-Rural Delhi, Manasayan.

Patel, B.T. (1980). A study of factors influencing successful functioning of village milk producers co-operative societies in Khaira Distt. of Gujrat. *Unpub. Ph.D. Thesis*, IARI, New Delhi.

Patil, B.P. (1981). Impact of ICDP on dairy development in milk shed area Miraj (Maharashtra). *Unpub. M.Sc. Thesis*, NDRI, Karnal.

Pawar, S.G. and Kherde, R.L. (1983). The knowledge gap of milk producers of Sataro district. *Maharashtra Journal of Extn. Edn.* **2** : 15-19.

Rahman, S. Buchoo, B.A. and Matoo, F.A. (1990). Participation of women in agriculture as perceived by their knowledge of scentific poultry husbandry practices, M.J.E.E. **9** : 307-309.

Rao, B.S. (1975). A study of combined impact of dairy co-operatives and ICDP on socio-economic changes in milk shed area of Bhongir (A.P.) *Unpub. M.Sc. Thesis*, NDRI, Karnal.

Rao, L.K. Lakshmikantha, Reddy, P.R. and Shesh Raj, V.A. (1986). Training needs dairy farmers in Rajendra Nagar block of Rangaredd district. *Maharashtra Journal of Extn. Edn.*; **5** : 43-48.

Rath, B.B. (1977). Referred by Dubey, V.K. (1977). The proceedings of Sixth Dairy Husbandry Officers Workshop, NDRI, Karnal, 65.

Rath, B.B. (1978). A critical analysis of an ICDP progress, problems prospects. *Unpub. Ph.D. Thesis*, HAU, Hissar.

Sagar, M.P. (1991). An impact study of transfer of technology programme on livestock owners, *Unpub. M.Sc. Thesis*, IVRI, Izatnagar, UP.

Sagar, R.L. and Kunzru, O.N. (1988). Development of scale to measure the attitude of livestock owners towards selected animal husbandry practices. Final Report of the Research Project, Joint Directorate of Extension Education, IVRI, Izatnagar, UP.

Sagar, R.L.; Kunzru, O.N. and Khandekar, P. (1988). Attitude towards green fodder cultivation. Final Report of the Research Project - Development of scale to measure the attitude of livestock owners towards selected animal husbandry practices. Joint Directorate of Extension Education, IVRI, Izatnagar, UP.

Saini, S.P.S. (1980). A study of factors affecting modernization of small farmers. *Ph.D. Unpub. Thesis*, Kurukshetra Univ.

Sanoria, Y.C. and Sharma, D.K. (1982). Factors related to knowledge and adoption of contact farmers of intensive extension research project - *JNKVV Research J.* **16** (3) : 206.

Saxena, D. and Tripathi, H. (1998). Enterpreneurial behaviour of milk producers according to their social, personal, economic and psychological attributes in woman's dairy co-operatives, *IASSI* quarterly, **17** (2) : 41-57.

Sayeedi, A. G. (1983). A study of knowledge, attitude and adoption of dairy farmers towards dairy scientific activities in Jammu district. (J & K state). *Unpub. M. Sc. Thesis*, NDRI, Karnal.

Sethy, B.; Sinha, B.P. and Bahal, R. (1984). Some enterpreneurial characteristics in adoption of improved farm technology. *Ind. J. of Extn. Edn.*, **2** (1&2) : 29-37.

Sharma, R.K. (1980). A study of socio-psychological and infrastructural constraints in the efficient execution of ICDP, *Unpub. Ph.D. Thesis*, NDRI, Karnal.

Sharma, S.C. (1979). A study of factors affecting adoption of technology for raising crossbred cattle and information source pattern of different categories of farmers. *Unpub. Ph.D. Thesis*, IARI, New Delhi.

Sheoran, V.K. (1987). A study of adoption level of dairy innovations in relation to milk yield among beneficiaries of IRDP in district Karnal (Haryana) Unpub. M.Sc. Thesis, NDRI, Karnal.

Sheoran, V.K. and Kumar, Ram (1988). Correlates of adoption of dairy innovations of I.R.D.P. beneficiaries. *Ind. Jour. of Extn. Edn.*, **24** (1&2) : 71-73.

