

A STUDY OF CONSTRAINTS IN THE FUNCTIONING OF MILK PRODUCERS COOPERATIVE SOCIETIES IN WESTERN U. P.

**THESIS SUBMITTED TO THE
NATIONAL DAIRY RESEARCH INSTITUTE, KARNAL
IN PARTIAL FULFILMENT OF THE REQUIREMENT
FOR THE DEGREE OF**

**DOCTOR OF PHILOSOPHY
IN
DAIRY EXTENSION**

**BY
RANDHIR SINGH**

**DIVISION OF DAIRY EXTENSION
NATIONAL DAIRY RESEARCH INSTITUTE
(I. C. A. R.)
KARNAL-132 001 (Haryana) INDIA**

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This is to certify that the thesis entitled "A STUDY OF CONSTRAINTS IN THE FUNCTIONING OF MILK PRODUCERS' COOPERATIVE SOCIETIES IN WESTERN U.P." was submitted by Mr. RANDHIR SINGH in partial fulfilment of the requirement for the award of the degree of DOCTOR OF PHILOSOPHY in DAIRY EXTENSION of the National Dairy Research Institute (Deemed University), Karnal (Haryana), India, is a bonafide research work carried out by him under my supervision and guidance and no part of the thesis has been submitted for any other degree or diploma.

Ram Chand
(RAM CHAND)

Dated: 30.9., 1992

Major Advisor & Chairman
(Guide)

to all those who are my well wishers

and

friend of friends

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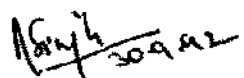
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(RANDHIR SINGH)

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LIST OF ABBREVIATIONS

AI	=	Artificial Insemination
BC	=	Backward Caste
°C	=	Degree Celcius
CED	=	Centre for Education and Documentation
CSS	=	Composite Success Score
C.V.	=	Coefficient of Variation
DE	=	Direct Effect
DPT	=	Dairy Production Technology
FS	=	Field Supervisor
g	=	Gram
ICMR	=	Indian Council of Medical Research
LSS	=	Less Successful Societies
Max.	=	Maximum
Min.	=	Minimum
MPCS	=	Milk Producers' Cooperative Society
MSS	=	More Successful Societies
N	=	Number
NCA	=	National Commission on Agriculture
NDRI	=	National Dairy Research Institute
%	=	Percent
P	=	Probability
SC	=	Scheduled Caste
S.D.	=	Standard Deviation
SNF	=	Solid-not-fat.

CHAPTER - 1

INTRODUCTION

1. INTRODUCTION

The prosperity of India as a nation undoubtedly depends on the advancement and success achieved in agricultural sector, of which dairying is an important component. Since independence, the policy of Government of India has been to promote the development of dairying with funds as well as technological assistance. However, the milk production in the country has increased sluggishly until 1970. Since the implementation of the Operation Flood Project in 1970-71, the milk production in India has increased to the tune of 54.9 million tonnes in 1990-91 (Dairy India, 1992).

In India, dairying, like all agricultural enterprises, rests with individual units of small size. Most of the farmers belong to the small or marginal category, owning two to three heads of cattle and less than 2 hectares of land. They normally lack marketing facilities for the small quantities of milk produced by them. Thus, they are not in a position to reach urban market and obtain remunerative prices for their produce.

These farmers are scattered all over the country and are vulnerable to a variety of forces peculiar to the dairy industry. These forces range from uncertainty of the market and fluctuations in prices to lack of facilities for veterinary care and availability of feed (Mascarenhas, 1988).

The marketing of milk produced by these dairy farmers depend on three major outlets, i.e., milk vendors, private factories and

cooperatives. The first two sources (milk vendors and private factories) of milk outlet have been perceived to be exploitative by the dairy farmers. The third outlet for milk produced is the least exploitative and organised by the producers. Its real significance was understood only when the integrated system of dairy cooperatives was evolved in Anand (Gujarat) and then extended to other parts of the country.

The Anand model of cooperative structure is built on a vertically integrated single industry cooperative that links rural producers with urban consumers by introducing intensive milk production model, improved technology and marketing. The 'Anand model' has come to mean a three-tiered organisational structure linking primary producer societies, responsible for procurement, to district cooperative unions, engaged in processing and product manufacturing, while at the state level district unions are grouped together into federations charged with the coordination of functions [In 1986, an all India federation of state federations, the National Cooperative Dairy Federation (NCDF), was added to this structure for purposes of policy coordination at the national level]. In spite of such a good and extensive cooperative network, the system did not work well in other parts of the country except Gujarat. The failure of the system has been attributed to some of the constraints which are impeding the functioning of cooperative societies.

The Late Prime Minister Smt. Indira Gandhi in her inaugural address to sixth Indian Cooperative Congress (1971) expressed great concern about lack of progress of cooperative movement. She said,

"The cooperative movement is expanding on, yet community as a whole does not appear to have gained greater confidence in it. I wonder, why it should be so ? We have to do all we can to foster people's faith in cooperative movement. Hence an inquiry into the problems which the cooperatives face is an urgent need".

The National Commission on Agriculture (1976) indicated that most of the cooperative have failed to develop properly. Doubts have been expressed about efficacy of cooperative structure for development of dairying in the country. This has happened despite of the fact that in most of the developed countries in the world, dairying is based on cooperative organisation. Shah (1980) pointed out that as compared to other achievements, working of OF-I with regard to the production and distribution of technical inputs was not found to be very satisfactory.

Singh and Das (1984) observed that OF-I has been fairly successful in raising the efficiency of dairying at the milk producers' level.

Joshi (1987) reported that the production/procurement of milk in the country as a whole went up by 6 % against 10 % in Maharashtra and a meagre 4 % in Gujarat inspite of tall claims of NDDB about Gujarat. About replication of 'Anand pattern' in other parts of the country. Sidhu and Sidhu (1990) revealed that the 'Anand pattern' which was highly successful in Gujarat state, when introduced in Punjab had not proved to be very successful due to different socio-economic conditions in the two states.

1.1 STATEMENT OF THE PROBLEM

In India, an estimated 5 % of milk is marketed through milk cooperative system (Mascarenhas, 1988). The average milk procurement per functional DCS in U.P. was on a decreasing trend (79 kg per day in 1987 to about 52 kg per day in 1991). Farmer members per organised society were also on declining trend. With regards to supply of inputs, the situation is deteriorating day by day. The number of AI performed in cows was about 62,000 as compared to 26,000 in buffaloes in 1990-91. Regular veterinary services were withdrawn by the federation and only 48,000 emergency veterinary services were provided in 1990-91. The number of dairy cooperative societies with AI facilities were also reduced from 788 in 1988 to 670 in 1990-91. About 70,000 FMD vaccinations were done in 1990-91* as against 2,36,000 in 1987.

Keeping in view the above facts, a comprehensive study that critically analyse the constraints of cooperative societies is most opportune at this point of time, particularly in the promising potentiality of dairying as a potent weapon to fight back economic malice of 'Rural India'. Moreover, studies in the field of dairy cooperatives are limited and mostly these are impact studies. Research investigations on constraints in the functioning of milk producers' cooperative society have reported isolated factors.

Hence, the present study has been undertaken in Western U.P. The specific objectives of the study were as follows:

1. To study the profile of members and Field Supervisors of Milk Producers' Cooperative Societies.

* NDDB 1991 At a glance - Northern Region, 23 November.

2. To find out and measure the constraints perceived by the members in utilizing services provided by Milk Producers' Cooperative Societies at varying levels of success.
3. To delineate and measure the constraints of Field Supervisors in carrying out the dairy cooperative programme at varying levels of success.
4. To study the level of adoption of dairy production technologies of members at varying levels of success.
5. To study the relationship of various factors with constraints and adoption of dairy production technologies.

1.2 SCOPE OF THE STUDY

The study, besides providing an insight into the specific road blocks impeding the smooth functioning of dairy cooperatives, is almost of utmost practical utility for the planners, policy makers, administrators and field supervisors. Having known the seriousness of the delineated constraints, efforts can be made to eliminate them on priority basis without much loss of time, energy, finances and other resources. This may help in proper development of the programme. In addition, this study may provide answers to the often asked questions of the following nature:

- i) What is the existing level of adoption of scientific dairy farming practices among the milk producer members ?
- ii) What are the specific constraints restraining the members from fully utilizing the facilities pertaining to the various programmes under cooperative society ?
- iii) What are the socio-psychological and communication attributes which accelerates or decelerate the pace of adoption ?
- iv) What is the attitude of members towards MPCs ?

- v) What are the various activities of the societies on which the members are dissatisfied ?
- vi) What is the existing level of knowledge of members about MPCs and DPTs ?
- vii) What is the level of success of MPCs ?
- viii) What is the level of job satisfaction of the field supervisors ?
- ix) What are the constraints as faced by the field supervisors in carrying out the dairy cooperative programme ?

Since, no systematic assessment of the status of constraints in the functioning of MPCs is known to have been made, the present study being an objective probe in that direction, is an attempt to seek answers to these questions.

The findings of this study may be of some value in revamping of cooperative programme in other parts of the country, especially, the ones with identical traditions, culture and agroclimatic conditions.

1.3 LIMITATIONS

The results of the study are based on the ability of the respondents to recall the information and on the opinions expressed by them. Hence, the objectivity of the study is limited to their ability to recall and also to their frankness and fairness in furnishing the required information.

1.4 ORGANISATION OF THESIS

The thesis has been presented in five chapters, the first one being the introduction dealing with background information, statement of the problem, scope of the study and its limitations.

In Chapter II, studies pertaining to constraints relevant to the present study as reported by various researchers have been reviewed. The Chapter III contains details of locale of the study, sample and sampling procedure, selection, operationalisation and measurement of variables, tools of data collection and statistical tools applied to analyse the data.

The findings of the study alongwith discussion there upon are presented in Chapter IV. The last chapter carries the summary and conclusions deduced from the results of the study.

CHAPTER - 2

REVIEW OF LITERATURE

2. REVIEW OF LITERATURE

It is generally agreed that the purpose of the review of literature is to acquaint the research worker with a background of the problem, through earlier findings and methods in a given area of research so that he may scientifically delineate and approach his objectives. Researchers have suggested that every serious piece of research includes a review of relevant research more extensive in dissertation, but in a journal where space is at a premium few studies are mentioned. Eventhough some regard and treat this activity as a relatively meaningless exercise but it forms a significant part of the research process.

Most of the research concerning the present study has been conducted in the field of cooperatives and there is dearth of specific research as far as the field of constraints in the functioning of dairy cooperatives is concerned. So, there is limited scope for giving review of research studies. However, keeping in view the objectives of the study, an attempt has been made to review the available relevant literature under the following sub-heads:

- 2.1 Indicators of success
- 2.2 Studies on cooperatives
- 2.3 Constraints as perceived by the members
 - 2.3.1 Socio-psychological constraints
 - 2.3.2 Economic constraints

2.3.3 Infrastructural constraints

2.3.4 Technical constraints

2.3.5 Marketing constraints

2.3.6 Miscellaneous constraints

2.4 Constraints as faced by the field supervisors

2.5 Socio-personal, psychological and communication attributes related with adoption.

2.1 INDICATORS OF SUCCESS

For selecting the indicators of success, research studies conducted by various research workers were reviewed. Some of the studies were as below:

Desai (1978) used quantum of milk collection per member as the indicator of success.

Kolla (1980) and Swami (1980) used the following criteria for selecting successful societies: i) age of society; ii) quantity of milk collection; iii) maintenance of accounts; iv) participation of all categories; v) utilization of profit and funds; vi) level of political involvement, and vii) relation with union and management of the society.

Patel (1980) suggested the following indicators of success of society: i) percentage of membership increased or decreased over a period of five years; ii) audit grade; iii) percentage of artificially inseminated buffaloes; iv) ratio of Amuldan sold to milk purchased by society in terms of monetary value; v) average milk collection in its per unit of breedable buffalo; vi) percentage of bonus given to the members; vii) percentage of breedable buffaloes insured; and viii) average price in rupees per kg of milk received from union.

Bhanja (1981) used the following as the indicators of success of society: i) annual milk sale in rupees per member; ii) business other than sale of milk per member; iii) expenditure per thousand rupees; iv) net profit per thousand rupees business; v) percentage of population covered by MPCS; and vi) audit grade.

2.2 STUDIES ON COOPERATIVES

Rural Credit Survey Committee (1952) stated that the economic and social factors were the fundamental causes of failure of cooperative credit societies. Other factors accentuating the problems seem to be a subsidiary form of ailment rather than the disease itself.

Kulkarni (1952) observed that the high loyalty evinced by Danish farmers in terms of supplying all marketable surplus milk to the society accounted much for the success of the society.

Thorner (1962) while studying cooperative societies in India found that the heads of cooperatives were the big people of the village.

Chaubey (1965) stated that the factors related to employees such as human beings, security of job, good wages, opportunity for higher jobs, knowledge of the job and enterprise, liking, aptitude, job accomplishment, sense of 'we feeling', sense of belongingness to enterprise and involvement in decision making also play a role in success of cooperative organisation.

Munjal (1966) in a study conducted in Punjab villages concluded that the spirit of cooperation amongst its members was the contributory factor in successful functioning of cooperatives.

Ulrey (1966) attributed following factors to the success of Amul: i) the aggressive and balanced programme for developing products and marketing, and simultaneously improving milk production; ii) providing management responsibility and freedom for planning and making the multitude decisions necessary for creating a modern dairy industry; iii) important role played by the society in social welfare and general development of the village by using a part of the net return have served to win the loyalty and support of the villagers; iv) payment to producers twice a day; v) initiation of new services and ideas producing change through village cooperative; and vi) outside assistance without curbing the motivation and initiative of management in planning and operating cooperative scheme.

Srivastava (1969) stated that twice a day payment for milk, sale of Amuldan and organising committee meetings every month were the contributory factors in the success of cooperative societies.

Goswami (1971) observed that cooperative societies were run by the part time honorary workers who had their own vocations and very few of them could afford to maintain whole time accountants or auditors and had to rely to a considerable extent on the paid employee.

Dubey (1972) stated that the cooperative society had become a tool in the hands of clever clique groups. Political alignment at state level divided the business and is being used as a stepping stone for winning support in village for more important cause like state election.

Mehta and Bhatia (1972) reported that the main cause of failure of cooperatives in India was its over enthusiasm. The overall control of few land holding families who also claim a lion's share of the total credit was another reason for failure.

Nath (1973) and Puri (1973) observed that greater cohesiveness amongst the members was one of the factors contributing towards success of sugar cooperatives.

Patil (1973), Laidlaw (1975) and Patel et al. (1975) have reported that non-interference of political interest groups in management of milk society has been a major factor for its success in Khera district, Gujarat.

Puri (1973) stated that important problems of cooperatives in India relate to growing measures of indifferences and neglect of cooperative ideology.

Laidlaw (1975) isolated the following factors for the success of AMUL: i) professional management which was able to carry on without political or bureaucratic interference; ii) the organisation concentrated on better marketing methods to the advantage of producers and consumers; and iii) a large proportion of the earning (profit) was ploughed back into service of the producers and modern technology was always respected.

Chothani et al. (1976), Swami (1980) and Kolla (1980) reported the perception of a need of milk cooperative organisation as a better marketing alternative to the existing system as an important reason for the success of AMUL type cooperative societies.

Desai (1978) reported that most of the members possessed average knowledge about cooperative rules and leaders had good

knowledge about milk union in societies with a high collection performance.

Dubey et al. (1978) in a case study of 5 milk producers' societies observed that the society doing well had young and educated group.

NDDB (1978) noted that over the years, the proportion of the landless among milk producers and their share in total milk production has declined in Patna region.

Bhanja (1981) reported that caste, socio-economic status, society participation, mass media exposure, satisfaction with society, economic motivation, attitude towards dairying and knowledge about MPCs were found to be positively and significantly related with success of the society.

Mohn (1985) highlighted the need for dairy processors in the Irish Republic to cooperate among themselves or find specific market niches for specific products. The low rate of investment by members in the cooperative ventures (only 3.5 % among the big in 1983) and increasing financial liabilities were causes for concern. The author saw the need for a higher standard of management by members and a more market oriented approach.

Baviskar (1986) studied the role of milk producers and their cooperation in relation to village social structure in the Khera district of Gujarat. He found that dairy cooperatives brought many benefits to milk producers. They provided a guaranteed market for milk at a fixed price, cattle feed at reasonable rate and efficient veterinary and extension services for the villagers. A large proportion of small and wealthier farmers were benefitted.

However, 90 % of the landless were unable to take advantage of the cooperatives. The effectiveness of dairy development programmes in reducing poverty was concluded to be severely limited even in an ideal village. He further reported that the main reason for success of the cooperative societies was found to lie with the loyalty of its members and integrity of its leaders. The secretary of a dairy cooperative was found to be a key functionary in the success of the project.

Dorsten and Dorsten (1986) reported that in Mehsana district of Gujarat, the cooperative movement covered most villages and majority of the milk producers sold larger share of their milk to a dairy cooperative society. Milk production per animal could have proved more significant in Mehsana district and a more effective technological breakthrough at farm level could have been realised.

Alderman (1987) conducted a study in three ecological zones of Karnataka covered by the project. The data on milk production showed that the villages with cooperative societies produced about twice as much milk as in the control group. This difference can be attributed mostly to the larger number of cross-bred cows and buffaloes in the cooperative villages. But the presence of cooperative society seemed not to affect the yield of an animal (controlling for breed) per amount of feed or the probability that it would be lactating, both of which reflect management practices. Differences in feeding rates were slight. Taken as a whole, the study showed that cooperatives were slowly transforming dairy production by replacing local cows with crossbred cows and buffaloes. They were also not changing fodder production.

Consequently, the full potential of the crossbred cows, which requires larger amounts of feed but produce more milk than local cows was not being exploited.

Channegowda et al. (1987) concluded that the cooperative system has been a boon to producers as well as to consumers but there is a need for growth in genuine leadership with a constant check by members of the societies.

Mergos and Slade (1987) reported that milk cooperative system improved milk marketing system, thereby, increasing competition, so that the average price of milk to producers rose by about 8 percent. This, together with improvements in the provision of animal husbandry and veterinary services and an induced increase in the use of variable inputs, raised milk production by about 17 % over five years. Milk producers increased their consumption of milk by 2 % on an average (8 % amongst the poorest producers). Poor households who were not milk producers were found not to consume milk (a relatively expensive item) and hence towards them the project was neutral. The project did not, however, increase the number of households owning milch animals and the distribution of benefits in the rural areas skewed towards those with the larger dairy herds and farms.

Sumer (1987) observed that higher the education level of members, greater the awareness and knowledge about cooperative movements and thereby, greater the success of society. He further concluded that more the utilization of facilities and services provided by milk union, greater will be the participation of milk producers, resulting in success of MPCs.

Hirevenkangoudar et al. (1988) found that over 56 % KDDC (Karnataka Dairy Development Corporation) beneficiaries were getting 50 to 75 % of their family income from dairy enterprise, whereas, 60 to 87 % of non KDDC farmers were getting 25 % of their income from dairy enterprise. All KDDC farmers were selling milk through dairy cooperative society. Most of the small farmers and agricultural labourers in the KDDC programme thought that dairy cooperative societies were the best agencies for milk marketing.

Mascarenhas (1988) reported that one of the aspects that affect the smooth functioning of milk procurement was the price of milk which was still controlled by the government in Karnataka. He further reported that society staff were tempted to adopt unethical means only to fulfil the requirements of auditing the accounts. Sinha and Rama Murthy (1988) reported that knowledge of the members was associated with 6-10 years of membership and they were better than either category in medium knowledge category. Members within 5 years were in a low knowledge category. Attitude of the members of the dairy cooperatives towards scientific dairying was also associated with length of membership. Here also, 6-10 years category was the best as 45.46 % of them had favourable attitude. Members for over 10 years were favourable than other categories as 66.67 % of them were in favourable category. Members with longer membership were better in adoption (59.26 %) than other categories.

Inamke et al. (1989) found that members of large societies gained greater benefits in terms of quantity of milk marketed, quantity of feed supplied and loans and veterinary facilities.

Nataraju (1989) concluded that if supplies, services and technical assistance were to be provided by a single agency, then farmers, even with little education, low participation in extension activities and small herd size could be approached and involved in technology innovation adoption.

Bardhan (1990) revealed that majority of the beneficiaries of Operation Flood either belonged to scheduled caste or scheduled tribe or other backward classes. Many of them were agricultural labourers. The cooperative membership pattern had been such that the very participation ensured demolition of diabolical practices, caste and class barriers, economic inhibitions and communal biases.

Doornbos et al. (1990) reported that fluid milk sales by rural families increased, whereas, the proportion of milk utilized for other purposes such as Ghee making and drinking declined.

Krishnaraj and Dubey (1990) revealed that there had been an active participation in the affairs of the society by the members of the most efficient societies. This means that their participation in meetings by way of supporting/opposing the proposals and resolutions with proper reasoning, raising questions, giving suggestions and opinions, insisting on good minutes, not wasting time on minor details and casting vote too were high. It indicated that active discussion about the matters relating to the working of the society led to the functional efficiency of the MPCs.

Verhagen (1990) found that the poor categories, i.e., the landless labourers and marginal farmers who together comprise a sizeable portion of the Indian population were poorly represented in the Operation Flood Project in comparison to their number. The participation of the landless poor was very modest.

2.3 CONSTRAINTS AS PERCEIVED BY THE MEMBERS

2.3.1 SOCIO-PSYCHOLOGICAL CONSTRAINTS

Brown and Bealer (1957) reported that the farmers who believed in cooperative ideology were generally of high socio-economic status.

Dubey (1958) reported that the low understanding of cooperative rules and regulations was an important cause that prevented farmers to join cooperatives.

PEO (1960) identified faction among members as vital cause of failure of cooperative societies.

Neema (1961) in his study of village cooperative society in Jabalpur, M.P. found that ignorance of cooperative ideology often led to conflict and dispute amongst the members which hampered the work of cooperative society.

Chatterjee (1966) on the basis of a study of multipurpose cooperative societies of Delhi concluded low understanding of rules and activities of cooperatives by members of unsuccessful cooperative society. He further reported that presence of communal faction, insincerity and disloyalty of members were the main factors responsible for the failure of multipurpose cooperative societies.

Weiner (1967) reported that the Patels and Patidars were in fact the dominant castes in Gujarat. Similarly, evidence from Maharashtra implied that the upper caste who control sugarcane cooperatives were extending their reach to milk cooperatives (Apte, 1982). Existence of dominance by affluent high caste people had proved to be detrimental to growth of cooperatives (Guruswami and Chinnaiyan, 1970).

Srivastava (1969) reported low socio-economic status of members and executives in high successful societies compared with less successful societies.

Mohanan (1972) concluded that unless the producers felt a sense of participation in the affairs of society and extend their whole hearted cooperation, the success of cooperative enterprise was out of question.

Patel et al. (1975) found in the case studies that low caste producers whose milk was turned away by cooperatives controlled by dominant castes found a market outlet in the middleman. The private milk traders often undertake business in villages boasting dairy cooperatives with low castes.

Kamat (1976) observed village faction and existence of vested interest as the weaknesses of the primary societies in regard to their totally inadequate coverage of small farmers and agricultural labourers in certain areas.

Dubey (1977) reported that executives as well as the ordinary members were not aware of the basic cooperative principles.

Kohli (1978) found absence of loyalty of members which hindered the growth of dairy cooperatives.

IRMA (1981) revealed that the two superior castes the Kamma's and the Reddy's in Guntur district of A.P. which were battling for supremacy fight it out in the milk cooperatives.

Shah (1981) in his study of Khera district of Gujarat found evidence of overlap between class, caste, panchayat and milk cooperatives. One investigation of six villages in Khera discovered that chairman and secretaries of dairy cooperatives were usually

from particular castes and observed the numerical and economic dominance, measured in terms of land holding which was reflected in management of dairy cooperatives.

UN/FAO (1981) evaluation mission found that the influence of vested interests in dairy cooperatives was one of the reasons for failure to adopt the integrated scheme modelled on Anand pattern in Patna (Bihar) and Varanasi (U.P.).

Dogra (1982) observed in his study of AMUL that 67 % of cooperative members were Patels who were relatively affluent traders.

Baviskar (1983) in his study of successful village cooperatives indicated that caste was not a barrier towards participation. Even people of most 'polluting caste' were members of the society and enjoying all rights of membership as anybody else. They managed the society well and there was no case of fraud or corruption. The elected officers of the village dairy societies and the district level unions were mostly large farmers, although the real control seems to be in the hands of administrative employees but often they come from the same class and caste.

George (1983) reported that anticaste role of KDCMPU themselves let slip instances of discrimination against untouchable caste by village milk cooperatives. Bharwads predominantly illiterate (Cowherds/Goatherds/Shepherds), despite their repeated attempts were not allowed to become members of the dairy cooperatives.

Patel (1983) found that the village scheduled castes were members of the cooperatives and the cooperative society was well managed.

Rajaram (1983) on the basis of a village survey in Khera district of Gujarat concluded that factional tussel affected milk cooperative societies severely.

Baviskar and Attwood (1984) reported that one minority caste, the Patidars (the dominant caste) included most of the elected and administrative officials in the dairy cooperatives in the areas around Anand in Khera district.

Vithal (1986) reported that factions among villagers and caste dominance hindered the success of dairy cooperatives.

Shroti (1989) revealed the following constraints as perceived by the milk producers on the basis of seriousness:

Serious:

1. By laws of the society were meant for the people of lower caste.
2. Farmers feel that cooperative societies were meant for influential people.

Not so serious:

1. Management of society was mostly in the hand of dominant people of village.
2. High caste was dominant over society.

Raju and Maraty (1991) reviewed the following constraints as perceived by the farmers:

1. Lack of knowledge of social participation.
2. Farmers were not oriented to scientific techniques and economic motivation.

2.3.2 ECONOMIC CONSTRAINTS

PEO (1960) identified 'lack of finance' as one of the vital causes of failure of cooperative society.

Patel et al. (1975) reported that the dairy cooperatives were supplying all inputs for milk production but on 'cash and carry' term basis with equal charges levied on all purchasers regardless of socio-economic condition.

Patel (1978) reported that a crossbred was twice as expensive to rear as its local counterpart. The cost of maintaining a high yielder was 80 % more than that required for local cattle (Apte, 1982).

Panda (1979) noted that absence of credit facilities hinders the small farmers.

Shah (1980) showed that under the modern dairy technology, high costs were involved in maintaining high yield milch animals.

Pandey (1981) in studying the economics of milk production in rural areas of Baroda district (Gujarat) concluded that in 1981, milk price paid to the producers by the cooperatives were far too low compared to the actual production costs.

CED (1982) observed that even those producers who supplied milk to cooperative unions did not get remunerative price for it. This price paid by union did not cover the cost of milk production.

George (1983) with regard to the performance of the widely acclaimed Khera District Cooperative Milk Producers' Union stated that during the first two decades of its existence, price of milk lagged behind other commodities in general and milk production was a losing enterprise if all costs were taken into consideration.

Gopala and Maraty (1989) revealed that majority of the respondents perceived 'low price of milk for a litre' as a main problem followed by 'delay in payment'. There was no 'provision

of loans' for purchasing cattle. But, a 10 % of respondents felt the need for loans to purchase milch animals in the programme.

Shroti (1989) revealed the following constraints as perceived by the milk producer members on the basis of seriousness:

Very serious:

1. Irregular payment.
2. Low price of milk.

Serious:

1. High charges of emergency veterinary services.
2. High cost of cattle feed.
3. High cost of mineral mixture.

2.3.3 INFRASTRUCTURAL CONSTRAINTS

Chatterjee (1966) revealed that untimely supply and services were the main factors for the failure of multipurpose cooperative societies.

Joshi (1966) found that the infrastructural facilities were poor in Saurashtra. The remote villages were outside the network of all roads.

Girdhar (1967) reported lack of interest among staff, irregular supply of semen to AI units as constraints restricting the progress of AI in Haryana.

Juneja (1967) and Singal (1979) remarked that most of the persons engaged in AI work were still untrained or undertrained.

Khurody (1970), Pandey and Ojha (1970), Sohal (1973), Ghosh (1974), NCA (1976), Grewal (1977), Gill (1979), Shah (1979), Crotty (1980) and Gopala and Maraty (1989) reported shortage and non availability of feeds and fodder as a serious constraint which the poor farmers were facing.

Vyas and Jodha (1973), Shah (1979) and Dogra (1985) reported that while milch animals were indeed more evenly distributed than land, nevertheless there existed a clear positive correlation between land and dairying.

Government of Maharashtra (1974) reported that many of the areas with the highest potential for expanding milk production were also those which were poorly supplied with roads and communication facilities. Crude roads result in frequent breakdown of vehicles or curdling of milk during transportation or both, and consequently end in heavy losses and high overheads.

Gupta (1974) stressed that progressive modernization of dairying will not be possible unless the needs of milk producers are kept in mind and the essential technical inputs coupled with appropriate extension services are made available to them at their doorstep at optimum level.

Patel et al. (1975) observed a declining trend in the marketed surplus of milk as the size of holding decreased.

Patel et al. (1975) and Patel and Pandey (1976) mentioned that smaller the size of operational holding of a cultivator household, the small was the number of bovine kept and vice versa. Fodder supply from one's own land was the main determinant of correlation between the size of holding and the number of bovines owned by a cultivator household.

Patel and Pandey (1976) reported 23 % of the milk producers as landless. There were 25 % in the sample in Jain's study (1979).

Moore (1978), Crotty (1980) and Dorsten (1985) found that respondents with a larger land base growing more and more diversified fodder were able to keep more and better quality milch animals than those with less or no access to land.

Tomer (1978) stressed that AI centres should be well equipped and expert services should be made available atleast once a week, besides the provision of proper transport facilities to supply semen to required places. The less equipped AI centres also contributed to the failure of AI projects (Singal, 1979).

Patel (1980) observed that there was no difference among the societies at different levels of success in relation to supply and services to the producers.

Shah (1980) pointed out that as compared to other achievements, the working of OF-I with regard to the production and distribution of technical inputs was not found to be very satisfactory.

UN/FAO (1981) evaluation mission reported that reduction in technical inputs due to lack of funds was one of the reasons for failure of milk cooperative societies of Patna and Varanasi in adopting the Anand model.

Patel (1983) reported that it was a heavy problem for the landless farm labourers to procure green fodder for the animals (buffaloes and cows).

Vithal (1986) reported acute water and fodder problem, lack of transport facilities and lack of adequate trained staff as constraints to the success of dairy cooperatives.

Shrotri (1989) revealed the following constraints as perceived by the milk producer members on the basis of seriousness:

Very serious:

1. Lack of supply of vaccines.
2. Emergency veterinary services were not available on time.

Serious:

1. Non availability of AI facilities.
2. Distantly located AI centres.
3. Non availability of veterinary services.
4. Problem in doorstep service.
5. Irregular supply of feed.

Joshi (1990) found the landless at a disadvantage compared to the landed vis-a-vis the costs of crossbred animals.

Verhagen (1990) stated that fodder constraint was most likely to hold down the participation of the poor in dairying.

:Raju and Maraty (1991) reviewed the following constraints as perceived by the farmers:

1. Irregular supply of semen of exotic breeds.
2. Lack of seeds of HYVs of fodder with insufficient training on cultivation practices.

2.3.4 TECHNICAL CONSTRAINTS

Dave (1975), Patel et al. (1975), Kolla (1980) and Swami (1980) observed in their studies that the participants in more successful societies had better technical knowledge of modern technology which had direct influence on the success of milk society.

Dubey and Singh (1976) reported that majority of rural crossbred cattle owners did not have knowledge regarding time of feeding colostrum to calves and that of feeding mineral mixture and providing salt licks.

Singh (1976) noticed that majority of the farmers viewed crossbred bullock as dull, weak and higher consumer of feed.

Sivaram (1978) reported that the poor quality of the semen in rural India is because of the improper facilities for storing, transport and insemination. Thus, the chances of successful insemination were poor (Nair, 1982).

Vaishnav (1978) found that low yielding dams cannot always support crossbred offspring, consequently there are high rates of calf mortality.

Pawar and Bhujbal (1980) found that 55.50 % of the ordinary members had high knowledge level whereas 44.50 % had low knowledge level. They further reported that 56.50 % of the ordinary members were high adopters.

Vithal (1986) reported high mortality of animals and lack of trained personnel as the factors which hindered the success of dairy cooperatives.

Shroti (1989) reported the following constraints in the dairy cooperatives on the basis of seriousness:

Very serious:

1. Lack of technical training and guidance for growing green fodder.
2. First aid workers were not qualified and trained.

Not so serious:

1. Procurement staff was untrained.

Raju and Maraty (1991) reviewed the constraints as perceived by the members which are as under:

1. Poor results of AI.
2. Faulty pregnancy diagnosis.

2.3.5 MARKETING CONSTRAINTS

Nagar and Srivastava (1964) observed that profits arising out of the improved methods of dairying were swallowed by middlemen and pleaded for efficient marketing system and remunerative price of milk. Sohal (1973), Tyagi (1973) and Menon (1977) also supported this view.

Joshi (1966) found that the milk producers largely follow the practice of converting milk into milk products such as Ghee and Khoa.

Sohal (1973) observed lack of organised sector providing marketing for milk and social customs against the sale of milk.

Saini (1975) reported that reasons for not selling milk through corporation were locally similar or higher rate of milk, unremunerative prices offered, unreliable quality measurement, dishonesty of milk collectors and delayed payment.

Rath (1977) found that 96 % of the farmers were not aware of cooperative societies. The level of knowledge of marketing practices was found to be quite low. It was indicated that 92 % of the respondents did not adopt even a single marketing practice out of five practices.

NDDB (1979) reported that members of the cooperative knew nothing about price policy, bonuses and general body meetings.

Patel and Das (1979) pointed out shortcoming in the technique of collecting small quantities of milk which our rural producers were able to offer for sale as an inherent constraint in the growth of India's organised dairy industry.

Vithal (1986) reported that menace of milk vendors was one of the factors which hindered the success of dairy cooperatives.

Joshi (1990) stated that the marketing system in which the middlemen play an important role poses a serious challenge to the process of setting up cooperatives in Saurashtra. He further observed that the Rajkot dairy failed in achieving a significant and continuous rise in the quantity of raw milk procured which was partly due to its inefficiency as a buyer of raw milk in rural market. It turned out to be a weak competitor to the private milk traders. He also found that the cost of transportation was high owing to the dairies' location in the far off western region of the country.

2.3.6 MISCELLANEOUS CONSTRAINTS

PEO (1960) identified poor management as one of the vital causes of failure of cooperative society.

Chatterjee (1966) revealed that favouritism, absence of supervision and illiteracy of members were the main factors for the failure of multipurpose cooperative societies.

