

**ROLE OF FINANCIAL ASSISTANCE  
AND INCENTIVES IN FARMER  
MOTIVATION IN DAIRYING**

By

**V. RAJU**

**THESIS**

Submitted in partial fulfilment of  
the requirement for the degree

**Master of Veterinary Science**

Faculty of Veterinary and Animal Sciences

Kerala Agricultural University

Department of Extension

COLLEGE OF VETERINARY AND ANIMAL SCIENCES

Mannuthy - Trichur

1981

DEDICATED  
TO MY  
PROFESSION  
AND  
PROFESSIONAL COLLEGUES

## DECLARATION

I hereby declare that the thesis entitled "ROLE OF FINANCIAL ASSISTANCE AND INCENTIVES IN FARMER MOTIVATION IN DAIRYING" is a bonafide record of research work done by me during the course of research and that the thesis has not previously formed the basis for the award to me of any degree, diploma, associateship, fellowship, or other similar title of any other University or Society.

Mannuthy,

20/8/82



V. R. A. J. U.

## ACKNOWLEDGEMENTS

I express my deep sense of gratitude to Dr.G.R.Nair, Professor of Extension and Major Advisor, under whose guidance this work has been carried out.

My personal gratitude and indebtedness are due to Dr. T.Prabhakaran, Associate Professor, Department of Extension and member of Advisory Committee for his encouragement, personal attention and constant help in preparing this thesis.

I also extend my gratitude to Dr.P.S.Pushkaran, Associate Professor, Farm Advisory Service, Communication Centre, Kerala Agricultural University, Mannuthy and Member of the Advisory Committee for his constant encouragement, advice and help in preparing this thesis.

I am specially thankful to Dr.M.Krishnan Nair, Dean, College of Veterinary & Animal Sciences, Mannuthy for his advice and encouragement as well as for providing all the facilities for carrying out this work. The help rendered by Sri.P.K.G.Unnithan Assistant Professor of Statistics, College of Horticulture in analysing the data is specially acknowledged. I extend my gratitude to Dr.B. Manomohan for helping me in the preparation of histograms required for this study. The help rendered by the staff of the Department of Statistics, College of Veterinary and Animal Sciences in analysing the data is also worthy of mention and I am really thankful to them all.

I am thankful to Dr.C.V.Andrews and Dr. (Mrs.)M.R.Subhadra, Junior Assistant Professors of the Department of Extension for their constant help and encouragement in carrying out this work.

I acknowledge whole-heartedly the encouragement given by all other colleagues of the College of Veterinary & Animal Sciences for carrying out this work and I extend my gratitude to one and all of them.

## TABLE OF CONTENTS

			P a g e
INTRODUCTION	..	..	1
REVIEW OF LITERATURE	..	..	10
MATERIALS AND METHODS	..	..	22
RESULTS	..	..	34
DISCUSSION	..	..	62
SUMMARY	..	..	72
REFERENCES	..	..	77
APPENDIX	..	..	83
ABSTRACT	..	..	..

\*\*\*

## LIST OF TABLES

	<u>Page No</u>
1. Aggregate total number of practices adopted, distributed according to major management categories	35
2. Number of practices adopted by beneficiaries and non-beneficiaries	36
3. Practices which showed higher adoption among the respondents	37
4. Practices having low adoption among the respondents	38
5. Distribution of respondents on the basis of their adoption index	40
6. Distribution of adopters according to adoption index and age groups	42
7. Distribution of adopters according to level of education and adoption index	43
8. Distribution of respondents according to their adoption index and annual income	44
9. Distribution of respondents according to their adoption index and size of herd owned	46
10. Distribution of adopters according to their social participation and adoption index	48
11. Distribution of adoption index in relation to extension contact of the respondents	49
12. Distribution of adopters in relation to motivation for dairying	50
13. Reasons for undertaking dairy enterprise by the respondents in the order of preference	51
14. Reasons for not availing the assistances and incentives by the non-beneficiaries	53
15a. Extent of awareness of the Schemes and availing of assistances thereof among the beneficiaries	55
15b. Extent of awareness of the Schemes and availing of assistances thereof among the non-beneficiaries	55

16a. Statistical values for the beneficiary group	56
16b. Statistical values for the non-beneficiary group	57
17a. Inter correlation between variables (beneficiary group)	58
17b. Inter correlation between variables (non-beneficiary group)	59

---

# *Introduction*

---



## INTRODUCTION

India has the largest population of cattle and buffaloes in the world. The bovine population was 179 million in 1972 (Report of the National Commission on Agriculture (1976)). The per capita availability of milk, however, was one of the lowest, viz., 110 ml per day per capita (Report of the National Commission on Agriculture, 1976). Low productive capacity of the animals combined with unscientific breeding, feeding and management practices followed by the farmers were the main reasons responsible for the poor state of affairs concerning the livestock economy.

Kerala has a cattle population of 3006059 out of which 1354886 are cross-bred animals (Bulletin of A.H. Statistics 1980) and the rest are non-descript animals with low productivity. The total area of the state is 3885497 hectares (Bulletin of A.H. Statistics 1980) with a human population of 549 lakhs, according to the 1971 census. Out of the total area available, 2201269 hectares are under cultivation of different agricultural crops and only 1214 hectares are under fodder cultivation. The pasture land available in the state is rather scarce and scattered throughout the state and the total area is hardly 10616 hectares. Comparing the cattle

population of the state with the area under fodder cultivation, it would be seen that the grazing land available is negligible and this is a matter of great concern in cattle rearing in the state. The tropical climate in the state with a heavy rain fall and hot summer makes cattle-rearing difficult economically, especially with the poor yielding stock of animals.

As far as Kerala State is concerned, there is no specific breed of cattle of its own and animals available are only of the non-descript variety with poor productivity. A programme for the improvement of the quality of cattle was taken up by the State Government by introducing artificial insemination of all breedable cattle in the state with better breeds of exotic variety. With the launching of the Community Projects in the state in the year 1952, the programme was gradually extended to other areas in the state and ultimately the entire state was covered through the National Extension Service Blocks. Progressive elimination of non-descript bulls combined with the cross-breeding programme with the Jersey Breed on a massive scale through Artificial Insemination led to the production of quality foundation stock of milch cattle aimed at increasing milk production. Simultaneously the Indo-Swiss Project also came into being introducing cross-breeding through Artificial Insemination with Swiss-Brown bull semen on a massive scale. The foundation stock of milch cattle so

produced had to be provided with better care and management. The Key Village Scheme introduced in the State also gave sufficient support to the cross-breeding programme. Subsequently the Intensive Cattle Development Programme (I.C.D.P.) was introduced in 1964-65 with the aim of giving more attention to the management aspects as well as the feeding aspects in dairy cattle rearing. Cross-breeding with exotic breeds as an instrument to rapidly increase the genetic capacity for milk production was initiated by the Indian Council of Agricultural Research (I.C.A.R.) through cross-breeding projects started at Chalakudy and at Neyyattinkara under the two Community Projects launched in the year 1952 in the erstwhile Travancore-Cochin State. The entire state is now covered with a network of centres providing the necessary infrastructure facilities required for better breeding, scientific feeding, effective and timely disease control and proper management aspects necessary for livestock development. The National Extension Service Blocks (N.E.S. Blocks) in the state have played a vital role in introducing and popularising the adoption of scientific practices in livestock management. Series of livestock shows, exhibitions, melas, seminars and group discussions with farmers were conducted at village level in several National Extension Service Blocks (N.E.S. Blocks) besides establishing personal contact by the Extension Officers

and Village Level Extension Officers (Gram Sevaks) of the Blocks for inducing the farmers to adopt scientific practices and methods in dairying. Incentives in the form of subsidy for fodder cultivation, free artificial insemination service to breed all breedable heifers and cows, distribution of feed supplements at subsidised rates, subsidy for the construction of cattle sheds, free preventive vaccinations at village level, distribution of poultry at subsidised rates, free veterinary facilities, distribution of bucks at subsidised rates etc. were some of the programmes taken up by the National Extension Service Blocks with an overall objective of improving agriculture and allied areas aimed at increasing production. As a result of these efforts on a nation wide basis, the agriculturists generally took up to better farming particularly in the area of crop production. It was, however, realised that Farmers with small size holdings in general and Agricultural Labourers in particular could not avail themselves of any of the scientific advances made and the infrastructural facilities extended. As a result of this realisation, the development of Small Farmers and Agricultural Labourers was taken up. The Small Farmers' Development Agency (S.F.D.A.) came up as a result of the recommendations of the National Commission on Agriculture. It was envisaged to help Small Farmers, Marginal Farmers as well as Agricultural

Labourers in all the agricultural and animal husbandry activities. As per the scheme a Small Farmer is one who owns a land-holding size of 1 to 2 hectares, Marginal Farmer as one who possess land holding below one hectare and an Agricultural Labourer as one having only a homestead and a land-holding size of 10 cents. The beneficiaries under the scheme were given loan for the purchase of agricultural implements and dairy animals. During the repayment of the loan amount, only the loan portion had to be refunded and the remaining portion was treated as subsidy. For the Small Farmers and Marginal Farmers, 50 per cent of the loan amount and for the Agricultural Labourers  $66 \frac{2}{3}$  per cent of the loan amount were adjusted as subsidy. Subsequently the subsidy was reduced and accordingly the Small Farmers were eligible for a subsidy of upto 25 per cent only while in the case of Marginal Farmers and Agricultural Labourers the subsidy was  $33 \frac{1}{3}$  per cent.

In Kerala State, the project was launched in the year 1971 in three districts only to start with, viz., Cannanore, Trichur and Trivandrum. The State Department of Animal husband also launched another scheme titled the 'Special Animal Husband Programme' in the year 1976. This scheme gave emphasis on proper feeding and management of calves borne of Artificial Insemination under the cross-breeding programme in order to ensure that calves of potential value are taken care of from

the time of their birth till they come to maturity and production. This scheme also was implemented through Small Farmers Development Agency along with the programme of providing quality milch animals against loans operated for the purpose by the Small Farmers Development Agency and channelised through the development assistance of scheduled banks and banking institutions. As per the Special Animal Husbandry Programme, female calves at the age of 4 to 8 months belonging to the beneficiaries under the Small Farmers Development Agency programme were selected and brought under the scheme. These calves were tattooed for the purpose of identification and from the date of their selection and identification, the feed for the calf was supplied on credit. The required medicines for deworming and vaccines for periodical vaccinations were also provided and the vaccinations were carried out as per a schedule fixed by the trained Veterinary and Para-Veterinary staff provided under the scheme. Necessary insurance coverage was also provided to each animal with 50 per cent of the premium borne from the project funds. Periodical and systematic examinations of the animals was also carried out by the project staff and their findings were properly recorded and necessary technical advice and assistance provided. Such calves generally matured early at the age of 18 months and were inseminated in time. Feed scientifically computed

adequate enough to take care of the growth requirements of growing calves was supplied to the owners on credit basis till the calves either reached the age of 28 months or calved whichever was earlier. After the calving, the beneficiary under the scheme had to refund the loan amount in easy monthly instalments and the subsidy amount eligible was also adjusted on completion of the repayment.

The livestock population of Trichur District compared to that of the state as it existed at the beginning of the project is shown below (Bulletin of Animal Husbandry Statistics, 1980).