Shinde, V. G; Sangle, G.K. and Dikle, R. N. (1998). Adoption of improved dairy practices by dairy farmers. *MJE*, **17** : 144-151.

Shukla, S.R. (1980). Adoption behaviour of small farmers. *IJEE*, **12** (1&2) : 55-58.

Sidhu, K.S. (1980). A study of dimensional variation in the knowledge of dairy farmers of ICDP and non-ICDP area of Punjab. *Unpub. M.Sc. Thesis*, NDRI, Karnal.

Sidhu, P.S. and Patel, A.U. (1968). A study of the opinions of trained farmers at village level. *Ind. Journal of Extn. Edn.*, 4 (3&4) : 49-57.

Singh, B.R. (1986). A study of effectiveness of institutional finance on adoption of dairy innovations. *Unpub. M.Sc. Thesis*, NDRI, Karnal.

Singh, Baldeo and Kunzroo, O.N. (1985). Attitude of farmers towards goat and sheep farming. *Ind. Jour. of Ext. Edn.*, **21** (1&2) : 86-88.

Singh, D. and Singh, B. (1988). Factors affecting adoption of A.I. in buffaloes under field conditions. *Asian J. Dairy Res.* 7 (3) : 117-122.

Singh, Hari and Patel, H.N. (1990). Knowledge level and socio-economic characteristics of contact and non-contact farmers. *Maharashtra J. Extn. Edn.* **9** : 78-180.

Singh, J. (1978). A study of some selected factors affecting adoption of dairy innovations by the different categories of dairy farmers in the milkshed area of Ludhiana milk plant. *Unpub. M.Sc. Thesis*, NDRI, Karnal.

Singh, J.N. (1982). A study of the suitability of dairy farming innovations and factors associated with this adoption by cattle owners of intensive Cattle Development Project. Gurgaon Distt. *Unpub. Ph.D. Thesis*, NDRI, Karnal.

Singh, L. and Chattaraj, J. (1989). Impact of dairy cooperatives on production, consumption and marketed surplus of milk. *Indian Dairyman*. **41**(2) : 28-33.

Singh, Manmohan and Dhallwal, A.J.S. (1980). Knowledge and the adoption of dairy innovations. *Journal of Research.* **17** (2) : 169-172.

Singh, S. (1989). A study of differential level of knowledge and adoption of dairy innovations by farmers in the adopted villages of Dairy Extension Division, NDRI, Karnal, *Unpub. M.Sc. Thesis,* NDRI, Karnal.

Singh, S.N. (1966). Value orientation and adoption behaviour of Indian cultivators. *Ind. Jour. of Extn. Edn.,* **3** (1&3) : 32-41.

Singh, S.P. (1987). A study of differential adoption of scientific dairy practices by the dairy farmers of Operational Research Project and intensive Cattle Development Project village around Karnal. *Unpub. M.Sc. Thesis,* NDRI, Karnal (Research Report of Division of Dairy Extension).

Singh, U.P. (1987). A study on ability, willingness, knowledge and adoption behaviour of different categories of farmers in relation to scientific rice production technology in Siwan distt. of North Bihar. *M.Sc. (Ag) Thesis,* Deptt. of Extn. Edn., RAU, Pusa, Bihar.

Sohal, T.S. and Tyagi, K.C. (1978). Role of knowledge in adoption of dairy innovations. *IJEE,* **14** (3&4) : 16-25.

Sohi, J.S. and Kherde, R.L. (1978). A study of some selected factors effecting adoption of dairy innovations by the different categories of milkshed areas of Ludhiana milk plant. *Research in Extn. Divn. of Dairy Extn.,* NDRI, Karnal **1** : 3-6.

Somasundaram, D. (1976). A diagnostic study of small farmers with respect of new agricultural technology and its effective communication for adoption. *Unpub. Ph.D. Thesis,* IARI, New Delhi.

Srivastava, R.M. and Kharde, R.L. (1983). Traditional beliefs of Tribal Mundas associated with cattle husbandry. *Ind. Journal of Extn. Edn.* **19** (3&4) : 77-82.