Singh (1966) on the basis of case studies in two villages of U.P. reported that the state election had divided the village and cooperative leaders into two different groups, opposing each other of common interest.

Mehta (1969) reported that among the rural (primary cooperative) leaders and the salaried administrative and technical staff of these organisations, there existed mutual distrust and suspicion.

Kamat (1976) observed low level of managerial competence as the weakness of primary societies with regard to their totally

inadequate coverage of small farmers and agricultural labourers in certain areas.

Dubey et al. (1977) reported that the milk tester and the secretary were accused by the members. The executives of the milk producers' cooperative societies were quite sore over triple handling. They were often found fighting with plant staff for recording low yield, low fat percentage and milk spoilage.

Kohli (1978) reported the following problems in dairy cooperative which hinders its growth: i) Management was in a handful of elected members who had no knowledge of management skill; and ii) lack of proper organisation and coordination.

NDDB (1979) found that the secretary controlled the cooperative for his own benefits. The milk collected was sold partly to the chilling centre and partly for his creamery business in Maner, Patna.

Patel (1980) reported that highly successful societies were conducting more and frequent extension activities.

UN/FAO (1981) evaluation mission observed some of the problems in dairy cooperatives which are as follows:

1. Frequent transfer of officials.
2. Excessive government intervention in financial matters like pricing.

Punj Rath (1983) found the following factors responsible for failure of Bihar State Dairy Corporation:

1. Bureaucratism in the organisation.
2. Failure to adhere to the elective principles of Anand pattern.
3. Lack of effective supervision of the village dairy cooperatives to prevent corruption at village level as

well as at lower levels and irregularities in milk collection leading to its sourness.

Rajaram (1983) indicated that the society suffered as a result of frauds by the secretary.

Dorsten (1985) stated that dairy cooperatives have a positive effect on the income of milk producers in the more distant milksheds as opposed to the nearby milksheds.

Vithal (1986) found 'practice of proxy' and 'ignorance of advocacy' to hinder the success of dairy cooperatives.

Shroti (1989) revealed the following constraints as perceived by the milk producer members on the basis of seriousness:

Serious constraints:

1. Unsatisfactory bylaws.
2. Time of milk collection was not suitable to milk producers.

Not so serious:

1. Milk procurement system was not satisfactory.
2. Management committee was not elected democratically.
3. No facility to sell small quantity of milk.
4. More milk for sample.
5. Dishonest society staff.
6. Society staff was not punctual.

2.4 CONSTRAINTS AS FACED BY THE FIELD SUPERVISORS

Girdhar (1967) stressed the need for proper transport facilities to various veterinary units and also the provision of residential accommodation for stall. He further pointed out the lack of proper allocation of funds as a serious constraint in the effective functioning.

Juneja (1967) stressed need for special training programmes for the dairy professionals as it was a serious constraint in the dairy development.

Sharma (1967) pointed out non-cooperation of villagers in the disease control work as the serious constraint faced by the field staff.

Dubey and Singh (1976), Sharma (1980), Hazarika (1983), Acharya (1984), Nataraju and Channegowda (1986) and Sohal and Rao (1986) observed lack of knowledge about dairy innovations among the farmers as a serious constraint in undertaking various dairy development programmes.

Patel et al. (1978), Sharma (1980), Rao and Sastri (1984), Sohal (1985), Biradar (1986), Nataraju and Channegowda (1986) and Nayak et al. (1986) reported inadequate staff at field level and lack of clearcut policy as the main constraints in bringing effectiveness in the dairy development.

Sharma (1980) and Sohal (1985) reported low education programme and activities on dairy development as constraint in the effective functioning of the field personnel.

Kerogero (1981) stated that extension workers with the motivational and economic constraints showed poor performance in their activities. He further stated that those workers satisfied with their motivational, economic and physical needs showed excellent performance in their activities.

Acharya (1984) and Sohal (1985) reported that inadequate infrastructural facilities in the veterinary hospitals and AI centres were serious constraints for the professionals involved in dairy development programmes.

Sohal (1985) pointed out inadequate manpower at grass root level as a major constraint in the implementation of various dairy development programmes and activities. He further reported an inadequate or lack of facilities for updating the subject matter knowledge and communication skill for dairy development workers. Absence of incentives and awards for field workers were observed as serious constraints in motivating the field staff to do more work effectively and efficiently.

Rao (1987) reported that inadequate field staff, lack of recognition for efficient work, lack of mobility, involvement of field staff in multifarious activities. Over emphasis on submission of reports and record maintenance, inadequate facilities for staff were major constraints for the efficient functioning of dairy development workers. He further pointed out that inadequate staff, lack of coordination with other agencies, low priority for discussing field problems in staff meetings and restrictions on touring days were some of the major constraints perceived by the professionals. Other constraints experienced by the field staff were lack of FMD vaccine supply, difficulties in restricting animal movements during disease outbreak, farmers' inadequate knowledge in cattle diseases and their control and inadequate supply of veterinary medicines.

Shrotri (1989) reported some of the constraints faced by the field supervisors in milk procurement, as under:

1. Lack of facilities for conducting extension activities.
2. Lack of adequate staff.
3. Lack of proper transport facilities.

Raju and Maraty (1991) reviewed the constraints for the field personal which were as follows:

1. Obtaining veterinary expertise.
2. Lack of medicines and vaccines during emergencies.

2.5 SOCIO-PERSONAL PSYCHOLOGICAL AND COMMUNICATIONAL ATTRIBUTES RELATED WITH ADOPTION

2.5.1 AGE

Age of the farmer has been studied by many researchers with reference to the personal profile of the farmers and also its association with the adoption of dairy innovations. A number of researchers like, Gupta (1976), Dey (1977), Chahal (1980), Gite (1980), Kakoty (1980), Saini (1980), Sharma (1980), Patil (1981), Sarkar (1981), Singh (1982)², Srivastava (1982), Subramanian (1982), Hazarika (1983), Mahipal (1983), Pawar (1983), Sayeedi (1983), Singh (1984) and Walia (1984) reported that majority of the respondents were of middle age group, whereas, Wadagbalkar (1975), Garde (1980) and Ram Chand (1980) observed that majority of the respondents were of old age group. These reviews clearly indicate that majority of the respondents were either in middle or old age category. While, Garde (1980), Subramanian (1982) and Sayeedi (1983) reported positive relationship between age of the farmer and adoption of dairy innovations, Patil (1981), Singh (1982)¹, Kololgi and Anand (1985) and Rao (1987) reported negative association between these variables, whereas, Sinha et al. (1974), John (1974) and Singh (1987) found no association.

2.5.2 EDUCATION

Education is generally believed to have the effect of widening the mental horizon of a person and thereby prepares or predisposes him to be receptive to new ideas. This concept may be valid at a certain level of education which again depends upon the quality of education. Powder Maker (1962) stated that education enables a person to gain direct exposure to print media and seems to unlock mental abilities such as symbol manipulation and the capacity to think counter factually that may, in turn lead to adoption.

Sheoran (1987), Singh (1987), Kaushik (1988) and Sharma (1990) indicated that level of education of farmers was positively and significantly correlated with adoption of improved dairy practices.

Majority of the studies reviewed above, emphasize education as an important factor in adoption behaviour.

2.5.3 CASTE

Caste was also extensively studied by various social researchers. Some of the important studies are presented below:

It was reported by Chander (1970), Mikkileneni (1976), Saini (1980), Kaur (1981), Singh (1982)², Pawar (1983) and Biradar (1986) that majority of the respondents were from higher caste category. Ram Chand (1980) observed that the respondents mostly belong to Saini, Kamboj and Gujjar castes. Kakoty (1980) mentioned that the plain tribals were the preponderate caste engaged in dairy farming followed by backward communities. Singh (1986) found a higher proportion of lower caste groups in his study.

The studies reviewed so far clearly revealed that dairy farming was taken up by all castes in different parts of the country. Singh (1987) reported that caste was positively and significantly related with adoption of scientific dairy farming practices.

2.5.4 MATERIAL POSSESSION

Singh (1987) reported that the calculated 'r' values (0.557) for material possession and adoption was positively and significantly related at 1 % level of significance.

2.5.5 SOCIO-ECONOMIC STATUS

Wilkening (1952), Marsh and Coleman (1955), Fliegel (1956), Lionberger and Coughenour (1957) and Copp et al. (1958) found positive influence of socio-economic status on adoption of new farm practices. Similar results were obtained by Bakshi (1960), Reddy (1962), Sharma (1966), Bakshi (1970) and Nakade (1971).

2.5.6 LAND HOLDING

Almost all the studies in the area of adoption of dairy innovations included land size as one of the variables. The land size of majority of the respondents varied from small (Wadagbalkar, 1975; Kokate, 1980; Ram Chand, 1980; Saini, 1980; Sidhu, 1980; Patil, 1981; Sayeedi, 1983; Kokate, 1984) to large holdings (Chander, 1970; Garde, 1980; Singh, 1984). These reports revealed that farmers with different size of land holdings do keep animals.

Sayeedi (1983), Kololgi and Anand (1985), Sheoran (1987), Singh (1987), Kaushik (1988), Singh (1989) and Chaubey (1991) reported positive and significant relationship between land holding

and adoption of dairy innovations, whereas, Dube (1978) and Hazarika (1983) indicated farm size as one of the negative significant predictor of adoption of dairy practices.

2.5.7 HERD SIZE

The number of animals a dairy farmer possessed was also studied by many researchers.

It was revealed from the studies of many researchers, viz., John (1974), Wadagbalkar (1975), Dey (1977), Malik (1978), Singh and Dubey (1978), Rangarajan (1979), Chahal (1980), Gite (1980), Kokate (1980), Saini (1980), Sharma (1980), Kaur (1981), Patil (1981), Sarkar (1981), Singh (1982)², Subramanian (1982), Kakade (1983), Mahipal (1983), Sayeedi (1983), Kokate (1984) and Singh (1986) that most of the respondents had small herd size. Garde (1980), Ram Chand (1980), Sidhu (1980), Srivastava (1982), Hazarika (1983) and Pawar (1983) stated that majority of the respondents possessed medium herd size, whereas, Gupta (1976), Chauhan (1979), Chinnaiyan (1979), Walia (1984) and Yadav (1986) found large herd size among majority of the respondents.

Singh (1982), Sayeedi (1983), Singh (1983), Hazarika (1983), Kololgi and Anand (1985), Singh (1987), Kaushik (1988), Gautam (1989), Mahipal and Kherde (1989), Borgohain and Kakoty (1990) and Chaubey (1991) reported positive relationship between herd size and adoption of dairy innovations, whereas, Singh and Dubey (1978), Garde (1980), Patil (1981) and Rao (1987) reported negative relationship between herd size and adoption of dairy innovations.

2.5.8 MILK PRODUCTION

Most of the studies were attempted to find out the milk production of the household by ascertaining from the respondents milk yields of the day prior to the data collection. The level of milk production varied from low to high depending upon the area, type of respondents and time/season of data collection. Chander (1970), Wadagbalkar (1975), Mikkileneni (1976), Dey (1977), Chauhan (1979), Subramanian (1982), Singh (1983) and Sharma and Singh (1986) reported a higher level of milk production among a large percentage of respondents. Whereas, medium level of milk production among the majority of the respondents was observed by Gite (1980), Kokate (1980), Hazarika (1983), Sayeedi (1983), Singh (1986) and Yadav (1986), respectively. Chahal (1980), Garde (1980), Sidhu (1980), Patil (1981), Pawar (1983) and Kokate (1984) found that milk production was low among majority of the respondents.

Chahal (1980), Saini (1980), Patil (1981), Kololgi and Anand (1985), Bhoite et al. (1987), Rao (1987), Kaushik (1988), Singh (1989), Borgohain and Kakoty (1990) and Chaubey (1991) stated positive and significant relationship between milk production and adoption of dairy innovations.

2.5.9 MILK CONSUMPTION

A part of the review on the milk consumption is presented herewith.

Wadagbalkar (1975), Mikkileneni (1976), Patel et al. (1976), Patel et al. (1977), Sharma et al. (1977) and Sharma and Singh (1986) reported that majority of the respondents were in the medium level of milk consumption. The lower level of the

milk consumption was found among majority of the respondents as stated by Patil (1981), Hazarika (1983), Singh (1983), Kokate (1984) and Biradar (1986).

Patil (1981), Kololgi and Anand (1985), Kaushik (1988), Singh (1989) and Chaubey (1991) reported milk consumption to be positively related with adoption of dairy innovations.

2.5.10 SALE OF MILK

The studies conducted by Mikkileneni (1976), Chauhan (1979), Chahal (1980), Hazarika (1983), Singh (1983), Biradar (1986) and Sharma and Singh (1986) indicated that more quantity of milk was sold regularly by majority of the respondents, whereas, John (1974) and Kokate (1984) found that milk sale was low in their respective study areas.

Kololgi and Anand (1985), Kaushik (1988), Singh (1989) and Chaubey (1991) reported that milk sale was positively related with adoption of dairy practices.

2.5.11 ECONOMIC MOTIVATION

Economic motivation relates to characteristics of dairy farmers that by doing one's best, dairying can be a source of success. Mosher (1966) indicated that the incentives which can be effective in getting farmers to increase their production were primarily economic in nature.

Gupta (1976) indicated that adoption behaviour of dairy farmers was closely affected by economic motivation and it worked as an important predictor of adoption behaviour. Kaushik (1988) and Borgohain and Kakoty (1990) also found positive and

significant relationship between economic motivation and adoption of dairy farming practices.

From the above reports, it may be concluded that economic motivation, by and large, has been found to be significantly associated with adoption of dairy innovations.

2.5.12 KNOWLEDGE

Knowledge is a necessary requirement for occupational socialization of farmers. It is the basis for any action, which must precede the act of adoption. Profitable application of modern dairy technology supposes adequate knowledge and necessary skill as pre-requisite. Needless to say that use of dairy innovations will depend upon acquired knowledge, which is an important component of adoption behaviour.

Kakoty (1980), Singh (1982), Srivastava (1982), Subramanian (1982), Kololgi and Anand (1985), Boite et al. (1987), Nataraju and Channegowda (1987), Kaushik (1988), Gautam (1989), Borgohain and Kakoty (1990) and Singh (1990) reported that knowledge about dairy innovation was positively associated with the adoption of improved dairy practices.

2.5.13 EXTENSION CONTACT

The contact with change agent is an important factor for adoption as it provides the farmers with complete knowledge about the innovations.

It was reported by many researchers that majority of the respondents had medium level of extension contact.

Chahal (1980), Singh (1984), Rao (1987), Kaushik (1988), Gautam (1989), Mahipal and Kherde (1989), Singh (1989), Borgohain

and Kakoty (1990) and Singh (1990) found extension contact to be positively and significantly related with adoption.

Sinha et al. (1974) and Gupta (1976) observed non significant relationship between extension contact and adoption of dairy practices.

2.5.14 MASS MEDIA EXPOSURE

Mass media communications are among the most effective methods for creating awareness about an idea or practice. The exposure to mass communication channel constitutes learning experience and gain in knowledge of farm innovations which may lead to adoption of new practices.

Singh (1982)², Subramanian (1982), Hazarika (1983), Rao (1987), Kaushik (1988), Mahipal and Kherde (1989), Singh (1989), Borgohain and Kakoty (1990) and Singh (1990) reported that mass media was positively related with adoption of improved dairy practices, while Garde (1980), Sayeedi (1983) and Singh (1984) reported non-significant relationship between mass media and adoption of improved dairy practices.

CHAPTER - 3

RESEARCH METHODOLOGY

3. RESEARCH METHODOLOGY

This chapter deals with the detailed description of methods and techniques employed to explore the possible explanations of the objectives laid down for the study. Presentation of the relevant aspects of the chapter has been made in the following sub-headings:

- 3.1 Locale of the study
- 3.2 Sample and sampling procedure
- 3.3 Pilot study
- 3.4 Selection, operationalisation and empirical measurement of variables
- 3.5 Pre-testing
- 3.6 Data collection
- 3.7 Statistical analysis.

3.1 LOCALE OF THE STUDY

The study was undertaken in the western part of Uttar Pradesh. In India, Uttar Pradesh has maximum milch animal population and milk production. It has maximum number of dairy cooperative societies too. In addition, the average procurement of milk by dairy cooperatives per day is low in U.P. than other parts of northern India. Western Uttar Pradesh was selected for the purpose of study as it has maximum number of dairy cooperative societies than other parts of the state.

3.1.1 DESCRIPTION OF THE AREA

Uttar Pradesh State, lying between 23° 57' - 31° 28' N and 70° 04' - 84° 38' E longitude is situated in the northern part

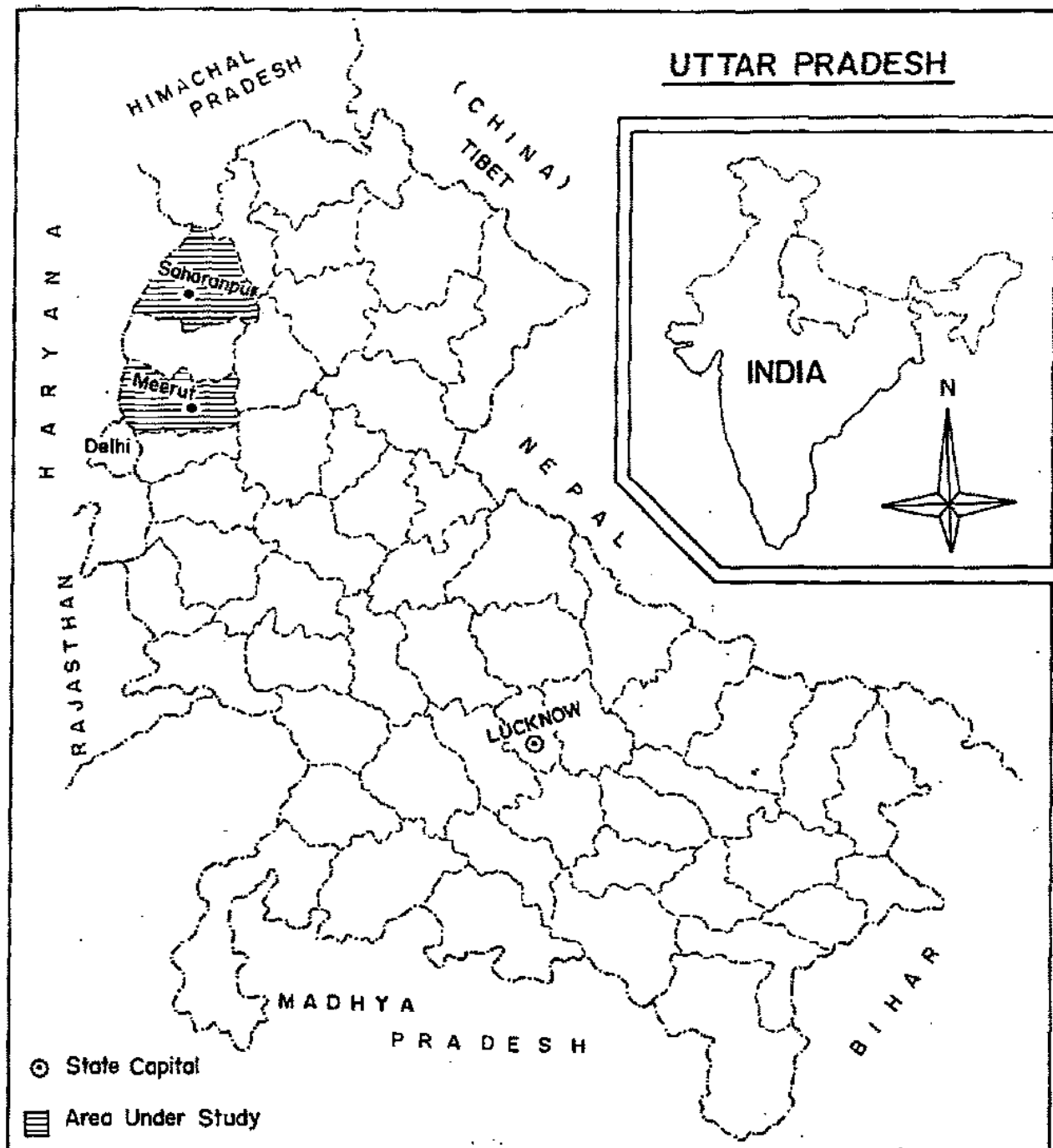


Fig.1. Location of the Area Under Study.

of the country. It is flanked by the countries, Tibet (China) and Nepal in the north, and the States of Himachal Pradesh in the north-west, Delhi and Haryana in the west, Rajasthan in the south-west, Madhya Pradesh in the south and south-west and Bihar in the east. The state can be divided into three distinct physiographic regions, the Himalayas, the Gangetic Plains and Vindhyan hills and Plateau.

The study was conducted in the Gangetic plains. The climate of Gangetic plain varies from semi-arid to sub-humid. The summers are very hot with the temperature of 27.5° to 43°C in the month of May. The winters are cool and dry with the temperature of 12.5° to 17.5°C in the month of January. The mean rainfall ranges from 650 to 1,000 mm.

Total population of the state according to 1981 census was about 11.08 crores out of which 53.05 % were males and 46.95 % were females.

Uttar Pradesh is one of the backward states in terms of literacy rate. In spite of all the efforts to improve the literacy rate, only 27.16 % were literate.

Uttar Pradesh is the major milk producing state in India. According to 1982 livestock census, it had 567 lakh animals of which 261 lakh were milch animals and 65 lakh breedable cows. There were 158 lakh buffaloes of which 79 lakh were breedable. The total estimated milk production in the state in 1990-91^{1/} was about 261 LLPD and the per capita availability was 184 g/day. To provide remunerative price to the milk producers and regular supply to the consumers, seed of cooperatives was sown in 1917 by establishing the first dairy cooperative society (Katra Cooperative Milk Society,

^{1/} NDDB 1991 At a Glance - Northern Region, 23 November.

Allahabad) in the country. Later in 1938, milk producers' cooperative societies were established at Lucknow followed by Haldwani and Meerut.

For smooth functioning of these societies, an apex body called Pradeshik Cooperative Dairy Federation (PCDF) was established in the state in 1962. PCDF was entrusted to implement Operation Flood Project-I in 1970-71. Under this project, two milk plants of one lakh litres capacity each in Meerut and Varanasi, two cattle feed industries and Jersey crossbreeding unit in Raibareilly, were established. There were 5,605 organised dairy cooperative societies in U.P. in 1990-91^{2/}.

3.2 SAMPLE AND SAMPLING PROCEDURE

A multistage stratified random sampling technique was adopted for the selection of unions and dairy cooperative societies. For selecting the milk producer members and Field Supervisors, proportionate random technique was used.

3.2.1 STAGE-I

3.2.1.1 Selection of Unions

There were 13 milk unions in western U.P. namely, Agra, Aligarh, Bulandsahar, Etah, Farukhabad, Ghaziabad, Lalkuan, Mainpuri, Mathura, Meerut, Moradabad, Muzaffarnagar and Saharanpur. These unions were divided into two strata on the basis of total milk procurement from 1985-86 to 1989-90 to get equal representation from low and high procuring milk unions. From each stratum one union, i.e., Meerut and Saharanpur, were randomly selected.

^{2/} NDDB 1991 Op. Cit.

3.2.2 STAGE-II

3.2.2.1 Selection of MPCSSs

At first, a list of the milk societies in both the unions having completed 5 years of working on Anand pattern was prepared. In Saharanpur, there were just 21 MPCSSs, whereas, in Meerut, there were 76 MPCSSs. These societies were subsequently categorised into two categories on the basis of their degree of success in accordance with an objective procedure described later on. Fourteen societies from each union (7 LSS + 7 MSS) were randomly selected from each union making a total of 28 societies.

3.2.2.2 Selection of Indicators of Success

Some of the researchers have attempted to identify the indicators for success of MPCSSs. These are discussed below:

The indicators of success suggested by Patel (1980) were:

- i) percentage of membership increased or decreased over a period of 5 years;
- ii) audit grade;
- iii) percentage of artificially inseminated buffaloes;
- iv) ratio of Amuldan sold to milk purchased by society in terms of monetary value;
- v) percentage of breedable buffaloes insured;
- vi) average milk collection per unit breedable buffaloes;
- vii) percentage of bonus given to the members;
- viii) average price in rupees per litre of milk received from the union.

In another set of case studies, Kolla (1980) and Swami (1980) used the following criteria for selecting successful societies:

- i) age of society;
- ii) quantity of milk collection;
- iii) maintenance of accounts;
- iv) participation of all categories of producers;
- v) utilization of profit and funds;
- vi) level of political involvement;
- vii) relation with union and management of the society.

Desai (1978) used quantum of milk collection per member as the only indicator of success.

The six indicators for success of the society as identified by Bhanja (1981) were: i) annual milk sale in rupees per member; ii) business other than milk per member; iii) expenditure per thousand rupees; iv) net profit per thousand rupees business; v) percentage of population covered by MPCSSs; and vi) audit grade. For the present study, the following five indicators were selected based on extensive discussions with senior management personnel of the unions, scientists of Extension Division, pilot study and review of literature:

i) Audit grade:

Milk societies are subjected to annual auditing by cooperative department for proper maintenance of records and management. The societies are allotted grades A, B, C and D by the auditing officer.

ii) Quantum of milk collection per member:

This explains the quantity of milk procured per member by the society in one year as it takes into consideration all the members who supply milk to the society, therefore, the indicator was selected.

iii) Percentage of households covered by MPCSSs:

Milk society as a rural economic institution aims at serving all the villagers who are potential milk producers. If the society proves beneficial, it is natural that more and more people will get into milk business and come under its fold. An efficient milk

society covers most of its village households and retains the position of common village institution rather than inclined to a section in the village.

iv) Annual milk sale in rupees per member:

Alongwith the quantum of milk sale, the rupee value was also selected as it takes care of the quality of milk supplied. The rationale behind this approach was that it discriminated a society that supplied low quality milk from other societies supplying equal quantity of high quality milk.

v) Annual bonus paid per member:

Instead of percentage of bonus given per member, bonus paid annually per member was considered for the study. The rationale being that the latter considered the actual amount paid to an individual member, whereas, the former was decided by the federation.

3.2.2.3 Assigning Relative Weightage

Since all five indicators would not be of equal importance to determine the success, relative weightage for individual indicator was worked out. All five indicators were subjected to the opinion of 20 judges on 5 point continuum to assign weightage for the particular indicator. The following were the relative weightages assigned for the five indicators of success based on the judges' opinion:

Table 3.1 Relative weightage of various indicators.

Indicators	Relative weightage
i) Audit grade	3
ii) Quantum of milk collection per member	5
iii) Percentage of households covered by the society	4
iv) Annual milk sale in rupees per member	5
v) Annual bonus paid per member	5

Audit grade and percentage of village households covered by MPCs had relatively less weightages for the following reasons. Audit grade are allotted by the cooperative departmental officials who seldom go deep into the evaluation of performance. Their gradings are mostly on the basis of proper record maintenance, which also does not carry more importance in judges' opinion. Similarly, percentage of households covered was given relatively less weightage as the judges have thought that even fewer households can supply more quantity of milk.

3.2.2.4 Data on Indicators

Secondary data for five years starting from 1985-86 to 1989-90 were collected from the society records submitted to the respective unions.

3.2.2.5 Transformation of Raw Score

Average of five years data collected against five indicators mentioned above was worked out for all 21 MPCs in Saharanpur and 76 MPCs in Meerut. The societies were grouped into three categories in respect of individual indicator following mean and standard

deviation method, and scores of 1, 2 and 3 were given for low, medium and high respectively. The society score on the particular indicator was multiplied by the respective weightage to give the final score for that particular indicator. Similarly, score of MPCs for all the five indicators was worked out and added to give the final composite score in respect of that particular society.

3.2.2.6 Composite Score Index

$$C.S.S. = (S_1W_1 + S_2W_2 + S_3W_3 + S_4W_4 + S_5W_5)$$

Where,

C.S.S. = Composite success score of the society,

S_1 = Score obtained by the society on first indicator,

W_1 = Relative weightage given to first indicator,

S_2 = Score obtained by the society on second indicator,

W_2 = Relative weightage given to second indicator,

S_3 = Score obtained by the society on third indicator,

W_3 = Relative weightage given to third indicator,

S_4 = Score obtained by the society on fourth indicator,

W_4 = Relative weightage given to fourth indicator,

S_5 = Score obtained by the society on fifth indicator,
and

W_5 = Relative weightage given to fifth indicator.

3.2.2.7 Categorisation of MPCs

From the composite success score, the societies were grouped into less successful and more successful following square root technique (Cochran) both in Saharanpur and Meerut unions, separately. The composite success scores of all the societies in both the unions are indicated in Appendix-I.

3.2.3 STAGE-III

3.2.3.1 Selection of Respondents

The sample of the study constituted two types of respondents i.e., primary members of the society and Field Supervisors.

(a) Primary members:

One hundred primary members from 14 societies of a union (50 from LSS and 50 from MSS) were selected on proportionate random basis. Proportionate random technique was used separately for LSS and MSS in each union. The total sample of the study consisted of 200 primary members from 28 selected societies.

(b) Field Supervisors:

From both the unions, 40 Field Supervisors (FSs) were selected on proportionate random basis.

3.3 PILOT STUDY

The researcher visited milk unions and milk producers' cooperative societies in the month of August 1990 for obtaining consent of the concerned authorities and also to get personal acquaintance with the locale of the study. Personal rapport was established with the Managers, Veterinary Surgeons, Field Supervisors, Secretaries and managing committee members. Thorough discussions were held with these personnel in developing the schedule. Personal visit of the researcher with union field staff to 10 different societies was also arranged in two unions of the locale. The researcher also saw the records and other relevant documents.

3.4 SELECTION, OPERATIONALISATION AND EMPIRICAL MEASUREMENT OF VARIABLES

3.4.1 SELECTION OF VARIABLES

Selection of variables was made in accordance with the objectives of the study. While selecting the variables adequate attention was paid to the extensive review of literature collected for the purpose of the study. Experts from National Dairy Research Institute, Milk Producers' Cooperative Unions of Karnal, Muzaffarnagar and Bulandsahar were also consulted. All the above mentioned measures helped in selecting suitable variables for the study. The list of variables alongwith their measurement is summarised in Tables 3.2 and 3.3, respectively.

3.4.1.1 Operationalisation and Measurement of Variables of Members

This part of the chapter deals with the operational definitions of the variables and their quantification procedure.

i) Age:

It refers to the chronological number of years of the respondent from the date of birth to the date of data collection. It was measured by direct questioning and was used as the score for the variable in respect of the individual respondent.

ii) Socio-Economic Status:

This refers to position of an individual with reference to the prevailing average standards of cultural position, occupational group, material possession and participation in group activities of the community. Socio-economic status was measured by the scale developed by Trivedi (1963).

Table 3.2 List of variables and their measurement for members.

S. No.	Variables	Measurement
A.	<u>Socio-Personal</u>	
1.	Age	Direct questioning
2.	Socio-economic status	Trivedi (1963)
3.	Land holding	Direct questioning
4.	Herd size	- do -
5.	Milk production	- do -
6.	Milk consumption	- do -
7.	Milk sale	- do -
8.	Participation in MPCs	Bhanja (1981)
B.	<u>Communication</u>	
9.	Extension* contact	Subramanian (1982)
10.	Mass media exposure	Schedule developed
C.	<u>Psychological</u>	
11.	Identification with society	Bhanja (1981)
12.	Satisfaction with society	Modified scale of Bhanja (1981)
13.	Attitude towards MPCs	- do -
14.	Knowledge about MPCs	- do -
15.	Knowledge about DPTs	Rao (1987)
16.	Economic motivation	Gupta (1976)
D.	<u>Infrastructural</u>	
17.	Infrastructural efficiency	Modified scale of Tripathi (1977)
E.	<u>Constraints</u>	
18.	Socio-psychological	Inventory developed
19.	Economic	- do -
20.	Infrastructural	- do -
21.	Technical	- do -
22.	Marketing	- do -
23.	Miscellaneous	- do -
F.	<u>Adoption</u>	
24.	Adoption of scientific dairy farming practices	Mahipal (1933)

Table 3.3 List of variables and their measurement for Field Supervisors.

S. No.	Variables	Measurement
A.	<u>Socio-Personal</u>	
1.	Age	Direct questioning
2.	Education	- do -
3.	Marital status	- do -
4.	Stay at headquarter	- do -
5.	Family background	- do -
6.	Father's occupation	- do -
7.	Experience as FS	- do -
8.	Inservice training	- do -
B.	<u>Organisational</u>	
9.	Societies under jurisdiction	- do -
10.	Societies which can be easily supervised	- do -
C.	<u>Psychological</u>	
11.	Attitude towards villagers	Modified scale of Kherde (1981)
12.	Knowledge about dairy cooperative objectives	Direct questioning
13.	Knowledge about dairy farming	Tiwari (1989)
14.	Job satisfaction	Schedule developed
D.	<u>Constraints</u>	
15.	Socio-psychological	Inventory developed
16.	Economic	- do -
17.	Infrastructural	- do -
18.	Marketing	- do -
19.	Technical	- do -
20.	Communication	- do -
21.	Managerial	- do -
22.	Political	- do -
23.	Miscellaneous	- do -

iii) Land Holding:

This is operationalised as the cultivable land in acres owned by the household.

iv) Herd Size:

This refers to the total number of cows and buffaloes owned by the household. It was determined by asking direct question.

v) Milk Production:

Milk production is defined, in the present context, as the total quantity of milk produced in litres on the day prior to investigation.

vi) Milk Consumption:

Milk consumption is operationally defined as the total quantity of milk consumed in litres by the respondent household on the day prior to investigation.

vii) Milk Sale:

Milk sale refers to as the total quantity of milk sold in litres by the respondent household on the day prior to investigation.

viii) Participation in Society:

John (1968) defined participation as individual's mental and emotional involvement in group situation that encourages him to contribute to group goal and share responsibility with others.