	Population in Trichur Dist.	Percentage of the population to the total of state
Cattle	220065	7.32
Buffalo	57714	12.70
Goat	162763	10.28
Poultry	1278324	9.54
Pigs	1935	1.15

There were 29776 Small Farmers and 209750 Marginal Farmers in Trichur District (S.F.D.A. Project Report on Crop Husbandry Programme). The Small Farmers Development Agency was subsequently replaced by the District Rural Development Agency (.D.R.D.) under the Intensive Rural Development Programme (I.R.D.P.). The Special Animal Husbandry Programme still continued to be

to be implemented through the D.R.D.A. as was done under the S.F.D.A. along with other schemes of assistances extended to the weaker section of the community, especially those belonging to the socially handicapped and economically backward sector of the population. In this context, it is important to point out that the programmes implemented through the Small Farmers Development Agency and later through the District Rural Development Agency have gone a long way in building up a well organised dairy sector in Kerala State with sufficient potential and scope for the introduction of a major programme like the Operation Flood Programme, sponsored by the National Dairy Development Board (N.D.D.B.). But it has become necessary to conduct a study to know the impact that the entire system of loans, subsidies etc. provided by the banks and routed through the Small Farmers Development Agency/District Rural Development Agency and the National Extension Service Blocks have created among the farmer beneficiaries in relation to the development of the Dairy sector in the State. Studies have to be made regarding the types and nature of financial aids and assistance made available to the farming community through these agencies as well as to know how many farmers have been able to utilise this facility and if so in which manner. The study would also reveal the extent of technical assistance that has gone into these programmes in order to have a correct appraisal of the



entire process of providing incentives and their proper utilisation. The necessity was felt to probe into the various aspects and problems related to these programmes which hitherto remained unexplored. With this objective in view, this study was undertaken with special reference to the Special Animal Husbandry Programme (Calf Subsidy Scheme).

The study has the following specific objectives:

1. To assess the extent of awareness and the extent of availing of the infrastructural facilities by way of loans, technical assistances etc. made available to the farmers for Dairy Development through the Small Farmers Development Agency in Trichur District.
2. To investigate whether these assistances have motivated the farmers who have availed of them to adopt improved dairy husbandry practices.
3. To explore the relationship, if any, between the socio-economic characteristics of the respondents and the extension benefits from the financial assistances, as evidenced by the extent of adoption of improved dairy husbandry practices, besides understanding the reasons for not availing the assistance by others.

# *Review of Literature*

---

## REVIEW OF LITERATURE

Studies conducted by the scientists were mainly in the agricultural sector on innovations and factors influencing the adoption of those innovations by the farming community. Studies on animal husbandry innovations and adoption of these innovations by the farmers are rather very few. Studies on the influence and effect of scheme for financial assistances and incentives on the adoption of innovations by the farming community in the animal husbandry sector is so scarce. The available literature on the animal husbandry aspects along with agricultural innovations and their relation to the socio-economic factors selected for the study have been reviewed.

Dasgupta (1965) observed that education and social participation of farmers had positive association with adoption of improved agricultural practices.

Rai (1965) in his study found that the most important reason for non-adoption of the selected practices by maize cultivators was lack of finance.

Ratanchand and Gupta (1966) found that social participation had no influence on adoption of practices.

Basran and Capner (1968) concluded that lack of law and finance were the important reasons for non-adoption,

other factors like lack of irrigation facilities, religious belief etc. also had their role to a minor extent. Size of holding also influenced non-adoption of certain practices among full-time farmers.

Rao (1968) found positive and significant correlation between formal education and adoption level of high yielding varieties of paddy. Farm size also showed similar correlation to adoption of high yielding varieties. He concluded that the reasons for the non-adoption of improved breeds of cattle were poor economic status of the farmers and their satisfaction with the local breeds.

Supe (1969) found that economic motivation was positively related to decision making among the farmers including the adoption of improved practices.

Das and Sarkar (1970) concluded that farmers adopted farming practices for economic gains. The socio-cultural factors influenced the farmers to adopt improved practices mainly for economic gains. Higher the economic motivation, the more favourable was the trend in their attitude towards improved farming practices.

Joon et al. (1970) stated that size of the land-holding and the extent of social participation were significantly and

positively associated with adoption of high yielding varieties. Age and education were found not to differentiate between the participants and non-participants of the scheme.

Kar et al. (1970) found that education among farmers upto metric level, especially in the upper and middle caste groups has resulted in maximum adoption. They also found that higher the number of contacts with the Extension Personnel, greater was the adoption. According to them higher economic status was the most important motivating factor deciding adoption.

Murthy (1970) in his study among cattle breeders of Kurnool found that herd size had positive and significant relation with the adoption of improved cattle rearing practices. The reasons for non-adoption of Artificial Insemination as an improved method were the belief and the fear that the small sized local animals may experience difficulty in calving and the reluctance of the people to accept readily the new practices recommended for adoption.

Patel and Singh (1970) observed that improved farm practices were more readily accepted by farmers with higher education than those having low education. Large size holding and higher economic status did influence adoption of farm planning while age and fragmentation of holding had no significant influence.

Satischander (1970) found that the age of farmers had no influence on their adoption of Artificial Insemination in cattle, while herd size was positively related to the adoption of this practice. Adoptors having more gross income had higher adoption rate.

Singh and Singh (1970) concluded in their study that economic motivation had significant influence in the adoption behaviour of farmers. Education also was found to influence the adoption.

Grewal and Sohal (1971) reported that higher education level of the farmer and his family members combined with better economic status significantly contributed to early adoption of innovations among the refugee farmers. The farm size and extension contact did not show any significant influence in differentiating the refugees from the natives in the aspect of adoption behaviour.

Hussain (1971) pointed out that farmers with low income were found to adopt all the package of practices, when compared with middle and high income group.

Jaiswal et al. (1971) found that education and farm size had positive influence on adoption of innovations by farmers,

while the extension contact had no significant influence.

Nair (1971) concluded that among the farmers of hybrid-4 cotton, the adoptors were having more contact with the scientists and extension workers. The size of the holding and education had positive relation with adoption while age had no association.

Jha and Shaktawat reported that caste and size of holding had no significant relation with adoption. The contact with extension agency and education had significant positive relation with adoption of hybrid bajra. Higher the socio-economic status, better was the adoption.

Perumal and Duraiswamy (1972) found that farmers income was significantly and positively related to cultivation of hybrid maize.

Reddy and Reddy (1972) concluded that age had no relation to adoption, while education and farm size were positively related.

Chandrakandan (1973) found that farmers with higher income were better adoptors of rice cultivation practices.

Saha (1973) reported that social participation and the social status of the farmers had influence on the adoption of practices among the small farmers.

Anbalagan (1974) found that adoption was more among young followed by middle aged and old farmers. Education, income and social participation were positively associated with adoption. The reasons for non-adoption of practices for high yielding variety of paddy were lack of knowledge and conviction

Jothiraj (1974) found that only 11 per cent of the respondents were adopting all the selected practices and 2 per cent were adopting none among the four practices selected for the study. Eighteen per cent adopted three practices, 51 per cent two practices and 8 per cent one practice. Education showed positive relation with use of commercial feed and preventive vaccination. Age, social participation and gross income were positively correlated with the extent of adoption. Herd size showed positive relation with the adoption of animal husbandry practices. The reasons for the non-adoption of practices were (1) Practice of Artificial Insemination - lack of interest, false conviction that animals do not conceive in time or not at all, easy availability of local bulls, inability to detect heat in time and the fear of the difficulty at the time of calving (2) Commercial feed - high cost and the thought that the animals will not relish it properly (3) Preventive vaccination - fear of delayed heat and fear of reduction of milk yield (4) Early breeding - lack of awareness, observance of late heat and fear of early reduction in milk yield



Karim and Mahaboob (1974) found strong and positive relation between social participation and adoption of improved practices. It was also found that decisions on farm affairs depended mostly on elder people.

Sharma and Nair (1974) found that social participation, size of the land holding and contact with extension agency were positively and significantly associated with adoption. Education had no significant relation with adoption.

Vellapandian (1974) reported that education, economic condition, social participation and contact with extension agency were positively associated with extent of adoption, while age had no influence.

Chandrakandan and Subramanyan (1975) pointed out that except age all the remaining factors viz., education, income, farm size and social participation had shown significant positive relation with adoption of selected farm practices.

Menon and Rao (1975) concluded that personal characteristics of the farmers such as education, income, social status, social participation, age and caste had no association with the adoption of demonstrated improved agricultural practices.

Nachiappan (1975) stated that lack of knowledge about the improved practices, high cost of inputs, lack of skill and low

profit were the main reasons for the non-adoption of the improved practices by the smallfarmers.

Oliver et al. (1975) found that age, education and farm income were positively and significantly related to adoption of high yielding varieties in agriculture.

Oliver et al. (1975) in another study concluded that age and occupation had no influence on the adoption of practices in general while education, income and farm size had significant influence on the adoption of practices of paddy.

Subramanyan and Menon (1975) in a study among growers and non-growers of high yielding varieties, found that large holding, higher education, higher income and more social participation were significantly and positively related with adoption of IR-8 variety of rice by the farmers.

Tej Bahadur and Raddy (1976) in their study among borrowers of crop loans found that only farmers in the higher and middle socio-economic status were benefitted by the State Banks and co-operatives. Another finding was that while literates go to the banks, the illiterates go to the cooperatives. Money lenders were preferred even now by the farmers indicating the difficulty in getting the loans and the insufficiency of the loans obtained from the institutions.

Subramanian (1976) in the study among poultry farmers found that flock size was positively and significantly related to adoption of practices. Economic motivation was not found to be correlated with adoption of practices. Some of the reasons for non-adoption of the practices were non-awareness, lack of space, lack of time and small farm size.

Saini et al. (1977) in their study on attributes of potential adopters found that larger herd size and greater social participation did not have any relation with the adoption of practices, whereas small size of the family, more extension contacts and cosmopolite outlook tended more towards adoption.

Reddy and Reddy (1977) reported that the attitude of the farmers to the crop loan system depended on the number and type of house owned by them, their social participation and socio-economic status, but was independent of their age, education, caste, urban contact etc.

Vijayaraghavan (1977) found that economic motivation and adoption of practices were positively and significantly correlated among small farmers.

Kher and Jha (1978) in their study on factors associated with the attitude of the farmers towards Primary Agricultural

Credit Societies came to the conclusion that farmers with low economic motivation seldom go for credit from the societies and will not take risk.

Pillai (1978) found that out of the 19 improved animal husbandry practices selected for the study only 4 were adopted by all the respondents. More than 50 per cent of the respondents adopted 4 practices. Age, education, farm size, caste, social participation and the number of pigs in the herd had no correlation with the extent of adoption.

Prasad (1978) reported significant and positive relation between social participation and adoption behaviour of farmers.

Rajendran (1978) in his study of factors affecting the adoption of selected agricultural practices found that majority of small farmers were either low adopters or medium adopters of the improved agricultural practices. In the case of individual practices the adoption behaviour was very erratic. Only 7.5 per cent of the respondents fully adopted all the five practices selected. Over 13 per cent of the respondents did not adopt any practice at all. Social participation showed significant positive correlation with the adoption. The reasons for non-adoption were high cost of particular practice, non-availability of services and supplies at proper times, in adequate quantities, and also the lack of awareness and adequate skills.

Singh and Dubey (1978) found no relationship between herd size and adoption of selected animal husbandry practices, except the feeding of fodder by the cattle owners. Size of holding also showed no relation with the adoption of the practices of feeding fodder and mineral mixture.

Mohanadasan (1979) found education had positive and significant relation with the adoption of agricultural practices among the big farmers whereas in the case of small farmers the relation was not significant. In both type of farmers the farm size had positive and significant relation. In small farmers social participation had positive and significant relation with adoption, whereas in big farmers the relation was insignificant. Contact with extension agents was significant in both types of farmers.

Suphadra (1979) in her study on dairy farmers found that only 5 per cent of the respondents had the adoption quotient of 100, 8 per cent had the quotient of 90, 11 per cent 80, 20 per cent 70, 17 per cent 60, 18 per cent 50, 6 per cent 40, 9 per cent 30, 3 per cent 20 and one per cent 10. All the respondents had adopted atleast one improved dairy husbandry practice. Education had no influence on the adoption. Gross income, herd size and social participation were found to have no influence on the adoption in general.

Sushama (1979) found that income had positive and significant relation in adoption of improved practices among the tribals.

Somasekharan (1980) revealed in his study that large majority of milk producers were high adopters. The middle aged group showed high per cent of adoption. Poor adopters invariably had low education. Other factors like caste, size of land-holding, annual income and economic motivation did not influence adoption. The adoption of practices had positive and significant relation with education, herd size, social participation and scientific orientation. Some of the reasons for non-adoption were lack of facility, fear of reduced milk yield, poor quality combined with high cost of commercial feed, non-availability of vaccines, service personnel etc.