Subramanian, R. (1982). A study of technological and socio-economic impact of milk co-operatives in Erode distt. (Tamil Nadu). *Unpub. Ph.D. Thesis,* NDRI, Karnal.

Tayappa, T.S. and Setty, S.V.S. (1976). A study of crossbred dairy farmers around Bangalore. *Indian Dairyman,* **28** (12) : 613-616.

Thakur, P.K. (1976). Viewing behaviour and programme preferences of television viewer farmers in relation to agril. programmes : *Unpub. M.Sc. (Ag) thesis* B.A.C., Sabour, Bhagalpur.

Tiwari, S.P. (1983). Technological gaps in the mustard cultivation technology in villages adopted under lab to land programme by RAU. Bihar, *Unpublished M.Sc. (Ag) Thesis,* Deptt. of Extn. Edn., RAU, Bihar.

Tripathi, H. (1991). Productivity of milch animals and employment generation for rural women. *Unpub. Ph.D. Thesis,* IVRI, Izatnagar, UP.

Tripathy (1977). A study of technological gap in adoption of new rice technology in coastal Orissa and this constraints responsible for the same. *Unpub. Ph.D. Thesis,* Divn. of Agril. Extn. IARI, N. Delhi.

Trivedi, G. (1963). Measurment analysis of socio-economic status of rural families. *Unpub. Ph.D. Thesis,* Divn. of Agril. Extn. IARI, N. Delhi.

Tyagi, K.C. (1975). Factors influencing the adoption of dairy innovations by farmers of ICDP Paper presented at Summer Institute, NDRI, Karnal on Modernization of dairy farming.

Verma, O.P. (1988). A study on impact of technical inputs and services on the milk production enhancement of Barabanki Distt. Co-operative milk union Ltd., *Unpub. M.Sc. Thesis,* NDRI, Karnal.

Verma, S.P. (1965). A study of farmers understanding and attitude in relation to execution of farm production plan. *Unpublished M.Sc. (Ag) Thesis,* Bhagalpur Univ., Bihar.

Vishnoi, S.L. and Bose, S.P. (1961). Effect of educational exposure on acceptance of cow dung gas plant by farmers. *Ind. J. of Agronomy,* 5 (4) : 284-291.

Waris, M.L. (1994). A study of organisational structure and working of operation flood and its impact on economic condition of milk producers of North Bihar. *Unpublished Ph.D. Thesis,* Deptt. of Agril. Econ. RAU, Bihar, Pusa.

Appendix

If we want to know how people feel, what they experience and what they remember, what their emotions, attitudes and motives are ..... why not ask them.

- Gordon Allport

APPENDIX - I

प्रसार शिक्षा विभाग
राजेन्द्र कृषि विश्वविद्यालय, पूसा (समस्तीपुर)
पूसा, समस्तीपुर-८४८१२५

(शोध प्रश्नोत्तरी)

सामान्य परिचय :-

१. उत्तरदाता का नाम :-
२. उम्र :-
३. ग्राम :-
४. समीप के बाजार/ ब्लॉक से दूरी :-
५. जाति :-

सामाजिक - आर्थिक स्थिति

१. शिक्षा का स्तर :-
पुरूष :- महिला :-
२. परिवार के सदस्यों की कुल संख्या :-
बच्चे :-
३. कुल जमीन (एकड़ में):-
सिंचित:-
१. स्वयं की:- बॅटाई पर :-
असिंचित:-

		मुख्य	पूरक
४.	मुख्य पेशा/व्यवसाय:-		
१.	मजदूरी :-	----------	---------
२.	खेती-बारी :-	----------	---------
३.	पशुपालन :-	----------	---------
४.	व्यवसाय :-	----------	---------
५.	नौकरी :-	----------	---------
(क)	परिवार के आय के श्रोत (वार्षिक)	मुख्य	पूरक
१.	मजदूरी :-	----------	---------
२.	खेती :-	----------	---------
३.	पशुपालन :-	----------	---------
४.	नौकरी :-	----------	---------
५.	व्यापार :-	----------	---------
६.	अन्य :-	----------	---------
(ख)	वार्षिक आय (विभिन्न श्रोतों से)		
१.	खेती से :-	लगभग रूपया	---------
२.	पशुपालन से :-	लगभग रूपया	---------
३.	नौकरी से :-	लगभग रूपया	---------
४.	व्यापार से :-	लगभग रूपया	---------