The participation in management refers to members' participation in the democratic control of the society (Ganesan, 1969). It was measured by the level of participation in management

by attendance in general meetings, discussion among them and voting in the election to the managing committee. In the present context, participation in society was operationalised as one's involvement in management of the society. This was measured by the schedule developed by Bhanja (1981).

ix) Extension Contact:

The extension contact indicates the acquaintance as well as the frequency of contact with different extension personnel, viz., VLWs, Field Supervisors (Society), Livestock Assistant, Veterinary Assistant Surgeons, Agriculture Officers and Specialists. This variable was measured on a 4 point continuum namely, frequently (above 12 times), often (6-12), seldom (1-6) and never. The scores assigned were 3, 2, 1 and 0 to the above four possibilities, respectively. The summated score for each respondent revealed the degree of extension contact of the respondent.

x) Mass Media Exposure:

It has been operationally defined as the degree to which the respondent was exposed to the mass media which include radio, T.V., educational films and literature. This variable was measured by ascertaining the frequency of exposure to these four mass media sources. The responses of the respondents were obtained on a four point continuum ranging from regularly to never in case of their exposure to radio, T.V. and literature. As the educational films are rarely screened the number of times the respondents were exposed to such films was taken into consideration. The scores assigned were 3, 2, 1 and 0, respectively, for 12, 6-12, 1-5 and no film

seen. In case of other media, the scores assigned for the four responses regularly, sometimes, rarely and never were assigned 3, 2, 1 and 0, respectively, as indicated in the interview schedule (Appendix-IIa).

xi) Identification with Society:

Dwivedi (1979) stated that identity relates to the perception that the members belong to an organisation and are valuable to the work group. According to Thangaraj (1967) loyalty to a cooperative society means the extent of interest of its members in their society. In the present investigation, identification refers to sense of owing and concern for the primary society and was measured by the schedule developed by Bhanja (1981).

xii) Satisfaction with Society:

Satisfaction with society refers to one's contentment of being a member of the society. Modified scale of Bhanja (1981) was used to measure the satisfaction of members with society. Originally there were 11 items in the schedule. After pre-testing two items, cattle loans and cattle insurance, were dropped as no response was recorded from the farmers. Reliability coefficient after dropping the item was observed to be 0.77 which showed that the scale was still constant.

The farmers were asked to give their responses on a five point continuum. These responses were scored by assigning 5, 4, 3, 2 and 1 to most satisfied, satisfied, neutral, dissatisfied and most dissatisfied alternatives.

xiii) Attitude towards Milk Producers' Cooperative Society:

Edwards (1969) defined attitude as the degree of positive or negative effect associated with some psychological object. In this study, it was indicated as feeling of milk producer members', both positive and negative towards dairy cooperative. The attitude scale developed by Bhanja (1981) was used to measure this variable. The scale consists of 16 statements which include Yes/No. Score '1' was assigned for yes and '0' for no. The number of maximum possible scores was 16.

xiv) Knowledge about Milk Producers' Cooperative Societies:

Knowledge is generally understood as an intimate acquaintance of an individual with facts. English and English (1961) defined knowledge as "The body of understood information possessed by an individual or by a culture". They further explained it as that part of a person's information which is in accord with established facts. Knowledge about milk producers' cooperative society in this study has been operationalised as the extent the primary members in the society know their duties, responsibilities to the society, as well as the benefits to which they are entitled and their rights in the society. The knowledge test developed by Bhanja (1981) was used. The schedule contains 14 statements and the maximum score could be 16. For 1 and 4 statements 2 marks were given and 1 mark for each other statements was given.

xv) Knowledge about Dairy Production Technologies:

In the present context, knowledge about dairy production technologies has been operationalised as the extent of understood information possessed by the members on various aspects of the

recommended technologies. Maximum score of the test was 11 and the minimum could be zero. The test developed by Rao (1987) was used. It contains 11 items, the response of which may be Yes or No, True or False and Multiple Choice. The correct answer was assigned the score of '1' whereas, the incorrect answer was scored as '0'.

xvi) Economic Motivation:

Economic motivation implies the extent to which the individual is motivated to opt for economic pursuits. In the present study, it was operationalised as the extent to which the members perceive dairy farming as a business.

This relates to the characteristic of dairy farmer as perceived by him on dairying as a source of economic gain which means that individual is oriented towards achievement of maximum economic ends such as maximization of farm profits. It was measured with the help of a scale developed by Gupta (1976). This consists of 3 statements on 3 point continuum of agree, undecided and disagree. First statement was negative and the scoring procedure was reversed for it. For the last two statements, 3, 2 and 1 scores were given for agree, undecided and disagree, respectively.

xvii) Infrastructural Efficiency:

It refers to the perception of a member based on his actual experience with respect to incentives provided, intensity of educational efforts made, distance, adequacy of inputs provided, supply efficiency, time efficiency and dealing efficiency of MPCSS meant for infrastructural support.

This was measured by the modified scale developed by Tripathi (1977). The scale originally contains eight items out of which 'subsidy' and 'rate of inputs' were replaced with subsidized fodder seed, vaccine and compounded feed to suit to the requirements of the study. The addition of one more item, thus, increased the maximum score possible on the scale by 3.

xviii) Constraints:

Meaning: The simplest dictionary meaning of constraint (grammatically a noun) are: to compel, to force, to confine, to restrict the motion of (a body or particle), to secure by bonds, to restrain, to clasp tightly, to hold back by force, to violate, to straighten, to oppress, to confine forcibly, to contract, to distress, to limit, to press, to bring into narrow compass, irresistible force, coercion, restriction of liberty, affliction, compulsion put upon the expression of feelings or behaviour, always implying unnaturalness or embarrassment; repression of natural behaviour; as to have an air of constraint, the act or action of using force or threat of force to prevent or condition an action, the quantity or state of being checked, restricted to avoid or perform some action.

Conceptualization and Operationalization: In behavioural researches, there were difficulties in conceptualizing the constraints as variables because they did not lend themselves easily to abstractions. Such notions as adoption behaviour and acceptance of practices of innovations suffered from vague and contradictory formulation to such an extent that there was little consensus concerning the adoption and acceptance of such segments of

technologies, their degree, directionality and the problem of their measurement (Bhatnagar, 1974). Constraints exist primarily in terms of how they are defined and conceived in organization (Bhople and Agrawal, 1987; Tawade et al., 1987). Constraints are projections of collective sentiments rather than simple mirrors of objective conditions (Bora, 1990). According to some authors, there exists interaction among the different constraints (Hashim, 1989). It is argued that many constraints exist simultaneously in several stages of development and patterns of progression from one stage to another depending upon the time, place and other sets of conditions (Bhatnagar, 1974; Mishra et al., 1987).

The groups of individuals in an organization may come from many sectors of the society and may have varying goals and define the constraints differently (Mishra et al., 1987), which remains in the form of movement and counter movement (Tawade et al., 1987). Bhople and Agrawal (1987) defined constraint as the state or quality of sense being restricted to a given course of action or constraints are nothing but the problems that come in the way of adoption of technology.

For the present study, in case of members it has been operationalised as the certain irresistible forces which may be of socio-psychological, economic, technical, marketing, infra-structural and miscellaneous nature operating singly or in conjunction with each other and impeding the utilization of services provided by the dairy cooperatives.

Measurement of Constraints: The inventory for measurement of constraints of members in availing the services and facilities of dairy cooperatives did not exist. Likewise, no inventory was

available for the measurement of constraints of Field Supervisors in carrying out the dairy cooperative programme. Therefore, separate inventories were developed for the two categories of respondents.

Preparation of Inventory: The inventory concerning constraints of members was prepared by contacting 40 members in the project area. The researcher held informal meetings with members and discussed in detail the constraints as viewed by them in utilizing the services provided by the dairy cooperatives. In these meetings, which were held in 5 villages, efforts were made to obtain participation from a cross section of members representing varied background. To make this inventory a comprehensive one, items collected from literature, experts, field personnel of dairy cooperatives and scientists were also added to this.

The items were categorized into socio-psychological, technical, economic, infrastructural, marketing and miscellaneous areas. All together the inventory includes 51 constraints.

In the case of Field Supervisors, the inventory was developed by contacting 35 Field Supervisors. The researcher attended the regular meetings at their unions. The senior staff members in dairy cooperatives also helped in narrating some bottlenecks which were hindering the progress of the dairy cooperatives. The inventory contains 72 items. There are 9, 10, 8, 7, 10, 5, 8, 7 and 8 items in socio-psychological, economic, infrastructural, marketing, technical, communication, managerial, political and miscellaneous constraints, respectively.

Preliminary Selection of Items: The items constituting constraints contained in each of the sub-areas were subjected to thorough scrutiny and editing on the basis of the following criteria, laid down for the selection of items:

- (i) Each item should constitute a constraint operating in the area of study.
- (ii) Each item should cover constraints related to such of the services or facilities as were being actually provided to members or were purported to be provided in the plan of the project. Notwithstanding these, the items should represent constraints concerning such of the practices as were essential for cooperative dairy development.
- (iii) Each item should have direct or indirect bearing on the functioning of dairy cooperative programme.

Based on these criteria, constraints from the view point of members and constraints encountered by Field Supervisors in carrying out the dairy cooperative programme were finally retained in different sections of the inventory.

Judges' Ratings of Items: To assess the degree of seriousness of each of the items which act as constraints were referred to 40 judges. The judges were requested to indicate the level of seriousness of each of the constraints for inclusion in the inventory on three point continuum ranging from 'very serious', 'serious', to 'not serious' by placing a tick mark in the appropriate column provided therein.

The panel of judges for this study comprised experts, Scientists, farmers, Field Supervisors and managing committee members.

Allocation of Weightage to Items: The responses of the judges to items which indicated the intensity or degree of seriousness of a constraint on three point continuum 'very serious', 'serious' or 'not serious' in their opinion was given weightages of 2, 1 and 0, respectively. The responses of all the 40 judges were scored accordingly.

Final Selection of Items: While selecting the constraints, it was imperative to eliminate such items from the inventory which did not constitute a constraint or not a serious constraint in the opinion of the judges. Therefore, mean value for each section was calculated separately and the items above mean value were finally retained in the inventory.

Final Format of Inventory: The statements were randomly arranged, sectionwise, in each of the inventories to avoid bias.

Against each of the items, there were three columns representing a three point continuum 'very serious', 'serious' and 'not serious' which were given weights of 2, 1 and 0, respectively. The minimum and maximum scores which a respondent could obtain on these inventories, sectionwise, are given in Table 3.4.

Reliability: Test-retest method was employed to verify the reliability coefficient of the inventory. The correlation coefficient obtained was 0.83 which was highly significant and indicative of the fact that the inventory was consistent and stable.

Validity: The validity of the inventory was established by content validity. The contents of the inventory was derived from an

Table 3.4 Minimum and maximum scores on inventories for measurement of constraints.

S. No.	Section	Members			Field Supervisors		
		No.of items	Minimum score	Maximum score	No.of items	Minimum score	Maximum score
1.	Socio-psychological	7	0	14	9	0	18
2.	Economic	13	0	26	10	0	20
3.	Technical	9	0	18	10	0	20
4.	Infrastructural	11	0	22	8	0	16
5.	Marketing	6	0	12	7	0	14
6.	Communication	-	-	-	5	0	10
7.	Managerial	-	-	-	8	0	16
8.	Political	-	-	-	7	0	14
9.	Miscellaneous	5	0	10	8	0	16

inventory containing a long list of items constituting constraints from the view point of cooperative members and those encountered by Field Supervisors. These items represented the whole universe of constraints collected from various sources as discussed earlier. Subsequently, the final selection of the statements comprising the inventory was based on the judgement in respect of the degree of seriousness of the constraints made by a team of 40 expert judges drawn from the four major institutions and cooperative unions as well. Suggestions of the experts helped in consolidating the validity of the instrument; because the instrument satisfied representativeness as well as the sensible method of instrument construction.

3.4.1.2 Operationalisation and Measurement of Variables of Field Supervisors

i) Age:

It refers to the actual age of the Field Supervisor in chronological years at the time of interview. The number of years in chronological order were treated as the age scores. It was measured by asking the Field Supervisor to record his actual age.

ii) Education:

The term education refers to the formal education successfully obtained from school to the university level by the respondents. The education of the respondent was measured by asking him to give his educational qualification. Scores of 1, 2, 3 and 4 were given for Matric, Inter, Graduation and Post-Graduation, respectively.

iii) Marital Status:

The married Field Supervisor has easy approach in the farmers' home and he can mix up freely with the village families than the unmarried ones. The measure for marital status of the Field Supervisor was developed by asking the respondent whether married or unmarried. The scores of 2 and 1 were assigned to married and unmarried, respectively.

iv) Stay at Head Quarter:

The Field Supervisor, who stays with family at his headquarter, can develop most cordial relationship with the villagers. The Field Supervisor staying at headquarter was given a score of 2 and for a stay elsewhere was given a score of 1.

v) Family Background:

It refers to whether the respondent was brought up in a village, town or city. The studies have indicated that the extension workers having rural background perform better than the others. It was measured by giving scores of 2 and 1 for Field Supervisor having rural background and urban background, respectively.

vi) Father's Occupation:

The Field Supervisor coming from agricultural family may perform better than those coming from non-agricultural families. It was measured by giving scores 2 and 1 for agricultural and non-agricultural occupation, respectively.

vii) Experience as Field Supervisor:

It refers to the number of months the respondent worked as Field Supervisor in the Cooperative Dairy Federation and was

arrived at by asking a question about duration of his service. Actual number of months were treated as the experience score.

viii) Inservice Training:

The number and type of inservice training may affect the performance of employees. In addition, duration of the training(s) undergone by a Field Supervisor was also considered and the required information in this regard was obtained through structured schedule. The total number of months of inservice training period were used as inservice training score.

ix) Societies under Jurisdiction:

It refers to the total number of milk producers' cooperative societies falling in the jurisdiction of a Field Supervisor. This variable was measured in terms of actual number of societies under his jurisdiction. Each MPCS was given a score of 1 and the sum of scores was treated as total score.

x) Societies which can be easily supervised:

It refers to the total number of milk producers' cooperative societies suggested by the Field Supervisor, which can be easily supervised by a Field Supervisor. A score of 1 was given for each suggested society.

xi) Attitude towards Villagers:

It refers to the degree of favourableness or unfavourableness of a Field Supervisor towards villagers (members). For the measurement of this variable, the scale developed by Kherde (1981) was used with slight modification. The last statement was modified to suit the study. The reliability of the scale

calculated by the split-half method was 0.85. Each statement was measured on a five point continuum, i.e., strongly agree (SA), agree (A), uncertain (U), disagree (DA) and strongly disagree (SDA) with their respective scores of 5, 4, 3, 2 and 1 for each positive statement and in the reverse order for each negative statement. There were 6 statements in the scale in which 1, 2, 3 and 5 were positive, whereas, 4 and 6 were negative.

xii) Knowledge about Dairy Cooperative Objectives:

It refers to the extent of knowledge of the Field Supervisors about the objectives of the organization. He was asked to mention the objectives of federation. There were four major objectives of the federation which were included in the test. The correct answer for each objectives was given a score of one. Thus, the sum of all correct answers was taken as a total score of knowledge. The maximum possible score was 4, whereas the minimum score was zero.

xiii) Knowledge about Dairy Farming:

In the words of Bloom et al. (1956), knowledge is defined as "those behaviours and test situations which emphasized the remembering, by either recognition or recall of ideas, materials and phenomenon". English and English (1961) conceived knowledge as "the body of understood information possessed by an individual or by a culture". They further described knowledge as the part of a person's information which is in accord with the established facts. To Rogers and Shoemaker (1971), it was a function or stage of the decision process when the individual was exposed to an innovation's existence and gains some understanding of how it

functions. In this study, knowledge is operationalised as the information possessed by a Field Supervisor on various technical aspects of dairy farming, i.e., animal breeding, animal nutrition, animal health care and management. The test contains 29 items. It was measured by giving 1 and 0 scores for each correct and incorrect answers provided by the respondent, respectively. The last statement had four answers and each correct answer was given 1 score. The maximum possible score for knowledge test was 32. The sum of the scores for each item was taken as total score of the respondent.

xiv) Job Satisfaction:

According to Hand (1948) job satisfaction is the whole matrix of job factors that makes a person like his work situation and be willing to head for it without distaste at the beginning of his work day.

Katzell (1964) viewed job satisfaction as the verbal expression of an incumbent's evaluation of his job, in which he relates his job on a continuum of like-dislike or satisfied-dissatisfied.

According to motivation - hygiene theory (Herzberg et al., 1957) overall job satisfaction was the function of one's feeling towards the content of the job as well as those towards environment which, of course, inter alia included salary, job security, status, working condition etc.. Likert (1961) considered job satisfaction and other satisfaction derived by members of organization as one of the criteria for effectiveness in the functioning of any organization. Factors contributing towards

job satisfaction identified by different research workers are as follows:

Authors	Factors reported
Herzberg <u>et al.</u> (1957)	10 factors such as (i) Intrinsic aspects of job, (ii) Supervision, (iii) Working conditions, (iv) Wages, (v) Opportunity for advancement, (vi) Security, (vii) Company and management, (viii) Social aspect of job, (ix) Communication, (x) Benefits.
Tiffin and Mc Cormic (1965)	(i) Job security, (ii) Opportunity for advancement, (iii) Opportunity to use ideas, (iv) Behaviour of the supervisors, (v) Pay, (vi) Working conditions.
Rohilla (1966)	(i) Work itself, (ii) Income, (iii) Responsibility, (iv) Achievements, (v) Relationship with clientele.
Singh and Shrestha (1976)	(i) Security, (ii) Salary, (iii) Opportunity for advancement, (iv) Responsibility, (v) Working conditions, (vi) Supervision, (vii) Recognition, (viii) Personal relations with those they work, (ix) Nature of work.
Singh and Singh (1976)	Added a new dimension, the relationship with local people for extension field personnel.
Rao (1977)	Recognition, Self esteem, Opportunity for promotion and Working condition.

The job satisfaction has been operationalised as the extent of satisfaction derived by the respondents from the job related areas. The following factors were considered after thorough review of literature and discussions with experts: (1) Salary, (2) Working conditions, (3) Behaviour of milk producer members, (4) Behaviour of society's secretary, (5) Behaviour of colleagues, (6) Behaviour of superiors, (7) Promotion avenue/career advancement, (8) Communi-

cation in the union and societies, (9) Policies of union, (10) Supply of inputs, (11) Timeliness of supply, (12) Transport facilities, and (13) Recognition.

It was measured by asking the respondent to give his agreement on a 5 point continuum, viz., highly satisfied, satisfied, neutral, dissatisfied and highly dissatisfied and score of 5, 4, 3, 2 and 1 were assigned, respectively. The maximum possible score was 65 and minimum was 13.

xv) Constraints:

Constraints for the Field Supervisors have been operationalised as certain irresistible forces which may be socio-psychological, economic, technical, infrastructural, marketing, managerial, communication, political and miscellaneous operating singly or in conjunction with each other and impeding in carrying out the dairy cooperative programme successfully. Inventory was developed for measuring the constraints. The procedure of inventory development was similar to that of the members.

3.5 PRE-TESTING

The research instruments in the form of a schedule were pre-tested by administering the instruments to 50 milk producer members and 30 Field Supervisors separately in Muzaffarnagar and Bulandsahar which were not included in the study. After getting the responses, necessary modifications in terms of elimination of ambiguous statements, change of format or presentation of the instruments in the schedule, deleting the monotonous responses etc. were suitably made. Thereby, the quality of presentation of the instruments in the final schedule was improved.

3.6 DATA COLLECTION

The data collection from the two categories of respondents namely milk producer members and Field Supervisors was done from October 1990 to February 1991. While being in the field for data collection from members, the responses of Field Supervisors were also obtained during this period.

Before administering the schedule, the objectives of the study were explicitly explained and proper rapport was developed. The questions in the schedule were presented to them in their own dialect ensuring that they perceived the questions correctly so as to avoid any interpretational variation of the questions by the respondents. The answers obtained were recorded. Only one respondent was interviewed at a time. During the interview, care was taken to keep alive the interest of the respondents. Their experiences constituting constraints were patiently heard.

Accordingly, the data were collected from 200 members from 28 MPCSS selected for the study. Forty Field Supervisors were contacted for personally interviewing them to elicit the required information.

In addition, relevant information particularly suggestions given by the members and supervisors was collected during informal discussions with the members.

Likewise, relevant observations made by the Field Supervisors within their respective groups which often took place before and after the formal meeting started, were also recorded.

3.7 STATISTICAL ANALYSIS

- a) Percentage, mean, standard deviation, coefficient of variation were calculated following the procedure suggested by Guilford and Frachter (1978).
- b) Correlation coefficient (Snedecor and Cochran, 1968).
- c) Multiple Regression Analysis (Snedecor and Cochran, 1968).
- d) Path Coefficient Analysis

If 'y' is a dependent variable which is affected by various causal factors like X_1, X_2, X_3 , etc., and a, b, c , etc., are path coefficients due to respective variables and has the residual effect 'h', the path coefficients a, b, c were calculated by solving the matrix equation as suggested by Duncan (1966):

$$\begin{array}{cccccc}
 r_{1y} & 1 & r_{12} & r_{13} & r_{1p} & a \\
 r_{2y} & r_{21} & 1 & r_{23} & r_{2p} & b \\
 \vdots & \vdots & \vdots & \vdots & \vdots & \vdots \\
 \vdots & \vdots & \vdots & \vdots & \vdots & \vdots \\
 \vdots & \vdots & \vdots & \vdots & \vdots & \vdots \\
 \vdots & \vdots & \vdots & \vdots & \vdots & \vdots \\
 r_{py} & r_{p1} & r_{p2} & r_{p3} & 1 & p
 \end{array}$$

$$A = B_{pp}C$$

Where,

A = Column vector of correlation coefficients between Y and $X_1, X_2 - X_p$.

B_{pp} = Matrix of order $p \times p$ of correlation coefficients among $X_1, X_2 - X_p$.

C = Column vector of path coefficients.

The assumption is:

$$Y = X_1 + X_2 + \dots + X_p + h$$

r_{iy} is the correlation coefficients of variables,

X_i with the dependent variable Y .

r_{ij} is the correlation ~~between~~ coefficient between X_i and X_j

$$\text{Then, } C = B_{pp}^{-1} A$$

B_{pp}^{-1} is the inverse of the matrix B_{pp} .

Path coefficients were computed to find out the direct and indirect effects of the selected variables pertaining to primary members on the overall adoption of scientific dairy farming practices. In case of constraints, due to lack of significant correlation with the traits, path model was not adopted.

The data thus analysed have been interpreted and discussed in the next chapter.

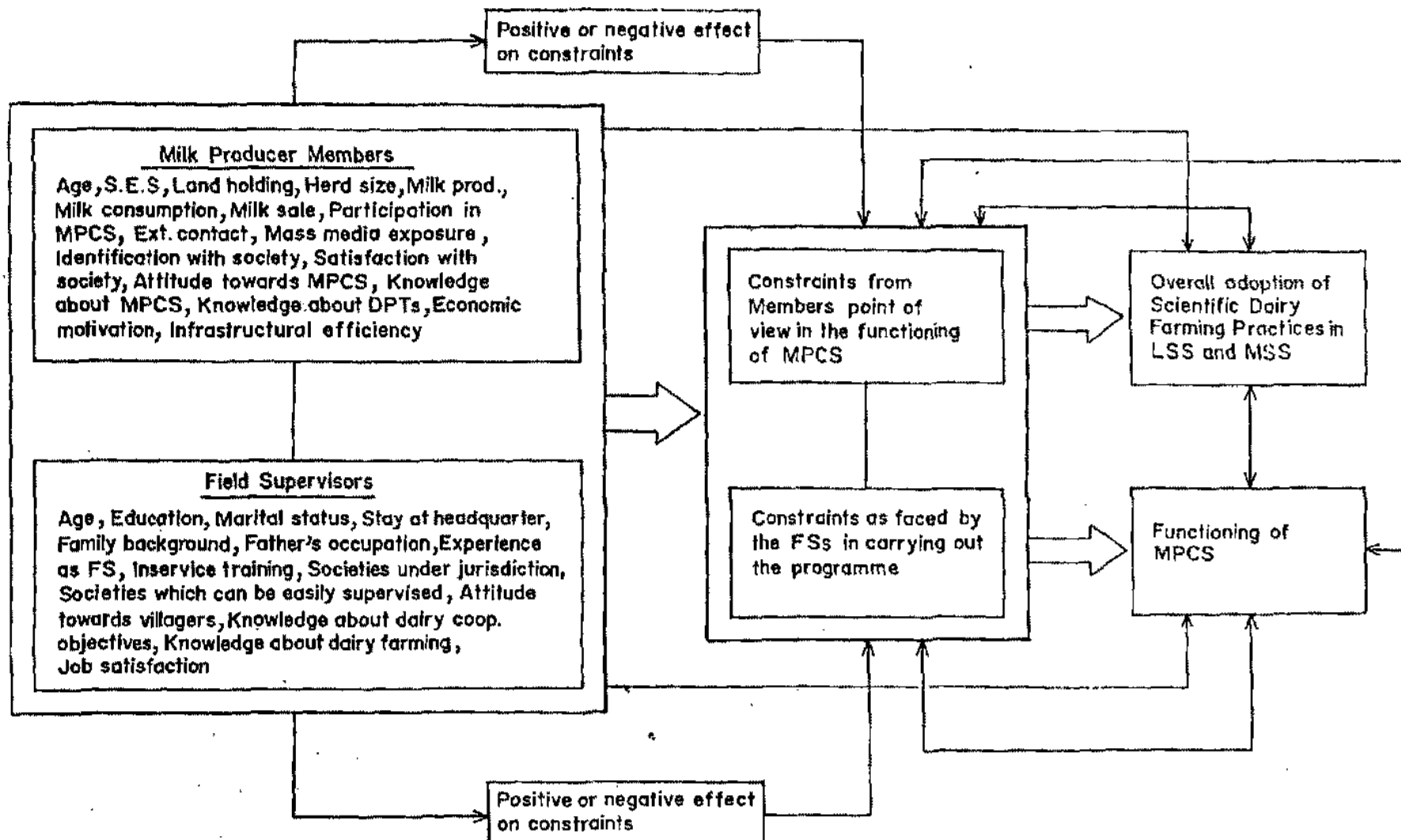


Fig.2. Conceptual Model of the Study

CHAPTER - 4

RESULTS AND DISCUSSION

4. RESULTS AND DISCUSSION

The study focuses on determination of constraints in the functioning of MPCSSs. These constraints have been studied from the angles of milk producer members and Field Supervisors of the programme. The results of the study are accordingly organised and presented in this chapter under two sections:

Section - A

1. Profile of the milk producer members.
2. Mean differences between LSS and MSS.
3. Rank order of various constraints as perceived by the members.
4. Relational analysis of independent attributes of members with constraints and adoption in LSS.
5. Relational analysis of independent attributes of members with constraints and adoption in MSS.

Section - B

1. Profile of Field Supervisors.
2. Rank order of various constraints as faced by the Field Supervisors.

SECTION - A

4.1.1 PROFILE OF THE MILK PRODUCER MEMBERS

4.1.1.1 Age

Age of an individual relates to ones' ability to work, his critical analysis of the situation and sound decision making.

Dairy farmers who participated in the milk society, belonged to different age groups. A perusal of the Table 4.1 revealed that most of the respondents in LSS and MSS were from middle age group, forming 55 and 52 %, respectively. Equal percentage (29) of members from LSS and MSS fell in the young category. In the old age group, there were 16 and 19 % from LSS and MSS, respectively. Invariably, the percentage of old people in milk society was less, which might be due to the fact that dairy farming being labour intensive job, people in the older age group pass on this to their comparatively young but matured members in the family. Representation by younger lot was also less in both categories of societies.

Table 4.1 Distribution of members in LSS and MSS according to age.

Age category (in years)	LSS (N=100) Frequency	MSS (N=100) Frequency
Young (upto 30)	29	29
Middle (31 to 50)	55	52
Old ($\geq$ 50)	16	19

4.1.1.2 Education:

The study revealed that majority of the respondents were illiterate in both categories of the societies (Table 4.2). Much difference was not observed in different categories of education in LSS and MSS except primary, intermediate and graduate categories. There were six graduates in LSS but only one in MSS. Ten percent of the total respondents in MSS were intermediate as compared to 4 % in LSS. Respondents with primary education were more in LSS (13 %) than in MSS (5 %). In Read and Write category, there were equal percentage (8) of the respondents in both the

categories. In LSS, 17 and 19 % of the respondents were educated upto middle and high school, whereas, in MSS, it varied to 19 and 18 %, respectively.

Table 4.2 Distribution of members in LSS and MSS according to education.

Education category	LSS (N=100) Frequency	MSS (N=100) Frequency
Illiterate	33	39
Read and write	8	8
Primary	13	5
Middle	17	19
High school	19	18
Intermediate	4	10
Graduate & above	6	1

It could be concluded from the findings that cooperatives are still dominated by the illiterates in terms of membership.

4.1.1.3 Caste:

The study revealed that most of the respondents (54 %) in both the categories belonged to backward castes (Table 4.3). Others (Brahmin, Rajput, Jat, Bania, Baloch) represented 28 and 33 % in LSS and MSS. There were 18 and 13 % members of scheduled castes in LSS and MSS, respectively.

The study clearly pointed out that caste was not a barrier in the area of study for becoming member of the cooperative society. Similar findings have also been reported by Baviskar (1983) and Patel (1983). Bhanja (1981), however, found that the high caste of the village were largely represented in milk society

as compared to backward and scheduled castes. One of the reasons for dominance of backward caste was large population of these castes in the present study. Although respondents from scheduled caste were few, caste was not the reason for it. Most of the scheduled caste persons were resourceless and hence engaged in labour.

Table 4.3 Distribution of members in LSS and MSS according to caste.

Caste category	LSS (N=100) Frequency	MSS (N=100) Frequency
SC (Harijan)	18	13
BC (Julaha, Gada, Carpenter, Kumhar, Barber, Teli, Jhimar, Washerman, Tailor, Gadaria, Gujjar, Saini, Sunar, Yadav, Faqir, Kamboj)	54	54
Others (Brahmin, Rajput, Jat, Bania, Baloch)	28	33

4.1.1.4 Material Possession:

Table 4.4 showed no difference in medium category of material possession between LSS and MSS. In LSS, 30 and 15 % respondents had low and high level of material possession, whereas, in MSS 27 % of the total respondents had low level of material possession and only 18 % had high material possession.

Table 4.4 Distribution of members in LSS and MSS according to material possession.

Material possession category (scores)	LSS (N=100) Frequency	MSS (N=100) Frequency
Low (upto 3)	30	27
Medium (4 to 7)	55	55
High (above 7)	15	18

Therefore, it could be stated that majority of the respondents in both the categories had medium level of material possession. It might be due to the reason that there was more homogeneity in the study area. The other reason might be that some members of the family had other occupations such as service and business in LSS. This might have helped them in getting different articles.

4.1.1.5. Socio-economic Status:

The respondents were categorised as high, medium and low status groups. Data presented in Table 4.5 revealed that majority, i.e., 79 and 82 % of the respondents had medium level of socio-economic status in LSS and MSS, respectively. There were 9 and 8 % respondents in low economic status category in LSS and MSS. Ten percent of the respondents had high socio-economic status in LSS, whereas, 12 % in MSS in the same category.

Table 4.5 Distribution of members in LSS and MSS according to socio-economic status.

LSS (N=100)		MSS (N=100)	
S.E.S. category (score)	Frequency	S.E.S. Category (score)	Frequency
Low (upto 16)	9	Low (upto 19)	8
Medium (17 to 35)	79	Medium (20 to 37)	82
High (above 35)	12	High (above 37)	10

In both the categories, not much difference was observed. The respondents with high and medium socio-economic status were marginally more in the MSS.

4.1.1.6 Land Holding:

A perusal of Table 4.6 revealed that less successful societies invariably had more (33 %) landless members as compared to MSS (22 %). In LSS, 28 % of the respondents were marginal farmers followed by small (21 %), medium (10 %) and large farmers (8 %). Same trend was observed in MSS in which 29, 21, 18 and 10 % were marginal, small, medium and large farmers, respectively.

Table 4.6 Distribution of members in LSS and MSS according to land holding.

Land holding category (in acres)	LSS (N=100) Frequency	MSS (N=100) Frequency
Landless	33	22
Marginal (upto 2.5)	28	29
Small (2.6 to 5)	21	21
Medium (5.01 to 10)	10	18
Large (Δ 10)	8	10

It could be concluded from the above findings that representation of landless dairy farmers was high in less successful societies which might have caused low procurement of milk. Animal husbandry involves special risks for the landless. In case of prolonged illness or death of a milch cow or a milch buffalo, a landless labour is not in a position to replace it. Inadequate feeding and lack of proper health care lead to the lengthening of dry period and shortening of the lactation period of milch animals. Maintaining a milch animal is costly and the landless can't afford to buy green fodder or concentrate. Therefore, they can not afford to purchase high producing cattle or

buffalo and could supply only 1 to 2 litre milk per day, that too seasonally.

4.1.1.7 Herd Size:

It can be observed from Table 4.7 that 23 and 17 % members in LSS and MSS, respectively, were keeping 1 to 2 animals. Majority of the members (34 %) in LSS were having 3 to 4 animals, whereas, 26 % members from MSS fell in this category. About 57 % members in MSS had more than 4 animals. In LSS, merely 43 % fell in the corresponding category.

Table 4.7 Distribution of members in LSS and MSS according to herd size.

Herd size (number)	LSS (N=100)			MSS (N=100)		
	Frequency	Range		Frequency	Range	
		Min.	Max.		Min.	Max.
1 & 2	23	1	20	17	1	25
3 & 4	34			26		
5 & 6	17			24		
7 & 8	14			18		
> 8	12			15		

The range of animals was 1 to 20 in LSS and 1 to 25 in MSS.

It could be derived from the above findings that members in MSS had more number of animals as compared to LSS. This might be due to the availability of land. Members in MSS had large size of holding which might have facilitated them to keep large size of herd.

4.1.1.8 Milk Production:

Majority (30 %) of the members in LSS were producing 5 to 6 litres of milk, whereas, majority (25 %) of the members in MSS produced more than 12 litres of milk. Thirty-one percent members in LSS produced 7 to 8 litres of milk per day, whereas, 50 % members from MSS fell in the corresponding category. The range of milk production varied from 0 to 36 in LSS and 0 to 42 in MSS.

It could be concluded from the above findings that members in MSS were producing more milk than the members in LSS. The difference can be attributed mostly to the larger number of buffaloes and cows in the more successful societies. Moreover, the wet : dry ratio was also high in more successful societies (Table 4.8).

Table 4.8 Distribution of members in LSS and MSS according to milk production.

Milk production (in litres)	LSS (N=100)			MSS (N=100)		
	Frequency	Range		Frequency	Range	
		Min.	Max.		Min.	Max.
No	6	0	36	4	0	42
1 & 2	3			-		
3 & 4	13			5		
5 & 6	30			16		
7 & 8	9			21		
9 & 10	14			18		
11 & 12	8			11		
> 12	17			25		

4.1.1.9 Milk Consumption:

In LSS, 28 and 25 % members were consuming 1 and 2 litres of milk per day, whereas, 18 and 30 % members from MSS, fell in the corresponding categories. Fifteen percent members in LSS and 21 % in MSS were consuming more than 5 litres milk per day. Almost equal percentage (26) of members in both the categories of societies were consuming 3 to 5 litres milk per day (Table 4.9). The range of milk consumption was high (0-18) in LSS than MSS (0-10).