# *Materials and Methods*

---

## MATERIALS AND METHODS

The study covers the areas of financial assistances and incentives provided to dairy farmers, their socio-economic characters and adoption of improved dairy husbandry practices by them. The materials used and methods followed are discussed under the following sections.

- 1.1. Selection of study area
- 1.2. Selection of respondents
- 1.3. Selection of socio-economic characters.
- 1.4. Selection of improved dairy husbandry practices.
- 1.5. Methods of investigation.
- 1.6. Analytical procedure.
- 1.7. Definition of the terms used
- 1.1. Selection of study area

Trichur District, having implemented schemes like concessional loans for purchase of dairy cattle, subsidies for rearing cross-bred calves and financial assistance for fodder cultivation was purposively selected. As these schemes were linked with milk procurement, their implementation was through co-operative milk societies. This necessitated the selection of a co-operative milk society which was not only of some years standing but also



had implemented the type of schemes under consideration, viz., those providing financial assistances and incentives. The Co-operative milk society at Chalakudy is one of the oldest in Trichur District and satisfies the essential conditions for selection as study area. Additionally, the points that strengthened the criteria for selection of the Chalakudy Milk Supply Society were the following:

1. Owing to the implementation of the cross-breeding programme for cattle launched as early as 1952 there are a good number of improved milch cattle in the area.
2. Rural development work including extension education and livestock farming in Kerala was first initiated on scientific lines through Chalakudy Community Project.

#### 1.2. Selection of Respondents.

The study required a sample of dairy farmers comprising those who had availed of and thus, apparently got benefited by the schemes for financial assistance and those who had not availed of the benefits. From the former category hereinafter designated as "the beneficiaries", 50 milk producers were selected at random, while from the latter category hereinafter designated as "non-beneficiaries" also 50 milk producers were selected at random. These two categories together constituted the sample of 100 dairy farmers as the respondents. The principal

schemes considered were Special Animal Husbandry Development Programme and financial aid for purchase of dairy animals. The former scheme had an element of subsidy for partially meeting the cost involved in scientific feeding of cross-bred calves, while the latter was low interest loans for procurement of milch animals.

### 1.3. Selection of socio-economic characters

The literature available on the socio-economic characters generally considered in studies relating to the adoption of improved practices, indicated the following characters and they were selected for this study. Grouping of the respondents into different categories was based on the mean and the standard deviation of the particular character.

#### 1.3.1. Age

The number of years completed by the respondent at the time of interview was reckoned as the age and the respondents were classified as follows using the mean and standard deviation as measures of check.

- |                 |   |               |
|-----------------|---|---------------|
| i) Young        | - | 35 and below  |
| ii) Middle aged | - | 36 to 55      |
| iii) Old        | - | 56 and above. |

#### 1.3.1.1. Education

The respondents were classified into four categories

depending upon their level of education and were given scores as shown below for the purpose of analysis:

i) Illiterate	-	Those who cannot read and write	-	0
ii) Primary	-	Those who had education of Vth standard and below	-	1
iii) High School	-	Those who had education between VIth and Xth standard	-	2
iv) College	-	Those who had some college education	-	3

#### 1.3.iii. Income

On the basis of the gross annual income of the family from all sources, the respondents were categorised into:

i) Low income group	-	Below Rs.6000/-
ii) Middle income group	-	Between Rs.6000/- and Rs.12000/-
iii) High income group	-	Above Rs.12000/-

#### 1.3.iv. Herd size

The number of animals owned by each respondent were converted into animal units adopting the method recommended by Yang (1968), and the respondents classified as follows:

i) Small herd	-	Animal units 2 and below
ii) Medium	-	Animal units 3 to 4
iii) Large	-	Animal units above 4.

This procedure was followed instead of the traditional reckoning of number of needs for the herd size as the improved practices for adults and young differed considerably and financial assistances were given for adult and young cattle separately.

#### 1.3.v. Social participation

The degree of participation by the respondents in the various formal and informal organisations measured in points (scores) was taken as the criterion for judging their social participation. Membership in an organisation/institution was weighted with one point while membership along with office bearership was weighted with additional one point each. The categorisation of the respondents into low, medium and high participation was as follows:

- |                          |   |                     |
|--------------------------|---|---------------------|
| i) Low participation     | - | 1 point             |
| ii) Medium participation | - | 2 points            |
| iii) High participation  | - | 3 and above points. |

#### 1.3.vi. Extension contact

The frequency of personal contact with different Extension Personnel was considered in assessing the extent of extension contact. Five categories of Extension Workers, viz. Village Level Extension Officers, Dairy Farm Instructors, Livestock

Assistants, Veterinary Surgeons and Subject Matter Specialists were included in the study to know the contact of the respondents with them. The frequency of contact with each category was considered and scores given as follows: The respondents who have not met any one of the Extension Personnel at least once in six months were classified as "never" with score zero, those who had contacted Extension Personnel once in three months as "sometimes" with score one for each person contacted and those who had made contacts once in a month as "frequent" with score two for each person contacted. The total score for each respondent was obtained by adding the scores for all the contacts made by him. To this was added the score obtained by him for participation in one or more of the extension methods like Group discussions, Study classes and tours, Extension lectures, Demonstrations, Cattle shows, Calf rallies, Exhibitions, Milk yield competitions, Seminars and other developmental activities each of which was weighted with a score of one for participation. The total score of the respondent so worked out was taken as the criterion for his extension contact. The scoring procedure adopted follows that of John Knight (1975) with modifications to suit the present study. The respondents were grouped into the following categories for the purpose of analysis.

- |            |                      |
|------------|----------------------|
| i) Low     | - Scores 3 and below |
| ii) Medium | - Scores 4 and 5     |
| iii) High  | - Scores 6 and above |

### 1.3.vii. Motivation for Dairying

Ten factors which had been generally found to influence farmers to adopt dairying were considered for the study. If a factor was recorded as having influenced a respondent that factor was given a score of one, otherwise zero. The total score for each respondent was formed by the aggregate of the 10 factors. Based this total score obtained by each respondent they were grouped into following categories.

- i) Low motivation - Score 2 and below
- ii) Medium motivation - Scores 3 and 4
- iii) High motivation - Scores 5 and above

### 1.3.viii. Awareness and availing of the assistances

The awareness about the various assistances given for dairy development was studied by the percentage of the respondents from the two groups who were aware of the benefits and who have availed them.

### 1.4. Selection of improved dairy husbandry practices

The package of practices formulated and recommended to the farmers by the Kerala Agricultural University formed the basis for selection of improved practices for the study. Out of the 40 practices selected, five were breeding practices consisting of early breeding, testing the animal for pregnancy

two months after insemination, seeking veterinary aid for infertility, breeding within three months of calving and artificial insemination for breeding the animals, nine were feeding practices comprising of feeding colostrum to calves, feeding supplements to pregnant cows, feeding ready made feed, feeding according to production, feeding extra during pregnancy dry feeding of concentrates, enough roughage feeding, green fodder included in roughage and sufficient watering at frequent intervals; 20 were management practices consisting of weaning, no punching in calves, recording birth weight, periodical weight recording, selection of breeding animals, exercise for pregnant animals, washing daily, brushing regularly, stripping the udder prior to calving, special care when nearing parturition, antiseptic application to navel at birth, frequent suckling of calves for the first ten days, washing udder prior to milking, milking more than twice daily, drying of the cow prior to parturition, full hand method of milking, provision of enough floor space, provision of proper slop for the floor, provision of enough space of manger and washing the shed daily; and six disease control measures consisting of regular deworming proper treatment for ailing animals, vaccination to prevent diseases, foot bath as a preventive measure, cleaning the shed periodically and scientific disposal of dung.

The extent of adoption was measured using the adoption

index developed by Sengupta (1967) and modified by Jothiraj (1974). Adoption of a practice by a respondent was weighted with a score of one and non-adoption by zero. The total score obtained by adding the individual scores of each practice was taken as the extent of adoption and the adoption index of the respondent calculated as follows:

$$\text{Adoption Index} = \frac{\text{Respondent Score} \times 100}{\text{Total Score}}$$

On the basis of the adoption index, the respondents were classified as follows considering the mean and standard deviation as measures of check.

- i) Low - Below 45
- ii) Medium - 46 to 60
- iii) High - 61 and above

#### 1.5. Method of investigation

The milk producers who were members of the Chalakudy Co-operative Milk Society during the year 1980 formed the frame for selection of respondents. Two sub-frames were prepared on the basis of benefits if any, derived from the aid schemes described in section 1.2 and random samples of 50 milk producers were selected from each sub-frame.

The data were collected carefully by personal interview method using a pretested interview schedule (Appendix).



## 1.6. Analytical procedures

### 1.6.1. General

Besides simple comparison using frequency and percentage, Chisquare test was employed for assessing the association, if any, between the various socio-economic characters and the adoption (as represented by the adoption index) of the recommended improved practices under study. The formula used was as follows:

$$X^2 = \frac{\sum_{i=1}^k (O_i - E_i)^2}{E_i} \text{ for } (k-1) (1-1) \text{ degrees of freedom}$$

where  $i = 1$

$O$  = Observed frequency

$E$  = Expected frequency

$K$  = Number of observations.

The test was applied to the two way contingency tables of frequency distributions of respondents for beneficiary and non-beneficiary groups separately.

Paired 't' test was applied to the means of the two groups to understand significant difference, if any, between the groups in relation to a particular character chosen for analysis. The hypothesis was that the two samples have the same mean, the population variance being unknown. The formula used was as follows:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{Sp \sqrt{(1/N_1) + (1/N_2)}}$$

where  $\bar{X}_1, \bar{X}_2$  = means of the samples  
 $X_1$  and  $X_2$   
 $Sp$  = Pooled standard deviation  
 and  $N_1$  and  $N_2$  = Number of observations  
 in samples  $X_1$  and  $X_2$ .

### 1.6.11. Regression analysis

A multiple linear regression function was fitted to the data with the "socio-economic characters" as independent and "adoption index" as dependent variables. Separate functions were fitted for the beneficiary and non-beneficiary groups. The procedure was as outlined in Snedecor and Cochran (1967). The model fitted was of the form:

$$Y = a + b_1 x_1 + b_2 x_2 \dots \dots \dots b_n x_n + C.$$

where Y = Extent of adoption measured as adoption index.

a = intercept constant

b is = regression coefficients of the respective independent variables

$x_1$  = chronological age of respondent

$x_2$  = education

$x_3$  = annual family income

$x_4$  = herd size

$x_5$  = social participation

$x_6$  = extension contact

C = represents the residual effect.

## 1.7. Definitions of the terms used

### 1.7.i. Beneficiaries

Those individuals who are currently or most recently participants in the schemes described in section 1.2.

### 1.7.ii. Non-beneficiaries

Those respondents who have not participated in any of the above schemes and thus are not benefitted.

### 1.7.iii. Adoption

Is the decision by the farmer to make full use of an innovation.

### 1.7.iv. Motivation

The interest and influence of the factors which lead the farmer to take a decision to start dairying .

### 1.7.v. Weaning

Separating the new born calf from its mother and then feeding the calves artificially according to their body weight

### 1.7.vi. Deworming

Periodical administration of medicines to save the calves from internal parasitic infestation.

### 1.7.vii. Early breeding

Breeding the heifers at the age of 18 months for the first calf and within 3 months after a calving.

# *Results*

---

## RESULT

The results of the study have been presented under the following sections:

1. Extent of adoption of the recommended animal husbandry practices by the beneficiaries and non-beneficiaries.
2. Association of the respondents' socio-economic characters with their adoption behaviour.
3. The reasons for not availing the financial assistances and incentives by the non-beneficiaries.
1. Extent of adoption of the recommended animal husbandry practices.

To understand the adoption behaviour in the aggregate, under major fields of management, the 40 improved practices studied were grouped into four broad categories as follows:

a) Breeding	5 practices
b) Feeding	9 ,,
c) Disease control	6 ,,
d) General management	20 ,,

The total practices adopted by the two categories of respondents were as shown in table 1.