५. अन्य श्रोतों से :- लगभग रूपया ---------

कुल आय- ----------

६. कुल पशुओं की संख्या :-

गाय -------- भैंस --------- अन्य ---------

नस्ल -------- नस्ल ---------- नस्ल ----------

७. कुल दुग्ध उत्पादन (गाय-भैंस-अन्य) ------ लीटर (प्रतिदिन)

८. बिक्री योग्य दूध :- ---------- लीटर (प्रतिदिन)

Knowledge of respondents towards improved A.H. practices

(क) **पशुपोषण संबंधी ज्ञान** :- कृपया प्रत्येक कथन पर अपना हॉ/नहीं/जतायें/सही पर √ निशान लगायें।

	कथन	हॉ	नहीं
(१)	दुधारू पशुओं के दुग्ध उत्पादन क्षमता बढ़ाने के लिए हरा चारा देना चाहिए।	----------	----------
(२)	दुधारू पशुओं को सूखे (अदुधारू) की अपेक्षा दाना की मात्रा अधिक देना चाहिए।	----------	----------
(३)	प्रत्येक दुधारू पशु को सूखे की अपेक्षा औसतन एक किलो दाना (प्रति ३ लीटर दूध पर) अधिक देना चाहिए।	----------	----------
(४)	पशुओं को खनिज मिश्रण देकर ही कुपोषण तथा कई अन्य गर्भ जन्य रोगों से बचाया जा सकता है।	----------	----------
(५)	पशुओं को खिलाने वाला भूसा तथा पुआल को यूरिया द्वारा उपचारित करके ही खिलाना चाहिए।	----------	----------
(६)	पशुओं को कम से कम दो बार खिलाना चाहिए।	----------	----------
(७)	पशुओं को खिलाने के लिए खनिज लवण ईंट का प्रयोग करना चाहिए।	----------	----------
(८)	दाना, खल्ली खिलाने से दुधारू पशुओं की दुग्ध क्षमता बढ़ती है।	----------	----------
(९)	६ महीने से उपर गाभिन पशु को प्रतिदिन एक किलो दाना अधिक देना चाहिए।	----------	----------
(१०)	गाभिन गाय को खनिज लवण की मात्रा अधिक देना चाहिए, सूखे की अपेक्षा।	----------	----------
(११)	गाय को प्रतिदिन कितना हरा चारा देना चाहिए। ३०-५० किलो/अन्य।	----------	----------
(१२)	भैंस को प्रतिदिन कितना हरा चारा देना चाहिए। ४०-५० किलो/अन्य।	----------	----------

(१३)	पशुओं को प्रतिदिन कितना पानी देना चाहिए- २० लीटर/४० लीटर/उनकी इच्छानुसार।	----------	----------
(१४)	सामान्य पशुओं के लिए कौन-सी खल्ली उत्तम है- बादाम की/तीसी की/सरसों की/कपास की।	----------	----------
(१५)	दुधारू पशुओं को कौन-सी खल्ली देना चाहिए- बादाम की/तीसी की/सरसों की/कपास की।	----------	----------
(१६)	पशुओं को राइस ब्रान खिलाना चाहिए- हॉ/नहीं।	----------	----------
(१७)	दाना में दाल के चुन्नी का औसत प्रतिशत होना चाहिए- ५%-२०%/२०%-३०%/अन्य।	----------	----------
(१८)	पशुओं को पानी पिलाना चाहिए- तालाब से/चापा कल से/नदी से।	----------	----------
(१९)	क्या हरे चारे को हमेशा भूसा के साथ ही खिलाना चाहिए- हॉ/नहीं।	----------	----------
(२०)	बरसीम की पहली कटींग कब करनी चाहिए- ३०-४० दिन/६०-७० दिन/अन्य।	----------	----------

(ख) **पशु प्रजनन संबंधी ज्ञान :-** निम्न कथनों का उपर्युक्त उत्तर अपनी जानकारी के आधार पर देने का कष्ट करें।