Table 4.9 Distribution of members in LSS and MSS according to milk consumption.

Milk consumption (in litres)	LSS (N=100)			MSS (N=100)		
	Frequency	Range		Frequency	Range	
		Min.	Max.		Min.	Max.
No	6	0	18	4	0	10
1	28			18		
2	25			30		
3	12			10		
4	7			10		
5	7			7		
> 5	15			21		

It could be derived from the above findings that there was not much difference in the categories of milk consumption between LSS and MSS.

4.1.1.10 Milk Sale:

Members who were not selling milk were more (17 %) in the less successful societies as compared to the more successful societies (10 %). In LSS, 33 % members were producing 3 to

4 litres milk, whereas, 15 % members from MSS fell in this category. It could be seen in Table 4.10 that 45 % members in MSS were selling 5 to 8 litres milk per day as compared to 29 % in LSS. There were 26 % members in MSS who produced more than 8 litres milk per day. Merely 16 % members from LSS fell in the corresponding category.

Table 4.10 Distribution of members in LSS and MSS according to milk sale.

Milk sale (in litres)	LSS (N=100)			MSS (N=100)		
	Frequency	Range		Frequency	Range	
		Min.	Max.		Min.	Max.
No	17	0	22	10	0	36
1 & 2	5			4		
3 & 4	33			15		
5 & 6	19			23		
7 & 8	10			22		
> 8	16			26		

The maximum quantity of milk sold was high in MSS (36 litres) than in LSS (22 litres)

It led to the conclusion that members in successful societies were more inclined to sell the milk. The possible reason for which may be their contacts with different extension personnel.

4.1.1.11 Wet : Dry Ratio:

It could be seen from Table 4.11 that wet : dry ratio was high (3.75 : 1) in MSS than LSS (2.64 : 1) in case of buffaloes. Similar trend was observed for crossbred cattle too. The wet : dry ratio was high (1.21 : 1) in less successful societies in non-descript cattle as compared to MSS.

Table 4.11 Wet : Dry ratio of animals in LSS and MSS.

Animals	LSS	MSS
Crossbred cattle	0.81 : 1	1.2 : 1
Non-descript cattle	1.21 : 1	0.64 : 1
Buffaloes	2.64 : 1	3.75 : 1

Therefore, it could be concluded from the above findings that members in MSS were keeping more milch animals as compared to LSS.

4.1.1.12 Per Family Milk Production and Milk Consumption:

A brief perusal of Table 4.12 revealed that the milk production per family was high (10.32 litres) in more successful societies than less successful societies (8.23 litres). There was not much difference in the milk consumption per family but per capita milk consumption was comparatively high (485 g) in LSS than MSS (417 g). The possible reason might be that members in more successful societies were selling more milk. Moreover, total family members were also more in MSS.

Table 4.12 Per family milk production and milk consumption in LSS and MSS.

Particulars	LSS	MSS
Milk production per family (in litres)	8.23	10.32
Milk consumption per family (in litres)	3.00	3.36
Per capita milk consumption (in g)	485	417

4.1.1.13 Participation in MPCs:

Participation of primary members is crucial for the success of a milk society. Primary members in any milk society are expected to visit the society and participate in society meetings. They also have the right to verify records of the society and suggest improvements.

It could be visualised from Table 4.13 that 54 % respondents from LSS fell in the medium category. Rest of the respondents were divided equally (23 %) in low and high categories of participation. In MSS, 48 % had participation upto medium level followed by low (31 %) and high (21 %) categories, respectively.

Table 4.13 Distribution of members in LSS and MSS according to participation in MPCs.

LSS (N=100)		MSS (N=100)	
Participation in MPCs category (score)	Frequency	Participation in MPCs category (score)	Frequency
Low (upto 3)	23	Low (upto 4)	31
Medium (4 to 7)	54	Medium (5 to 9)	48
High (above 7)	23	High (above 9)	21

It could be seen from the above findings that number of respondents were more from LSS in medium and high categories. But that was only due to difference in range.

4.1.1.14 Extension Contact:

Table 4.14 clearly showed that Field Supervisors were contacted more frequently in LSS as well as in MSS in comparison to the other extension personnel. Almost equal percentage (21 %) of the members in LSS and MSS contacted the VLWs and livestock

Assistants frequently. The least contacted extension personnel were specialists from universities, Agriculture officers and Veterinary Assistant Surgeons.

Table 4.14 Extension personnel contacted by the members in LSS and MSS.

Extension personnel	LSS (N=100)				MSS (N=100)			
	Frequently	Some-times	Rarely	Never	Frequently	Some-times	Rarely	Never
VLW	21	19	39	21	21	40	28	11
Society Supervisor	38	44	17	1	39	43	18	-
Livestock Assistant	21	39	37	3	20	47	29	4
Veterinary Assistant Surgeon	-	14	38	48	1	16	34	49
Agriculture Officer	-	5	8	87	-	2	11	87
Specialists from University	-	-	-	100	-	-	2	98

The reason of contacting the Society Supervisors, VLWs and Livestock Assistants might be due to their frequent visits to the societies.

4.1.1.15 Mass Media Exposure:

Exposure to mass media was observed to be very poor. Majority of the members in LSS never read newspapers (48 %) and magazines (85 %). Similar trend was observed in MSS where 46 % members never read newspapers (Table 4.15). Ninety-two percent members in more successful societies reported that they never studied any magazine related to agriculture. Radio and T.V. were

the most widely used media for agriculture information in both categories of the societies. Most of the members in LSS as well as MSS never saw any educational film. There were 35 % members in LSS and 20 % in MSS who saw the films once or twice in a year.

Table 4.15 Sources of mass media utilized by the members in LSS and MSS.

Mass Media	LSS (N=100)				MSS (N=100)			
	Frequently	Some-times	Rarely	Never	Frequently	Some-times	Rarely	Never
Newspaper	18	27	7	48	21	28	5	46
Magazine	1	6	8	85	-	7	1	92
Radio	48	42	7	3	47	39	9	5
T.V.	42	32	19	7	36	44	17	3
Film (No.)	-	-	35	65	-	-	20	80

It could be concluded that Radio and TV were the most widely used media in LSS and MSS. Newspapers, magazines and films were the least used media. The reason might be that these sources were not easily available in the rural areas.

4.1.1.16 Identification with Society:

One who identifies himself with the milk society, nurtures a sense of belonging to the society and feels motivated to work towards its larger interest.

Table 4.16 revealed that respondents of MSS invariably had higher identification with society compared to LSS. The percentage of members having high identification with society was 33 in MSS and 18 in LSS. However, the percentage of respondents having low identification with society was high (40 %) in MSS in comparison to LSS (37 %). Forty-five percent of the total

respondents in LSS had medium level of identification, whereas, there were only 27 % respondents from MSS in this category. The reason for this was difference in the range.

Table 4.16 Distribution of members in LSS and MSS according to identification with society.

LSS (N=100)		MSS (N=100)	
Identification with society category (score)	Frequency	Identification with society category (score)	Frequency
Low (upto 3)	37	Low (upto 4)	40
Medium (4 to 5)	45	Medium (only 5)	27
High (above 5)	18	High (above 5)	33

4.1.1.17 Satisfaction with Society:

Most of the members in LSS and MSS were satisfied with weighing and testing, maintenance of records, behaviour of staff members, payment and election procedure. Majority (60 %) of the members in MSS were satisfied with the supply of feed, whereas, 71 % members in LSS were dissatisfied with it. Comparatively more (45 %) number of members in MSS were satisfied with supply of other inputs than the members in LSS (17 %). Fifty-seven and 93 % members in MSS and LSS respectively, were dissatisfied with the veterinary health care.

The Table 4.17 clearly showed that the level of satisfaction was fairly high in more successful societies. But majority of the members in both categories of societies were dissatisfied with the supply of other inputs and veterinary health care.

Table 4.17 Satisfaction of members on various activities of societies in LSS and MSS.

Activities	LSS (N=100)			MSS (N=100)		
	Satisfied	Neutral	Dis-satisfied	Satisfied	Neutral	Dis-satisfied
Weighing	80	6	14	88	-	12
Testing	70	10	20	84	1	15
Maintenance of records	51	33	16	62	31	7
Supply of feed	26	3	71	60	7	33
Supply of other inputs such as Ghee	17	5	78	45	8	47
Veterinary health care	6	1	93	36	7	57
Staff behaviour	86	11	3	90	3	7
Payment	70	3	27	80	4	16
Election procedure	78	17	5	77	8	15

4.1.1.18 Attitude towards MPCs:

A brief perusal of the Table 4.18 revealed that attitude of the members of MSS was more favourable than LSS. In LSS, 57, 26 and 17 % respondents had undecided, unfavourable and favourable attitudes, respectively. Sixty-eight percent respondents of MSS had undecided attitude towards MPCs. There were 23 % respondents with favourable attitude and only 9 % with unfavourable attitude.

Thus, it could be said that respondents of more successful societies had comparatively more favourable attitude than those of less successful societies. This favourable attitude might have been due to intensive/frequent extension contacts.

Table 4.18 Distribution of members in LSS and MSS according to attitude towards MPCs.

LSS (N=100)		MSS (N=100)	
Attitude towards MPCs category (score)	Frequency	Attitude towards MPCs category (score)	Frequency
Low (upto 7)	26	Low (upto 8)	28
Medium (8 to 10)	57	Medium (9 & 10)	49
High (above 10)	17	High (above 10)	23

4.1.1.19 Knowledge about MPCs:

Table 4.19 revealed that majority of the respondents, i.e., 64 and 49 % from LSS and MSS respectively had medium level of knowledge about cooperative societies. More number of respondents from MSS (24 %) fall in high category compared to LSS (16 %). In low category of knowledge, there were 27 % respondents from MSS and 20 % from LSS.

Table 4.19 Distribution of members in LSS and MSS according to knowledge about MPCs.

LSS (N=100)		MSS (N=100)	
Knowledge about MPCs category (score)	Frequency	Knowledge about MPCs category (score)	Frequency
Low (upto 4)	20	Low (upto 5)	27
Medium (5 to 8)	64	Medium (6 to 9)	49
High (above 8)	16	High (above 9)	24

So, it could be said that members of more successful societies had higher level of knowledge in comparison to the members of LSS. The difference in low and medium category was simply due to difference in the range.

4.1.1.20 Knowledge about DPTs:

It could be seen from Table 4.20 that equal percentage (28) of the respondents from both categories of societies fell in high category of knowledge about DPTs. But majority of the respondents in both categories of societies had medium level of knowledge. More successful societies had more number of respondents (28 %) in low category compared to LSS (19 %).

Table 4.20 Distribution of members in LSS and MSS according to knowledge about DPTs.

LSS (N=100)		MSS (N=100)	
Knowledge about DPTs category (score)	Frequency	Knowledge about DPTs category (score)	Frequency
Low (upto 3)	19	Low (upto 5)	28
Medium (3 to 7)	53	Medium (5 to 8)	44
High (above 7)	28	High (above 8)	28

It is clear from the above findings that most of the respondents in LSS and MSS had medium level of knowledge about DPTs.

4.1.1.21 Economic Motivation:

Table 4.21 clearly showed that majority, i.e., 43 and 41 % respondents from MSS and LSS were highly motivated to opt for economic pursuits. Twenty-two percent respondents of LSS were motivated to a medium level and 37 % had low level of motivation. In MSS, almost equal percentage of the respondents were in medium and low economic motivation category.

It could be concluded that members of both categories of societies perceived dairying as a source of economic gain.

Table 4.21 Distribution of members in LSS and MSS according to economic motivation.

LSS (N=100)		MSS (N=100)	
Economic motivation category (score)	Frequency	Economic motivation category (score)	Frequency
Low (upto 6)	37	Low (upto 6)	29
Medium (7 & 8)	22	Medium (7 & 8)	28
High (above 8)	41	High (above 8)	43

4.1.1.22 Infrastructural Efficiency:

Table 4.22 clearly showed that almost equal percentage of respondents from LSS (21 %) and MSS (20 %) fell in the high category of infrastructural efficiency. In the medium category, there were more number of respondents (70 %) from LSS than MSS (65 %). A reverse trend was observed in the low category where number of respondents were more from MSS (15 %) than LSS (9 %).

Table 4.22 Distribution of members in LSS and MSS according to infrastructural efficiency.

LSS (N=100)		MSS (N=100)	
Infrastructural efficiency category (score)	Frequency	Infrastructural efficiency category (score)	Frequency
Low (upto 15)	9	Low (upto 15)	15
Medium (16 to 18)	70	Medium (16 to 20)	65
High (above 18)	21	High (above 20)	20

The more number of respondents in medium and high categories in LSS were only due to difference in the range.

4.1.1.23 Socio-psychological Constraints:

Table 4.23 clearly showed that majority of the respondents, i.e., 63 and 59 % in LSS and MSS respectively perceived the

constraints to a medium extent. But more respondents (20 %) from LSS were found to perceive socio-psychological constraints to a high level as compared to MSS (13 %). In low category of constraints, respondents were more from MSS (28 %) than LSS (17 %).

Table 4.23 Distribution of members in LSS and MSS according to socio-psychological constraints.

LSS (N=100)		MSS (N=100)	
Socio-psychological constraints category (score)	Frequency	Socio-psychological constraints category (score)	Frequency
Low (0)	17	Low (upto 1)	28
Medium (1 to 4)	63	Medium (2 to 4)	59
High (above 4)	20	High (above 4)	13

It could be seen that respondents of LSS were perceiving the socio-psychological constraints to a greater extent than those of MSS.

4.1.1.24 Economic Constraints:

Majority of the respondents in both the categories of societies were found to perceive the economic constraints to a medium level. But it was amazing to note that respondents of MSS were more (23 %) in high category than LSS (15 %) (Table 4.24). Respondents from LSS were less (20 %) in the low category than MSS (28 %).

Table 4.24 Distribution of members in LSS and MSS according to economic constraints.

LSS (N=100)		MSS (N=100)	
Economic constraints category (score)	Frequency	Economic constraints category (score)	Frequency
Low (upto 8)	20	Low (upto 9)	28
Medium (9 to 14)	65	Medium (10 to 14)	49
High (above 14)	15	High (above 14)	23

So it could be said that respondents of MSS perceived the economic constraints as much important as their LSS counterparts.

4.1.1.25 Infrastructural Constraints:

Twenty-three percent respondents of MSS perceived the infrastructural constraints at low level and as much percentage of respondents of MSS were observed to perceive at high level. The remaining 54 % perceived it to a medium level. In the corresponding category, there were 58 % respondents from LSS (Table 4.25). In case of high and low categories, there were 24 and 18 % respondents, respectively.

Table 4.25 Distribution of members in LSS and MSS according to infrastructural constraints.

LSS (N=100)		MSS (N=100)	
Infrastructural constraints category (score)	Frequency	Infrastructural constraints category (score)	Frequency
Low (upto 9)	18	Low (upto 5)	23
Medium (10 to 14)	58	Medium (6 to 13)	54
High (above 14)	24	High (above 13)	23

Thus, respondents of LSS perceived the infrastructural constraints more important than MSS.

4.1.1.26 Technical Constraints:

Forty-seven percent respondents from LSS and 42 % from MSS were found in the medium category of technical constraints. In high category, there were 33 % respondents from MSS and only 22 % from LSS (Table 4.26). In low category, there were more respondents from LSS (31 %) than MSS (25 %). More number of respondents in high category from MSS were due to the difference in range.

Table 4.26 Distribution of members in LSS and MSS according to technical constraints.

LSS (N=100)		MSS (N=100)	
Technical constraints category (score)	Frequency	Technical constraints category (score)	Frequency
Low (upto 5)	31	Low (upto 4)	25
Medium (6 to 8)	47	Medium (5 to 7)	42
High (above 8)	22	High (above 7)	33

4.1.1.27 Marketing Constraints:

In marketing constraints, almost equal percentage of respondents from LSS and MSS fell in the medium category. Twenty-nine percent respondents of LSS were found in the low category, whereas, there were 22 % respondents from MSS in the same category (Table 4.27). In the high category, respondents were comparatively more in MSS (23 %) than LSS (15 %).

Table 4.27 Distribution of members in LSS and MSS according to marketing constraints.

LSS (N=100)		MSS (N=100)	
Marketing constraints category (score)	Frequency	Marketing constraints category (score)	Frequency
Low (upto 3)	29	Low (upto 2)	22
Medium (4 to 6)	56	Medium (3 to 5)	55
High (above 6)	15	High (above 5)	23

4.1.1.28 Miscellaneous Constraints:

It could be observed from the Table 4.28 that majority of the respondents (52 %) in MSS perceived the constraints to a medium level. There were 34 % in the high category and 14 % in the low category. In comparison to MSS, there were more number

of respondents of LSS in low category (35 %) and less in the high category (25 %). Forty percent of the respondents in LSS were found in the medium category. Although there were more respondents in the medium and high categories from MSS in comparison to LSS, it was only due to the difference in range.

Table 4.28 Distribution of members in LSS and MSS according to miscellaneous constraints.

LSS (N=100)		MSS (N=100)	
Miscellaneous constraints category (score)	Frequency	Miscellaneous constraints category (score)	Frequency
Low (upto 3)	35	Low (upto 1)	14
Medium (4 to 5)	40	Medium (2 to 4)	52
High (above 5)	25	High (above 4)	34

4.1.1.29 Overall Constraints:

Seventy-five percent of the total respondents of LSS fell in the medium category followed by low (13 %) and high (12 %) categories respectively (Table 4.29). In case of MSS, 66 % members perceived the constraints to a medium level. There were 18 % respondents in the low category and 16 % in the high category. Despite the difference in range, number of respondents from LSS were more in the medium category which showed the gravity of constraints in this category of societies.

4.1.1.30 Adoption of Breeding Practices:

Table 4.30 showed equal percentage (43 %) of respondents in the medium category of adoption from both LSS and MSS. Thirty-two percent respondents from LSS were found to have high level of adoption, while there were 25 % in the low category.

Table 4.29 Distribution of members in LSS and MSS according to overall constraints.

LSS (N=100)		MSS (N=100)	
Overall constraints category (score)	Frequency	Overall constraints category (score)	Frequency
Low (upto 371)	13	Low (upto 309)	18
Medium (372 to 579)	75	Medium (310 to 516)	66
High (above 579)	12	High (above 516)	16

Table 4.30 Distribution of members in LSS and MSS according to adoption of breeding practices.

LSS (N=100)		MSS (N=100)	
Breeding practices category (score)	Frequency	Breeding practices category (score)	Frequency
Low (upto 4)	25	Low (upto 5)	31
Medium (5 to 7)	43	Medium (6 to 8)	43
High (above 7)	32	High (above 8)	26

In case of MSS, there were 31 and 26 % in low and high categories, respectively. The difference in the level of adoption might be due to difference in range.

4.1.1.31 Adoption of Feeding Practices:

It could be seen from Table 4.31 that majority of the respondents in LSS and MSS adopted the feeding practices to a medium level. Twenty-two percent respondents of MSS had a high level of adoption and 21 % had low level of adoption. But in LSS, comparatively more number (32 %) of respondents were found in high category of adoption. Only 25 % of the respondents adopted the feeding practices to a low level.

Table 4.31 Distribution of members in LSS and MSS according to adoption of feeding practices.

LSS (N=100)		MSS (N=100)	
Feeding practices category (score)	Frequency	Feeding practices category (score)	Frequency
Low (upto 4)	25	Low (upto 5)	21
Medium (5 to 8)	43	Medium (6 to 9)	57
High (above 8)	32	High (above 9)	22

4.1.1.32 Adoption of Health Care Practices:

Table 4.32 clearly showed that percentage of respondents in the high category was marginally high in MSS than LSS. Almost equal percentage of respondents from both categories of societies fell in the medium category of adoption of health care practices. Twenty-five percent respondents from LSS and 23 % from MSS were in the low category of adoption.

Table 4.32 Distribution of members in LSS and MSS according to adoption of health care practices.

Health care practices category (score)	LSS (N=100) Frequency	MSS (N=100) Frequency
Low (upto 4)	25	23
Medium (5 to 7)	48	47
High (above 7)	27	30

So, there was not much difference in the distribution pattern of respondents between the two categories of societies.

4.1.1.33 Adoption of Management Practices:

It could be seen from Table 4.33 that almost equal percentage of respondents from LSS and MSS fell in the medium category of adoption. In the high category, marginally high (24) percentage was found from LSS than MSS (22 %) which was due to difference in range. There were 26 % respondents from MSS in the low category as compared to 23 % from LSS. In both categories of societies, the distribution of respondents in different categories of adoption was almost similar.

Table 4.33 Distribution of members in LSS and MSS according to adoption of management practices.

LSS (N=100)		MSS (N=100)	
Management practices category (score)	Frequency	Management practices category (score)	Frequency
Low (upto 4)	23	Low (upto 5)	26
Medium (5 to 7)	53	Medium (6 to 8)	52
High (above 7)	24	High (above 8)	22

4.1.1.34 Overall Adoption:

It could be observed from Table 4.34 that equal percentage (19) of the respondents fell in the low category of adoption from both categories of societies. There were 62 and 19 % respondents from LSS in medium and high categories, respectively. In MSS, 20 % fell in the high category and 19 % in the low category of overall adoption.

Table 4.34 Distribution of members in LSS and MSS according to overall adoption.

LSS (N=100)		MSS (N=100)	
Overall adoption category (score)	Frequency	Overall adoption category (score)	Frequency
Low (upto 18)	19	Low (upto 20)	19
Medium (19 to 31)	62	Medium (21 to 34)	61
High (above 31)	19	High (above 34)	20

It could be seen that members in the high category of adoption were few in both LSS and MSS.

4.1.2 MEAN DIFFERENCES BETWEEN LSS AND MSS

In order to find out significant differences between LSS and MSS, 't' test was applied.

4.1.2.1 Socio-personal Attributes:

It could be observed from Table 4.35 that there was no significant difference between LSS and MSS in terms of age, education, caste, material possession, socio-economic status, land holding, herd size and milk consumption of the members.

Table 4.35 Mean differences between LSS and MSS in socio-personal attributes.

S. No.	Socio-personal attributes	LSS		MSS		t-value
		Mean	S.D.	Mean	S.D.	
1.	Age	40.68	13.92	40.39	13.40	0.15
2.	Education	2.83	2.30	2.64	2.34	0.59
3.	Caste	3.46	1.44	3.73	1.31	1.35
4.	Material possession	4.84	2.18	5.13	2.31	0.93
5.	Socio-economic status	25.92	9.78	28.18	9.25	1.68
6.	Land holding	3.59	4.54	4.21	4.45	0.96
7.	Herd size	5.11	3.55	5.44	3.36	0.68
8.	Milk production	8.23	6.47	10.32	6.23	2.32*
9.	Milk consumption	3.00	3.54	3.36	2.41	0.84
10.	Milk sale	5.23	4.51	6.96	5.07	2.58*
11.	Participation in MPCs	5.40	2.22	6.57	2.88	3.25**

* $P < 0.05$;** $P < 0.01$.

In case of milk production ($t = 2.32$), milk sale ($t = 2.58$) and participation in MPCs ($t = 3.25$), significant differences were observed. Significant difference in milk production was due to the more number of milch animals in MSS. The difference in milk sale and participation in MPCs might be due to more extension contacts of the members in MSS. Another reason for difference in milk sale might be high milk production in MSS.

4.1.2.2 Communication Attributes:

Communication plays an important role to make an organisation successful. If the members of cooperative organisation are exposed to different sources of information, it will help them in getting

more information regarding cooperative system as well as their occupation.

Table 4.36 Mean differences between LSS and MSS in communication attributes.

S. Communication No. attributes	LSS		MSS		t-value
	Mean	S.D.	Mean	S.D.	
1. Extension contact	5.67	2.53	6.59	2.90	2.48*
2. Mass media exposure	5.73	2.36	6.19	2.71	1.27

* $P < 0.05$

From Table 4.36, it is revealed that the respondents in LSS and MSS significantly differed in their extension contacts ($t = 2.48$). They were contacting Field Supervisors (cooperative society), Village Level Workers, Veterinary Doctors and other officials in order to make themselves aware of the latest developments in relevant areas such as dairying, agriculture and cooperative management/cooperation. This might have made the members of more successful societies to supply more milk to cooperative societies (Table 4.33). No significant difference was observed in case of mass media exposure but mean value was comparatively high in case of MSS. The standard deviation was also high in mass media which reflected high variation among the respondents in their response.

4.1.2.3 Psychological Attributes:

Both categories differed significantly in identification with society ($t = 3.30$), satisfaction with society ($t = 5.36$), attitude towards MPCs ($t = 2.91$), knowledge about MPCs ($t = 3.48$) and about dairy production technologies ($t = 4.52$) but did not differ in economic motivation (Table 4.37).

Table 4.37 Mean differences between LSS and MSS in psychological attributes.

S. No.	Psychological attributes	LSS		MSS		t-value
		Mean	S.D.	Mean	S.D.	
1.	Identification with society	4.13	1.47	4.79	1.28	3.30**
2.	Satisfaction with society	28.80	3.50	31.79	4.35	5.36**
3.	Attitude towards MPCs	8.68	1.98	9.38	1.45	2.91**
4.	Knowledge about MPCs	6.48	2.05	7.63	2.62	3.48**
5.	Knowledge about DPTs	5.23	1.91	6.36	1.73	4.52**
6.	Economic motivation	7.48	1.43	7.57	1.49	0.45

** $P < 0.01$

From the above findings, it is quite clear that members of MSS were identifying themselves with the society and were more satisfied with the functioning of the society in comparison to LSS. They have better knowledge about the cooperative society and have favourable attitude towards the dairy cooperative society. All these factors were mainly responsible for the smooth functioning of dairy cooperatives. Members of both the societies were found to be equally motivated to opt economic pursuits in dairying.

4.1.2.4 Infrastructural Efficiency:

Timely service and adequate facilities provided by any organisation helps in winning confidence of its members. Therefore, infrastructural efficiency is one of the important factors which may cause rise and fall of any organisation. The data in Table 4.38 has clearly shown significant difference between LSS and MSS in their infrastructural efficiency ($t = 3.36$). This finding was contrary to the findings of Patel (1980) who revealed

no difference among the societies at different levels of success in supply and services to the producers. Supply of fodder seeds, vaccines, ghee and emergency calls were found to be more in more successful societies.

Table 4.38. Mean differences between LSS and MSS in infrastructural efficiency.

S. No.	Infrastructural efficiency	LSS		MSS		t-value
		Mean	S.D.	Mean	S.D.	
1.	Infrastructural efficiency	17.13	1.79	18.23	2.74	3.36**

** $P < 0.01$

It could be concluded from the above findings that infrastructural facilities were comparatively better in more successful societies than less successful societies. But nowadays, the veterinary doctors were not visiting either type of the societies because the federation had cut down this facility to a significant extent, that caused hue and cry among the milk producer members of both categories of societies. It was observed that cooperatives were simple agencies of milk collection with no infrastructural facilities.

4.1.2.5 Constraints:

Table 4.39 clearly showed that both LSS and MSS did not differ in socio-psychological and economic constraints. Both the societies differed significantly in infrastructural ($t = 4.27$), technical ($t = 2.23$), marketing ($t = 2.26$), miscellaneous ($t = 5.45$) and overall constraints ($t = 4.25$).

Table 4.39 Mean differences between LSS and MSS in constraints.

S. No.	Constraints	LSS		MSS		t-value
		Mean	S.D.	Mean	S.D.	
1.	Socio-psychological	2.58	2.19	2.64	2.08	0.20
2.	Economic	11.45	3.36	11.92	3.40	1.00
3.	Infrastructural	12.01	3.22	9.69	4.39	4.27**
4.	Technical	6.94	2.06	6.27	2.22	2.23*
5.	Marketing	4.71	2.08	3.99	1.75	2.26*
6.	Miscellaneous	4.38	1.85	3.05	1.60	5.45**
7.	Overall	475.35	104.43	412.74	103.78	4.25**

* $P < 0.05$ ** $P < 0.01$

It could be concluded that socio-psychological constraints did not hinder in the functioning of dairy cooperatives. The mean value was low in this case with low standard of deviation which showed consistency among the respondents. Although no significant difference in economic constraints was observed between the two categories of societies, mean value was high in both the cases. So it could be said that it was given equal weightage in both categories of societies. Infrastructural, technical and miscellaneous constraints were more severe in the less successful societies. It appeared from the findings of this section that infrastructural, technical, marketing and miscellaneous constraints were responsible for blocking the success of dairy cooperatives.

4.1.2.6 Adoption of Scientific Dairy Farming Practices

It could be seen from Table 4.40 that both the societies differed significantly in adoption of breeding practices

($t = 2.45$), management practices ($t = 3.74$) and overall adoption ($t = 2.70$). There was no significant difference in feeding and health care practices.

Table 4.40 Mean differences between LSS and MSS in adoption of scientific dairy farming practices.

S. Practices No.	LSS		MSS		t-value
	Mean	S.D.	Mean	S.D.	
1. Breeding	6.13	2.10	6.88	2.22	2.45*
2. Feeding	6.94	2.51	7.55	2.39	1.76
3. Health care	5.88	2.09	6.19	2.14	1.04
4. Management	5.44	1.83	6.92	1.89	3.74**
5. Overall	24.89	6.82	27.54	7.13	2.70**

* $P < 0.05$

** $P < 0.01$

It could be concluded from the findings that adoption of breeding and management practices were high in the more successful societies. Moreover, the overall adoption of scientific dairy farming practices was also high which might be mainly due to more extension contacts and high knowledge about dairy production technologies. Although no significant difference emerged in case of feeding and health care practices, mean values were comparatively higher in the more successful societies. Adoption of these practices would have resulted in high milk production in the MSS.

4.1.3 RANK ORDER OF VARIOUS CONSTRAINTS AS PERCEIVED BY THE MEMBERS

In this section, an attempt has been made to rank the six areas of constraints on the basis of their mean values and coefficients of variation.

4.1.3.1 Rank Order of Various Components of Constraints:

The rankings of six areas of constraints have been presented in Table 4.41. The data revealed that in LSS, the infrastructural constraints was ranked first with 12.01 mean value and 26.81 % coefficient of variation. In MSS, it got second rank with 9.69 mean value and 45.30 % coefficient of variation. The difference in ranking was mainly due to the non-availability/inadequate availability of inputs. The number of first aid/A.I. centres were less in LSS. Therefore, it might have prompted the members of LSS to rank it first.

Table 4.41 Rank order of various components of constraints in LSS and MSS as perceived by members.

S. No.	Constraints	LSS				MSS			
		Mean	S.D.	C.V.	Rank	Mean	S.D.	C.V.	Rank
1.	Economic	11.45	3.36	29.34	II	11.92	3.40	28.52	I
2.	Infrastructural	12.01	3.22	26.81	I	9.69	4.39	45.30	II
3.	Technical	6.89	2.06	29.89	III	6.27	2.22	35.40	III
4.	Miscellaneous	4.38	1.85	42.24	IV	3.05	1.60	52.45	V
5.	Marketing	4.71	2.08	44.16	V	3.99	1.75	43.85	IV
6.	Socio-psychological	2.59	2.19	84.55	VI	2.64	2.08	78.78	VI

Economic constraints was ranked second in LSS but first in MSS with 11.45 and 11.92 mean values, respectively. Although there was marginal difference in the mean values, members of MSS were more consistent in their response which was clearly revealed by the low coefficient of variation.

Technical constraints was ranked third in both LSS and MSS. This might have been mainly due to the untrained AI workers at AI centres in both the societies as has been reported by

Juneja (1967), Gill (1979), Patel et al. (1979), Singal (1979), Sharma (1980), Vithal (1986) and Rao (1987). The other reason might be poor conception rate which was reported by Saini (1975), Rath (1977), Patel (1978), Sharma (1980), Subramanian and Knight (1982), Acharya (1984), Sohal (1985), Biradar (1986) and Acharya (1990).

Miscellaneous constraints was ranked fourth in LSS with 4.38 mean value and 42.24 % coefficient of variation. In MSS, mean value was comparatively low (3.05) with high coefficient of variation (52.45 %) which showed inconsistency among members. The comparative high ranking in LSS might be due to the discrepancy in readings of fat and SNF at society and union level. The members/secretaries were found to fight with the union personnel on this matter.

Marketing constraints was ranked fifth in LSS with 4.71 mean value and 44.16 % coefficient of variation. Although mean value was low (3.99) in MSS, they were consistent in their response as reflected by the C.V. The difference might have been due to the advance payment given by the milk vendors in more successful societies.

The least ranked constraint was socio-psychological with high inconsistency among the respondents of both categories of societies. So it could be concluded that it was not causing much damage in the functions of dairy cooperatives.

4.1.3.2 Rank Order of Socio-psychological Constraints:

Table 4.42 clearly revealed faction among members due to caste consciousness as the major constraint in both categories of societies. It was in line with the observations of Patel et al.

Table 4.42 Rank order of socio-psychological constraints as perceived by members.

S. No.	Socio-psychological constraints	LSS				MSS			
		Mean	S.D.	C.V.	Rank	Mean	S.D.	C.V.	Rank
1.	Faction among members due to consciousness	0.94	0.82	87.2	I	0.93	0.78	83.9	I
2.	Ignorance of cooperative ideology	0.68	0.58	85.3	II	0.82	0.64	78.0	II
3.	Lack of democratic awareness and harmony among members	0.21	0.40	190.5	IV	0.37	0.52	140.5	III
4.	Reluctance to stand in the company of privileged section	0.34	0.60	176.5	III	0.19	0.46	242.1	IV
5.	People of lower class are not allowed to participate in society meetings	0.18	0.41	227.8	V	0.14	0.37	264.3	V
6.	Negative attitude of privileged section towards depressed section	0.18	0.41	227.8	V	0.10	0.34	340.0	VI
7.	Milk cooperatives are meant for influential people	0.09	0.35	388.9	VII	0.09	0.32	355.6	VII

(1975), Kamat (1976), IRMA (1981), Rajaram (1983), Vithal (1986) and Shroti (1989). Ignorance of cooperative ideology was another constraint which got second rank in LSS as well as MSS and corroborated with the findings of Dubey (1958) and Neema (1961).

Although these constraints got first and second rank, there was lack of consistency among the members in their response. So, the constraints revealed were not of much importance.

4.1.3.3 Rank Order of Economic Constraints:

As showed in Table 4.43, low price for milk was ranked first in both LSS and MSS. The mean value was 1.93 in MSS and 1.88 in LSS. The members were more consistent in LSS as revealed by low C.V. (17 %) in comparison to MSS where coefficient of variation was 31.6 %.