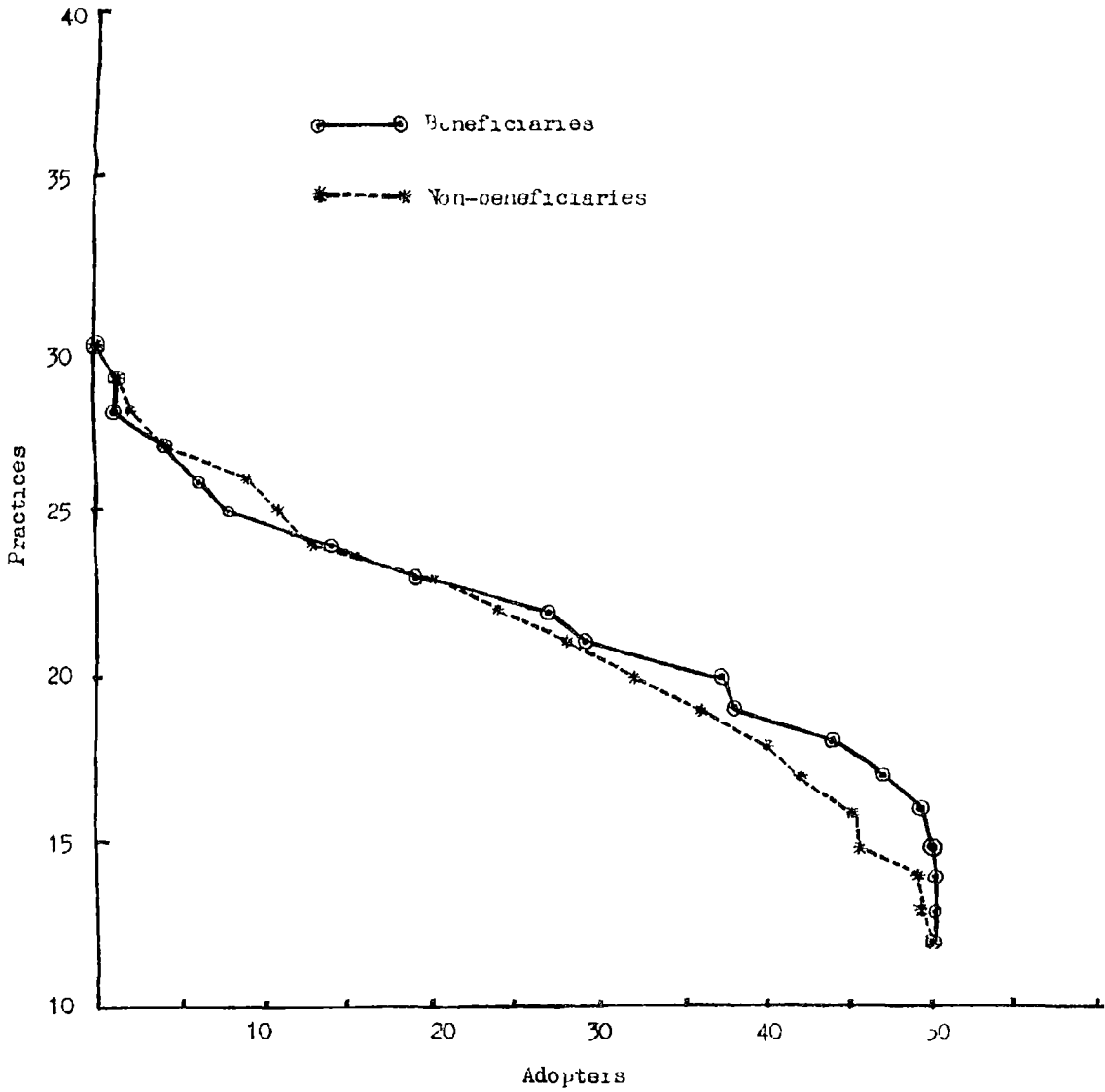
Table 1. Aggregate total number of practices adopted, distributed according to major management categories.

Category	No. of practices	Maximum number of responses possible.	Aggregate adoption			
			Beneficiaries		Non-beneficiaries	
			Total	Average	Total	Average
Breeding	5	250	164	3.28	163	3.26
Feeding	9	450	243	4.86	231	4.62
Disease control	6	300	189	3.78	173	3.46
General management	20	1000	479	9.58	501	10.02
Total	40	2000	1075	21.50	1068	21.36

The aggregate totals of practices adopted do not show much difference between the beneficiaries and the non-beneficiaries. The average number of breeding practices adopted by the beneficiaries and the non-beneficiaries were 3.28 and 3.26 respectively against the total of 5 practices. The average number of feeding practices adopted from the 9 practices selected were 4.86 and 4.62, among the 6 disease control measures selected the average number of practices adopted were 3.78 and 3.46 respectively and among the 20 general management practices the two groups have adopted 9.58 and 10.02 practices on an average.

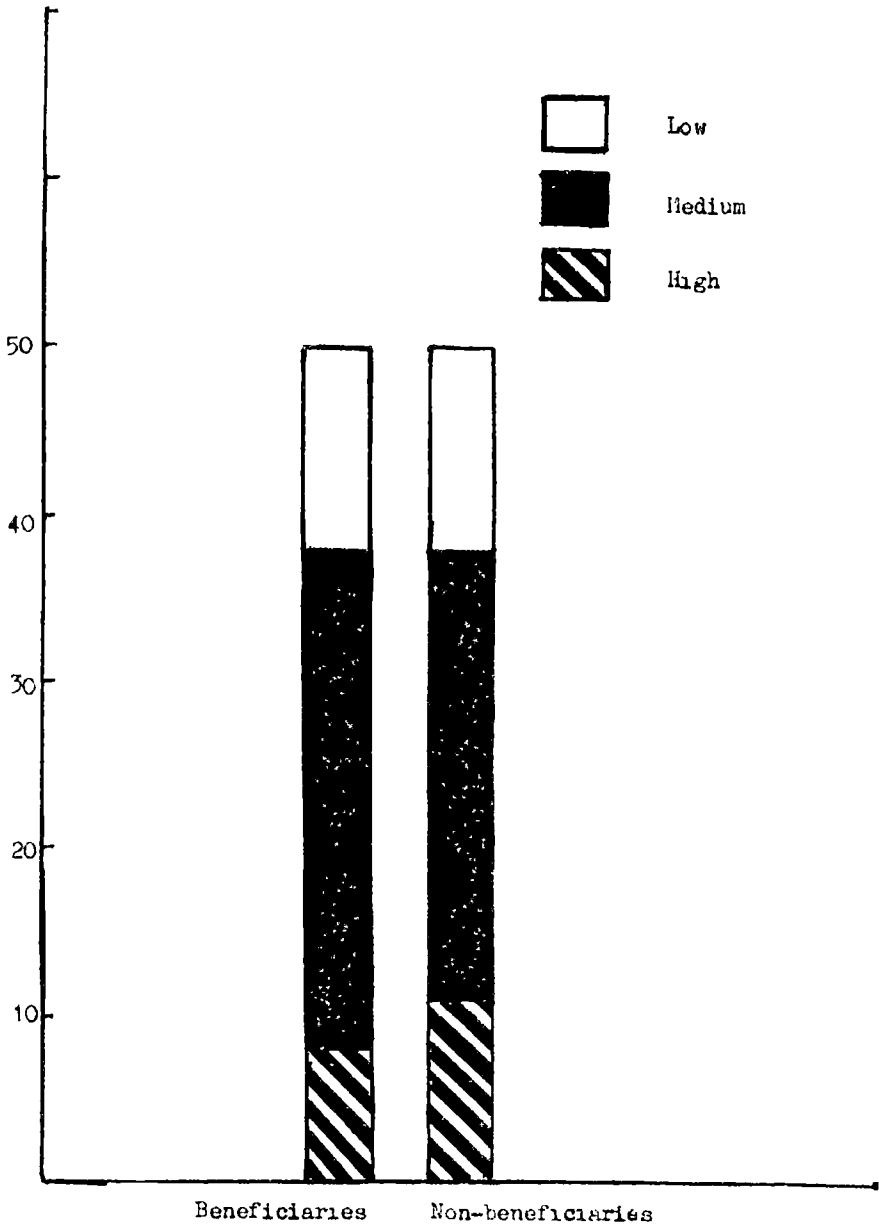
All the beneficiaries have adopted at least 15 recommended practices whereas only 12 practices were adopted by all the non-beneficiaries. One respondent from each group has adopted the

Plate I



Cumulative total of respondents in relation to the number of practices adopted by them.

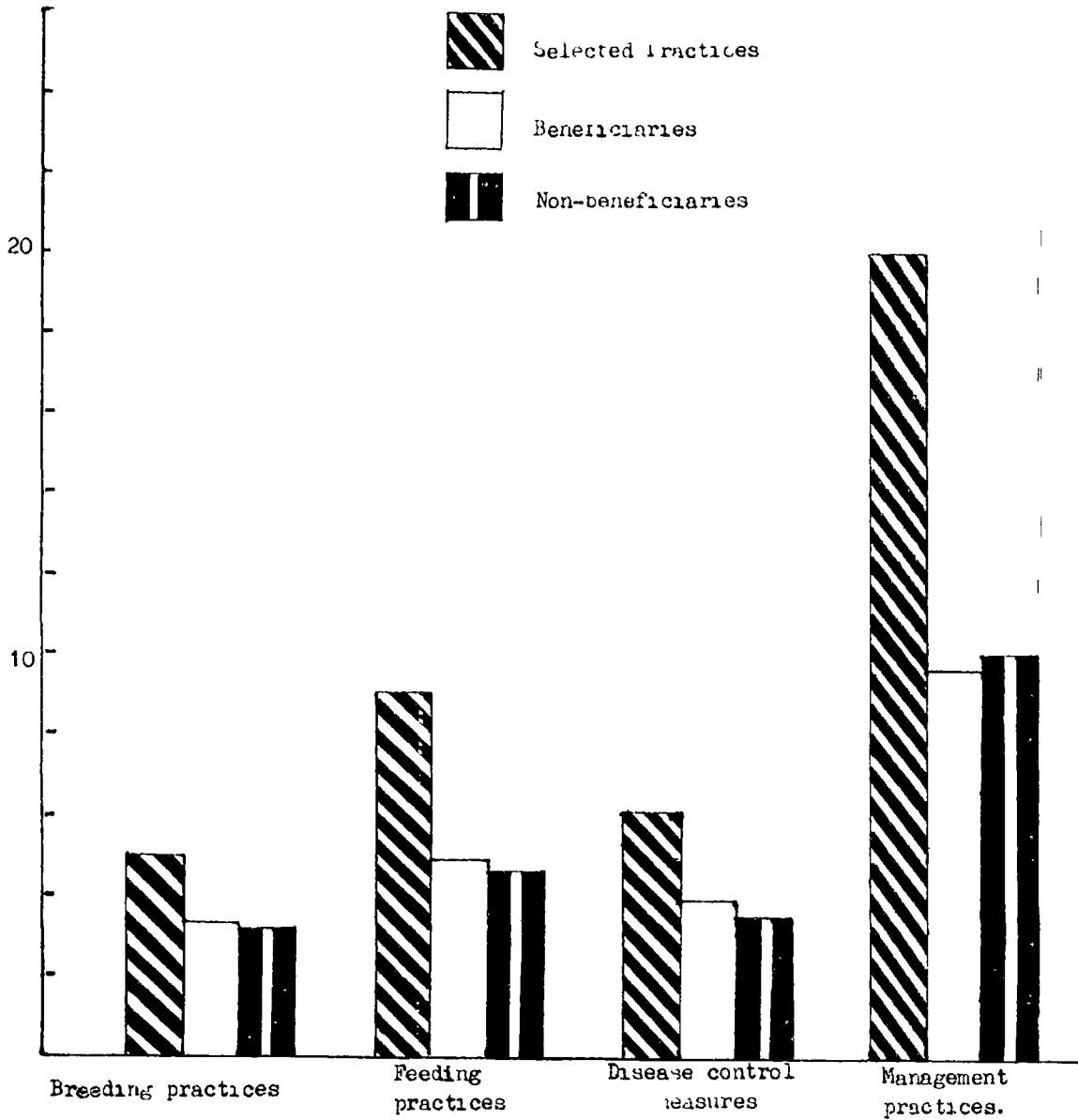
Plate II



Percentage of respondents divided into major categories of adoption.