(१)	शंकर बाछी को युवा अवस्था प्राप्त करने में कितना समय लगता है।	१८ से २४ माह/२४ से ३० माह/३०-३६ माह। अन्य
(२)	जनन से लगभग कितने देर बाद जेर बाहर निकल जाना चाहिए।	तुरंत बाद/४ घंटे/८ घंटे।
(३)	नाभि को बच्चे के पेट से कितनी दूरी पर काटना चाहिए।	२ ईंच/४ ईंच/८ ईंच पर।
(४)	गर्भाधान के किस विधि में गर्भधारण संबंधी बीमारी फैलने का खतरा अधिक होता है।	प्राकृतिक/कृत्रिम/दोनों विधि से।
(५)	गर्भाधान गर्म होने के कितनी देर बाद करवाना चाहिए:-	तुरंत बाद/५ घंटे/२० घंटे।
(६)	शंकर नस्ल के उन्नत पशु पालने में अपेक्षाकृत अधिक लाभ होता है:-	हॉ/नहीं/पता नहीं।
(७)	अब आप अपने पशुओं का गर्भ धारण अपनी इच्छानुसार नर या मादा सीमेन से करवा सकते हैं :-	हॉ/नहीं/हो सकता है।
(८)	गाभिन गाय को किस प्रकार रखा जाना चाहिए :-	सामान्य जानवर के साथ/इसके लिए अलग से प्रसव धर बनाकर/इधर-उधर/सड़क पर।

(९)	गर्म गाय को आप किस तरह पता लगाते हैं :-	गाय खाना बंद कर दें/गाय के चिल्लाने पर/पारदर्शी शीशे की तरह मियूकस श्राव देखकर। अन्य
(१०)	गाभिन गाय की जॉच कैसे करते हैं :-	गाय का पेट अगर उठा हुआ हो/गाय अगर शांत हो/पशु चिकित्सक को दिखाकर।
(११)	अगर पशु को बार-बार गर्भाधान कराना पड़े तो क्या करना चाहिए :-	पशु चिकित्सक से दिखाना चाहिए/देहाती दवा देनी चाहिए।
(१२)	योनी स्राव का रंग कैसा होना चाहिए :-	शीशे की तरह/पीला/सफेद।
(१३)	संक्रमण के समय योनी स्राव का रंग कैसा होता है :-	पानी की तरह/गाढ़ा-पीला सफेद।
(१४)	चुप्पी पशु को गर्म होने की दवा देनी चाहिए:-	हॉ/नहीं।
(१५)	क्या अंकुरित अनाज बच्चेदानी के समुचित विकास के लिए आवश्यक है।	हॉ/नहीं।
(१६)	क्या जेर निकलने के पश्चात बच्चेदानी में दवा डालने से प्रजनन सम्बन्धी समस्याओं से बचा जा सकता है:-	हॉ/नहीं।
(१७)	बछड़े को दूध कब छुड़ाना चाहिए :-	तुरंत/३ माह पर/६ माह पर।
(१८)	क्या वाह्य परजीवी भी प्रजनन सम्बन्धी समस्याओं के मुख्य कारक हैं:-	हॉ/नहीं।
(१९)	बधियाकरण का उपयुक्त समय है:-	१ साल के अन्दर/२ साल पर/३ साल पर।
(२०)	क्या पशुओं में पेट आदि के कीड़ों के कारण भी प्रजनन संबंधी समस्याएँ पैदा होती हैं:-	हॉ/नहीं।

(ग) **पशु प्रबंध संबंधी ज्ञान :-** निम्न प्रश्नों का समुचित उत्तर अपनी जानकारी के आधार पर देने का कष्ट करें।