Low price for cow's milk got second rank in MSS but third in LSS. The difference might be due to large number of crossbred and non-descript cattle in more successful societies. In LSS and MSS, 1.75 and 1.67 mean values respectively were observed. Similar findings were reported by Pandey (1981), CED (1982), George (1983), Dorsten (1985), Gopala and Maraty (1989) and Shroti (1989). The mean value for high cost of compounded feed was 1.68 in MSS with 30.9 % coefficient of variation and secured third rank. Mean value was comparatively high (1.75) in LSS with 31.4 % C.V. and got second rank. The reason was that in most of the more successful societies the secretaries were supplying feed on credit basis at their own responsibility. Therefore, the members were not that much worried about the cost of compounded feed. The findings were in line with those of Singh (1978), Subramanian

Table 4.43 Rank order of economic constraints as perceived by members.

S. Economic constraints No.	LSS				MSS			
	Mean	S.D.	C.V.	Rank	Mean	S.D.	C.V.	Rank
1. Low price for milk	1.88	0.32	17.0	I	1.93	0.63	31.6	I
2. Less price for cow's milk	1.67	0.55	32.9	III	1.75	0.53	30.3	II
3. High cost of compounded feed	1.75	0.55	31.4	II	1.68	0.52	30.9	III
4. High cost of medicines	0.80	0.65	81.3	VII	1.08	0.63	58.3	IV
5. Non-availability of feed on credit basis	1.12	0.62	55.4	V	1.03	0.61	60.4	V
6. Non-availability of feed on subsidized rate	1.24	0.27	21.8	IV	1.01	0.67	66.3	VI
7. High cost of green fodder	0.51	0.54	105.9	VIII	0.74	0.70	94.6	VII
8. Irregular payment of bonus	1.00	0.63	63.0	VI	0.68	0.69	101.5	VIII
9. Less market value of CB male	0.33	0.49	148.5	XI	0.60	0.62	103.3	IX
10. Expensive rearing of CB cows	0.31	0.50	161.3	XII	0.51	0.56	109.8	X
11. Irregular payment	0.52	0.81	155.8	IX	0.40	0.55	137.5	XI
12. No incentive for supplying milk to societies	0.36	0.54	150.0	X	0.40	0.55	137.5	XI
13. Problems in receiving payment	0.06	0.23	383.0	XIII	0.11	0.34	309.1	XIII

and Knight (1982), Sohal (1985), Nataraju and Channegowda (1986), Nayak et al. (1986) and Shroti (1989).

Non availability of feed on subsidized rates was ranked fourth in LSS with 1.24 mean value and 21.8 % coefficient of variation. The members revealed that it was really difficult to purchase the feed on such high rates. The members suggested that it should be supplied on subsidized rates to provide nutritious feed to animals for better production which would also help in increasing the milk procurement of the societies. This particular constraint was ranked sixth in MSS which might be due to its availability on credit basis. The other reason might be their purchasing power.

4.1.3.4 Rank Order of Infrastructural Constraints:

Among the various infrastructural constraints, infrequent visit of veterinary doctor was ranked first in both categories of societies. Similar finding has been reported by Shroti (1989). The reason was made clear by the society personnel when they told that there was scarcity of veterinary doctors. It was not possible to attend all the cases. Moreover, they were not having adequate transport facilities to visit different societies. This made it inconvenient for the veterinary doctors to regularly visit the societies and attend the emergency cases in time. Another reason was lack of adequate fund which made the conditions worse.

Lack of technical guidance was ranked second in MSS with 1.21 mean value and 51.2 % coefficient of variation (Table 4.44). This constraint got fifth rank in LSS with 1.17 mean value and 47 % coefficient of variation. The low C.V. in LSS revealed agreement among the members on this constraint. The findings were

Table 4.44 Rank order of infrastructural constraints as perceived by members.

S. No.	Infrastructural constraints	LSS				MSS			
		Mean	S.D.	C.V.	Rank	Mean	S.D.	C.V.	Rank
1.	Infrequent visit of veterinary doctor	1.71	0.47	27.5	I	1.43	0.65	45.5	I
2.	Lack of technical guidance	1.17	0.55	47.0	V	1.21	0.62	51.2	II
3.	Non-availability of timely medical help	1.61	0.57	35.4	II	1.13	0.79	69.9	III
4.	Non-availability of semen of desired breed	1.61	0.79	49.1	III	1.12	0.91	81.3	IV
5.	Non-availability of semen at proper time	1.56	0.82	52.6	IV	1.05	0.95	90.5	V
6.	Less qualified staff working at AI centre	0.62	0.85	137.1	IX	0.79	0.85	107.6	VI
7.	Irregular supply of feed	0.87	0.54	62.1	VIII	0.74	0.73	98.6	VII
8.	Seed of desired variety not available	0.89	0.63	70.8	VII	0.71	0.71	100.0	VIII
9.	Non-availability of seed at proper time.	0.93	0.67	72.0	VI	0.62	0.67	108.1	IX
10.	Poor storage facilities at centre	0.52	0.70	134.6	X	0.54	0.73	135.2	X
11.	Non-availability of green fodder round the year	0.52	0.73	140.4	XI	0.35	0.72	205.7	XI

in line with those of Dubey and Singh (1976), Sharma (1980), Hazarika (1983), Acharya (1984), Nataraju and Channegowda (1986) and Sohal and Rao (1986). The consistency was more in LSS which might be due to lack of first aid centres.

Non availability of timely medical help ranked third in more successful societies with 1.13 mean value. It got second rank in LSS with 1.61 mean value and 35.4 % C.V. The reason was lack of first aid centres and insufficient veterinary doctors. The finding was in accordance with Shroti (1989).

Non availability of semen of desired breed got third rank in less successful societies with 1.61 mean value and 49.1 % coefficient of variation. In MSS, it was given fourth rank but the coefficient of variation was high (81.3 %) which showed lack of agreement among the members. Similar findings were reported by Raju and Maraty (1991). Semen of only few breeds was made available by the respective unions. So, that would have caused the members to perceive it as a constraint.

Non availability of green fodder was ranked last as the area was well irrigated and most of the members were in a position to supply green fodder to their animals. The finding was in contrast to Khurody (1970), Pandey and Ojha (1970), Sohal (1973), Ghosh (1974), NCA (1976), Grewal (1977), Sharma (1977), Gill (1979), Sharma (1980), Patel (1983), Sohal (1985), Biradar (1986), Nataraju and Channegowda (1986), Rao (1987), Gopala and Maraty (1989) and Tripathi (1990).

It could be derived from the above findings that infrequent visits by veterinary doctors, lack of technical guidance, non availability of timely medical help and semen of desired breed

were the main constraints which hindered the functioning of MPCSSs.

4.1.3.5 Rank Order of Technical Constraints:

Poor conception rate in buffaloes was the major constraint in MSS with 1.20 mean value and 50 % coefficient of variation. Whereas in LSS, it got third rank with one mean value and 65 % C.V. (Table 4.45). The reason might be due to the fact that first aid/A.I. centres were less in LSS. So, the members could not give their response properly which has been made clear by the high C.V. Similar findings about poor conception have been reported by Saini (1975), Rath (1977), Patel (1978), Sharma (1980), Subramanian and Knight (1982), Acharya (1984), Sohal (1985), Biradar (1986) and Acharya (1990).

Irregular testing of fat and SNF was ranked first in LSS with 1.20 mean value and 49.2 % coefficient of variation. In MSS, it secured second rank but the coefficient of variation was fairly high (79 %). Similar findings has been reported by Shrotri (1989). The respondents of LSS and MSS frequently complained against the irregular testing of fat and SNF at society as well as at union level. In some of the societies the members reported that the union personnel did not take action against the concerned persons. This practice was going on in the unions also and the secretaries of societies were in dilemma as they were answerable to any irregularity. This caused resentment among the members as well as secretaries. Except these, no other constraint was worth mentioning.

Table 4.45 Rank order of technical constraints as perceived by members.

S. No.	Technical constraints	LSS				MSS			
		Mean	S.D.	C.V.	Rank	Mean	S.D.	C.V.	Rank
1.	Poor conception rate in buffaloes	1.00	0.65	65.0	III	1.20	0.60	50.0	I
2.	Irregular testing of fat and SNF	1.20	0.59	49.2	I	1.05	0.83	79.0	II
3.	Susceptibility of CB cows	0.98	0.56	57.10	II	0.89	0.70	78.7	III
4.	Lack of knowledge about feeding of colostrum to newly born calf	0.88	0.60	68.18	IV	0.67	0.66	98.5	IV
5.	Extremely delicate semen input	0.78	0.64	82.1	V	0.65	0.53	81.5	V
6.	Lack of knowledge about package of practices of green fodder	0.69	0.60	86.95	VI	0.56	0.65	116.1	VI
7.	Ignorance of farmers about clean milk production	0.68	0.61	89.7	VII	0.51	0.55	107.8	VII
8.	Decline in milk yield after F_1 generation	0.30	0.50	166.7	IX	0.44	0.53	120.5	VIII
9.	Lack of knowledge in preparing balanced cattle feed	0.38	0.56	147.4	VIII	0.30	0.55	183.3	IX

4.1.3.6 Rank Order of Marketing Constraints:

The most important constraint was facility of advance payment by milk vendors. The mean values were 1.77 and 1.59 in LSS and MSS, respectively (Table 4.46). Similar findings have been reported by Khurody (1974) and Batra (1981). Dairy cooperatives have turned out to be a weak competitor of the private milk trader. One of the factors was advance payment. They operate as small independent business firms. They were able to take quick decision as regards the price to be offered in the context of scarcity or abundance of raw milk in the scattered rural markets. They can give advance payment to all and procure the milk at their own will. That was the major factor for less procurement of milk by the dairy cooperatives. No other constraint was found to be of much value in either category of the societies.

4.1.3.7 Rank Order of Miscellaneous Constraints:

'Discrepancy in readings of fat and SNF between society and union' was the only serious constraint among miscellaneous constraints. The mean values were 1.72 and 1.60 in MSS and LSS, respectively (Table 4.47). The respondents of both the societies showed concern about it as the societies were running in loss due to irresponsible behaviour of the tester at union level. The secretary was found to confront the union personnel on this matter. When the readings differed, the secretary was bound to ask the members to cooperate. So they turned against the union personnel for irresponsible behaviour. Similar findings have been reported by Dubey et al. (1977). Other constraints were found

Table 4.46 Rank order of marketing constraints as perceived by members.

S. No.	Marketing constraints	LSS				MSS			
		Mean	S.D.	C.V.	Rank	Mean	S.D.	C.V.	Rank
1.	Facility of advance payment by milk vendors	1.77	0.54	30.5	I	1.59	0.69	43.4	I
2.	Incompetent members of executive committee	1.25	0.77	61.60	II	0.97	0.70	72.16	II
3.	Ease of selling milk to milk vendors	0.45	0.59	131.1	IV	0.51	0.67	131.4	III
4.	Ignorance of the facilities of selling milk to cooperative societies	0.68	0.68	100.0	III	0.49	0.65	132.7	IV
5.	Lack of interest in selling milk through cooperative societies	0.35	0.60	171.4	V	0.28	0.51	182.1	V
6.	No doorstep purchase of milk	0.21	0.43	204.8	VI	0.15	0.35	233.3	VI

Table 4.47 Rank order of miscellaneous constraints as perceived by members.

S. No.	Miscellaneous constraints	LSS				MSS			
		Mean	S.D.	C.V.	Rank	Mean	S.D.	C.V.	Rank
1.	Discrepancy in readings of fat and SNF between society and union	1.60	0.55	34.37	I	1.72	0.47	27.32	I
2.	Inefficient staff members	0.94	0.76	80.85	III	0.50	0.50	100.0	II
3.	Lack of good rapport between the supervisors and members of society	0.38	0.54	142.1	V	0.32	0.46	143.8	III
4.	Lack of community approach for effective adoption of dairy farming practices	1.07	0.71	66.35	II	0.28	0.44	157.1	IV
5.	More benefits by growing cash crops than fodder	0.39	0.56	143.6	IV	0.23	0.41	178.3	V

to have much high coefficient of variation. So inconsistency among the respondents prevented the discussion of constraints in detail.

4.1.4. RELATIONAL ANALYSIS OF INDEPENDENT ATTRIBUTES OF MEMBERS WITH CONSTRAINTS AND ADOPTION IN LSS

4.1.4.1 Relational Analysis between Members' Attributes and Constraints in LSS:

The correlation coefficients between the independent attributes of milk producer members and constraints were computed. The correlation coefficients between all of the variables and constraints are given in Table 4.48.

A perusal of the correlation coefficients in Table 4.48 depicted negative and significant relation with constraints in respect of caste, socio-economic status, participation in MPCs, identification with society, satisfaction with society, attitude towards MPCs, knowledge about MPCs, infrastructural efficiency and adoption of scientific dairy farming practices. Similar findings were reported by Sharma (1980) in case of infrastructural efficiency and socio-economic status. It could be concluded from the findings that lower the socio-economic status, caste, participation in MPCs, attitude towards MPCs, more were the constraints. Members who were not satisfied with the society had more problems. Members who had poor knowledge about Milk Producers' Cooperative Societies were unable to get information regarding different benefits of becoming a member. Infrastructural efficiency was also found to be negatively related with constraints. That might have been due to the irregular and inadequate supply of inputs. Age, education, material possession,

Table 4.48 Correlation coefficients between member's attributes and constraints in LSS.

S. No.	Attributes	'r' Value
1.	Age	-0.0107
2.	Education	-0.1435
3.	Caste	-0.2945**
4.	Material possession	-0.1531
5.	Socio-economic status	-0.2204*
6.	Land holding	-0.1054
7.	Herd size	-0.1310
8.	Milk production	-0.0857
9.	Milk consumption	-0.0642
10.	Milk sale	-0.0776
11.	Participation in MPCs	-0.2360*
12.	Extension contact	-0.1604
13.	Mass media exposure	-0.1670
14.	Identification with society	-0.2475*
15.	Satisfaction with society	-0.4564**
16.	Attitude towards MPCs	-0.4111**
17.	Knowledge about MPCs	-0.3731**
18.	Knowledge about DPTs	-0.3252**
19.	Economic motivation	-0.1892
20.	Infrastructural efficiency	-0.3770**
21.	Adoption of scientific dairy farming practices	-0.2721**

* $P < 0.05$ ** $P < 0.01$

land holding, herd size, milk production, milk consumption, milk sale, extension contact, mass media exposure and economic motivation were found to be without any discernible correlation with constraint. Sharma (1980) also reported similar finding about age. It could be concluded from the above findings that these variables were not hindering the functions of dairy cooperatives.

4.1.4.2 Relational Analysis between Members' Attributes and Adoption in LSS:

It is apparent from Table 4.49 that there existed a positive and significant relationship between members' education, caste, material possession, socio-economic status, land holding, herd size, milk production, milk consumption, milk sale, extension contact, mass media exposure, knowledge about DPTs, economic motivation, infrastructural efficiency and adoption of scientific dairy farming practices. Caste and material possession were in line with reports of Singh (1987). About socio-economic status, similar findings have been reported by Wilkening (1952), Marsh and Coleman (1955), Fliegel (1956), Lionberger and Coughenour (1957) and Copp et al. (1958). Findings related to land and herd size are supported by Sayeedi (1983), Kololgi and Anand (1985), Singh (1987), Kaushik (1988) and Chaubey (1991). Kololgi and Anand (1985), Kaushik (1988), Singh (1989) and Chaubey (1991) reported similar findings about milk production, milk consumption and milk sale. Economic motivation was well supported by Kaushik (1988) and Borgohain and Kakoty (1990). Knowledge about dairy production technologies was in accordance with Kakoty (1980), Singh (1982)², Srivastava (1982), Subramanian (1982), Kololgi and

Table 4.49 Correlation coefficients between member's selected attributes and overall adoption in LSS.

S. No.	Attributes	'r' Value
1.	Age	0.1608
2.	Education	0.4677**
3.	Caste	0.5688**
4.	Material possession	0.6941**
5.	Socio-economic status	0.7631**
6.	Land holding	0.5268**
7.	Herd size	0.5858**
8.	Milk production	0.4349**
9.	Milk consumption	0.3591**
10.	Milk sale	0.3771**
11.	Extension contact	0.6197**
12.	Mass media exposure	0.5330**
13.	Knowledge about DPTs	0.6310**
14.	Economic motivation	0.4430**
15.	Infrastructural efficiency	0.2013*
16.	Economic constraints	0.0927
17.	Infrastructural constraints	0.0477
18.	Technical constraints	-0.2451*
19.	Overall constraints	-0.2721**

* $P < 0.05$

** $P < 0.01$

Anand (1985), Bhoite et al. (1987), Nataraju and Channegowda (1987), Kaushik (1988), Gautam (1989), Borgohain and Kakoty (1990) and Singh (1990). Whereas, extension contact and mass media exposure were in line with Rao (1987), Mahipal and Kherde (1989), Singh (1989), Borgchain and Kakoty (1990) and Singh (1990).

Age, economic constraints and infrastructural constraints were found to be unrelated with adoption of scientific dairy farming practices.

It was quite clear from the above findings that respondents with higher socio-economic status, herd size, milk production, extension contact, mass media exposure, knowledge about DPTs and economic motivation were having high level of adoption.

To determine the relative contribution of each one of these variables in explaining variation in adoption, multiple regression analysis was done. The variables with high intercorrelation were deleted from the analysis. The results are presented in Table 4.50.

Table 4.50 Multiple regression analysis of members' selected attributes and overall adoption in LSS.

S. No.	Attributes	b-value	t-value	R ²	F-value
1.	Material possession	0.4618	5.0883**		
2.	Milk production	0.0616	0.8611		
3.	Extension contact	0.0507	0.5631		
4.	Knowledge about DPTs	0.3608	4.7856**	0.6732	27.07**
5.	Economic motivation	0.0713	1.0363		
6.	Infrastructural efficiency	0.0434	0.6193		
7.	Technical constraints	-0.1083	1.7482		

** $P < 0.01$

It is apparent from a perusal of Table 4.50 that only two variables out of seven, viz., material possession and knowledge about DPTs were found to have positive and highly significant regression coefficients. The remaining five variables did not have significant regression coefficients.

The R^2 value was 0.6732 with 'F' value 27.07 (significant at 0.01 level of probability) established that 67.32 % variation in adoption of scientific dairy farming practices was explainable by the seven variables covered under the study.

The data were further subjected to second stage multiple regression. Only two variables which were found to have significant regression coefficients in the first stage were run (Table 4.51).

Table 4.51 Second stage multiple regression analysis of member's selected attributes and overall adoption in LSS.

S. No.	Attributes	b-value	t-value	R^2	F-value
1.	Material possession	0.5340	8.1997**		
2.	Knowledge about DPTs	0.4341	6.6658**	0.6445	87.94**

** $P < 0.01$

Again both the variables, viz., material possession ($b = 0.5340$) and knowledge about DPTs ($b = 0.4341$) were found to have highly significant regression coefficients. R^2 value was 0.6445 and 'F' value was 87.94 which was significant at 1 % level of significance. Variation caused by these two variables in adoption was 64.45 %.

After knowing the relative contribution of the different variables in determining adoption through multiple regression,

it seemed appropriate to locate the channelling influence of the variables. For this purpose, path coefficient analysis was done.

The figures contained in Table 4.52 revealed that the material possession had highly substantial direct effect (0.4617) on adoption of scientific dairy farming practices followed by knowledge about DPTs (0.3607), economic motivation (0.0713), milk production (0.0616), extension contact (0.0506) and infrastructural efficiency (0.0433). Technical constraints had negative direct effect (-0.1082) on adoption.

Extension contact had maximum total indirect effect (0.5691) followed by milk production, economic motivation, material possession and infrastructural efficiency.

It could be seen from Table 4.52 that most of the variables were found to channelise their effects through material possession and knowledge about DPTs. So both these variables emerged as important not only due to their path but their contribution also. Knowledge being manipulable, was the most important.

4.1.5 RELATIONAL ANALYSIS OF INDEPENDENT ATTRIBUTES OF MEMBERS WITH CONSTRAINTS AND ADOPTION IN MSS

4.1.5.1 Relational Analysis between Member's Attributes and Constraints in MSS:

It is apparent from Table 4.53 that there existed negative and significant relationship between member's socio-economic status, land holding, infrastructural efficiency, adoption of scientific dairy farming practices and constraints. The findings of socio-economic status and infrastructural efficiency were in accordance with Sharma (1980).

Table 4.52 Path analysis of member's selected attributes with overall adoption in LSS.

S. No.	Attributes	r-Value	Direct effect	Total indirect effect	Substantial indirect effect through		
					I	II	III
1.	Material possession	0.6941	0.4617	0.2324	0.1330(4)	0.0344(3)	0.0316(2)
2.	Milk production	0.4349	0.0616	0.3733	0.2370(1)	0.0842(4)	0.0242(3)
3.	Extension contact	0.6197	0.0506	0.5691	0.3140(1)	0.1695(4)	0.0312(5)
4.	Knowledge about DPTs	0.6310	0.3607	0.2703	0.1702(1)	0.0257(5)	0.0238(3)
5.	Economic motivation	0.4430	0.0713	0.3717	0.1742(1)	0.1301(4)	0.0222(3)
6.	Infrastructural efficiency	0.2013	0.0433	0.1580	0.1467(4)	-0.0365(1)	0.0212(7)
7.	Technical constraints	-0.2451	-0.1082	-0.1369	-0.0613(4)	-0.0414(1)	-0.0139(5)

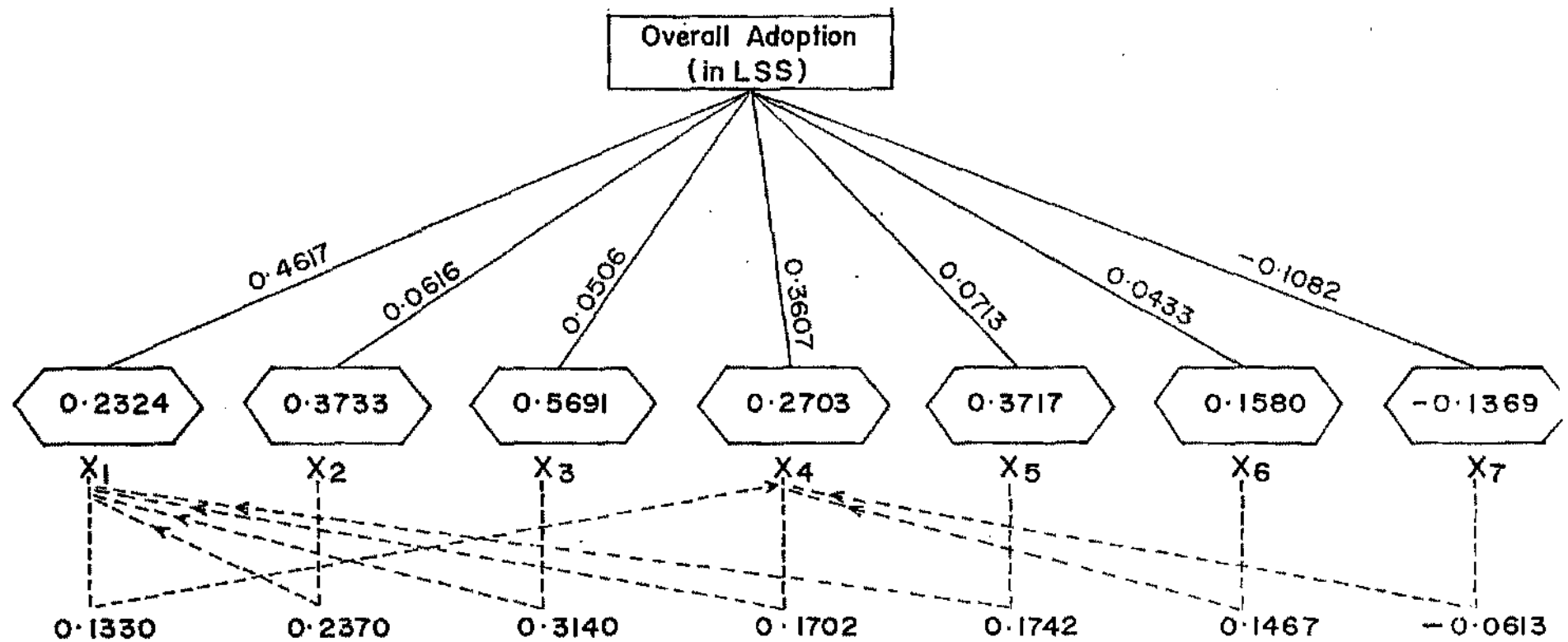


Fig.3. Path Diagram of Members Attributes with Overall Adoption in LSS

- X1 = Material possession
- X2 = Milk production
- X3 = Extension contact
- X4 = Knowledge about DPTs
- X5 = Economic motivation
- X6 = Infrastructural efficiency
- X7 = Technical constraints

- Direct effect
- ⬡ Indirect effect
- - - First substantial Indirect effect through

Table 4.53 Correlation coefficients between member's attributes and constraints in MSS.

S. No.	Attributes	'r' Value
1.	Age	-0.0947
2.	Education	-0.0331
3.	Caste	-0.1364
4.	Material possession	-0.1296
5.	Socio-economic status	-0.1955*
6.	Land holding	-0.2227*
7.	Herd size	-0.1669
8.	Milk production	-0.0368
9.	Milk consumption	-0.1776
10.	Milk sale	-0.0353
11.	Participation in MPCs	-0.0336
12.	Extension contact	-0.0710
13.	Mass media exposure	-0.0669
14.	Identification with society	-0.0736
15.	Satisfaction with society	-0.1826
16.	Attitude towards MPCs	-0.0777
17.	Knowledge about MPCs	0.0390
18.	Knowledge about DFTs	-0.0213
19.	Economic motivation	-0.1184
20.	Infrastructural efficiency	-0.2906**
21.	Adoption of scientific dairy farming practices	-0.2176*

* $P < 0.05$ ** $P < 0.01$

Age, education, caste, material possession, herd size, milk production, milk consumption, milk sale, extension contact, mass media exposure, participation in MPCs, identification with society, satisfaction with society, attitude towards MPCs, knowledge about MPCs, knowledge about DPTs and economic motivation had no relation with the constraints.

It could be concluded from above findings that only four variables out of 21 had influence on constraints. The most important among these variables was infrastructural efficiency because it was manipulable. To increase efficiency of dairy cooperatives, it is necessary to provide the committed inputs. In most of the less successful societies, there was no facility of first aid/A.I. That caused resentment among the members as they were not getting veterinary facilities for which they had joined the dairy cooperatives. It was one of the reasons for the poor performance of dairy cooperative societies.

4.1.5.2 Relational Analysis between Member's Attributes and Adoption in MSS:

An examination of Table 4.54 indicated positive and highly significant relationship of members' attributes, viz., education, caste, material possession, socio-economic status, land holding, herd size, milk production, milk consumption, extension contact, mass media exposure, knowledge about DPTs and economic motivation with adoption of scientific dairy farming practices. Observations about caste and material possession were in line with those of Singh (1987). Similar findings about socio-economic status were reported by Wilkening (1952), Marsh and Coleman (1955), Fliegel (1956), Lionberger and Coughenour (1957) and Copp et al. (1958).

Table 4.54 Correlation coefficients between member's selected attributes and overall adoption in MSS.

S. No.	Attributes	'r' Value
1.	Age	-0.2775**
2.	Education	0.5685**
3.	Caste	0.2741**
4.	Material possession	0.6080**
5.	Socio-economic status	0.6483**
6.	Land holding	0.4700**
7.	Herd size	0.4211**
8.	Milk production	0.2997**
9.	Milk consumption	0.5082**
10.	Milk sale	0.1299
11.	Extension contact	0.6580**
12.	Mass media exposure	0.7029**
13.	Knowledge about DPTs	0.7195**
14.	Economic motivation	0.4559**
15.	Infrastructural efficiency	0.1514
16.	Economic constraints	0.0530
17.	Infrastructural constraints	-0.1161
18.	Technical constraints	-0.2336*
19.	Overall constraints	-0.2176*

* $P < 0.05$

** $P < 0.01$

Findings related to land and herd size were supported by Sayeedi (1983), Kololgi and Anand (1985), Singh (1987), Kaushik (1988) and Chaubey (1991). Findings on milk production and milk consumption were in accordance with Kololgi and Anand (1985), Kaushik (1988), Singh (1989) and Chaubey (1991). Mass media exposure and extension contact were well supported by Rao (1987), Mahipal and Kherde (1989), Singh (1989), Borgohain and Kakoty (1990) and Singh (1990). Economic motivation was in line with the findings of Kaushik (1988) and Borgohain and Kakoty (1990). Knowledge about dairy production technologies was in accordance with Kakoty (1980), Singh (1982)², Srivastava (1982), Subramanian (1982), Kololgi and Anand (1985), Bhoite et al. (1987), Nataraju and Channegowda (1987), Kaushik (1988), Gautam (1989), Borgohain and Kakoty (1990) and Singh (1990).

Milk sale, infrastructural efficiency, economic constraints and infrastructural constraints did not exhibit any relationship with adoption.

Age, technical constraints and overall constraints were found to have negative and significant relationship with adoption. About age, similar findings were reported by Patil (1981), Singh (1982)², Kololgi and Anand (1985) and Rao (1987).

It could be derived from the above findings that young people were better in adoption of dairy practices. The high literacy rate among young people must have encouraged them to come forward and adopt the new practices. Constraints when faced by members hinder adoption. Because technical constraints were negatively correlated with adoption, their removal or minimization would increase adoption, and make the cooperatives a successful endeavour.

The multiple regression analysis (Table 4.55) showed that regression coefficients were highly significant in case of members' knowledge about DPTs ($b = 0.4766$) and technical constraints ($b = -0.2207$).

Table 4.55 Multiple regression analysis of member's selected attributes and overall adoption in MSS.

S. No.	Attributes	b-value	t-value	R^2	F-value
1.	Material possession	0.1745	1.8919		
2.	Milk production	0.0105	0.1576		
3.	Extension contact	0.1517	1.4593		
4.	Knowledge about DPTs	0.4766	5.3806**	0.6478	28.51**
5.	Economic motivation	0.0968	1.3276		
6.	Technical constraints	-0.2207	3.5352**		

** $P < 0.01$

The R^2 value of six variables was 0.6478 with F-value 28.51 (significant at 0.01 level of probability) indicating, thereby that 64.78 % variation could be explained in adoption due to these variables.

These two variables were further subjected to second stage multiple regression (Table 4.56). Both the variables had highly significant regression coefficients. The R^2 value was 0.5854 at F-value 68.48, which was significant at 1 % level of significance. So, 58.54 % variation in adoption could be explained with knowledge about DPTs and technical constraints.

Table 4.56 Second stage multiple regression analysis of member's selected attributes and overall adoption in MSS.

S. No.	Attributes	b-value	t-value	R ²	F-value
1.	Knowledge about DPTs	0.7268	11.1441**		
2.	Technical constraints	-0.2604	3.9796**	0.5854	68.48**

** $p < 0.01$

The path analysis (Table 4.57) clearly pointed out that respondents' knowledge about DPTs had highly substantial direct effect (0.4767) on adoption. It was followed by material possession (DE = 0.1745) and extension contact (DE = 0.1517). The direct effects of milk production and economic motivation were not worth mentioning. Technical constraints had negative direct effect (-0.2206) on adoption.

The maximum total indirect effect on adoption was found to be of extension contact followed by material possession, economic motivation, milk production, knowledge about DPTs and technical constraints. Material possession, milk production, extension contact, economic motivation and technical constraints were channelising their effects through knowledge about DPTs. The latter channelled its effect through material possession.

It could be concluded from the above findings that knowledge about DPTs and material possession were playing important role in adoption of scientific dairy farming practices. So, these variables should be taken care of while formulating projects regarding adoption. For better adoption, the members should be provided with adequate latest information.

Table 4.57 Path analysis of member's selected attributes with overall adoption in MSS.