Plate III



Number of practices adopted by the respondents according to major groups of practices.

maximum number of 29 practices. The number of practices adopted arranged in the descending order was as shown in table 2.

Table 2. Number of practices adopted by beneficiaries and non-beneficiaries.

Total number of practices adopted (Total = 40)	Beneficiaries (n = 50)	Non-beneficiaries (n = 50)
30 and above	Nil	Nil
29	1 (2)	1 (2)
28	1 (2)	2 (4)
27	4 (8)	4 (8)
26	6 (12)	9 (18)
25	8 (16)	11 (22)
24	14 (28)	13 (26)
23	19 (38)	20 (40)
22	27 (54)	24 (48)
21	29 (58)	28 (56)
20	37 (74)	32 (64)
19	38 (76)	36 (72)
18	44 (88)	40 (80)
17	47 (94)	42 (84)
16	49 (98)	45 (90)
15	50 (100)	45 (90)
14	50 (100)	49 (98)
13	50 (100)	49 (98)
12	50 (100)	50 (100)

Note: Percentage values are given in parenthesis.

The top and bottom ten practices which had the highest and lowest adoption rates respectively among both the groups of respondents were as shown in tables 3 & 4. For both the groups the practice of cleaning the udder prior to milking appeared to be most popular. Practices like provision of

Table 3. Practices which showed higher adoption among the respondents.

Type of practice	Number of adopters	
	Beneficiaries (n = 50)	Non-beneficiaries (n = 50)
1. Premilking udder cleaning	49(98)	49(98)
2. Feeding commercial feed	48(96)	34(68)
3. Nose punching in calves	47(94)	39(78)
4. Provision of minimum manger space	47(94)	46(92)
5. Provision of enough floor space	46(92)	46(92)
6. Scientific disposal of dung	46(92)	47(94)
7. Artificial insemination	45(90)	46(92)
8. Enough roughage feeding	43(86)	36(72)
9. Pre-calving care	43(86)	49(98)
10. Feeding related to production	42(84)	44(88)

Note: The figures shown in parenthesis denote the percentages.

Table 4. Practices having low adoption among the respondents.

Type of practices	Number of adopters	
	Beneficiaries (n = 50)	Non-beneficiaries. (n = 50)
1. Weaning	0 (0)	0 (0)
2. Recording of birth weight	1 (2)	2 (4)
3. Pre-calving stripping of udder	1 (2)	1 (2)
4. Antiseptic application on umbilicus of calf	1 (2)	1 (2)
5. Dry feeding of concentrate	2 (4)	2 (4)
6. Grooming regularly	3 (6)	9 (18)
7. Milking more than twice daily	4 (8)	4 (8)
8. Foot bath to prevent disease	5(10)	8 (16)
9. Selection of females for breeding	16(32)	18( 36)
10. Feeding colostrum to calves	16(32)	25 (50)

Note: Figures in parenthesis denote the percentages.

enough manger space, floor space, scientific disposal of dung, artificial insemination and feeding related to production have been favoured equally by both beneficiaries and non-beneficiaries while the practice of pre-calving care has been, relatively, favoured more by non-beneficiaries; the practice of feeding commercial feed, nose punching and feeding enough roughage have been found favoured more by beneficiaries. On the whole, considering these ten practices there was no difference in the adoption rate of six of them and in another three the adoption rate was higher among the beneficiaries.

Regarding the bottom ten practices, weaning was not practiced by either group. The practice of grooming, providing foot bath and feeding colostrum to calves were, relatively, practiced more by non-beneficiaries than beneficiaries and the rates of adoption of the other practices were almost similar between the two groups. The practices that were uniformly disfavoured are, recording birth weight, milking prior to calving, care of umbilicus, dry feeding of concentrates and milking more than twice a day. It is not known why these simple, non-expensive practices, which contribute to better management, are not adopted.

As for the middle 20 practices the adoption rates were somewhat closely related.

The mean adoption index in the case of beneficiaries was 53.75 with a standard error of 1.151 while in the case of non-beneficiaries it was 53.55 and 1.426 respectively. Thus there was slightly more variability in adoption among non-beneficiaries compared to beneficiaries. Keeping the mean and the standard deviation as measures of check the respondents were classified into low, medium and high adopters as shown in table 5. The respondents with adoption index of 45 and below were classified as low adopters, those with an index between 46 and 60 as medium adopters and those with an index above 60 as high adopters.

Table 5. Distribution of the respondents on the basis of their adoption index.

Adoption	<u>Beneficiaries</u>		<u>Non-beneficiaries</u>	
	Frequ- ency	Percent- age.	Frequ- ency.	Percent- age.
45 and below (low)	12	24	12	24
46 to 60 (medium)	30	60	27	54
61 and above (high)	8	16	11	22
Mean 53.75 ± 1.151	Mean 53.55 ± 1.426			

Among the beneficiaries there were none with an adoption index of less than 37 and among the non-

beneficiaries none had adoption index less than 30. In both these groups individuals with adoption index of more than 75 were absent. The index thus ranged between 37 and 75 among beneficiaries and between 30 and 75 among non-beneficiaries. The distribution between the categories showed a high concentration in the medium category followed by the low category.

## 2. The influence of socio-economic characters of the respondents on their adoption of recommended practices.

Six socio-economic characters of the respondents were considered, viz. age, education, annual income, herd size, social participation and extension contact. The motivation towards dairying was also studied for the two groups.

### 2.i. Age

The mean age among the beneficiaries was  $46.80 \pm 1.59$  and among the non-beneficiaries  $44.40 \pm 1.79$ . Keeping the mean and the standard deviation of the values of the chronological age of the respondents as measures of check, they were classified as young, middle aged and old. Respondents with the age of 35 and below were classified as young, those between 36 and 55 as middle aged and those above 55 as old. Table 6 shows the distribution of respondents according to adoption index and age groups.

Table 6. Distribution of adopters according to adoption index and age groups.

Age groups	Adoption Index					
	Beneficiaries			Non-beneficiaries		
	Low	Medium	High	Low	Medium	High
Young	4	6	1	3	5	3
Middle aged	5	21	6	8	15	5
Old	3	3	1	1	7	3

$\chi^2 = 3.72$ (N.S.)	t value = 0.203 (N.S)
df = 4	$\chi^2 = 1.90$ (N.S.)
	df = 4

The chi-square test showed no significant association between age and adoption index at 90% level in both the groups. Between the two groups the distribution was similar as revealed by the non-significant t-test at 90% level. Thus age can be said to have had no significant influence in the adoption behaviour.

## 2.2. Education

The respondents were classified into four groups. Those who could not read and write were classified as illiterates, those having primary level education, those having primary level education, those having high school level education and those having college level education. Table 7 shows the distribution of the adopters according to the level of education attained and their adoption index.



Table 7. Distribution of adopters according to level of education and adoption index.

Education level	Adoption index					
	Beneficiaries			Non-beneficiaries		
	Low	Medium	High	Low	Medium	High
Illiterate	4	3	1	2	0	0
Primary	7	15	4	7	9	2
High School	1	12	1	3	17	4
College	0	0	2	0	1	5

$\chi^2 = 6.95$ (N.S.) df = 6	t value = 3.200 Sig: (P/0.05)	$\chi^2 = 11.85$ (P/0.10) Significant d.f = 6.
----------------------------------	----------------------------------	--

Among the 50 beneficiaries 16 per cent were illiterates, 52 per cent had primary level education, 28 per cent had high school level education and 4 per cent college level education. The corresponding figures for the non-beneficiary group were 4 per cent, 36 per cent, 48 per cent and 12 per cent respectively. This is also borne out by the fact that illiterates were only 4 per cent among non-beneficiaries, with 16 per cent among beneficiaries and by the 't' test which was significant. The association between education and adoption was not significant among the beneficiaries while significant association was observed among the non-beneficiaries indicating that the latter group with higher levels of education tended to adopt more practices.

### 2.3. Income

The mean income among the beneficiaries was Rs.7796  $\pm$  311.60 and among the non-beneficiaries Rs.9626  $\pm$  740.82. The respondents were classified into three groups depending upon their annual income, considering the mean and the standard deviation as measures of check. Those with annual income of less than Rs.6000/- were categorised as low income, those with income between Rs.6000/- and Rs.12000/- as middle income and those with annual income greater than Rs.12000/- as high income groups. The distribution of respondents according to income and adoption index was as shown in table 8.

Table 8. Distribution of respondents according to their adoption index and annual income.

Income	Adoption index					
	Beneficiaries			Non-beneficiaries		
	Low	Medium	High	Low	Medium	High
Low	0	8	0	4	8	1
Medium	11	22	6	7	12	6
High	1	0	2	1	7	4

$\chi^2 = 12.37$  (P/0.05)  
Significant  
df : 4

t value = 0.336  
(N.S.)

$\chi^2 = 4.68$   
(N.S)  
df : 4

Among the beneficiaries, 16 per cent had low, 78 per cent medium and 6 per cent high income, while among the non-

beneficiaries those in the low, medium and high income groups were 26 per cent 50 per cent and 24 per cent respectively. Respondents with medium income were dominant in both the groups, and while 94 per cent among beneficiaries were with medium and low income, 76 per cent among non-beneficiaries were in the group. Thus there was higher spread of income among beneficiaries than non-beneficiaries. However, 't' test did not show any significant difference between the two groups.

Income showed no association with the level of adoption among the non-beneficiaries. But there was significant association among the beneficiaries, indicating a more favourable relationship between annual income and adoption of practices in this group. It is possible that the financial assistances extended to the beneficiaries have resulted in better spread of income and, thereby, influencing them to take up more and more practices.

#### 2.4. Herd size

In order to have uniformity in the measurement the number of bovines possessed was converted into animal units. The mean herd size for the beneficiary group was  $2.04 \pm 0.18$  and for the non-beneficiary group  $3.5 \pm 0.25$ . Based on the number animal units possessed, respondents were classified

into owners of small (1 to 2 animal units), medium (3 to 4 animal units) and large (over 4 animal units) sized herds, keeping the mean and the standard deviation as measures of check. On the average, non-beneficiaries had much higher herd size than beneficiaries. The distribution of respondents according to adoption index and herd size is given in table 9.

Table 9. Distribution of respondents according to their adoption index and size of herd owned.

Herd size (Animal units)	Adoption index					
	Beneficiaries			Non-beneficiaries		
	Low	Medium	High	Low	Medium	High
Small ( 1 to 2)	2	5	1	0	0	0
Medium (3 to 4)	7	23	6	12	26	7
Large (Above 4)	3	2	1	0	1	4

$\chi^2 = 2.84$ (N.S)	$t$ value = 1.524	$\chi^2 = 10.99$ (P/0.05)
df : 4	N.S.	Significant
		df: 4

The data indicate that while 16 per cent of the beneficiaries had small herd, there were none in this category among the non-beneficiaries. As was observed earlier non-beneficiaries generally had larger sized herds and the herd size showed significant association with adoption of improved practices in this group. The 't' test showed no significant

difference. There is thus the possibility that larger the herd size higher the rate of adoption tended to be.

## 2.5. Social participation

The degree of participation in the social system by the respondents was measured by the score obtained by them. The mean score among the beneficiaries was  $1.92 \pm 0.187$  and among the non-beneficiaries  $2.4 \pm 0.2618$ . Using the mean and the standard deviation as measures of check, the respondents were categorised as having low, medium and high participation with scores upto 1, 2 and above 2 representing the respective categories. Among the beneficiaries 48 per cent had low social participation followed by 36 per cent with medium participation and 16 per cent with high participation. In the case of non-beneficiaries the corresponding values were 34 per cent, 36 per cent and 30 per cent respectively. Relatively beneficiaries had lower participation in social activities compared to non-beneficiaries, but 't' test did not show any significant difference between the two groups. The association of social participation with the adoption is given in table 10.

No significant association between social participation and adoption of improved animal husbandry practices could be observed in either of the groups.