(१)	पशुशाला/बथान की सतह कैसी होनी चाहिए।	समतल एवं चिकनी/खुरदार एवं समतल/उबड़-खाबड़।
(२)	पशुओं का टीकाकरण अत्यन्त आवश्यक होता है:-	हॉ/नहीं/पता नहीं।
(३)	यदि हॉ तो आप कौन-कौन सा टीका लगवाते हैं:-	----------
(४)	बीमारी की स्थिति में पशुओं को किससे दिखवाना चाहिए:-	पशु चिकित्सक/पशुधन सहायक से/नीम हकीमों । झार-फूँक से।
(५)	बीमार पशुओं को निरोग पशुओं से अलग रखना चाहिए:-	हॉ/नहीं/पता नहीं।
(६)	पशुओं को क्रिमीनाशक दवा देनी चाहिए :-	हॉ/नहीं/पता नहीं।
(७)	पशुओं को क्रिमीनाशक दवा कितने दिनों पर देना चाहिए:-	३ माह/६ माह/१२ माह पर।

(८)	अपने पशुओं को चमोकन आदि से बचाने के लिए क्या करनी चाहिए।	----------
(९)	दुधारू पशुओं को नियमित स्नान कराना आवश्यक है:-	हॉ/नहीं/पता नहीं।
(१०)	गोशाला/बथान की नियमित साफ करनी चाहिए:-	हॉ/नहीं/पता नहीं।
(११)	अधिक दूध देने वाले पशुओं (१५ लीटर से अधिक) को प्रतिदिन कितनी बार दूहना चाहिए:-	दो बार/तीन बार/चार बार।
(१२)	पशुओं को दूहने के लिए कौन-सी विधि का इस्तेमाल करते हैं:-	अंगूठे की सहायता से/चुटकी से/मुठी से।
(१३)	दूहने के क्रम में कौन-सा तरीका उपर्युक्त है :-	रूक-रूक कर दूहना/शीघ्र दूध निकालना/धीरे-धीरे आराम से दूहना चाहिए।
(१४)	दूहने में बहुत सफाई बरतनी चाहिए:-	हॉ/नहीं/पता नहीं।
(१५)	पशुओं से कितनी मात्रा में खीस (फेनुस) निकालना चाहिए:-	पूरा/थोड़ा छोड़ देना चाहिए/पता नहीं।
(१६)	क्या आप जानते हैं कि अधिक दूध देने वाली पशुओं से अचानक सारा खीस निकाल लेने तथा लवण की कमी से दूध ज्वर हो सकता है:-	हॉ/नहीं/पता नहीं।
(१७)	क्या आपको ज्ञात है कि थन की तथा दूहने वाले के गंदगी से थनैला हो सकता है, जिससे उसका दूध हमेशा के लिए सूख सकता है:-	हॉ/नहीं/पता नहीं।
(१८)	शंकर पशुओं को स्नान अवश्य कराना चाहिए :-	हॉ/नहीं।
(१९)	दूध की मात्रा बरकरार रखने में कैल्सियम की भूमिका बड़ी महत्वपूर्ण है:-	हॉ/नहीं।
(२०)	बच्चे की सींग बनवाने का उपयुक्त समय है:-	१-२ हफ्ते में/४ हफ्ते में/कभी भी।

Attitude towards different improved A.H. practices

(A) Attitude towards feeding practices

		Response		
		Agree	**Undecided**	**Disagree**
(१)	हरा चारा से दुग्ध उत्पादन क्षमता में निश्चित वृद्धि होती है।	३	२	१
(२)	जितना अधिक दाना देंगे उतना ही दुग्ध उत्पादन बढ़ेगा।	३	२	१

(३)	प्रतिदिन खनिज मिश्रण देने से पशुओं को कुपोषण एवं अन्य बीमारियों से बचाया जा सकता है।	३	२	१
(४)	यूरिया उपचारित पुआल तथा भूसा जहरीला होता है।	१	२	३
(५)	खनिज लवण ईंटों से पशुओं को कोई फायदा नहीं है।	१	२	३
(६)	सालों भर हरा चारा उत्पादन की कोई आवश्यकता नहीं है।	१	२	३
(७)	हरे चारे के उन्नत प्रभेद लगाने से कोई लाभ नहीं है।	१	२	३
(८)	गाभिन पशुओं को कैल्सियम की नियमित खुराक देनी चाहिए।	३	२	१
(९)	वैज्ञानिक विधि से खिलाने से खिलाने पर होने वाला खर्च कम हो जाता है।	३	२	१
(१०)	दाना एवं खल्ली सिर्फ दुधारू पशुओं के लिए आवश्यक है।	३	२	१
(११)	उन्नत प्रभेद के चारा के अंगीकरण में पशुपालकों को अधिक सजग रहना पड़ता है।	१	२	३
(१२)	हरे चारे का उत्पादन सभी दुधारू पशुओं के लिए आवश्यक नहीं है।	३	२	१
(१३)	हरा चारा खिलाना सभी किसानों के वश की बात नहीं है।	१	२	३
(१४)	दुधारू पशुओं को तेल की खल्ली देने से दुग्ध उत्पादन कम हो जाता है।	१	२	३