S. No.	Attributes	r-Value	Direct effect	Total indirect effect	Substantial indirect effect through		
					I	II	III
1.	Material possession	0.6080	0.1745	0.4335	0.2731(4)	0.1103(3)	0.0273(5)
2.	Milk production	0.2997	0.0105	0.2892	0.1498(4)	0.1268(3)	0.0435(1)
3.	Extension contact	0.6580	0.1517	0.5063	0.3125(4)	0.1268(1)	0.0435(5)
4.	Knowledge about DPTs	0.7195	0.4767	0.2428	0.0999(1)	0.0995(3)	0.0482(5)
5.	Economic motivation	0.4559	0.0968	0.3591	0.2371(4)	0.0682(3)	0.0492(1)
6.	Technical constraints	-0.2336	-0.2206	-0.0130	0.0175(4)	-0.0157(1)	-0.0133(3)

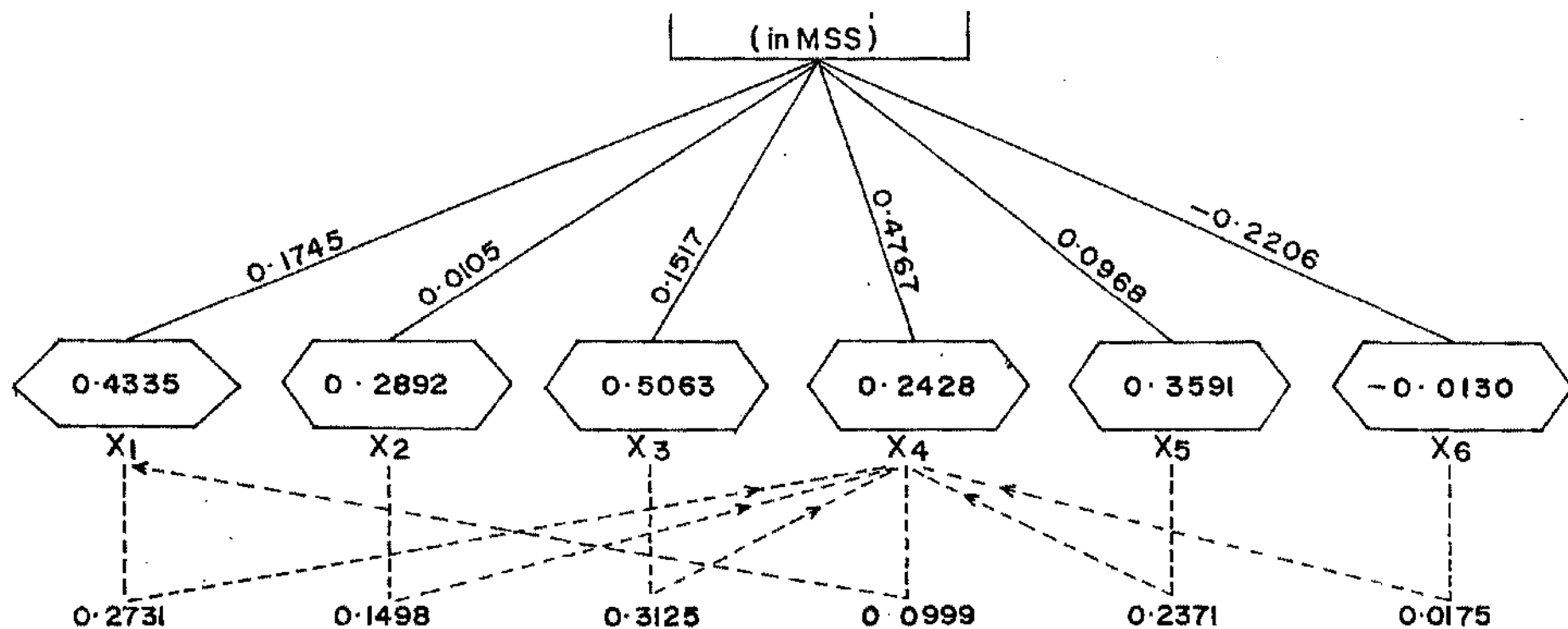


Fig. 4. Path Diagram of Members Attributes with Overall Adoption in MSS

- X₁ = Material possession
- X₂ = Milk Production
- X₃ = Extension contact
- X₄ = Knowledge about DPTs
- X₅ = Economic motivation
- X₆ = Technical constraints

- Direct effect
- ⬡ Total indirect effect
- - - First substantial indirect effect through

SECTION - B

4.2.1 PROFILE OF FIELD SUPERVISORS

4.2.1.1 Distribution of Field Supervisors on the Basis of Socio-personal Attributes:

A perusal of Table 4.58 revealed that majority (77.50 %) of the Field Supervisors were young. There were only 22.50 % FSSs in the middle age group. There was no Field Supervisor in the old age group. The average age of FSSs was about 29 years. There were 62.50 % graduates and 37.50 % post-graduate FSSs. Seventy-five percent of the total FSSs were married and remaining 25 % were unmarried. Most of the FSSs (70 %) were found to stay at their respective headquarters while 30 % were staying elsewhere. Majority (80. %) of the FSSs were from rural background, whereas, 20 % had urban background. About 88 % FSSs had experience between 55 to 88 months. Merely 5 % FSSs had experience upto 54 months and 7.50 % had more than 84 months experience. The mean average experience of FSSs was about 69 months. Seventy-five percent of the respondents got in-service training upto 2 months. There were only 25 % FSSs who had undergone more than 2 months in-service training. It could be derived from the findings that majority of the FSSs were middle aged, graduate, married, staying at their headquarters and had rural background with agriculture occupation and experience of 69 months. Most of them had 2 months in-service training.

4.2.1.2 Distribution of Field Supervisors on the Basis of Organizational Attributes

Table 4.59 revealed that 47.50 % of the respondents had 11 to 12 societies under their jurisdiction. Thirty percent

Table 4.58 Distribution of Field Supervisors on the basis of socio-personal attributes.

					N = 40
S. No.	Attributes	Category	Frequency	%age	Overall mean
1.	Age (in years)	Young (upto 30)	31	77.50	28.65
		Middle (31 to 50)	9	22.50	
		Old (> 50)	-	-	
2.	Education	Graduate	25	62.50	
		Post-graduate	15	37.50	
3.	Marital status	Married	30	75	
		Unmarried	10	25	
4.	Stay at headquarters	At headquarter	28	70	
		Elsewhere	12	30	
5.	Family background	Rural	32	80	
		Urban	8	20	
6.	Father's occupation	Agric.	35	87.50	
		Non-agric.	5	12.50	
7.	Experience as FS (in months)	Low (upto 54)	2	5	69.25
		Medium (55 to 84)	35	87.50	
		High (> 84)	3	7.50	
8.	In-service training (in months)	Upto 2	30	75	2.37
		Above 2	10	25	

Table 4.59 Distribution of Field Supervisors on the basis of organisational attributes.

					N = 40
S. No.	Attributes	Category	Frequency	%age	Overall mean
1.	Societies under jurisdiction	Low (upto 10)	9	22.50	11.7
		Medium (11 & 12)	19	47.50	
		High (> 12)	12	30.00	
2.	Societies which can be easily supervised	Low (upto 5)	2	5.00	9.75
		Medium (6 to 10)	36	90.00	
		High (> 10)	2	5.00	

respondents were supervising more than 12 societies. There were 22.50 % FSs who were supervising upto 10 societies. On an average, every FS was having about 12 societies under his jurisdiction.

The FSs revealed that they can easily supervise upto 10 societies. Merely 5 % of the respondents told that they can supervise more than 10 societies. Same percentage of the respondents reported that they can supervise only upto 5 societies. Whilst majority (90 %) of the FSs reported that they can lookafter 6 to 10 societies easily.

It could be concluded from the above findings that every FS was supervising two extra societies than he could easily supervise.

4.2.1.3 Distribution of Field Supervisors on the basis of Psychological Attributes:

It could be seen from Table 4.60 that majority (80 %) of the respondents had undecided attitude towards villagers. Equal percentage (10) of the respondents fell under favourable and unfavourable category of attitude towards villagers.

Table 4.60 Distribution of Field Supervisors on the basis of psychological attributes.

S. No.	Attributes	Category	Frequency	Age	N = 40	
					Overall mean	
1.	Attitude towards villagers	Unfavourable (upto 17)	4	10.00	20.17	
		Undecided (18 to 23)	32	80.00		
		Favourable (> 23)	4	10.00		
2.	Knowledge about dairy cooperative objectives	Upto 2	5	12.50	3.45	
		Only 3	10	25.00		
		(> 3)	25	62.50		
3.	Knowledge about dairy farming	Low (upto 18)	10	25.00	21.70	
		medium (19 to 25)	22	55.00		
		High (> 25)	8	20.00		
4.	Job satisfaction	Low (upto 29)	11	27.50	34.87	
		Medium (30 to 40)	24	60.00		
		High (> 40)	5	12.50		

Majority (62.50 %) of the respondents were found to have knowledge of all objectives of dairy cooperatives. There were 25 % respondents who were aware of 3 objectives. Only 12.50 % FSs were having knowledge upto 2 objectives. Fifty-five percent FSs were found to have medium level of knowledge about dairy farming. In low category of knowledge, there were 25 % FSs, whereas, 20 % had high level of knowledge about dairy farming.

Most of the FSs (60 %) had job satisfaction to a medium level followed by low (27.50 %) and high (12.50 %) level of satisfaction. It could be derived that majority of the respondents were undecided about their attitude towards villagers which was not a good sign. Most of them were aware of the objectives of dairy cooperatives. They were found to have medium level of knowledge about dairy farming and also medium level of job satisfaction.

4.2.1.4 Distribution of Field Supervisors on the basis of Constraints:

Table 4.61 showed 67.50 % FSs fell in medium category of socio-psychological constraints followed by low (22.50 %) and high (10 %) category.

In case of economic constraints, 52.50 % of the respondents were found in medium category. Just 27.50 % respondents found place in low and 20 % in high category. The mean value (12.65) reflected severity of economic constraints.

Infrastructural constraints was perceived equally serious with 10.8 mean value. Maximum score was 16 for infrastructural constraints. Fifty percent of the respondents were found in medium category followed by low (27.50 %) and high (22 %).

Table 4.61 Distribution of Field Supervisors on the basis of constraints.

S. No.	Constraints	Category	Frequency	%age	Overall mean
1.	Socio-psychological	Low (upto 7)	9	22.50	9.37
		Medium (8 to 12)	27	67.50	
		High (> 12)	4	10.00	
2.	Economic	Low (upto 9)	11	27.50	12.65
		Medium (10 to 16)	21	52.50	
		High (> 16)	8	20.00	
3.	Infrastructural	Low (upto 8)	11	27.50	10.08
		Medium (9 to 14)	20	50.00	
		High (> 14)	9	22.50	
4.	Marketing	Low (upto 6)	10	25.00	7.80
		Medium (7 to 9)	24	60.00	
		High (> 9)	6	15.00	
5.	Technical	Low (upto 9)	9	22.50	12.17
		Medium (10 to 15)	27	67.50	
		High (> 15)	4	10.00	
6.	Communication	Low (upto 1)	9	22.50	4.02
		Medium (2 to 6)	22	55.00	
		High (> 6)	9	22.50	
7.	Managerial	Low (upto 2)	12	30.00	5.37
		Medium (3 to 9)	20	50.00	
		High (> 9)	8	20.00	
8.	Political	Low (upto 1)	6	15.00	4.65
		Medium (2 to 8)	28	70.00	
		High (> 8)	6	15.00	
9.	Miscellaneous	Low (upto 5)	5	12.50	7.97
		Medium (6 to 10)	28	70.00	
		High (> 10)	7	17.50	

Sixty percent respondents perceived the marketing constraints to a medium level. Whereas, 25 % perceived to low level and 15 % perceived it high. The mean value for marketing constraints was 7.8.

Technical constraints was also perceived to be of much importance. The mean value was very high (12.17). Most of the respondents (67.50 %) were found in medium category followed by low (22.50 %) and high (10 %) categories.

It could be observed by the mean value (4.02) of communication constraints that these were not so severe. Equal percentage (22.50 %) of the respondents were found in low and high categories. Fifty-five percent of the respondents fell in the medium category.

Thirty percent of the respondents were found in low category of managerial constraints and 20 % in the high category. Rest of the respondents fell in the medium category. The low mean value (5.37) reflected its low importance as perceived by the FSs.

Equal percentage (15) of the respondents fell in low and high categories of political constraints. But majority of them (70 %) fell in the medium category. The mean value was low (4.65) in this case also.

Most of the respondents (70 %) were found to perceive the miscellaneous constraints to a medium level. There were 17.50 % respondents in the high category. The mean value was 7.97.

So, in nutshell, it could be said that majority of the Field Supervisors faced the constraints to a medium level. The

most important constraints were technical, infrastructural and economic as these were having high mean values.

4.2.2 RANK ORDER OF VARIOUS CONSTRAINTS AS FACED BY THE FIELD SUPERVISORS

In this section, an attempt has been made to rank the nine areas of constraints in descending order of importance on the basis of mean value and coefficient of variation.

The rankings of the nine areas of constraints have been presented in Table 4.62. The data revealed that economic constraints was the major constraints with 12.65 mean value and 30.43 % coefficient of variation. The high ranking of economic constraints might be due to low price for milk, high price of compounded feed, rising prices of medicines and inadequate funds. Technical constraints was ranked second. The mean value was 12.17 with 23.66 % coefficient of variation. There was fairly good agreement among the members on technical constraints. The reason might be non availability of technical expertise, lack of trained AI workers and inadequate cases of follow up. Infrastructural constraints was ranked third with 10.8 mean value and 30.19 % coefficient of variation. Next in order of importance was socio-psychological constraints. The mean value was 9.37 with 28.50 % coefficient of variation. The low C.V. reflected good amount of agreement among the Field Supervisors. They reported that casteism is still prevalent in the rural areas and members of high caste do not accept a secretary of lower caste. Miscellaneous constraints was ranked fifth. The mean value was 7.97 with 34 % coefficient of variation. Marketing constraints

got sixth rank with 7.80 mean value and 23.97 % coefficient of variation. Managerial, communication and political constraints got seventh, eighth and ninth ranks, respectively. The high coefficient of variation indicated that the Field Supervisors were not confronted by these constraints to the same magnitude.

Table 4.62 Rank order of various components of constraints of the Field Supervisors.

S. No.	Constraints	Mean	S.D.	C.V.	Rank
1.	Economic	12.65	3.85	30.43	I
2.	Technical	12.17	2.88	23.66	II
3.	Infrastructural	10.80	3.26	30.19	III
4.	Socio-psychological	9.37	2.67	28.50	IV
5.	Miscellaneous	7.97	2.71	34.00	V
6.	Marketing	7.80	1.87	23.97	VI
7.	Managerial	5.37	3.64	67.48	VII
8.	Political	4.65	3.47	74.62	VIII
9.	Communication	4.02	2.75	68.41	IX

As discussed above, the first ranking of economic constraints by Field Supervisors confirmed the seriousness of these constraints as it was also perceived to be serious by the members. However, rankings of the different areas of constraints under broad heads were not sufficient enough to elucidate any definite conclusion. It was, hence, thought appropriate to identify few important constraints in the nine areas of constraints individually.

4.2.2.1 Rank Order of Socio-psychological Constraints faced by the Field Supervisors:

Among the various social constraints, absence of loyalty was the most serious constraint. The mean value was 1.40 and 50 % coefficient of variation (Table 4.63). The result was in line with those of PEO (1960), Sharma (1967), Mohanan (1972) and Kohli (1978). It was ranked high possibly because some of the members were not supplying milk to the society during lean season. Which was due to the higher prices offered by the milk vendors during lean season. Some were supplying a part of their total milk production just to avail the facilities. This caused erratic supply of milk. As a result the societies suffered.

Table 4.63 Rank order of socio-psychological constraints of the Field Supervisors.

S. No.	Constraints	Mean	S.D.	C.V.	Rank
1.	Absence of loyalty of members	1.40	0.70	50.00	I
2.	Members don't think that the society is their own	1.30	0.72	55.38	II
3.	Caste conflict	1.12	0.64	57.14	III
4.	Faction among members of executive committee	1.10	0.67	60.91	IV
5.	Poor involvement of members in decision making	1.02	0.61	59.80	V
6.	Lack of motivation among members	1.02	0.80	78.43	VI
7.	Domination of privileged section	0.97	0.73	65.17	VII
8.	Farmers' faith in quacks	0.75	0.54	72.00	VIII
9.	Poor knowledge of farmers regarding the facilities available at the society	0.70	0.68	97.14	IX

Another constraint with some seriousness was that the members did not consider the society as their own. The mean value was 1.30 with 55.38 % coefficient of variation. No other constraint was worth describing here.

4.2.2.2 Rank Order of Economic Constraints as faced by the Field Supervisors:

Among all the economic constraints included in the study, low price of milk was the most important one. The mean value was 1.75 with 26.16 % coefficient of variation (Table 4.64). It showed consistency among the members in their response. Not only was it ranked first by the Field Supervisors but also by the members. The reason might be comparatively better prices offered by the milk vendors. The finding was in accordance with those of Pandey (1981), CED (1982), George (1983), Dorsten (1981), Copala and Maraty (1989) and Shroti (1989). During the investigation, it was found that inadequate funds was a serious constraint. It was ranked second with 1.52 mean value and 42.11 % coefficient of variation. The supervisors complained about delay in their salary. They were not in a position to visit the societies regularly. The veterinary doctors too were not getting requisite medicines to attend the emergency cases. This finding was in line with PEO (1960). Rising prices of medicines was ranked third. The members were not getting medicines from the societies. The basic cause for it was inadequate funds. For emergency cases also the members had to purchase the medicines themselves. The members reported that neither they were getting inputs nor remunerative prices for milk and they had to pay fee for emergency cases which was meant to meet the transport expenses.

Table 4.64 Rank order of economic constraints of the Field Supervisors.

S. No.	Constraints	Mean	S.D.	C.V.	Rank
1.	Low price of milk	1.75	0.45	26.16	I
2.	Inadequate funds	1.52	0.64	42.11	II
3.	Rising prices of medicines	1.40	0.67	47.85	III
4.	Non-availability of credit facilities	1.40	0.74	52.86	IV
5.	Insufficient finance from government	1.35	0.79	56.29	V
6.	Less market value for CB male	1.15	0.73	63.48	VI
7.	High cost of first-aid material	1.07	0.79	73.83	VII
8.	High cost of transportation	1.05	0.81	77.14	VIII
9.	High prices of cattle feed	1.05	0.84	80.00	IX
10.	Low growth paid up share capital	0.92	0.72	78.26	X

Next in order of importance was non-availability of credit facility which has also been supported by Panda (1979). The members were getting credit from the milk vendors for purchasing cattle feed and even to purchase a buffalo. That amount was often interest free and unwritten. The only condition was that they had to supply milk to the milk vendors. In fact, it was most serious constraint which the Field Supervisors were facing. Other constraints were of no significance.

4.2.2.3 Rank Order of Infrastructural Constraints as faced by the Field Supervisors:

Among the infrastructural constraints, lack of transport facilities was ranked first. The mean value was 1.75 with 33.14 %

coefficient of variation (Table 4.65). The high mean value itself indicated its importance. Girdhar (1967), Vithal (1986) and Shroti (1989) also reported similar findings. The Field Supervisors were not allowed to keep conveyance to visit the societies. On an average, one supervisor had 12 societies under his jurisdiction. It was not feasible for them to visit these many societies on bicycle or by bus. That would have caused them to rank it first. Lack of first aid and AI services was next in order of importance. When society was established in the village, the cooperative personnel made many promises with the members. They were assured almost free medical facilities with minimal charges. But there was no first aid centre in most of the cooperative societies. No AI was done even if first-aid facilities were available. The members reported that they were promised to provide the facilities. In fact, making a promise and not fulfilling it is more harmful than not making a promise at all. Vast area of jurisdiction under supervision was ranked third. The mean value was 1.42 with 47.18 % coefficient of variation. The supervisors were supervising more societies than they can easily supervise. Similar findings have been reported by Tiwari (1989). Non-availability of veterinary doctor in time got fourth rank with 1.45 mean value and 48.96 % coefficient of variations. The reason for this has already been mentioned. Rest of the constraints got fairly low mean values and high coefficient of variation.

4.2.2.4 Rank Order of Marketing Constraints as faced by the Field Supervisors:

Advance payment by milk vendors, was the most serious marketing constraint faced by the Field Supervisors. The mean

Table 4.65 Rank order of infrastructural constraints of the Field Supervisors.

S. No.	Constraints	Mean	S.D.	C.V.	Rank
1.	Lack of transport facilities	1.75	0.58	33.14	I
2.	Lack of first aid and AI services	1.50	0.59	39.33	II
3.	Non availability of veterinary doctors in time	1.45	0.71	48.96	III
4.	Vast area of jurisdiction under supervision	1.42	0.67	47.18	IV
5.	Irregular and unplanned supply of vaccines	1.35	0.73	54.07	V
6.	Paucity of green fodder	1.30	0.68	52.30	VI
7.	Shortage of equipments at centre	1.27	0.75	59.05	VII
8.	Irregular supply of compounded feed	0.90	0.74	82.22	VIII

value was fairly high (1.87) with low coefficient of variation (17.64 %) (Table 4.66). However, there was no provision of advance payment in cooperative societies. So the FSSs had a strong feeling that if advance payment is made available to the members, the procurement of milk may go high. The finding was in line with those of Khurody (1974) and Batra (1981). Presence of milk vendors was next in order of importance. They were a mini business firms in themselves. They had full power to increase or decrease the price of milk. But it was not true in case of cooperative societies as the rates were fixed by the dairy cooperative federation. So the FSSs were often handicapped. Srivastava (1969), Sohal (1973), Tyagi (1973), Menon (1977), Vithal (1986) and Joshi (1990) have also reported similar findings. Irregular payment by union to the societies got third rank. Similar finding was reported by Saini (1975), Gopala and Maraty (1989) and Shrotri (1989). Most of the members reported that they were not receiving the payment in time. So some of them stopped supplying milk to the societies as they could avail advance payment facility from the milk vendors.

4.2.2.5 Rank Order of Technical Constraints as faced by the Field Supervisors:

Inadequate training of stockman was ranked first amongst the technical constraints. The mean value was 1.55 with 32.25 % coefficient of variation (Table 4.67). The members also perceived the constraint which showed its gravity. The AI workers who were appointed in the villages were generally untrained. They had training of just 2 months. So they were not too skilled in AI and pregnancy diagnosis. Juneja (1967), Gill (1979), Patel et al.

Table 4.66 Rank order of marketing constraints of the Field Supervisors.

S. No.	Constraints	Mean	S.D.	C.V.	Rank
1.	Advance payment by milk vendors	1.87	0.33	17.64	I
2.	Presence of milk vendors	1.75	0.54	30.85	II
3.	Irregular payment by union to the societies	1.15	0.66	57.39	III
4.	Ease of selling milk to vendors by the members	1.10	0.77	70.00	IV
5.	Non trustworthiness of executive committee	0.90	0.74	82.22	V
6.	Non availability of surplus milk with farmers	0.65	0.69	106.15	VI
7.	Incompetency of Field Supervisors to persuade farmers to sell milk to society	0.37	0.62	167.56	VII

Table 4.67 Rank order of technical constraints of the Field Supervisors.

S. No.	Constraints	Mean	S.D.	C.V.	Rank
1.	Inadequate training of stockmen	1.55	0.50	32.25	I
2.	Lack of progeny tested bulls	1.52	0.64	42.10	II
3.	Practice of single insemination against the recommendation of double insemination	1.40	0.63	45.00	III
4.	Inadequate follow up of AI cases	1.35	0.57	42.22	IV
5.	Susceptibility in crossbred animals	1.35	0.80	59.25	V
6.	Lack of technical expertise	1.17	0.78	66.67	VI
7.	Poor conception rate of AI in buffaloes	1.15	0.73	63.47	VII
8.	Use of poor quality roughage for feeding cattle	1.00	0.84	84.00	VIII
9.	No preservation of fodder during flush season	0.92	0.76	82.60	IX
10.	Inadequate knowledge of field staff in providing guidance to farmers/ members on cheap scientific housing for animals	0.60	0.74	123.33	X

(1979), Singal (1979), Sharma (1980) and Vithal (1986) also reported similar type of findings. Lack of progeny tested bulls was next in order of importance. The mean value was 1.52 with 42.10 % coefficient of variation. It was followed by practice of single insemination against the recommended double insemination. The members complained that AI worker did not allow them to bring their cows/buffaloes for second insemination. If allowed, they had to pay twice. That could have been one of the reasons for poor conception rate which was ranked sixth. Its rank in the lower ladder might be due to inadequate AI facilities provided by the unions. The supervisors were not feeling much concerned as they were getting complaints only from some of the members. The observations about poor conception rate have also been supported by Saini (1975), Rath (1977), Patel (1978), Sharma (1980), Subramanian and Knight (1982), Acharya (1984), Sohal (1985), Biradar (1986) and Acharya (1990). Inadequate follow up of AI cases was ranked fourth with 1.35 mean value and 42.22 % C.V. The irregular visit of veterinary doctors and lack of trained personnel made the members to rank this constraint high.

4.2.2.6 Rank Order of Communication Constraints as faced by the Field Supervisors:

Table 4.68 showed lack of upward and horizontal communication as the top ranked constraint. The supervisors revealed that they were not intimated about the meetings in advance. Messages were not communicated timely because of the official delays. These factors hindered the proper functioning of the societies. But there was lack of consistency among the

respondents for this constraint. Lack of communication skill was ranked in the last. That might be due to the reason that they were not ready to accept their weaknesses.

Table 4.68 Rank order of communication constraints of the Field Supervisors.

S. No.	Constraints	Mean	S.D.	c.V.	Rank
1.	Lack of upward and horizontal communication	1.10	0.67	60.91	I
2.	Untimeliness of communication in the department	0.97	0.76	78.35	II
3.	No proper guidelines and directions to give information to subordinates	0.70	0.79	112.86	III
4.	Lack of community approach for effective participation in society affairs	0.67	0.76	113.43	IV
5.	Lack of communication skill in supervisors	0.57	0.71	124.56	V

4.2.2.7 Rank Order of Managerial Constraints as faced by the Field Supervisors:

Incompetent superiors for the execution of a programme was ranked first followed by frequent transfer of staff (Table 4.69). The FSs had resentment against frequent transfer of staff. They reported that by the time they made rapport with the members, they were transferred. So once again they had to make rapport with members in the new areas. They also revealed that the executive managers were not competent enough to execute the programme. But in this case too, the coefficient of variation was high.

Table 4.69 Rank order of managerial constraints of the Field Supervisors.

S. No.	Constraints	Mean	S.D.	C.V.	Rank
1.	Incompetent superiors for programme execution	1.05	0.74	70.47	I
2.	Frequent transfers of staff	0.97	0.80	82.47	II
3.	Favouritism and nepotism in management	0.85	0.76	89.41	III
4.	Non involvement of supervisors in decision making	0.80	0.72	90.00	IV
5.	Lack of proper rapport between management committee and members	0.80	0.75	93.75	V
6.	Lack of trust between superiors and supervisors	0.40	0.59	147.50	VI
7.	Irresponsible behaviour of supervisors	0.25	0.43	172.00	VII
8.	Delay in working by supervisors	0.25	0.54	216.00	VIII

4.2.2.8 Rank Order of Political Constraints as faced by the Field Supervisors:

Table 4.70 clearly revealed that political influence on appointments, transfers and promotions was the only serious constraint which could be discussed here. Although the coefficient of variation was fairly high, it was complained by some of the members that only those supervisors who had good relations with the politicians or had political background could stay at one place. They further reported that same was the case in appointments and promotions. But due to lack of consistency among the respondents, it could not be given much weightage.

Table 4.70 Rank order of political constraints of the Field Supervisors.

S. No.	Constraints	Mean	S.D.	C.V.	Rank
1.	Political interference in appointments, transfers and promotions	1.20	0.79	65.83	I
2.	Top officials prefer to be in good books of politicians than good services	0.72	0.84	116.67	II
3.	Political affiliation is vitiating the environment	0.62	0.74	119.35	III
4.	Lack of effective leadership	0.55	0.63	114.54	IV
5.	Interference of politicians at union level	0.52	0.64	123.07	V
6.	Politically biased site selection of AI centre	0.52	0.75	144.23	VI
7.	Interference of politicians in the day to day affairs of society	0.45	0.67	148.89	VII

4.2.2.9 Rank Order of Miscellaneous Constraints faced by the Field Supervisors:

Among the miscellaneous constraints, seasonal variation was the most serious. The coefficient of variation was 37.57 % and mean value was 1.65 (Table 4.71). It was followed by nearness of the society to urban areas and lack of members' faith in cattle development programme as a measure of improving their economy. But due to lack of agreement among the members, these constraints were not of much importance. The Field Supervisors felt that the members were not supplying their milk during lean season due to low price, which was the reason for its high rank. In fact, the root cause was low price for milk.

Table 4.71 Rank order of miscellaneous constraints of the Field Supervisors.

S. No.	Constraints	Mean	S.D.	C.V.	Rank
1.	Due to seasonal variation members get higher price from milk vendors in summer	1.65	0.62	37.57	I
2.	Nearness of the society to urban areas	1.30	0.68	52.30	II
3.	Lack of members' faith in cattle development programme as a measure of improving their economy	1.17	0.63	53.84	III
4.	Lack of audio visual aid for educating the members on cooperative programme	1.12	0.88	78.57	IV
5.	Lack of functional literacy among members	1.02	0.80	78.43	V
6.	No expenditure on developmental activities	0.67	0.65	97.01	VI
7.	Less number of members in society	0.62	0.66	106.45	VII
8.	Lack of irrigation facilities in the area	0.35	0.69	197.14	VIII

CHAPTER - 5

SUMMARY AND CONCLUSIONS

5. SUMMARY AND CONCLUSIONS

Uttar Pradesh is the major milk producing state contributing to 17.88 % to the total milk production in India. To provide remunerative price to the milk producers and regular supply to consumers, seed of cooperatives was sown as early as in 1917, in the form of Katra Cooperative Milk Society, Allahabad. The Pradeshik Cooperative Dairy Federation was established in the state in 1962. Later, it was entrusted with the responsibility of implementing Operation Flood Project in 1970-71. It was considered to be a big leap forward in the direction of milk production, procurement, processing and marketing. The available reports indicated that the functioning of these projects was far from satisfactory owing to a number of constraints. Hitherto, not much empirical evidence was available regarding the actual constraints in the functioning of milk producers' cooperative societies. In order to fill this lacuna a research problem entitled "A Study of Constraints in the Functioning of Milk Producers' Cooperative Societies in Western U.P." was taken up.

The specific objectives of the study were as follows:

1. To study the profile of members and Field Supervisors of Milk Producers' Cooperative Societies.
2. To find out and measure the constraints perceived by the members in utilizing services provided by Milk Producers' Cooperative Societies.

3. To delineate and measure the constraints of Field Supervisors in carrying out the dairy cooperative programme at varying levels of success.
4. To study the level of adoption of dairy production technologies of members at varying levels of success.
5. To study the relationship of various factors with constraints and adoption of dairy production technologies.

The study was conducted in Western U.P. There were 13 milk unions in Western U.P. which were divided into high and low milk procurement unions on the basis of the average milk procurement per year. Two milk unions one each from low and high milk procurement unions were randomly selected. The selected milk unions included in the study were Meerut representing high milk procurement union and Saharanpur the low milk procurement union. A list of the MPCSSs in both the unions having completed five years of working on Anand pattern was prepared. These societies were subsequently categorized as MSS (More Successful Societies) and LSS (Low Successful Societies) on the basis of indicators of success. The indicators of success selected for the present study were: i) audit grade; ii) quantum of milk collection per member; iii) percentage of household covered by MPCS; iv) annual milk sale in rupees per member; and v) annual bonus paid per member.

From each union, 14 MPCSSs (7 LSS and 7 MSS) were randomly selected making a total of 28 societies. From each union 100 primary members (50 from LSS and 50 from MSS) were selected on proportionate random basis separately in LSS and MSS. The composite sample size was 200. In addition, from both the unions 40 Field Supervisors were selected on proportionate random basis.

The requisite data were collected by personally interviewing the respondents with structured schedules. The data were processed with mean, standard deviation, 't' test, correlation, multiple regression and path analysis and interpreted separately.

SECTION - A

5.1.1 PROFILE OF MILK PRODUCER MEMBERS

Most of the members were middle aged in the present investigation in both LSS and MSS ranging from 31 to 50 years.

In order to make the cooperative ideology understandable, literacy is must. In LSS as well as MSS, a good majority of the respondents was illiterate. There was only one graduate member in MSS compared to six in LSS.

Participation from all sections of the society has been one of the major objectives of cooperatives which was reflected in the present study. The percentage of respondents in backward caste group in both categories of societies was 54. There were members from scheduled castes in LSS (18 %) as well as MSS (13 %). Members from general caste were 28 % in LSS and 33 % in MSS.

Medium level of socio-economic status was observed in majority of the respondents in LSS (79 %) and MSS (82 %). In the selected societies majority of the respondents hail from weaker sections which include landless and marginal dairy farmers. There were 33 % landless and 28 % marginal dairy farmers in LSS, while 29 % marginal and 22 % landless dairy farmers were found in MSS.

Buffalo is the most predominant milch animal in the area of study. There were 152 buffaloes followed by non-descript (31

and crossbred cattle (20) in LSS as compared to 209 buffaloes, 41 non-descript and 11 crossbred cattle in MSS. In MSS, 57 % members had more than 4 animals, whereas, in LSS, 43 % fell in this category.

Having more buffaloes and cattle, about 50 % of the members in MSS were producing 7-8 litres of milk per day. In the corresponding category there were 31 % members from LSS.

Though, the average milk production per day per family was on the higher side in MSS (10.32 litres) as compared to LSS (8.32 litres), the per capita consumption of milk was lower (417 g) in MSS than that of LSS (485 g).

With regards to sale of milk, there were 45 % members in MSS selling 5 to 8 litres per day in comparison to 29 % in LSS. The sale of milk in MSS was high which might be due to high wet:dry ratio which was observed to be 3.75:1 in buffaloes followed by crossbred (1.21:1) and non-descript cattle (0.64:1). In less successful societies, the wet:dry ratio was comparatively low, highest being in buffaloes (2.64:1) followed by non-descript (1.21:1) and crossbred cattle (0.81:1).

Participation of the members in society was found to be modest. Informally it was revealed that the general body meetings were rarely held. So the members could not participate and raise questions in the meetings. Being illiterate, most of them did not try to see the proceedings or other records of the society. The study revealed that majority of the members in LSS (48 %) as well as MSS (54 %) had medium level of participation in the society.

The most frequently contacted extension personnel in the study area were Field Supervisors, VLWs and Livestock Assistants. Whereas, specialists from universities, Agricultural Officers and Veterinary Assistant Surgeons were the least utilized sources of information by the members.

The exposure to mass media was observed to be very poor. Majority of the members were not exposed to either newspapers (48 %) or to magazines (85 %) in LSS. Similar trend was observed in case of MSS where most of the members never read newspapers (46 %) and magazines (92 %) for agricultural information. The most widely used media were Radio and T.V. in both categories of societies.

With regards to identification with society, 40 % members in MSS had low level of identification. They were least worried about the quality and quantity of milk supplied to their society by the other members. They were observed to have no or little concern about the maintenance of records in the society. Lack of interest among the members in society activities might be due to the low price of milk and irregular/inadequate supply of inputs.

Most of the respondents were found satisfied with weighing and testing of milk, maintenance of accounts, staff behaviour, payment and election procedure in both LSS and MSS. However, majority of the respondents were dissatisfied with some of the activities of the societies such as supply of feed, supply of other inputs such as Ghee and veterinary health care. The condition was comparatively better in MSS than in LSS.

The consequence of dissatisfaction was reflected in the attitude of the members towards MPCs. Majority of the members in LSS (57 %) and MSS (49 %) were neither favourably nor unfavourably disposed towards MPCs. However, members from both categories were highly motivated to opt for economic pursuits.

The level of knowledge about MPCs was not too encouraging. Most of the respondents had medium level of knowledge in LSS (64 %) as well as MSS (49 %). The respondents were having medium level of knowledge about dairy production technologies in LSS as well as in MSS.

Infrastructural efficiency was not upto the level of expectation of the member producers. Poor efforts were made for educational programmes and there was inadequate and irregular supply of inputs. Majority (70 %) of the respondents in LSS and MSS (65 %) perceived the infrastructural efficiency to a medium level.

Adoption of scientific dairy farming practices by the respondents was of medium level. Almost equal percentage (62) of the respondents in both categories of the societies had medium level of adoption. In the high category of adoption too, almost similar percentage (21) was observed in LSS and MSS.

5.1.2 RANK ORDER OF VARIOUS CONSTRAINTS AS PERCEIVED BY THE MILK PRODUCER MEMBERS

The members were experiencing a number of constraints in the functioning of MPCs. On the basis of mean score and C.V., these constraints were ranked from very serious to most serious under different areas.

In LSS, among different areas of constraints, the most serious constraints were infrastructural, economic and technical. Whereas, in MSS, economic constraints followed by infrastructural and technical constraints appeared to be more serious.