Table 10. Distribution of adopters according to their social participation and adoption index.

Social participation	Adoption index					
	Beneficiaries			Non-beneficiaries		
	Low	Medium	High	Low	Medium	High
Low	7	14	3	5	10	2
Medium	5	11	2	6	9	3
High	0	5	3	1	8	6

$$\chi^2 = 5.02 \text{ (N.S)}$$

$$\text{df} : 4$$

$$T \text{ Value} = 1.00$$

$$\text{N.S.}$$

$$\chi^2 = 6.07 \text{ (N.S)}$$

$$\text{df} : 4$$

## 2.6. Extension contact.

The extension contact of the respondents were assessed from the scores obtained by each of them. The mean score for the beneficiaries was  $4.5 \pm 0.26$  and that for the non-beneficiaries  $4.28 \pm 0.23$ . Considering the mean and the standard deviation as measures of check the respondents were classified into three groups, viz., those with a score of 3 and below under the category of low, those with the score of 4 & 5 under the category of medium and those with the score of 6 and above under the category of high extension contacts. The association of the extension contact with the adoption in both the groups is given in table 11.

Table 11. Distribution of the adoption index in relation to the extension contact of the respondents.

Extension contact	Adoption index					
	Beneficiaries			Non-beneficiaries		
	Low	Medium	High	Low	Medium	High
Low	3	8	2	3	7	4
Medium	4	13	2	9	12	5
High	5	9	4	0	8	2

$$X^2 = 1.46 \text{ (N.S)}$$

$$\text{df} : 4$$

$$'t' \text{ value} = 0.884$$

$$\text{N.S}$$

$$X^2 = 5.58 \text{ (N.S)}$$

$$\text{df} : 4$$

Among the beneficiaries 26 per cent was having only low extension contact, while 38 per cent had medium extension contact and 36 per cent had high extension contact. The values for the non-beneficiaries were 28 per cent, 52 per cent and 20 per cent respectively. The 't' value was found to be 0.884 and not significant. There was no significant association between extension contact and adoption in either category.

## 2.7. Motivation

The motivation of the respondent for undertaking dairying was studied by the total score of each respondent. The mean score among the beneficiaries was  $2.54 \pm 0.11$  and among the non-beneficiaries  $2.88 \pm 0.11$ . Considering the

mean and the standard deviation as measures of check the respondents were classified into three categories. Those with the score of 2 and below under the category of low motivation, those with the score of 3 & 4 under the category of medium motivation and those with the score of 5 and above under the category of high motivation. The association of motivation with the adoption of improved practices is shown in table 12.

Table 12. Distribution of adopters in relation to motivation for dairying.

Motivation	Adoption index					
	Beneficiaries			Non-beneficiaries		
	Low	Medium	High	Low	Medium	High
Low	0	1	1	1	0	0
Medium	12	24	7	11	24	6
High	0	5	0	0	3	5

$$\chi^2 = 5.56 \text{ (N.S.)}$$

df : 4

't' value = 1.88  
N.S.

$$\chi^2 = 12.64 \text{ (significa)}$$

(P < 0.05)  
df: 4

Among the beneficiaries only 4 per cent of the respondents were having low motivation for undertaking the dairying, whereas 86 per cent were having medium motivation and 10 per cent high motivation. The corresponding figures





for the non-beneficiaries were 2 per cent, 82 per cent and 16 per cent respectively. Significant association was found between the motivation and adoption in the case of the non-beneficiaries whereas in the case of beneficiaries the association was not significant and in the aggregate there was no significant difference between the two groups. It is interesting to note the absence of any association between motivation and adoption among beneficiaries while there was perceptible association among non-beneficiaries. The financial assistances and incentives would, therefore, be said to have had no motivating influence.

The reasons for taking to dairy enterprise ranked in the descending order of preference among the respondents were as shown in table 13.

Table 13. Reasons for undertaking dairy enterprise by the respondents in the order of preference.

Reasons	Beneficiaries	Non-beneficiaries
1. To earn additional income	39	49
2. For better home consumption of milk	37	37
3. Additional source of manure	17	23
4. For utilising spare time	14	23
5. Lack of other occupations	11	4
6. To learn better method of dairying and to take it as an occupation	6	2
7. Having good animal is prestigious	2	2
8. The financial and technical help	1	2
9. To become an ideal dairyman	0	2
10. Others are doing it	0	0

The order of preference among the beneficiaries as well as among the non-beneficiaries appeared to be the same. Although it is seen that the financial and technical help extended by the developmental agencies had only low priority in influencing the respondents to undertake dairying, the reason to earn additional income has received top priority in both groups, more so among non-beneficiaries. This is understandable since it was observed earlier that non-beneficiaries were better motivated than beneficiaries. The reason of home consumption of milk given by about three-fourths among both groups may be an indication of increasing awareness to milk consumption. But financial assistances have made no difference to this awareness. It is informative to note that sizeable proportions have given the reasons of utilising spare time and engaging oneself in dairying for lack of other occupations. Thus, for both groups, dairying appeared to be a supplementary enterprise aimed at earning additional income.

### 3. Reasons for not availing the financial assistances and incentives by the non-beneficiaries.

The reasons as explained by the respondents belonging to the non-beneficiary group for not availing the assistance and the incentive were as shown in table 14. It is evident from the table that administrative difficulties was the main

reason for the non-participation in the scheme (82 per cent), followed by the risk in repayment of the loan (72 per cent) portion involved in the programme.

Table 14 : Reasons for not availing the assistances and incentives by the non-beneficiaries.

Reasons	Frequency
1. Administrative reasons	41 (82)
2. Risk of repayment	36 (72)
3. Not eligible	19 (38)
4. Not aware	14 (28)
5. Other sources of finance	13 (26)
6. Experience of others	5 (10)
7. Earlier experience	3 (6)

Note: The figures in parentheses denote the percentage.

Thirty eight per cent of the respondents were aware that they were not eligible for the assistances contemplated in the scheme. Twentyeight per cent of the respondents were not aware of the assistance and incentives involved in the programme. Some of the respondents (26 per cent) prefer other sources of finance. The experience of others (10 per cent) as well as their own experience with other types of loans from Government (6 per cent) were the other two reasons for not availing the assistances.

### 3.1. The extent of awareness of the schemes and availing the assistances.

The extent of awareness about the financial assistances available under the various aid schemes (among the beneficiaries and non-beneficiaries) was as shown in tables 15 (a) and (b).

### 3.2. Regression Analysis

A multiple linear regression was fitted to the data considering the adoption index as the dependent variable and age ( $x_1$ ), education ( $x_2$ ), income ( $x_3$ ), herd size ( $x_4$ ), social participation ( $x_5$ ) and extension contact ( $x_6$ ) as independent variables. The regression analysis was carried out for the beneficiary and non-beneficiary groups separately. The regression coefficients and the 't' values for the two groups are shown in tables 16(a) and (b). The inter correlations between the variables are shown in tables 17(a) and (b).

The aggregate influence of the six independent variables on the adoption index was not significant among the beneficiaries whereas highly significant influence was observed among non-beneficiaries. The  $R^2$  (coefficient of multiple determination) values for the beneficiary and non-beneficiary groups were 0.1885 and 0.5123 respectively, indicating that

Table 15(a). Extent of Awareness of the Schemes and availing of the Assurances thereof among the beneficiaries.

Type of scheme	Total respondents	Awareness of the scheme		Availed the benefits	
		No. of respondents	%	No. of respondents	%
1. Calf subsidy	50	47	94	46	92
2. Subsidy for cattle purchase	50	29	58	11	22
3. Cattle shed construction	50	20	40	3	6
4. Grass cultivation	50	15	30	2	4
5. Feed supplements	50	21	42	14	28
6. Insurance	50	44	88	46	92
7. Vaccinations	50	38	76	36	72

Table 15(b). Extent of awareness of the schemes and availing of the assurances thereof among the non-beneficiaries.

Type of scheme	Total respondents	Awareness of the scheme	
		No. of respondents	Percentage
1. Calf subsidy	50	44	88
2. Subsidy for cattle purchase	50	41	82
3. Cattle shed construction	50	26	52
4. Grass cultivation	50	23	46
5. Feed supplements	50	33	66
6. Insurance	50	40	80
7. Vaccinations	50	45	90

Table 16(a). Statistical values for the beneficiary group.

Variables	Regression coefficient	t value	Inter correlation with adopter Index	
(X <sub>1</sub> ) age	0.0220	0.0714	-0.00856	Not significant
(X <sub>2</sub> ) Education	1.5980	0.3491	0.3647	,,
(X <sub>3</sub> ) Income	0.0456	0.0421	0.1028	,,
(X <sub>4</sub> ) Herd size	0.0159	0.0661	0.0488	,,
(X <sub>5</sub> ) Social participation	0.5386	0.1996	0.2525	,,
(X <sub>6</sub> ) Extension contact	-0.0830	-0.0409	0.0707	,,

F = 1.6647 (N.S.)  
df = 43  
R<sup>2</sup> = 0.1885

Table 16(b). Statistical values for the non-beneficiary group.

Variables	Regression coefficient	t value	Correlation with adoption index
X <sub>1</sub> age	0.0438	0.1594	0.0466 Not significant
X <sub>2</sub> Education	2.6567	0.5142	0.5661 Significant at
X <sub>3</sub> Income	0.0743	0.1071	0.3081 Not significant
X <sub>4</sub> Herd size	0.6850	0.3387	0.4730 ,,
X <sub>5</sub> Social participation	0.2155	0.1111	0.4003 ,,
X <sub>6</sub> Extension contact	-0.5026	-0.2630	-0.1195 ,,

F = 7.5453 (significant at

df = 43

R<sup>2</sup> = 0.5128

Table 17(a). Inter-correlation between variables  
(Beneficiary group).

	Y	X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>	X <sub>4</sub>	X <sub>5</sub>	X <sub>6</sub>
Y	1.000	-0.0856	0.3647	0.1028	0.0488	0.2525	0.0707
X <sub>1</sub>		1.0000	-0.3745	-0.0237	-0.0971	-0.0848	0.0278
X <sub>2</sub>			1.0000	0.0441	-0.0207	0.1205	0.0765
X <sub>3</sub>				1.0000	-0.0703	0.2005	0.1221
X <sub>4</sub>					1.0000	0.0139	0.0277
X <sub>5</sub>						1.0000	0.4003
X <sub>6</sub>							1.0000

$$Y = 17.2280 + 0.0220 X_1 + 1.5980 X_2 + 0.0456 X_3 + 0.0159 X_4 + 0.5386 X_5 - 0.0830 X_6$$

$$R^2 = 0.1885.$$



Table 17(b). Inter correlation between variables (non-beneficiaries)

	Y	X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>	X <sub>4</sub>	X <sub>5</sub>	X <sub>6</sub>
Y	1.0000	0.0466	0.5661	0.3081	0.4730	0.4003	-0.1195
X <sub>1</sub>		1.0000	0.2517	0.3096	0.0633	0.0912	0.1661
X <sub>2</sub>			1.0000	0.2166	0.2131	0.4338	0.1056
X <sub>3</sub>				1.0000	0.3569	0.1492	0.2546
X <sub>4</sub>					1.0000	0.2269	-0.0725
X <sub>5</sub>						1.0000	0.1303
X <sub>6</sub>							1.0000

$$Y = 14.1479 + 0.0438X_1 + 2.6567X_2 + 0.0743X_3 + 0.6850 X_4 + 0.2155 X_5 - 0.5026 X_6$$

$$R^2 = 0.5128.$$

while only about 19 per cent of the adoption behaviour among the beneficiaries was explained by the six independent variables chosen, as much as 51 per cent was explained in the case of non-beneficiary respondents. Thus it appeared that while there was indication of some relationship between selected characteristics in the aggregate and adoption behaviour among non-beneficiaries, no such relationship was discernible among the beneficiaries.

Among the characteristics none of the regression coefficients was significant among the beneficiary group. Among the non-beneficiaries the regression coefficient for the independent variable education was found significant while the coefficients for the other independent variables were not significant.

Another result that may be of interest, although not significant, is the negative regression coefficient obtained for the independent variable extension contact in both the groups. The regression coefficients of all other independent variables were positive.