(B) Attitude towards breeding practices

		Response		
		Agree	**Undecided**	**Disagree**
(१)	शंकर बाछी गर्भधारण में बड़ी परेशान करती है।	१	२	३
(२)	कृत्रिम गर्भाधान तकनीक पशुपालन में उन्नति का एक मार्ग है।	३	२	१
(३)	शंकर एवं देशी नस्ल के पशुओं का गर्भधारण समय एक ही है।	१	२	३
(४)	कृत्रिम गर्भाधान की अपेक्षा पुराने तरीके ही बेहतर हैं।	१	२	३
(५)	जनन के एक-दो रोज बाद तक भी जेर निकलना अच्छा है।	१	२	३
(६)	शंकर पशु से अपेक्षाकृत अधिक आय होती है।	३	२	१
(७)	बाजार में शंकर पशु की कोई मॉग नहीं है।	१	२	३

(८)	शंकर नस्ल की गायें दुग्ध उत्पादन में भैंसों से बेहतर नहीं है।	१	२	३
(९)	शंकर नस्ल प्रणाली का अंगीकरण विकास का सूचक नहीं है।	१	२	३
(१०)	प्रति व्यक्ति दुग्ध की कमी को शंकर पशु पालन से दूर किया जा सकता है।	३	२	१
(११)	सही समय पर गर्भाधान करवाने से गर्भ ठहरने की संभावना कई गुणा बढ़ जाती है।	३	२	१
(१२)	देशी पशुओं को कृत्रिम गर्भाधान से अगली पीढ़ी का दुग्ध उत्पादन बढ़ाया जा सकता है।	३	२	१
(१३)	पशुपालकों के सामाजिक-आर्थिक स्तर में सुधार के लिए शंकर तकनीक के अंगीकरण की आवश्यकता है।	३	२	१
(१४)	जेर निकलने के पश्चात बच्चेदानी में दवा डलवाने से जनन सम्बन्धी कई परेशानियॉ दूर हो सकती है।	३	२	१

(C) Attitude towards management practices

		Response		
		Agree	**Undecided**	**Disagree**
(१)	पशुओं में टीकाकरण निश्चित अन्तराल पर कराने की कोई आवश्यकता नहीं है।	१	२	३
(२)	कृमि रहित बछड़े स्वस्थ होते हैं।	३	२	१
(३)	टीकाकरण कई बीमारियों को रोकता है।	३	२	१
(४)	टीकाकरण को सामाजिक मान्यता है।	३	२	१
(५)	स्वच्छ दूध उत्पादन पशुओं को बर्बादी तथा बीमारी से बचाता है।	३	२	१
(६)	पशुशाला साफ एवं हवादार रखना जरूरी नहीं है।	१	२	३
(७)	बच्चे को फेनुस पिलाने से कोई फायदा नहीं है।	१	२	३
(८)	चमोकन तथा कृमिनाशक दवा का पशु स्वास्थ्य तथा दुग्ध उत्पादन से कोई खास लेना-देना नहीं है।	१	२	३

Constraints in the way of adoption of different A.H. practices (as perceived by them) :

उन्नत पशुपालन सम्बन्धी विभिन्न तकनीकों के अंगीकरण में कौन-कौन सी मुख्य व्यवधान/समस्याएँ हैं (प्राथमिकता के आधार पर)।

(१)

(२)

(३)

(४)

(५)

(६)

(७)

इन व्यवधानों के निराकरण के लिए आपके क्या सुझाव हैं ?

(१)

(२)

(३)

(४)

(५)

(६)

(७)