Faction among members due to caste consciousness and ignorance of cooperative ideology were the serious socio-psychological constraints in LSS as well as MSS.

Among the economic constraints, low price of milk, low price of cow's milk and high cost of compounded feed were perceived as serious constraints by the members in MSS. In addition, non-availability of feed on subsidized rates was also perceived as a serious constraint by the members of LSS.

With respect to infrastructural constraints, infrequent visit of the veterinary doctor was ranked first in both the categories of societies. The other important constraints perceived by the members in LSS were non-availability of timely medical help, lack of technical guidance and non-availability of semen of desired breed.

One of the serious technical constraints in MSS was poor conception rate in buffaloes. Irregular testing of fat and SNF emerged as the most serious constraint in LSS.

Among marketing constraints, facility of advance payment by milk vendors was the only serious constraint impeding the functioning of MPCSSs, irrespective of their level of milk procurement. Discrepancy in readings of fat and SNF between society and union emerged as the serious constraint under the category of miscellaneous constraints in both categories of societies.

5.1.3 MEAN DIFFERENCES BETWEEN LSS AND MSS

Significant differences were observed between LSS and MSS in milk production and milk sale per day, participation in MPCs, extension contact, identification with society, attitude towards MPCs, knowledge about MPCs, knowledge about DPTs, infrastructural efficiency, infrastructural constraints, technical constraints, marketing constraints, miscellaneous constraints, adoption of breeding practices, management practices and overall adoption.

5.1.4 RELATIONAL ANALYSIS OF INDEPENDENT ATTRIBUTES OF MEMBERS WITH CONSTRAINTS AND ADOPTION

The data were subjected to correlation, regression and path analysis with a view to ascertain the variables influencing the extent of perception of constraints and extent of adoption of scientific dairy farming practices. The study revealed that a large number of the personal attributes of respondents in LSS were significantly and negatively correlated with the extent of perception of constraints.

Some of the important attributes were caste, socio-economic status, participation in MPCs, identification with society, satisfaction with society, attitude towards MPCs, knowledge about MPCs, knowledge about DPTs, infrastructural efficiency and adoption of scientific dairy farming practices. Whereas, in MSS, the negatively correlated attributes were socio-economic status, land holding, infrastructural efficiency and adoption of scientific dairy farming practices.

Attributes related positively to adoption were education, caste, material possession, socio-economic status, land holding, herd size, milk production, milk consumption, extension contact,

mass media exposure, knowledge about DPTs and economic motivation in LSS as well as in MSS. Technical and overall constraints were negatively related with adoption.

The most significant and positive contributory factors to the adoption of scientific dairy farming practices were material possession and knowledge about the DPTs, in LSS. Whereas, in MSS, knowledge about DPTs was the only positive contributor to the adoption. The extent of technical constraints turned out to be the negative contributory factor to the extent of adoption of scientific dairy farming practices.

The results of path analysis indicated that maximum direct effect on adoption was demonstrated by extension contact followed by milk production, economic motivation, knowledge about DPTs, material possession, infrastructural efficiency and technical constraints in LSS. The most crucial variable was material possession as it was used by as many as four variables in channelising their first substantial indirect effects to adoption. The variable with maximum direct positive effect in MSS was extension contact followed by material possession, economic motivation, milk production and knowledge about DPTs. The variable technical constraints was found to have high direct negative effect on adoption. In this, knowledge about DPTs was used by most of the variables in channelising their indirect effects through it.

SECTION - B

5.2.1 PROFILE OF FIELD SUPERVISORS

1. Majority of the FSS (about 78 %) were young (upto 30 years). About 63 % of FSS were graduates. It was found that 75 % of them

were married. Most of them (70 %) were staying at their respective headquarters. Agriculture was the main occupation of the fathers of about 80 % Field Supervisors. About 88 % of the FSs had experience between 55 to 84 months. On an average, every FS had experience of more than 5 years. Majority of the FSs (75 %) had undergone 2 months inservice training.

2. Most of the FSs (about 48 %) were supervising between 11 to 12 societies. Whereas, 90 % of the FSs reported that they can supervise between 6 to 10 societies, efficiently and easily. In order to supervise the societies efficiently, the Field Supervisors should be provided conveyance.

3. Eighty percent of the FSs had undecided attitude towards villagers. Most of the FSs (63 %) were aware of all the objectives of MPCs. Majority of them (55 %) were found to have medium level of knowledge about dairy farming. It was found that 60 % of the FSs had medium level of job satisfaction.

4. Majority of the respondents faced the constraints to a medium level.

5.2.2 RANK ORDER OF VARIOUS CONSTRAINTS AS FACED BY THE FIELD SUPERVISORS

1. Among nine areas of constraints, economic, technical and infrastructural constraints emerged as most serious ones' with high mean values and low coefficient of variation.

2. The only serious socio-psychological constraint was absence of loyalty of members with 1.40 mean value and 50 % coefficient of variation.

3. The FSSs perceived low price of milk, inadequate funds and rising prices of medicines as the most serious economic constraints in the functioning of MPCs.

4. Lack of transport facilities, lack of first aid and AI services, vast area of jurisdiction under supervision and non-availability of veterinary doctors in time were the serious infrastructural constraints as faced by the FSSs.

5. Among the marketing constraints, advance payment by milk vendors and presence of milk vendors were the two serious constraints in the societies under study.

6. Some of the serious technical constraints as indicated by FSSs were inadequate follow up of AI cases, practice of single insemination against the recommendation of double insemination.

7. Among miscellaneous constraints one of the serious constraint was seasonal variation. The members were offered higher prices by milk vendors during summer, as a result, the milk procurement of cooperative societies went down during lean season. The other serious constraint was nearness of the society to urban areas.

IMPLICATIONS

The findings of the present investigation in the functioning of MPCs have great practical implications in view of the national policy to promote dairy cooperatives. Some of the implications of the study have been enumerated as under:

1. The study clearly brought about five indicators of success on which the societies were graded initially. The indicators of

success may be useful in evaluating the existing MPCs and formulating future course of action and accordingly bring the performance to a desired level.

2. Number of crossbred cattle in the area of study was astoundingly low which showed the lack of efforts made by the cooperative societies in the direction of dairy development. The policy makers should provide AI facilities to each society. Alongwith AI facilities, trained workers should be appointed at the centre as most of them had 2 months training in artificial insemination. Moreover, semen of desired breed should also be made available at each centre so that the members may adopt the technology. Opening of AI centres at the societies, will help in increasing the productivity of animals.

Participation of the members in society was not upto the mark. General body meetings were rarely held which left no scope for the members to express their views on some of the important matters. The level of identification with society was also discouraging. They were least worried about the proper functioning of the society. Most of the members never asked whether good quality milk was supplied to the society. In order to make the dairy farmers to participate in the society and identify themselves with it, more extension personnel should be appointed to intensify the efforts.

The least utilized sources of information were specialists from universities, VASS and Agriculture Officers. Majority of the members never read newspapers and magazines. So, there should be a provision of purchasing newspapers and magazines related

to dairying/agriculture so that the interested farmers may utilize these sources. Arrangements for the visit of specialists, VASS and Agricultural Officers should be made, so that the villagers may get information on DPTs.

3. Among the different categories of constraints, infrastructure was perceived as the most serious constraint in LSS as well as in MSS. Therefore, the members of LSS as well as MSS should be assured of frequent visit of the veterinary doctor. The milk producer members of MSS ranked the economic constraints at the top. They revealed that price of milk was low, whereas, the cost of compounded feed was high. So they should be provided remunerative price for the milk to take dairying occupation with enthusiasm. In this way, the milk procurement of the society will also increase. Low price of milk was also ranked high by the FSSs. So it would be helpful for the FSSs in restoring the confidence of members in dairy cooperatives if remunerative price of milk is paid to them.

4. Among the technical constraints, poor conception rate was the serious constraint perceived in LSS as well as in MSS. One of the reasons was that insemination was done only once as against the recommendation of double insemination. Therefore, insemination should be done twice during the heat period to improve the conception rate. Inadequate training of stockman, lack of progeny tested bulls, inadequate follow up of AI cases and practice of single insemination were the technical constraints reported by the FSSs. These constraints results in poor conception. Therefore, adequate training should be given to the stockman and only progeny tested bulls should be kept for breeding purposes.

5. Advance payment given by the milk vendors was the most pronounced marketing constraint by all categories of the respondents. But giving advance payment to members might undermine the functioning of the dairy cooperatives by inducing corruption and detrimental politics. Therefore, educational efforts should be intensified to educate the dairy farmers about the philosophy of cooperation.

6. Discrepancy in readings of fat and SNF between society and union emerged as the important constraint. The society personnel should work honestly to test fat and SNF at union centre. So that the members/secretary may rely on the accurate testing. It will help the FSSs to gain confidence of members. The FSSs reported seasonal variation as an important miscellaneous constraint. Therefore, the federation should hike the price of milk during summer season so that the members continue the supply of milk.

Future Research Studies

The logical conclusion of any sound research project is to provide base for further advancement of knowledge. On the basis of empirical evidence, the present study suggest few valid research questions for further deep probing.

1. The study revealed that participation of the members in MPCs was very poor and how to increase the level of participation needs further probing.

2. The area of study was predominantly a buffalo tract. Number of crossbred cattle was very less. A study may be taken up to

reveal the reasons of less preference for crossbred cattle which has been considered as the potential source of milk production.

3. A study of impact of milk cooperatives in modernization of rural social system.

4. The participation of women in dairy cooperatives was not observed. A study of factors affecting the participation of rural women in dairy cooperatives may be taken up.

SUGGESTIONS GIVEN BY THE MEMBERS/SECRETARIES/FIELD SUPERVISORS

During data collection, the researchers also asked the members and concerned personnel to give their suggestions to improve the functioning of Milk Producers' Cooperative Societies. The suggestions mentioned below may be of some use to the policy makers:

1. Society should have its own building. It will help in easing tension among different groups/parties.
2. The headquarters of veterinary doctor should be within reach of the people so that he may be contacted whenever needed.
3. The secretary should be from the union so that faction among the members could be avoided.
4. Salary of the society should be increased.
5. Only trained AI worker should be appointed and be paid a reasonable amount.
6. Societies have purchased shares of the union, therefore, dividend should be given.
7. There should be sufficient budget in the union as well as in society for purchasing medicines, so that these could be utilized in emergency.
8. The doctor should have adequate medicines if he has to attend the emergency cases.
9. Union should provide ghee to the members at the same rate as fixed for its employees.
10. The vaccination schedule should not be cancelled for any society even if it is in loss because the charges are to be deducted from the society fund.
11. Feed should be supplied on subsidized rates and timely too.
12. There should be headload, even if the quantity of milk supplied is less than 40 litres.
13. Milk should be purchased on the basis of fat percentage with no consideration of SNF and corrected lactometer reading as it makes the procedure more complicated.

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* Original not seen.

A P P E N D I C E S

Composite Success Scores of MPCs

		Composite success score
A. <u>SAHARANPUR</u>		
1.	Shallapur	27
2.	Safdalpur	27
3.	Dhakdevi	27
4.	Mandhor	27
5.	Chauri Mandi	30
6.	Tirapari	30
7.	Pilakhani	32
8.	Randeva	34
9.	Sadholi	35
10.	Dumjheri	35
11.	Jhabiran	36
12.	Sampla Begumpur	36
13.	Bahadurpur	37
14.	Ismailpur	39
15.	Randevi	42
16.	Bhatpura	44
17.	Nawada	48
18.	Samaspur	48
19.	Gadhrehri	50
20.	Kakrala	70
21.	Agwanhera	81
B. <u>MEERUT</u>		
1.	Madora	27
2.	Rampur moti	27
3.	Jatpura	30
4.	Kalina	30
5.	Amipur Blaini	30
6.	Sakarpur	31

Contd....

Contd....(Appendix-I)

	Composite success score
7. Shahpur Jain	31
8. Dalampur	31
9. Timakiya	32
10. Mamaputhi	32
11. Daryapur	34
12. Nilocha	34
13. Sakoti	35
14. Palra	35
15. Gajrola	35
16. Nek	36
17. Rahwati	36
18. Adarsh Nagla	37
19. Jiwana Goliyan	37
20. Silana	37
21. Doghat	37
22. Chitamkheri	39
23. Sirsali	39
24. Raghunathpur	39
25. Naveen Laliyan	40
26. Dhikoli	40
27. Khindora	41
28. Naveen Kadwa	41
29. Dolcha	42
30. Jakheda	42
31. Bhadal	44
32. Bahrapur Morna	44
33. Daluhera	45
34. Hariya Khera	45
35. Singhawali Naveen	47
36. Dorala Sakoti	48
37. Nangli Baba	50
38. Jawalagarh	50

Contd....

Contd....(Appendix-I)

	Composite success score
39. Maharmati Meena	50
40. Nagli Sadharan	50
41. Jhitkhari	50
42. Bhamouri	55
43. Lalpur	55
44. Begmabad	60
45. Mandora	60
46. Nagla Rathi	62
47. Pesar	62
48. Mavimira	62
49. Kharkhari	65
50. Bagholi	65
51. Chandsara	65
52. Bakharpur Blaini	66
53. Gangol	66
54. Lohan	68
55. Kabatta	68
56. Jani Khurd	70
57. Namanpur	70
58. Chandpur	71
59. Bagholi	71
60. Nilocha	71
61. Bahrapur Khas	73
62. Khoddyalpur	73
63. Kaul	73
64. Mohammadpur Dhumi	73
65. Nadunagar	74
66. Rahwati	74
67. Piloni	74
68. Assa	75
69. Dhadra	75
70. Nagli Hareh	76

Contd....

Contd....(Appendix-I)

		Composite success score
71.	Kheri Manihar	76
72.	Mandwari	76
73.	Kunhera	77
74.	Junjuni	77
75.	Tarapur	78
76.	Ganeshpur	78

Constraints as Perceived by the Members

Sr. No.	Constraints	Mean value
A.	<u>Socio-Psychological</u>	
1.	People of lower caste are not allowed to participate in society meetings	1.60
2.	Faction among members due to caste consciousness	1.55
3.	Negative attitude of privileged section towards depressed class	1.50
4.	Dishonesty of executive members	1.45
5.	Ignorance of cooperative ideology	1.45
6.	Lack of harmony among members	1.35
7.	Reluctance to stand in the company of local people	1.30
8.	Milk cooperatives are meant for influential people	1.20
9.	Depressed class people are still considered as untouchable	1.20
10.	Bad behaviour of executive committee towards members	1.20
11.	The occurrence of nepotism and favouritism	1.18
12.	Lack of confidence in the principles of cooperation	1.17
13.	Belief in God as the cause of disease	1.17
14.	Preference to draught animals over milch animals	1.00
15.	Improper location of collection centre	0.95
16.	Cooperative cannot help the farmer	0.85
B.	<u>Economic</u>	
1.	Low price for milk	1.70
2.	Non availability of feed on subsidized rates	1.65
3.	Non availability of feed on credit basis	1.50

Contd....

Contd....(Appendix-IIa)

Sr. No.	Constraints	Mean value
4.	High cost of compounded feed	1.45
5.	High cost of medicines	1.45
6.	Irregular payment of bonus	1.40
7.	No incentive for supplying milk to societies	1.35
8.	Problems in receiving payments	1.34
9.	Irregular payments	1.33
10.	Costly rearing of crossbred cows	1.30
11.	Less price of cow's milk	1.25
12.	High cost of green fodder	1.20
13.	Less value of crossbred male	1.20
14.	Charges taken against AI	1.17
15.	Fee for pregnancy diagnosis	1.15
16.	No free visit of veterinary doctor	1.00
17.	High cost of fodder seeds	0.85
18.	Supplying milk daily at the society involves labour and wastage of time	0.60
19.	High charges for cattle insurance	0.60
20.	Lack of money to purchase crossbred cows	0.50
C.	<u>Infrastructural</u>	
1.	Lack of technical guidance	1.70
2.	Infrequent visit of veterinary doctor	1.70
3.	Less qualified staff working at AI centre	1.68
4.	Non availability of semen of desired breed	1.50
5.	Non availability of timely medical help	1.49
6.	Non availability of semen at proper time	1.40

Contd....

Contd....(Appendix-IIa)

Sr. No.	Constraints	Mean value
7.	Non availability of seed at proper time	1.35
8.	Seed of desired variety not available	1.30
9.	Irregular supply of feed	1.30
10.	Non availability of green fodder round the year	1.25
11.	Poor storage facilities at centre	1.23
12.	AI centres not easily approachable	1.15
13.	Non availability of AI facilities	1.14
14.	Non availability of medicines	1.10
15.	Rarely availability of emergency services	1.08
16.	Inadequate supply of fodder seeds	1.06
17.	Poor quality of fodder seed	1.00
18.	Feed not available all the time	0.95
19.	Supply of poor quality feed	0.85
20.	Proper testing equipments/facilities not available	0.85
21.	No helper at AI centre	0.80
22.	Poor physical condition at centre	0.79
23.	Lack of improved equipments	0.50
D.	<u>Technical</u>	
1.	Poor conception rate in buffaloes	1.80
2.	Decline in milk yield after F_1 generation	1.70
3.	Irregular testing of fat and SNF	1.70
4.	Extremely delicacy of semen input	1.65
5.	Susceptibility of crossbred cows	1.60
6.	Lack of knowledge about balanced feed	1.52
7.	Lack of knowledge of package of practices of green fodder	1.53

Contd....

Contd....(Appendix-IIa)

Sr. No.	Constraints	Mean value
8.	Lack of knowledge about feeding of colostrum to newly born calf	1.50
9.	Ignorance of farmers about clean milk production	1.45
10.	Inadequate knowledge of breeding practices	1.30
11.	Low fat in cow's milk	1.25
12.	Lack of knowledge about silage and hay	1.28
13.	Complete immunity not insured by vaccination	1.20
14.	Decrease in yield after vaccination	1.16
15.	Inadequate knowledge to detect animals in heat	1.14
16.	Presence of scrub bulls	1.13
17.	Ignorance of utility of vaccine as a prophylactic measure against contagious disease	1.12
18.	Ignorance of importance in deworming	1.10
19.	Poor rate of conception in crossbred at first insemination	1.10
E.	<u>Marketing</u>	
1.	Facility of advance payment by vendors	1.75
2.	Non competent members of the executive committee	1.50
3.	No doorstep purchase of milk	1.40
4.	Ignorance of the facilities of selling milk to milk cooperative societies	1.30
5.	Lack of interest in selling milk through cooperative society	1.25
6.	Ease of selling milk to the milk vendors	1.20
7.	Problem of transport facilities	1.00
8.	Milk purchased on fat and SNF basis	0.85
9.	Difficulty in maintaining records	0.50
10.	No provision of incentives	0.50

Contd....

Contd....(Appendix-IIa)

Sr. No.	Constraints	Mean value
F.	<u>Miscellaneous</u>	
1.	The discrepancy in the readings of fat and SNF between society and union	1.75
2.	Inefficient staff members	1.40
3.	Lack of good rapport between the supervisors and members of the society	1.30
4.	Lack of community approach for effective adoption of dairy farming practices	1.25
5.	More benefits by growing cash crops rather than fodder	1.24
6.	Practice of adulteration by members	1.10
7.	People do not consider dairy farming as a profitable business	1.00
8.	Lack of individual contact for effective adoption of crossbred cattle	0.64
9.	Secretary uses the payment for personal use and delay in payment	0.50

Constraints Faced by the Field Supervisors in Carrying out
the Dairy Cooperative Programme

Sr. No.	Constraints	Mean value
A.	<u>Socio-psychological</u>	
1.	Absence of loyalty of members	1.55
2.	Caste conflicts	1.45
3.	Domination of privileged section	1.45
4.	Poor involvement of members in decision making	1.35
5.	Lack of motivation among members	1.35
6.	Faction among members of the executive committee	1.30
7.	Members do not think that the society is their own	1.25
8.	Poor knowledge of members regarding the facilities available at the society	1.24
9.	Farmers' faith in quacks	1.20
10.	Belief in indigenous medication	1.13
11.	Attaching religious sentiments to outbreak of disease	1.12
12.	Social stratification	1.00
13.	People do not believe in the principles of cooperation	0.85
14.	Farmers considering AI against the wishes of nature	0.70
15.	Unfavourable attitude of members towards functioning of the society	0.69
B.	<u>Economic</u>	
1.	Low price of milk	1.50
2.	Non availability of credit facilities	1.40
3.	Inadequate funds	1.24
4.	High prices of animal feed	1.23

Contd....

Contd....(Appendix-IIb)

Sr. No.	Constraints	Mean value
5.	High cost of transportation	1.20
6.	Rising prices of medicines	1.15
7.	High cost of first aid material	1.14
8.	Less market value of crossbred males	1.13
9.	Low growth in paid up share capital	1.12
10.	Insufficient finance from government	1.12
11.	Losses incurred by milk cooperatives	0.55
12.	High cost of fodder seeds	0.45
13.	Rearing of crossbred cattle is costly	0.42
C.	<u>Infrastructural</u>	
1.	Lack of transport facilities	1.65
2.	Lack of AI and first aid services	1.50
3.	Vast area of jurisdiction under the supervisor	1.50
4.	Non availability of veterinary doctor in time	1.45
5.	Irregular supply of compounded feed	1.40
6.	Irregular and unplanned supply of vaccines	1.30
7.	Shortage of equipments at centre	1.25
8.	Paucity of green fodder	1.20
9.	Non availability of proper equipments	1.12
10.	Non availability of semen at right time	1.10
11.	Irregular supply of fodder seeds	1.00
12.	Lack of technical guidance	0.95
13.	Inefficient handling of the equipment by the secretary	0.92
14.	Less staff at society level	0.84

Contd....

Contd....(Appendix-IIb)

Sr. No.	Constraints	Mean value
15.	Inadequate facilities to test the milk at centre	0.65
16.	Inadequate supply of vaccine	0.60
D.	<u>Marketing</u>	
1.	Advance payment done by the milk vendors	1.65
2.	Presence of milk vendors	1.30
3.	Incompetency of field supervisors to persuade farmers to selling milk	1.20
4.	Non trust worthiness of executive committee	1.18
5.	Untimely payment done by the unions to societies	1.16
6.	Ease of selling milk to the vendors by the members	1.15
7.	Non availability of surplus milk with the farmers	1.15
8.	Problems in sale of milk	0.85
9.	Rigging in testing of milk by the milk tester	0.74
10.	Payment of milk on the basis of fat and SNF rather than on volume	0.62
E.	<u>Technical</u>	
1.	Poor conception of AI in buffaloes	1.50
2.	Practice of single insemination against the recommendation of double insemination	1.40
3.	Inadequate follow up of AI cases	1.30
4.	Inadequate training of stockman for evaluation of semen	1.25
5.	Susceptibility in crossbred animals	1.20
6.	Lack of progeny tested bulls	1.18
7.	Lack of technical expertise	1.15
8.	Use of poor quality roughage for feeding cattle	1.15

Contd....

Contd....(Appendix-IIb)

Sr. No.	Constraints	Mean value
9.	No preservation of fodder during flush season	1.10
10.	Inadequate knowledge of field staff in providing guidance to farmers on cheap scientific housing for animals	1.09
11.	Lack of quality control on compounded feed	0.65
12.	Detection of silent heat in animals is difficult to members	0.50
13.	Common housing poses problem in isolating the sick animal from healthy ones	0.45
F. <u>Communication</u>		
1.	Untimeliness of communication in the department	1.35
2.	Lack of upward and horizontal communication	1.34
3.	Lack of communication skill	1.32
4.	No proper guidelines and directions to give information to subordinate	1.30
5.	Lack of community approach for effective participation in society affairs	1.28
6.	No information to the supervisors about proceedings of important departmental meetings	1.15
7.	Lack of feedback in the department	1.10
8.	Frequent distortion of messages	1.09
9.	Poor communication of information	1.05
10.	Lack of individual approach for better influence	1.00
G. <u>Managerial</u>		
1.	Favouritism and nepotism in management	1.30
2.	Financial shortage for programme execution	1.28
3.	Frequent transfer of staff	1.27
4.	Lack of trust between supervisors and superiors	1.20

Contd....

Contd....(Appendix-IIb)

Sr. No.	Constraints	Mean value
5.	Non involvement of supervisors in decision making	1.19
6.	Lack of proper rapport between management committee and others	1.15
7.	Delay in working by supervisors	1.10
8.	Irresponsible supervisory staff	1.10
9.	Less skill among the supervisors in making the plans	0.65
10.	Improper and inadequate policies	0.50
H.	<u>Political</u>	
1.	Political interference in appointments, transfers and promotions	1.50
2.	Interference of local politicians in the day to day affairs of society	1.35
3.	Top officials prefer to be in good books of politicians than good services	1.30
4.	Politically biased site selection of AI centre	1.25
5.	Interference of politicians at union as well at society level	1.20
6.	Lack of effective leadership	1.20
7.	Political affiliation vitiate the environment	1.19
8.	Political changes causing change of fortune of top officials thus reducing productivity of departments	1.10
9.	Supervisors are forced to have political links	1.00
10.	Selection of president of society on the basis of political hold	1.00
11.	Negative attitude of cooperative leaders towards their fellow members	0.90
12.	Election of cooperative president weakens the cohesion	0.63

Contd....

Contd....(Appendix-IIb)

Sr. No.	Constraints	Mean value
I.	<u>Miscellaneous</u>	
1.	Due to seasonal variation members get higher price from milk vendors in summer	1.80
2.	Nearness of society to urban area	1.45
3.	Lack of members' faith in cattle development programme as a measure for improving their economy	1.38
4.	Lack of audio visual aids for educating the members on cooperative programmes	1.35
5.	Lack of functional literacy among members	1.25
6.	No expenditure on developmental activities	1.23
7.	Lack of irrigation facilities in the area	1.20
8.	Less number of members in society	1.18
9.	Society can't keep inputs if members don't require	1.10
10.	No doorstep service	1.08
11.	Lengthy payment process	1.05
12.	Adulteration by transporters	1.00
13.	Lack of coordinated approach in the execution of different programmes envisaged under MPCs	0.95
14.	More benefits from agriculture than dairying	0.80
15.	Natural calamities	0.40

Interview Schedule for Members of MPCS

S.No. _____ Dated: _____

Name of Society: _____

Name of respondent: _____

A. SOCIO-PERSONAL

1. Age _____ years

2. Socio-Economic Status2.1 Land: How much land do you own _____ acres

No land,	upto 1,	upto 5,	10,	15,	20,	20 & above
(0)	(1)	(2)	(3)	(4)	(5)	(6)

2.2 Education: Upto what standard you have received
your education _____

I	/	R	/	RW	/	P	/	M	/	H	/	Inter	/	G & PG
0		1		2		3		4		5		6		7

2.3 Caste: _____

Harijan/	Julaha/	Carp.,	Lohar,	Kumhar,	Nai,	Teli/
1		2		3		4

Yadav,	Gujjar,	Kurmi/	Thakur,	Brahmin,	Jat,	Kayast
5		6		7		8

2.4 Occupation: _____

Labour/	Caste occupation/	Business/	Ind. Profession/
1	2	3	4

Cultivation/	Service
5	6

2.5 a) Type of family: N / Joint
2 1b) Size: _____ Nos. Below 5 / Above 5
2 1

c) Distinctive features:

Freedom fighter / High office bearer in coop.

2.6 Houses _____ Nos.

Kuccha	/	Pucca	/	Mixed
1		2		3

Contd.....

Contd....(Appendix-IIIa)

2.7 Farm Power

Bullocks _____ Nos.: Tractor _____

2.8 Material PossessionRadio/T.V./Cycle/Scooter/Chairs/Pressure Cookers/Mixer/
Improved Agril. equipments (1 score to each).3. Herd size _____ No.

S.No.	Description	N.D.	C.B.	Buffaloes	Total
1.	Milch				
2.	Dry				
3.	Heifer				
4.	Calves				
5.	Bullocks				

4. Milk production/consumption and sale (day before investigation)
litres/day.

S. No.	Description	Milk production	Milk consumption	Milk sales
1.	Cow			
2.	Buffalo			
3.	Mixed			
	Total			

5. Participation in MPCS5.1 How often do you visit society for purposes
other than sale of milk ?Regularly/ Sometimes/ Rarely/ Never
3 2 1 0

5.2 How often do you attend society meetings ?

Almost every time/ Sometimes/ Rarely/ Never
3 2 1 0

5.3 How do you participate in society meetings ?

- a) See agenda before meeting and make constructive suggestions (3)
- b) Occasionally raise questions and seek clarification (2)
- c) Remain passive observer (1)

Contd....

Contd....(Appendix-IIIa)

5.4 Do you see the proceedings or other official records of the society ? Yes / No

If yes, Almost regularly / Occasionally

2

1

B. COMMUNICATION VARIABLES

6. Extension Contacts:

How often do you visit and discuss matters related to farming with the following extension workers ?

S. No.	Ext. Personnel	Frequently (above 12)	Often (6-12)	Seldom (1-6)	Never (0)
		3	2	1	0

1. V.L.W.
2. Supervisors(Milk Union)
3. Livestock Asstt.
4. V.A.S.
5. Agri. Officer
6. Specialist from Univ./
Research Institute
7. Any other, specify

7. Mass Media Exposure:

How often do you read/see/listen the following:

S. No.	Media	Regularly 3	Sometimes 2	Rarely 1	Never 0
--------	-------	----------------	----------------	-------------	------------

1. Newspaper
2. Magazine
3. Radio
4. T.V.
5. Films (Number)

C. PSYCHOLOGICAL VARIABLES

8. Identification with Society:

8.1 To whom the society belongs in your opinion ?

To us / Others

1

0

Contd....

Contd....(Appendix-IIIa)

- 8.2 In case some outside agency offer higher price, what will you do ?
- Try to prevent outside agency to operate (2)
 - Do not bother; continue supply to society (1)
 - Supply milk to new agency (0)
- 8.3 Supposing your milk get soured/contaminated, what will you do ?
- Do not supply milk to the society (1)
 - Supply milk to the society (0)
- 8.4 Do you try to see that others also supply good quality milk ?
- | | | |
|-----|---|----|
| Yes | / | No |
| 1 | | 0 |
- 8.5 How do you see in case of conflict among members of the society ?
- Feel concerned and try to resolve so that it does not affect the society (1)
 - Usually keep away from such conflicts (0)
- 8.6 How do you react if your society get poor audit grade or bad remarks from the union ?
- I feel sorry and try to find out the cause for such remarks (1)
 - Society chairman and managing committee should feel responsible (0)

9. Satisfaction with Society:

Please indicate how much satisfied you are with the following activities of the society:

S. No.	Activities	Most satisfied	Satisfied	Can't say	Dis-satisfied	Highly dis-satisfied
		5	4	3	2	1
1.	Weighing					
2.	Testing					
3.	Maintenance of accounts					
4.	Supply of cattle feed					
5.	Supply of other inputs such as ghee					
6.	Vet. health care					
7.	Staff behaviour					
8.	Payment					
9.	Election procedure					

Contd....

Contd....(Appendix-IIIa)

10. Attitude of members towards the MPCS

- | | |
|--|---------------|
| a) Dairy cooperative society is suitable for average dairy farmers. | Yes/No
1 0 |
| b) Economic condition of the members was improved because of cooperative society. | Yes/No |
| c) Participation in activities of dairy cooperative society is waste of time. | Yes/No |
| d) Dairy cooperative is a farmer oriented scheme. | Yes/No |
| e) Each village should have milk cooperative society. | Yes/No |
| f) Milk cooperative society reduces caste tension in the village. | Yes/No |
| g) Milk cooperative society infuses feeling of togetherness. | Yes/No |
| h) Animals are healthy and better looked after in milk cooperative society villages. | Yes/No |
| i) Through milk cooperative society, we are introduced to many useful new ideas. | Yes/No |
| j) Fat testing of milk is accurate in the society. | Yes/No |
| k) The dairy farmers will be affected if this society is abolished. | Yes/No |
| l) Milk cooperative society provides regular remunerative price. | Yes/No |
| m) Milk society provides job to rural people. | Yes/No |

11. Knowledge about dairy cooperative societies:

- a) What are the main objectives of your MPCS ?
Suggest at least two _____ (2)
- b) What is the price of each share ? _____ (1)
- c) What is primary membership fee ? _____ (1)
- d) As a member what do you feel as your primary responsibility to society ? _____ (2)
- e) What is the average milk procurement/day of your society ? _____ (1)
- f) What is the total amount in your society reserve fund ? _____ (1)
- g) Who manages the day to day affairs of your society ? _____ (1)
- h) In case of any injustice regarding milk fat testing to whom will you report ? _____ (1)

Contd....

Contd....(Appendix-IIIa)

13. Economic Motivation

Statement	Agree	Undecided	Disagree
a) Traditional dairy farming methods give good earning	1	2	3
b) A small farmer can get more from his land through dairy farming than crop production	3	2	1
c) Dairy farming pays the farmer more than investment	3	2	1

D. INFRASTRUCTURAL VARIABLES14. Infrastructural Efficiency

- 14.1 How do you feel about the procedures being followed in your cooperative society while availing facilities ?

Very complicated/ Complicated/ Somewhat complicated/
 1 2 3

Simple/ Very simple
 4 5

- 14.2 Incentives provided

S. Incentives No.	Regularly 3	Sometime 2	Rarely 1	Never 0
1. Subsidized fodder seeds				
2. Subsidized vaccines				
3. Subsidized cattle feed				

- 14.3 Educational efforts made, intensity:

High efforts/ Medium efforts/ Low efforts/ No efforts
 3 2 1 0

- 14.4 Adequacy of inputs provided:

Very adequate/ Adequate/ Inadequate
 3 2 1

- 14.5 Supply efficiency:

Well before season/ During season/ After season
 3 2 1

- 14.6 Time efficiency:

Very quick/ Quick(in a week)/ Late(in a fortnight)
 3 2 1

Contd....

Contd....(Appendix-IIIa)

14.7 Dealing efficiency:

Very fair/ Fair/ Bad/ Very bad
3 2 1 0

14.8 Distance of society from union:

Very near/ Near/ Distant
3 2 1

E. CONSTRAINTS PERCEIVED BY THE MEMBERS IN UTILIZING THE SERVICES PROVIDED BY DAIRY COOPERATIVES

S. No.	Statements	Very serious	Serious	Not serious
	Score:	2	1	0
1	2	3	4	5
A) <u>Socio-Psychological Constraints</u>				
1.	Milk cooperatives are meant for influential people.			
2.	Negative attitude of privileged section towards depressed class.			
3.	People of lower caste are not allowed to participate in the society meetings.			
4.	Ignorance of cooperative ideology.			
5.	Lack of democratic awareness and harmony among members.			
6.	Reluctance to stand in the company of local people.			
7.	Faction among members due to caste consciousness.			
B) <u>Economic Constraints</u>				
1.	Low price for milk.			
2.	Non-availability of feed on subsidized rates.			
3.	Non-availability of feed on credit basis.			
4.	High cost of compounded feed.			
5.	High cost of medicines.			
6.	Irregular payment of bonus.			
7.	No incentive for supplying milk to societies.			