Inter-correlations between the variables were generally small in both the groups of respondents, and none of them could be said to have any meaningful relationship. In general the results of regression analysis have pointed out the influence

of the variables in the aggregate, though this was clearly perceptible in the case of non-beneficiaries only. It is possible that some type of functional relationship other than the one fitted to the data in the present study or inclusion of other socio-economic factors particularly in the case of beneficiaries might explain the influence of the independent variables on the adoption behaviour more explicitly.

## *Discussion*

---

## DISCUSSION

The study was conducted with 100 milk producers divided into two groups known as beneficiaries and non-beneficiaries. Out of the 40 improved practices selected the maximum number adopted was 29 by one respondent from each group. Thus the highest adoption index obtained was 72.5. Similarly there were none who had adopted less than 12 practices from either group indicating the lowest adoption index of 30. But for some minor differences in the adoption of some of the selected practices, the overall adoption behaviour was more or less similar in both the groups. However, when the respondents were grouped into three major adopter categories there appeared to be a slightly higher concentration of the respondents in the medium category among beneficiaries and in the high category among non-beneficiary.

Out of the six socio-economic factors studied, namely age, education, annual income, herd size, social participation and extension contact, the two groups were found to differ to a slight extent in the case of education only, while they were fairly similar in respect of the other characteristics. The chi-square analysis on the association of these charact-

eristics with the adoption index showed no significant association for any of the characteristic except income in respect of the beneficiary group whereas among the non-beneficiaries education and herd size showed some significant association. These findings agree with those of Kar et al. (1970), Hussain (1971), Menon and Rao (1975), Subhadra (1979), Somasekharan (1980), Patel and Singh (1970), Singh and Singh (1970), Grewal and Sohal (1971), Nair (1971), Jha et al. (1972), Reddy and Reddy (1972), Murthy (1970), Satischander (1970) and Jothiraj (1974), but do not concur with the findings of Perumal and Duraiswamy (1972), Chandrakandan (1973), Anbalagan (1974), Pillai (1978), Saini et al. (1977) and Singh and Dubey (1978). It was observed that illiteracy among the non-beneficiaries was very insignificant and that a large proportion had education of high school level and above. On the contrary less than one-fifth of the beneficiaries were illiterates and about one-third only had education of high school level and above. Thus the non-beneficiary group was somewhat better educated than the beneficiary group. Considering income the adoption behaviour of the non-beneficiary group was fairly uniformly distributed on expected lines among the different income categories whereas sizable proportion of adopters in the beneficiary

group tended to concentrate in the medium income category. It can be thus said that income did have some influence on the adoption behaviour of the beneficiaries.

Herd size was generally small among all the respondents, the herd size rarely exceeding five animal units. Since the smallest herd size will be between 1 to 2 animal units there is likely to be no major association between herd size and adoption. But a significant association at 90 per cent level was observed in the case of non-beneficiary group and a fairly sizable concentration of the non-beneficiaries in the medium herd size category was observed. It is informative to note that none of the non-beneficiaries had herd size below 3 animal units. These findings agree with those of Murthy (1970), Satischander (1970) Jothiraj (1974) and Somasekharan (1980) but do not concur with those of Saini et al. (1977) and Singh and Dubey (1978).

The lack of association between age, social participation and extension contact and adoption index in either of the groups agrees with the observations of Joon et al. (1970), Patel and Singh (1970), Reddy and Reddy (1972) and Vellapandian (1974) while it is at variance with the observations of Anbalagan (1974) and Jothiraj (1974).

Although there was no significant difference in the economic motivation between the two groups in the aggregate, the non-beneficiary group showed some significant association ( $P < 0.10$ ) between motivation and adoption index, while no association could be observed among the beneficiaries. There was high concentration of respondents in the medium motive category in both groups while the non-beneficiary group showed somewhat larger proportions of respondents in the high motivation category when compared to beneficiaries. It would, therefore, appear that with a somewhat larger herd size and higher education there was somewhat higher economic motivation among them whereas with smaller herd and somewhat less education the motivation was a little less among the beneficiaries. It is possible that since the beneficiaries had the benefit of financial incentives resulting in less financial investments on their part they were less economically motivated when compared to non-beneficiaries who had to make higher investments for larger herds. The scores of the respondents were very, generally, low as indicated by the very low mean scores obtained by either group. Out of a possible score of 10 about 90 per cent of the respondents had scores below four. But



even with these low scores economic motivation did show some association with adoption index among non-beneficiary. Although these observations do not seem to have had much of an impact on the adoption behaviour of the respondents in general, the findings are in keeping with the greater variability in the adoption behaviour among the non-beneficiaries, while the variability was low among the beneficiaries.

In the matter of social participation neither of the group showed any appreciable level of participation as envisaged in the study. Generally the participation was poor as evidenced by the very low insignificant scores obtained by a large proportion of the respondents. This is also evident from the fact that the extension contacts were also very poor. Although there were many technical/para-technical personnel in the extension field the respondents generally contacted one or two persons only at 3 to 6 months intervals.

Viewing the above mentioned findings relating to the socio-economic characteristics studied along with the reasons noted for taking up dairy enterprise it is seen that about half of the non-beneficiaries had indicated earning additional income as their prime reason. Although this was

the prime reason for the beneficiaries also, the proportion indicating this reason was much less than in the non-beneficiary group. The findings agrees with those of Supe (1969), Das and Sankar (1970), Singh and Singh (1970) and Vijaya-raghavan (1977) and is at variance with those of Subramanyan (1976) and Kher and Jha (1978). It is informative to note that over one-third of the respondents in both the groups had indicated the need for home consumption of milk as their second most important reason for taking up dairy enterprise. In the matter of considering dairy enterprise as a supplementary occupation the non-beneficiaries appeared to give more importance to supplement their income and utilise the spare labour available at home whereas many of the beneficiaries appeared to have taken up dairying due to lack of other occupations, although similar proportions have expressed the supplementary nature of their dairy enterprise. With the lack of association between motivation and adoption index it is to be concluded that the beneficiaries are by and large carried away by the incentives provided by the aid schemes and they have considered it as a means for engaging in some occupation either main or supplementary. But without the benefits the non-beneficiaries had given dairying the status for supplementing their income and employment. To the extent, therefore, in providing additional employment,

though not with much addition to the income, the financial incentives have proved to be of some value in bringing about some awareness to dairying as an enterprise. But this awareness is not seen reflected in the need for more scientific care of the dairy animals as indicated by the relatively medium adoption indices exhibited by the beneficiaries. It is interesting to note that even many improved practices which could be adopted with none or practically negligible amount of investment have not been adopted by beneficiaries in as much as their adoption behaviour did not differ significantly from that of non-beneficiaries. It is possible that with the poor extension contacts maintained by the respondents in general, or it could be that there was no proper follow up of the beneficiaries by the extension personnel, resulting in less than satisfactory adoption behaviour.

The multiple regression analysis taking all the six socio-economic characteristics together indicated a significant influence of these factors in the case of non-beneficiaries while no relationship could be observed for the beneficiaries. This observation seems to concur with some of the associations of the socio-economic factors with the adoption behaviour taken individually. It is possible that while over half of the adoption behaviour

could be explained by the six socio-economic characteristics studied in the case of non-beneficiaries, there are factors, other than these six, not covered in the present study that might explain the adoption behaviour among the beneficiaries, since by and large the adoption behaviour was more or less similar in the two groups.

Lastly on the reasons attributed by the non-beneficiaries for not availing the financial assistances, their perception with regard to the problems involved in obtaining financial aids and the possible risk involved in repaying loans appeared to dominate their reasons. Thus although the non-beneficiaries showed some association between motivation and adoption of improved practices they seems to be content with investing their own resources which is less risky.

In general there appeared to be very little difference between the two groups regarding the awareness of assistances available for dairy enterprise. Between the various assistances like assistances for cattle shed construction and fodder development have been less known among the respondents when compared to other forms of assistances. This may be due to lack of proper dissemination of information in as much as the extent these benefits have been availed is fairly close to the extent of awareness about these assistances among the beneficiaries. Among non-beneficiaries, the reasons for not availing have been discussed earlier.

It can be concluded that the financial assistances, in the form of the aid schemes considered, have not created any significant influence on the adoption behaviour of those who were assisted through the schemes. But some influence in the area of employment generation seems to have been created in as much as some of the beneficiaries might not have taken to dairying but for the financial assistances. To the extent that there has also been some awareness in milk consumption the assistances have succeeded. Also it can be said that though educationally somewhat backward the assistances might have influenced the adoption behaviour of the beneficiaries to the extent of being on par with the economically slightly better off and better educated with slightly larger herd size of the non-beneficiaries. The fact that the income of the beneficiaries showed some association with their adoption behaviour is noteworthy and perhaps with better education, improving contacts through follow up by extension personnel, the adoption behaviour could be further improved. Although most of the selected socio-economic characteristics did not reveal significant association with adoption in both the groups it should be possible through introduction of other socio-economic factors like training programmes, demonstrations, training and visit programmes etc. to

improve the adoption of improved practices by the beneficiaries. Other than their natural aversion to get involved in debts there seems to be no predominant reason among the non-beneficiaries for not availing the financial assistances.

# Summary

---

## SUMMARY

There are various schemes and projects implemented by different departments and agencies for the development of the cattle wealth in the State. The farmers are being given assistances and incentives in various forms through these schemes and projects. The study was undertaken to know how far these assistances and incentives were helpful in the introduction of scientific practices among the dairy farmers and also to know the relationship of the socio-economic characteristics of the farmers with their adoption behaviour. The reasons for not availing these assistances by the farmers would also help in planning suitable programmes for the development of dairy in the State.

The study was undertaken among the members of the Chalakudy Milk Co-operative Society which was selected purposively. The members of the Society who have availed the assistances for dairy development through the special animal husbandry programme and the scheme for the purchase of dairy cattle provided through the 'Small Farmers' Development Agency formed the beneficiary group and those who have not availed any assistance for dairy development from any



source formed the non-beneficiary group. Fifty farmers from each were selected at random forming a sample of 100 farmers for the study.

Forty improved practices recommended by the University for cattle rearing were selected.

The socio-economic characteristics of the respondents selected for the study were age, education, annual income, herd size, social participation and extension contact. The extent of adoption of the recommended practices was taken as the depended variable in the study.

Data were gathered from the selected respondents using a pre-tested interview schedule. The extent of adoption and socio-economic characteristics were categorised into low, medium and high using standard techniques based on the scores obtained by the respondents. The adoption index was calculated following recommended procedures.

The analytical procedures adopted were simple percentage analysis, chisquare test for the significance of association between individual socio-economic characters and adoption and multiple linear regression.

The salient findings of the study were the following:

The average number of breeding practices adopted by

the beneficiaries and non-beneficiaries were 3.28 and 3.26 respectively against the total number of 5 and among the 9 feeding practices the average number adopted was 4.86 and 4.62 respectively. Among the six disease control measures the average number of adoption was 3.78 and 3.46 and among the 20 general management practices the two groups have adopted 9.58 and 10.02 at an average. All the beneficiaries have adopted atleast 15 recommended practices whereas only 12 practices were adopted by all the non-beneficiaries. One respondent from each group has adopted the maximum number of 29 practices. Practices like premilking udder cleaning had 98 per cent of adoption among the beneficiaries as well as the non-beneficiaries, and the practice of feeding commercial feed had 96 per cent and 68 per cent of adoption respectively among the two groups. The practice of weaning of calves was not adopted by any respondent while the practice of recording the birth weight of calves had 2 per cent and 4 per cent of adoption respectively among the two groups. The mean adoption index among the beneficiaries and non-beneficiaries were 53.75 and 53.55 respectively.

The aggregate influence of the six independent variable on adoption index was not significant among the beneficiaries

whereas highly significant influence was observed among non-beneficiaries.

Education, and herd size showed significant association with adoption among non-beneficiaries whereas only income showed significant association among beneficiaries.

Economic motivation was found to be significantly associated with adoption in the case of non-beneficiaries only.

Dairying appeared to be a supplementary enterprise aimed at additional income in both the groups of respondents.