Contd....

Contd....(Appendix-IIIa)

1	2	3	4	5
8.	Problems in receiving payments.			
9.	Irregular payments.			
10.	Costly rearing of CB cows.			
11.	Less price of cow's milk.			
12.	High cost of green fodder.			
13.	Less value of CB male.			
C)	<u>Infrastructural Constraints</u>			
1.	Lack of technical guidance.			
2.	Less qualified staff working at AI centres.			
3.	Non-availability of semen at proper time.			
4.	Non-availability of semen of desired breed.			
5.	Non-availability of timely medical help.			
6.	Infrequent visits of veterinary doctor.			
7.	Non-availability of seed at proper time.			
8.	Seed of desired variety not available.			
9.	Irregular supply of feed.			
10.	Non-availability of green fodder round the year.			
11.	Poor storage facilities at centre.			
D)	<u>Technical Constraints</u>			
1.	Poor conception rate in buffaloes.			
2.	Decline in milk yield after F ₁ generation in crossbred animals			
3.	Lack of knowledge about balanced feed.			
4.	Lack of knowledge about feeding of colostrum to newly born calf.			
5.	Ignorance of farmers about clean milk production.			

Contd....

Contd....(Appendix-IIIa)

1	2	3	4	5
6.	Lack of knowledge of package of practices of green fodder.			
7.	Irregular testing of fat and SNF.			
8.	Susceptibility of crossbred cows.			
9.	Extremely delicacy of semen input.			
E)	<u>Marketing Constraints</u>			
1.	No doorstep purchase of milk.			
2.	Incompetent members of the executive committee.			
3.	Ignorance of the facilities of selling milk to the milk cooperative societies.			
4.	Lack of interest in selling milk through cooperative society.			
5.	Ease of selling milk to the milk vendors.			
6.	Facility of advance payment by milk vendors.			
F)	<u>Miscellaneous Constraints</u>			
1.	Inefficient staff members.			
2.	Lack of good rapport between the supervisors and members of society.			
3.	More benefits by growing cash crops rather than fodder.			
4.	Lack of community approach for effective adoption of dairy farming practices.			
5.	The discrepancy in the readings of fat and SNF between society and union.			

Contd....

Contd....(Appendix-IIIa)

F. ADOPTION OF SCIENTIFIC DAIRY FARMING PRACTICES

		Always	Sometimes	Never
		2	1	0
1	2	3	4	5
A) <u>Adoption of Breeding Practice:</u>				
1.	Keeping a crossbred (C.B.) cow/heifer/young stock.			
2.	Keeping watch on oestrus cycle and heat symptoms of cow/buffaloes.			
3.	Getting covered the C.B. heifer within 15-21 months of age.			
4.	Practising A.I. in animals at proper time of heat.			
5.	Practising the cow served within 60-90 days after calving.			
6.	Practising the pregnancy diagnosis between 45-120 days after A.I.			
B) <u>Adoption of Feeding Practice:</u>				
1.	Feeding colostrum to new born calves within 2-4 hours of birth.			
2.	Feeding colostrum continuously to new born calves upto 5th day of its birth.			
3.	Feeding concentrate mixture on the basis of milk production.			
4.	Providing green fodder to animals round the year.			
5.	Practising H.Y.V. seeds for fodder production.			
6.	Practising fertilization in raising fodder crops.			
C) <u>Adoption of Health Care Practice:</u>				
1.	Practising vaccinations timely and regularly against the contagious diseases especially H.S., F.M.D. and B.Q.			
2.	Segregating the diseased animals suffering from contagious diseases.			
3.	Burying the dead body if the animal die of contagious diseases.			

Contd....

Contd....(Appendix-IIIa)

1	2	3	4	5
4.	Practising pesticides (e.g. Malathion/BHC etc.) for the prevention and control of ticks, mites etc.			
5.	Practising deworming in calves for the prevention of parasitic diseases.			
6.	Practising treatment of sick animals/ repeat breeders and anoestrus cases by veterinarian.			
D)	<u>Management Practice:</u>			
1.	Providing clean and fresh water for drinking to animals.			
2.	Practising full hand method of milking i.e. without the use of thumb for milking the animals.			
3.	Maintaining cleanliness in the animals shed/house(s).			
4.	Practising a dry period of about 60 days in C.B. cows.			
5.	Practising castration of male calves between one and two years of age.			
6.	Practising dehorning in calves at the age of about 7-31 days.			

Interview Schedule for Field Supervisors

Sl.No. _____ Dated _____

Name of Union _____

Name of Society _____

Name of the respondent _____

Designation _____

A. SOCIO-PERSONAL

1. Age _____ years

2. Education _____

3. Marital Status _____ (Married/Unmarried)

2 1

4. Stay at headquarters i) At headquarter (2)
ii) Elsewhere (1)5. Family background i) Rural (2)
ii) Urban (1)6. Father's occupation i) Agriculture (2)
ii) Non-agriculture (1)

7. Experience _____ months.

8. Inservice training:

Have you got any inservice training; Yes/No
if yes, give the following details:

S. No.	Name of training	Duration (months)

Contd....

Contd....(Appendix-IIIb)

B. ORGANISATIONAL

9. Number of societies under your jurisdiction.

10. Number of societies which can be easily supervised.

11. Attitude towards villagers:

	SA 1	A 2	U 3	DA 4	SDA 5
a) It is highly rewarding experience to serve the village people.	5	4	3	2	1
b) It is the job of supervisors to insure that villagers accept and cooperate with cooperative unions' plans and programmes.	5	4	3	2	1
c) The supervisors first responsibility is to the villagers. His work is out there in the village and not in the union office.	5	4	3	2	1
d) To get satisfaction from the jobs, supervisors must work on problems, the villagers think are important, even though their problems may not be recognised by the union officials.	1	2	3	4	5
e) The best managers are those who give you a lot of freedom to work on the things that villagers think are important.	5	4	3	2	1
f) More time spent on records and meetings at union level and less time spent in the villages would make cooperatives more successful.	1	2	3	4	5

12. Knowledge about Dairy Cooperative Objectives:

Score

- To provide facilities for profitable marketing of milk through the district cooperative milk union.
- To undertake the sale of balanced cattle feed and also to promote cultivation leading to increased fodder availability.
- To undertake dairy extension activities so as to improve the breeds and their health.

Contd...

Contd....(Appendix-IIIb)

- d) To undertake such other activities as are conducive to the attainment of the above objectives.

13. Knowledge about Dairy Farming:

Score

- a) When an animal should be inseminated in heat ?
 i) Immediately.
 ii) Between 12-18 hours after onset of heat.
 iii) Between 18-24 hours after onset of heat.
 iv) After 24 hours onset of heat.
- b) When should a cow be examined for P.D. ?
 i) 1-2 months after conception.
 ii) 2-3 months after conception.
 iii) 3-4 months after conception.
 iv) More than 4 months after conception.
- c) When should an animal be served after calving ?
 i) Within 60 days.
 ii) Within 60-90 days.
 iii) Within 90-120 days.
 iv) More than 120 days.
- d) What is the normal period for the freshly calved animals to drop placenta ?
 i) Within 2 hours.
 ii) Within 2-4 hours.
 iii) Within 4 hours and above.
- e) If the placenta is not dropped in a normal time, when should it be got removed ?
 i) After 12 hours.
 ii) After 24 hours.
 iii) After 36 hours.
- f) What are the advantages of feeding colostrum to new born calves ?
 i) To provide immunity against disease.
 ii) To have medicinal effect.
 iii) To increase appetite.
- g) What is a balanced feed ?
 i) Feeding of concentrate mixture.
 ii) Feeding of concentrate mixture and fodder.
 iii) Feeding of various feed ingredients in proportionate quantity, according to age, body weight and physiological status of animal.

Contd....

Contd....(Appendix-IIIb)

- h) Is it to feed a cow yielding more than 5 lit. milk extra amount of concentrate. If yes, than how much ? Yes/No
- i) 1 kg conc. for 1 kg extra milk.
 - ii) 1 kg conc. for 2 kg extra milk.
 - iii) 1 kg conc. for 3 kg extra milk.
- i) Is there necessity of giving extra feed to the pregnant cow ? Yes/No
- i) 1 kg concentrate.
 - ii) 2 kg concentrate.
 - iii) 3 kg concentrate.
- j) What is the quantity of mineral mixture added daily in 1 kg. of concentrate feed ?
- i) 10-15 gm.
- k) What is the quantity of green fodder for an animal per day ?
- i) 20-30 kg.
 - ii) 30-40 kg.
 - iii) 40-60 kg.
- l) What is the quantity of dry fodder for an animal per day ?
- i) 1-2 kg.
 - ii) 3-4 kg.
 - iii) More than 4 kg.
- m) What is the importance of growing mixed fodder crops ?
- i) It is the efficient use of available resources.
 - ii) It improves the social status.
 - iii) It provides the required nutrient through green mixed fodder to animals.
- n) When vaccination is done against the following diseases ?
- i) R.P. () Any time of the year.
 - ii) B.Q. () Before onset of rain.
 - iii) F.M.D. () February and September.
 - iv) Anthrax () Any time of the year.
 - v) H.S. () Before onset of rain.
- o) What are the advantages of vaccination ?
- i) It cures diseases.
 - ii) It prevents outbreak of diseases.
 - iii) It provides immunity against specific diseases.

Contd....

Contd....(Appendix-IIIB)

- p) What are the important symptoms of R.P. ?
 - i) High temperature.
 - ii) Shooting bloody diarrhoea.
 - iii) Red conjunctivities.
 - iv) Animal becomes furious.
- q) What are the important symptoms of H.S. diseases ?
 - i) Respiratory problem.
 - ii) Hot hard painful swelling at neck.
 - iii) High temperature.
- r) What are the important symptoms of F.M.D. ?
 - i) Salivation from mouth.
 - ii) Animal becomes lame.
 - iii) Painful eruption in mouth and between the hooves.
- s) What are the important symptoms of worm trouble in a calf ?
 - i) Mud eating.
 - ii) Weak body or anaemic conditions.
 - iii) Animal become belied.
 - iv) Foul smelling from dung.
- t) Mention a common deworming during _____ (piperazine adipat)
- u) What precautions you observe in the disposal of diseased dead animal ?
 - i) Burying the carcass.
 - ii) Burying with layers of lime.
 - iii) Handing over the dead body to shoemaker of village.
- v) When should the new born calf be allowed to suckle its mother ?
 - i) Within 1 hour.
 - ii) Within 2 hours.
 - iii) Wait until placenta is released.
- w) What is the age at which dehorning should be done ?
 - i) After one week.
 - ii) After two weeks.
 - iii) After three weeks and above.
- x) What is the age at which deworming should be undertaken ?
 - i) After one week.
 - ii) After two weeks.
 - iii) After three weeks and above.

Contd....

Contd....(Appendix-IIIb)

- y) When will you allow a young male to be castrated ?
- 1 to 1½ year.
 - 1½ to 2 years.
 - After 2 years.
- z) Mention the dry period in animal ?
- 60 days.
 - 60-90 days.
 - More than 90 days.
- z-1) What type of vessel should be used for milking ?
- Brass.
 - Aluminium.
 - Earthen pot.
- z-2) Should the milk pail be cleaned before milking ? Yes/No
If yes, how ?
- Rinse the vessel with weak detergent.
 - Wash the vessel with warm water.
 - Wash the vessel with ordinary water.
- z-3) What are the normal standards for fat and SNF
in cow/buffalo milk ?
- | | Fat | SNF |
|-------------|-----------|-----------|
| i) Cow | ____(4.0) | ____(8.5) |
| ii) Buffalo | ____(6.0) | ____(9.0) |

C. PSYCHOLOGICAL VARIABLES**14. Job satisfaction:**

	Highly satis- fied	Satis- fied	Neu- tral	Dis- satis- fied	Highly dis- satis- fied
	5	4	3	2	1
1. Salary					
2. Working conditions (hours of working, facilities, condition of working)					
3. Behaviour of milk producer members					
4. Behaviour of society's secretary					

Contd.....

Contd....(Appendix-IIIb)

	5	4	3	2	1
5. Behaviour of colleagues					
6. Behaviour of superiors					
7. Promotion avenues/career advancement					
8. Communication in the union and societies					
9. Policies of union					
10. Supply of inputs					
11. Timeliness of supply					
12. Transport facilities (personal)					
13. Recognition (for achievement)					

D. CONSTRAINTS FACED BY THE SUPERVISORS IN CARRYING OUT THE DAIRY COOPERATIVE PROGRAMME

S. No.	Statements	Very serious	Serious	Not serious
		2	1	0
1	2	3	4	5

A) Socio-Psychological Constraints:

1. Farmers' faith in quacks.
2. Caste conflicts.
3. Domination of privileged section.
4. Faction among members of the executive committee.
5. Absence of loyalty of members.
6. Members don't think that the society is their own.
7. Poor involvement of members in decision making.
8. Lack of motivation among members.
9. Poor knowledge of farmers regarding the facilities available at the society.

Contd....

Contd....(Appendix-IIIb)

1	2	3	4	5
B)	<u>Economic Constraints:</u>			
1.	Non-availability of credit facilities.			
2.	Inadequate funds.			
3.	Less market value of CB males.			
4.	Low growth in paid up share capital.			
5.	Insufficient finance from the government.			
6.	High cost of first aid material.			
7.	High cost of transportation.			
8.	High prices of animal feed.			
9.	Low price of milk.			
10.	Rising prices of medicines.			
C)	<u>Infrastructural Constraints:</u>			
1.	Shortage of equipments at centre.			
2.	Vast area of jurisdiction under the supervisor.			
3.	Lack of transport facilities.			
4.	Non-availability of veterinary doctor in time.			
5.	Paucity of green fodder.			
6.	Lack of AI and first aid services.			
7.	Irregular and unplanned supply of vaccines.			
8.	Irregular supply of compounded feed.			
D)	<u>Marketing Constraints:</u>			
1.	Non-trustworthiness of executive committee.			
2.	Presence of milk vendors.			
3.	Advance payment done by the milk vendor.			
4.	Ease of sell milk to the vendors by the members.			
5.	Incompetency of the field supervisors to persuade farmers to selling milk.			

Contd....

Contd....(Appendix-IIIb)

1	2	3	4	5
6.	Non-availability of surplus milk with the farmers.			
7.	Untimely payment done by the union to the societies.			
E)	<u>Technical Constraints:</u>			
1.	Poor conception of AI in buffaloes.			
2.	Inadequate follow up of AI cases.			
3.	Practice of single insemination against the recommendation of double insemination.			
4.	Inadequate training of stockman for evaluation of semen.			
5.	Susceptibility in crossbred animals			
6.	Lack of progeny tested bulls.			
7.	Lack of technical expertise.			
8.	Use of poor quality roughages for feeding cattle.			
9.	No preservation of fodder during flush season.			
10.	Inadequate knowledge of field staff in providing guidance to farmers on cheap scientific housing for animals.			
F)	<u>Communication Constraints:</u>			
1.	Lack of upward and horizontal communication.			
2.	Untimeliness of communication in the department.			
3.	Lack of communication skill.			
4.	No proper guidelines and directions to give information to subordinate.			
5.	Lack of community approach for effective participation in society affairs.			

Contd....

Contd....(Appendix-IIIb)

1	2	3	4	5
G)	<u>Managerial Constraints:</u>			
1.	Financial shortage for programme execution.			
2.	Favoratism and Nepotism in management.			
3.	Frequent transfer of staff.			
4.	Lack of trust between supervisors and superiors.			
5.	Non-involvement of supervisors in decision making.			
6.	Lack of proper rapport between management committee and others.			
7.	Delay in working by supervisors.			
8.	Irresponsible supervisory staff.			
H)	<u>Political Constraints:</u>			
1.	Political interference in appointments, transfers and promotions.			
2.	Top official prefer to be in good books of politicians than good services.			
3.	Politically biased site selection of AI centre.			
4.	Interference of local politicians in the day to day affairs of society.			
5.	Interference of politicians at union as well as at society level.			
6.	Lack of effective leadership.			
7.	Political affiliation vitiate the environment.			
I)	<u>Miscellaneous Constraints:</u>			
1.	Due to seasonal variation members get higher price from milk vendors in summer.			
2.	Lack of members' faith in cattle development programme as a measure for improving their economy.			

Contd....

Contd....(Appendix-IIIb)

1	2	3	4	5
3.	Lack of audio-visual aids for educating the members on cooperative programmes.			
4.	Nearness of the society to urban area.			
5.	Lack of functional literacy among members.			
6.	Lack of irrigation facilities in the area.			
7.	No expenditure on developmental activities.			
8.	Less number of members in society.			

Correlation Matrix (LSS)

	1	2	3	4	5	6	7	8	9	10	11
1	-										
2	-0.2577	-									
3	0.2134	0.1990	-								
4	0.0829	0.2493	0.4134	-							
5	0.0264	-0.0405	-0.0158	0.0536	-						
6	0.1566	0.4000	0.6972	0.5840	0.0865	-					
7	0.1204	0.2717	0.7179	0.4185	-0.0911	0.6688	-				
8	0.1166	0.5764	0.7144	0.6931	0.0289	0.8767	0.6757	-			
9	0.0768	0.3298	0.4393	0.3130	0.0155	0.5133	0.6545	0.5450	-		
10	0.1451	0.2727	0.3945	0.3141	0.0750	0.4244	0.4773	0.4801	0.7410	-	
11	-0.0056	0.2709	0.3639	0.2311	-0.0428	0.4463	0.5817	0.4482	0.8355	0.2885	-
12	0.0288	0.5550	0.5821	0.4094	-0.0976	0.6800	0.6866	0.7684	0.4781	0.3331	0.4565
13	-0.0695	0.6675	0.3980	0.3617	-0.1329	0.5866	0.5188	0.6835	0.4391	0.2359	0.4331
14	-0.0360	0.7007	0.4005	0.3591	-0.0895	0.4389	0.3524	0.6011	0.3304	0.3339	0.2312
15	-0.0744	0.6436	0.3951	0.2640	-0.0335	0.3848	0.3061	0.5309	0.2671	0.2398	0.2292
16	0.0106	0.2149	0.0507	0.0434	-0.0648	-0.0820	0.0536	0.0679	0.0717	0.0360	0.0775
17	-0.2128	0.2671	0.0932	0.1313	-0.0278	0.0235	0.0134	0.1555	0.0381	-0.0154	0.0767
18	-0.0442	0.7503	0.3555	0.3182	0.0929	0.4800	0.2984	0.6276	0.2793	0.2649	0.2263
19	-0.0072	0.5724	0.2605	0.3551	0.0465	0.3687	0.2838	0.5323	0.2333	0.2992	0.1396
20	0.1032	0.3292	0.3999	0.2924	0.0693	0.3772	0.2792	0.5000	0.2599	0.2566	0.2060
21	0.0106	0.2659	0.0098	0.0449	0.0175	-0.0792	0.0196	0.0748	0.0917	0.0692	0.0867
22	-0.0385	-0.1107	-0.2686	-0.5792	-0.0930	-0.2876	-0.2372	-0.3900	-0.1300	-0.1986	-0.0138
23	0.1264	0.1434	0.0934	0.0795	0.0018	0.1751	0.0803	0.1900	-0.0125	0.0622	-0.0627

Contd....

Contd....(Appendix-IVa)

	1	2	3	4	5	6	7	8	9	10	11
24	-0.0954	-0.1031	0.1736	0.1292	-0.0342	0.1569	0.1789	0.1153	0.1660	0.2088	0.0595
25	-0.0590	-0.0889	-0.0875	0.0026	-0.0805	-0.0896	-0.1574	-0.0686	-0.0489	-0.0249	-0.0623
26	0.0661	-0.2336	-0.2940	-0.2647	-0.1170	-0.3046	-0.2338	-0.3504	-0.1877	-0.1423	-0.1557
27	-0.0693	-0.0068	0.0291	-0.2463	-0.0595	-0.1095	-0.0829	-0.1520	-0.0724	-0.1005	-0.0406
28	-0.0107	-0.1435	-0.1054	-0.2945	-0.1307	-0.1531	-0.1310	-0.2204	-0.0857	-0.0642	-0.0776
29	0.2341	0.3907	0.2992	0.4227	-0.0138	0.4923	0.4251	0.5450	0.2825	0.1780	0.2850
30	0.1700	0.3482	0.5663	0.5674	0.1066	0.6902	0.5459	0.7422	0.4324	0.4339	0.3244
31	0.0548	0.4242	0.3530	0.4053	-0.0047	0.5017	0.4547	0.5631	0.3411	0.2287	0.3167
32	-0.0145	0.3132	0.3773	0.3861	0.0473	0.4398	0.4037	0.5085	0.3236	0.2844	0.2623
33	0.1608	0.4677	0.5268	0.5688	0.0461	0.6941	0.5858	0.7631	0.4349	0.3591	0.3717

1 = Age; 2 = Education; 3 = Land; 4 = Caste; 5 = Type of family; 6 = Material possession; 7 = Herd size;
8 = SES; 9 = Milk production; 10 = Milk consumption; 11 = Milk sale;

Contd....

Contd....(Appendix-IVa)

	12	13	14	15	16	17	18	19	20	21	22
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12	-										
13	0.7478	-									
14	0.6795	0.5945	-								
15	0.6022	0.5484	0.8484	-							
16	0.0397	0.0572	0.2530	0.2799*	-						
17	0.1486	0.0650	0.3709	0.4272	0.6563	-					
18	0.5888	0.5999	0.6758	0.6800	0.3758	0.5018	-				
19	0.4700	0.4974	0.5709	0.5404	0.3317	0.4202	0.6798	-			
20	0.4374	0.3698	0.3696	0.3180	0.0627	0.1525	0.4726	0.3606	-		
21	0.1494	0.1397	0.3725	0.3975	0.5403	0.5363	0.3480	0.4068	0.1855	-	
22	-0.2809	-0.2100	-0.2839	-0.1602	-0.2006	-0.2334	-0.2618	-0.2651	-0.0748	-0.0134	-
23	0.2123	0.1476	0.0562	-0.0435	-0.2536	-0.3319	0.0307	0.0683	0.0344	-0.2996	-0.0321

x11

Contd....

Contd....(Appendix-IVa)

	12	13	14	15	16	17	18	19	20	21	22
24	0.0486	-0.0182	-0.0331	-0.1112	-0.3787	-0.1971	-0.2299	-0.1509	-0.0865	-0.4102	-0.1350
25	-0.1695	-0.1688	-0.1268	-0.1802	-0.0268	0.0744	-0.1456	-0.1701	-0.1953	-0.1965	-0.0634
26	-0.2647	-0.2649	-0.3168	-0.3323	-0.2532	-0.4161	-0.4224	-0.3672	-0.2788	-0.2987	0.4346
27	-0.0404	0.0259	-0.0063	0.0321	-0.3693	-0.1953	-0.1209	-0.1354	-0.0541	-0.1461	0.2885
28	-0.1604	-0.1670	-0.2360	-0.2475	-0.4564	-0.4111	-0.3731	-0.3252	-0.1892	-0.3770	0.4996
29	0.4483	0.4413	0.3803	0.3325	0.1267	0.1192	0.5069	0.5068	0.3456	0.2106	-0.1771
30	0.5147	0.3643	0.4105	0.3350	0.0769	0.1264	0.3999	0.4862	0.3516	0.0373	-0.2796
31	0.5227	0.5051	0.5405	0.4679	0.1690	0.2876	0.5048	0.5075	0.3460	0.2512	-0.2565
32	0.4285	0.3533	0.4368	0.3811	0.1213	0.1707	0.3851	0.5035	0.3094	0.1707	-0.2333
33	0.6197	0.5330	0.5670	0.4776	0.1490	0.2208	0.5779	0.6310	0.4430	0.2013	-0.3042

12 = Extension contact; 13 = Mass media exposure; 14 = Participation in MFCS; 15 = Identification with society;
 16 = Satisfaction with society; 17 = Attitude towards MFCS; 18 = Knowledge about MFCS; 19 = Knowledge about DPTs;
 20 = Economic motivation; 21 = Infrastructural efficiency; 22 = Socio-psychological constraints;

Contd....

Contd....(Appendix-IVa)

	23	24	25	26	27	28	29	30	31	32	33
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Contd....

1111x

Contd....(Appendix-IVa)

	23	24	25	26	27	28	29	30	31	32	33
24	0.3224	-									
25	0.2543	0.3101	-								
26	0.2483	0.1595	0.1764	-							
27	0.1600	0.2408	0.1773	0.2230	-						
28	0.5202	0.5152	0.4693	0.7043	0.6410	-					
29	0.1607	0.1936	-0.2789	-0.2134	-0.1865	-0.2514	-				
30	0.1029	0.2194	-0.0628	-0.2122	-0.1602	-0.1246	0.4774	-			
31	0.0436	0.0031	-0.2259	-0.3631	-0.1153	-0.2757	0.5710	0.5584	-		
32	-0.0439	0.1318	-0.2624	-0.2568	-0.1248	-0.2441	0.2762	0.5403	0.5639	-	
33	0.0927	0.0477	-0.2451	-0.3274	-0.1714	-0.2721	0.7444	0.8341	0.8492	0.7145	-

3 = Economic constraints; 24 = Infrastructural constraints; 25 = Technical constraints; 26 = Marketing constraints;
 7 = Miscellaneous constraints; 28 = Overall constraints; 29 = Adoption of breeding practices;
) = Adoption of feeding practices; 31 = Adoption of management practices; 32 = Adoption of health care practices;
 } = Overall adoption.

Correlation Matrix (MSS)

	1	2	3	4	5	6	7	8	9	10	11
1	-										
2	-0.3868	-									
3	-0.1354	0.3380	-								
4	-0.1914	0.2596	0.4612	-							
5	-0.1692	0.0112	-0.1267	-0.0776	-						
6	-0.2714	0.5154	0.7231	0.4723	-0.1259	-					
7	0.2046	0.1509	0.6025	0.3231	-0.0502	0.4734	-				
8	-0.3230	0.6584	0.7945	0.6424	-0.1516	0.8658	0.5586	-			
9	-0.1330	0.1269	0.3372	0.2049	0.0276	0.2911	0.5805	0.3575	-		
10	-0.1772	0.3609	0.5216	0.3940	-0.1954	0.5570	0.6571	0.6314	0.6261	-	
11	-0.0792	-0.0111	0.1698	0.0729	0.1214	0.0966	0.3960	0.1450	0.9291	0.2491	-
12	-0.3285	0.5856	0.6706	0.4387	-0.0467	0.7266	0.6076	0.7616	0.3834	0.5882	0.1912
13	-0.3702	0.7312	0.5754	0.3587	-0.0582	0.7203	0.3781	0.7650	0.2848	0.4633	0.1316
14	-0.2068	0.5521	0.4370	0.2061	-0.1522	0.5382	0.4386	0.5802	0.3237	0.4520	0.1826
15	-0.2084	0.4664	0.4627	0.1685	-0.1787	0.5169	0.4356	0.5256	0.3426	0.4058	0.2246
16	0.1151	0.0949	-0.0363	-0.1098	-0.0009	0.0098	-0.1337	-0.0026	0.1307	0.0938	0.1159
17	-0.0494	0.2392	0.2188	0.0435	0.0303	0.1817	0.1593	0.2343	0.2938	0.2546	0.2357
18	-0.3023	0.6594	0.4800	0.2453	-0.1326	0.5907	0.4525	0.6448	0.3563	0.5343	0.1850
19	-0.3348	0.6803	0.4381	0.2345	0.0174	0.5728	0.3872	0.6536	0.3142	0.4852	0.1565
20	-0.1563	0.4474	0.2999	0.1862	-0.0195	0.2820	0.2399	0.3807	0.2147	0.3497	0.0966
21	0.1601	0.0459	-0.1165	-0.1026	-0.1839	-0.0209	-0.2075	-0.0517	-0.0479	0.0631	-0.0631
22	-0.0630	-0.1549	-0.3304	-0.3482	0.0533	-0.2087	-0.2504	-0.3780	-0.1564	-0.2350	-0.0812
23	-0.2299	0.0927	-0.0358	0.0966	0.0544	0.1013	0.0587	0.0788	0.0912	0.0378	0.0907

Contd....

ntd....(Appendix-IVb)

	1	2	3	4	5	6	7	8	9	10	11
24	-0.1176	-0.0224	0.0615	-0.0351	0.1507	0.0240	0.0944	0.0060	0.0088	-0.1069	0.0559
25	-0.0198	0.0343	-0.0847	-0.0335	0.0364	-0.0897	-0.1617	-0.0893	-0.0434	-0.1749	0.0267
26	0.1894	-0.1877	-0.3121	-0.1629	-0.0321	-0.2480	-0.2232	-0.3414	-0.1538	-0.1591	-0.1158
27	-0.0415	0.1010	-0.1359	0.0104	-0.1445	-0.0419	-0.1576	0.0086	0.1104	0.0009	0.1378
28	-0.0947	-0.0331	-0.2227	-0.1364	0.0374	-0.1296	-0.1669	-0.1955	-0.0368	-0.1776	0.0353
29	-0.1569	0.4189	0.3379	0.2140	-0.0692	0.4262	0.2601	0.4727	0.2239	0.3739	0.1027
30	-0.3170	0.5483	0.6198	0.3146	0.0795	0.6651	0.5145	0.7164	0.3210	0.4839	0.1638
31	-0.3033	0.4722	0.2782	0.1614	-0.0441	0.4395	0.2736	0.4396	0.1963	0.3841	0.0628
32	-0.1200	0.4182	0.2734	0.2071	-0.0518	0.4466	0.3235	0.4848	0.2450	0.4277	0.0998
33	-0.2775	0.5685	0.4700	0.2741	-0.0209	0.6080	0.4211	0.6483	0.2997	0.5082	0.1299

= Age; 2 = Education; 3 = Land; 4 = Caste; 5 = Type of family; 6 = Material possession; 7 = Herd size;
 = SES; 9 = Milk production; 10 = Milk consumption; 11 = Milk sale;

Contd....

Contd....(Appendix-IVb)

	12	13	14	15	16	17	18	19	20	21	22
1											
2											
3											
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10											
11											
12	-										
13	0.7310	-									
14	0.6488	0.6829	-								
15	0.6460	0.6254	0.8248	-							
16	0.0199	0.0595	0.1570	0.2441	-						
17	0.2704	0.2498	0.3340	0.3337	0.5761	-					
18	0.7399	0.7412	0.8696	0.7879	0.0967	0.3543	-				
19	0.6555	0.6712	0.6225	0.6183	0.1169	0.2762	0.6938	-			
20	0.4493	0.3871	0.4033	0.3761	0.0903	0.3165	0.4773	0.4973	-		
21	-0.0887	0.0255	-0.0330	0.0033	0.0480	0.6575	0.3037	-0.0259	-0.0139	-	
22	-0.2739	-0.2015	-0.2582	-0.2198	-0.0946	-0.0809	-0.2438	-0.2561	-0.1662	-0.1052	-
23	0.2062	0.1645	0.1230	0.0699	-0.1844	-0.0979	0.1888	0.2090	0.0387	-0.1894	0.2549

Contd....

xlvii

Contd....(Appendix-IVb)

	12	13	14	15	16	17	18	19	20	21	22
24	0.0229	0.0311	0.0370	-0.0023	-0.4207	-0.1179	0.0883	0.0426	-0.0659	-0.6722	0.2736
25	-0.0878	-0.0954	-0.0104	-0.0012	-0.1111	-0.0134	0.0795	0.0367	-0.0103	-0.3342	0.2105
26	-0.1731	-0.2600	-0.2219	-0.3134	-0.1151	-0.1449	-0.1651	-0.2379	-0.1936	-0.0142	0.3492
27	0.0317	0.0748	0.1460	0.1686	-0.3429	0.1766	0.1367	0.0883	-0.0303	0.4117	-0.1072
28	-0.0710	-0.0669	-0.0366	-0.0736	-0.1826	-0.0777	0.0390	-0.0213	-0.1184	-0.2906	0.5695
29	0.5073	0.5949	0.5570	0.5378	0.2832	0.3346	0.5409	0.6186	0.4128	0.3214	-0.3067
30	0.6661	0.6732	0.6247	0.6345	0.0128	0.2749	0.6601	0.6853	0.4058	-0.1289	-0.2829
31	0.4661	0.5309	0.4531	0.4347	0.2408	0.2842	0.5217	0.5109	0.3115	0.2530	-0.2216
32	0.5147	0.4935	0.4121	0.3582	-0.0188	0.1602	0.4742	0.5347	0.3631	0.0712	-0.1599
33	0.6580	0.7029	0.6300	0.6076	0.1598	0.3226	0.6735	0.7195	0.4559	0.1514	-0.2989

12 = Extension contact; 13 = Mass media exposure; 14 = Participation in MPCs; 15 = Identification with society;
 16 = Satisfaction with society; 17 = Attitude towards MPCs; 18 = Knowledge about MPCs; 19 = Knowledge about DPTs;
 20 = Economic motivation; 21 = Infrastructural efficiency; 22 = Socio-psychological constraints;

Contd....

Contd....(Appendix-IVb)

	23	24	25	26	27	28	29	30	31	32	33
1											
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Contd....

Contd....(Appendix-IVb)

	23	24	25	26	27	28	29	30	31	32	33
24	0.4110	-									
25	0.3327	0.5079	-								
26	0.3586	0.2145	0.3914	-							
27	0.0980	-0.3307	0.0987	-0.0151	-						
28	0.7050	0.6441	0.7199	0.6441	0.1799	-					
29	-0.0145	-0.2827	-0.2676	-0.2849	0.2600	-0.2622	-				
30	0.0949	0.1709	-0.0496	-0.4052	0.0161	-0.1109	0.5679	-			
31	0.0450	-0.2374	-0.1824	-0.2249	0.2307	-0.1770	0.6947	0.5282	-		
32	0.0494	-0.0523	-0.3003	-0.2282	0.0771	-0.1717	0.5332	0.5040	0.5931	-	
33	0.0530	-0.1161	-0.2336	-0.3518	0.1752	-0.2176	0.8537	0.8058	0.8518	0.7789	-

23 = Economic constraints; 24 = Infrastructural constraints; 25 = Technical constraints; 26 = Marketing constraints;
 27 = Miscellaneous constraints; 28 = Overall constraints; 29 = Adoption of breeding practices;
 30 = Adoption of feeding practices; 31 = Adoption of management practices; 32 = Adoption of health care practices;
 33 = Overall adoption.