Among the reasons for not availing the assistances 82 per cent of the non-beneficiaries have attributed administrative reasons. The risk of repayment of the loan portion was the second major reason with 72 per cent of the non-beneficiaries.

The inter correlations were not significant among the variables.

The regression analysis indicated highly significant influence of the six socio-economic characters on adoption in the case of non-beneficiaries whereas in the case of beneficiaries no significance was shown.

No significant difference in the adoption behaviour between the two groups could be discerned from this study. The assistances seem to have had some influence in the area of employment generation, besides, some of the beneficiaries might not have taken to dairying but for the assistances. With the beneficiaries being less advantageous in many socio-economic characters, the fact that their adoption was similar to that of non-beneficiaries can itself be taken as indication of the benefits due to the assistances but much more follow up work and extension contacts seem to be called for. The awareness among the beneficiaries and non-beneficiaries about the various assistances given for the dairy development showed no significant difference. Among the various assistances some like assistances for the construction of cattle shed and fodder development were less known to the respondents which may be due to lack of dissemination of information. The income of the beneficiary showed some association with the adoption behaviour and perhaps with better education and extension contacts the adoption behaviour could be further improved. Other than the natural aversion to get involved in debts there seems to be no predominant reason among the non-beneficiaries for not availing the financial assistances.

## *References*

---

## REFERENCES

- Ambalagan, S. (1974). A study of factors influencing adoption of package of practices for high yielding varieties of paddy. M.Sc. (Ag.) Thesis (unpublished), Department of Agricultural Extension, Agricultural College and Research Institute, Coimbatore.
- Basram, G.M. and Capner, H.R. (1968). Factors related to the acceptance of new ideas and techniques in farming. Indian J. Ext. Edn. 4 (1 & 2) 29 - 59.
- Chandrakandan, K. (1973). A study on farm practice attributes and socio-personal factors of farmers in relation to adoption of agricultural practices in Thanjavoor district, Tamil Nadu. M.Sc. (Ag.) Thesis, Department of Agricultural Extension, Agricultural College and Research Institute, Coimbatore.
- Chandrakandan, K. and Subramanyan, V.S. (1975). Note on socio-personal factors of the farmers in relation to adoption. Madras Agric. J. 62, (10-12), 835 - 857.
- Das, K.K. and Sarkar, D.R. (1970). Economic motivation and adoption of farm practices. Indian J. Extn. Edn. 6 (1 & 2), 103 - 107.
- Dasgupta, S. (1965). Communication and innovation in Indian Villages. Social Forces, 43, 330 - 337.
- Grewal, I.S. and Sohal, I.S. (1971). Comparative role of two school systems in the spread of adoption of some farm practices. Indian J. Extn. Edn. 7 (1 & 2), 1-5.
- Hussain, M.M. (1971). A study on selected extension methods in relation to influence on 14 package of practices of IR-8 paddy in Nedumangad block of Trivandrum district. M.Sc. (Ag.) Thesis, Department of Agricultural Extension, Agricultural College and Research Institute, Coimbatore.

- Jaiswal, N.K., Singh, N.N. and Singh, B.N. (1971). A study of inactional association of selected factors with innovativeness in farming. Indian J. Extn. Edn. 7 (3 + 4) 110 - 116.
- Jha, P.N. and Shaktawat, G.S. (1972). Adoption behaviour of farmers towards Hybrid Bajra cultivation. Indian J. Extn. Edn. 8 (1 + 2) 24 - 31.
- Joon, B.S., Jagadish Singh and Rana, O.P. (1970). Response of farmers towards high yielding varieties. Indian J. Extn. Edn. 6 (3 + 4) : 58 - 62.
- Jothiraj, S. (1974). An Ex-Post-Facto study on the extent of adoption of selected husbandry practices by dairy man. M.Sc. (Ag.) Thesis. Department of Agricultural Extension, Agricultural College and Research Institute, Coimbatore.
- Kar, L.N., Misra, L. and Choudhuri, U.C. (1970). Impact of Extension contacts in influencing farmers in adoption of some selected innovations. Indian J. Extn. Edn. 6, (3 + 4) : 83 - 86.
- Karim, A.S.M.Z. and Mahaboob, S.G. (1974). Relationship of selected characteristics of transplanted Anon rice growers with their adoption of fertilizers in rural area in Bangladesh. Indian J. Extn. Edn. 10 (1+2): 16 - 22.
- Kher, A.O. and Jha, P.N. (1978). Factors associated with farmers' attitude towards Primary Agricultural Credit Societies in Gujarat. Indian J. Extn. Edn., 14 (1+2) : 23 - 29.
- Knight, A.J. (1975). A study of the Relative Effectiveness of three modes of Presentation, Preferences, Listening and Post-listening Behaviour of Farm Broadcast Listeners. Ph.D. Thesis, Division of Agricultural Extension, Indian Agricultural Research Institute, New Delhi.
- Menon, K.R. and Rao, G.A. (1975). Farmers' characteristics in relation to adoption of improved agricultural practices through National Demonstration. Madras Agric. J. 62 (10 - 12) : 860 - 861.

- Mohanandasan, T.C. (1979). A study on the information need perception and adoption behaviour by Big and Small Farmers Growing Potato. M.Sc. (Ag.) Thesis, Dept. of Agricultural Extension, Agricultural College and Research Institute, Coimbatore.
- Murthy, A.N. (1970). A study of some factors influencing adoption of advanced cattle breeding operations in Key Village Block, Kurnool (Andhra Pradesh). M.Sc. (Ag.) Thesis. Andhra Pradesh Agricultural University, Hyderabad.
- Nachiappan, P.R. (1975). The impact of S.F.D.A. on some selected aspects in South Arcot district in Tamil Nadu. M.Sc. (Ag.) Thesis. University of Agricultural Sciences, Bangalore.
- Nair, K.P.R. (1974). A study of the factors affecting the adoption of Hybrid-4 cotton cultivation in Sarsa Village of Anand Taluk of Gujarat State. M.Sc. (Ag.) Thesis, B.A. College of Agriculture, Institute of Agriculture, Anand, Gujarat State.
- Oliver, J., Annamalai, R. and Parthasarathy, G. (1975). Influence of socio-economic factors on adoption of high yielding varieties. Madras Agric. J. 62 (10 - 12) : 849 - 850.
- Oliver, J., Duraiswamy, K.N. and Menon, R. (1975). Socio-economic factors and adoption through views articles. Madras Agric. J. 62 (10 - 12) : 858 - 889.
- Patel, P.N. and Singh, K.N. (1970). Differential characteristics of adopters and non-adopters of farm planning. Indian J. Extn. Edn. 6 (1 & 2) : 96 - 102.
- Perumal, G. and Duraiswamy (1972). Influence of personal and situational characters on the adoption of Hybrid maize cultivation by farmers of Coimbatore district. Madras Agric. J. 54 (4) : 209 - 213.
- Pillai, K.G.S. (1978). A study on the swine farming and Pork consumption. M.Sc. (Ag.) Thesis. Department of Agricultural Extension, Agricultural College and Research Institute, Coimbatore.



- Prasad, R.M. (1978). A study on farmers' functional literacy programme. M.Sc. (Ag.) Thesis. Dept. of Agricultural Extension, Faculty of Agriculture, K.A.U.
- Rai, H.N. (1965). Diffusion of information and farmers' response in relation to an improved farm practice. Indian J. Extn. Edn. 1 (2) : 140.
- Rajendran, P. (1978). A study of factors affecting the adoption of selected agricultural practices. M.Sc. (Ag.) Thesis. Department of Agriculture, Kerala Agricultural University.
- Rao, T.R. (1968). Economic aspects of high-yielding variety programme in West Godavari district - A study of IR-8 paddy in Kharif 1967 - 68. Indian J. Extn. Edn. 23
- Ratanchand and Gupta, M.L. (1966). Adoption of improved farm practices. Indian J. Extn. Edn. 1 (4) : 259 - 265.
- Reddy, K.J. and Reddy, G.B. (1972). Adoption of improved agricultural practices in Andhra Pradesh. Indian J. Extn. Edn. 8 (1+2) : 13 - 23.
- Saha, K.K. (1973). Adoption problems of small farmers. Kurukshetra, 20 (21) : 10.
- Saini, S.P.S., Shukla, A.N. and Khurana, G.S. (1977). Attributes of potential adopters of recommended dairy production innovations. Indian J. Extn. Edn. 13 (3 + 4) : 56 - 58.
- Sharma, S.K. and Nair, G.T. (1974). A multivariable study of adoption of high yielding varieties of paddy. Indian J. Extn. Edn. 10 (1 + 2) : 30 - 35.
- Satschander (1970). A study of socio-economic factors affecting the adoption of artificial insemination and attitude towards the same. M.V.Sc. Thesis, National Dairy Research Institute, Karnal.

- Sengupta, T. (1970). Main occupation - A variable for adoption. Indian J. Extn. Edn. 6 (3 + 4) : 75 - 76.
- Singh, S.N. and Singh, K.N. (1970). A multivariable analysis of adoption behaviour of farmers. Indian J. Extn. Edn. 6 (3+4) : 39 - 44.
- Singh, S. and Dubey, V.K. (1978). Adoption of scientific feeding practices by cattle owners of I.C.D.P., Karnal. Indian J. Extn. Edn., 14, (1 + 2): 70 - 73.
- Snedecor, G.W. and Cochran, J.G. (1967). Statistical Methods. Oxford and IBH Pub. Co., New Delhi, 6th Edn. 391 - 406.
- Somasekharan Nair, A.P. (1980). Factors influencing adoption of selected husbandry practices by milk producers. M.V.Sc. Thesis, Department of Extension, College of Veterinary & Animal Sciences, Kerala Agricultural University.
- Subhadra, M.R. (1979). Comparative effectiveness of Extension Communication Media used under the Dairy Development programme and Extent of adoption of improved dairy Husbandry practices by members of Milk Co-operatives in the selected areas in Trichur Taluk.  
M.V.Sc. Thesis, Department of Extension, Faculty of Veterinary and Animal Sciences, Kerala Agricultural University.
- Subramanyan, V.S. and Menon, K.R. (1975). Differential characteristics of growers and non-growers of high yielding varieties. Madras Agric. J. 62 (10 - 12) : 712 - 716.
- Subramanian, R. (1976). Factors influencing adoption of poultry farming. M.Sc. (Ag.) Thesis, Department of Agricultural Extension, Agricultural College and Research Institute, Coimbatore.
- Sudharsan Reddy, M. and Dr. S.V. Reddy (1977). Personal and socio-economic characteristics associated with the attitude of farmers towards crop loan systems. Indian J. Extn. Edn. 13 (3 + 4): 68 - 70.
- Supe, S.W. (1969). Factors related to different degree of rationality in decision making among farmers in Buldhana district. Ph.D. Thesis, Indian Agricultural Research Institute, New Delhi.

- Sushama, N.P.K. (1979). A study on the impact selected development programme among the tribals of Kerala. M.Sc. (Ag.) Thesis, Department of Agricultural Extension, Faculty of Agriculture, Kerala Agril. University.
- Tej-Bahadur and Ramachandra Raddy (1976). An analysis of personal and social characters of the borrowers of crop loans. Indian J. Extn. Etn. 13 (3 + 4) : 79.
- Vellapandian, C. (1974). A study on adoption and adoption categories of some improved agricultural practices. M.Sc. (Ag.) Thesis. Department of Agricultural Extension, Agricultural College and Research Institute, Coimbatore.
- Vijayaraghavan, P. (1977). A study of factors affecting the knowledge and adoption of high yielding varieties of paddy by small and marginal farmers. M.Sc. (Ag.) Thesis, Department of Agricultural Extension, Agricultural College and Research Institute, Coimbatore.
- Yang, T.J. (1968). Method of Farm Management Investigations. F.A.O. Agriculture Development Paper No.30, F.A.O. of United Nations, Rome, Italy.

...

# Appendix

---

APPENDIX

Interview Schedule

Resp. No. ....

1. Name
2. Address
3. House No.
4. Village & Taluk.
5. Caste
6. Age.
7. Occupation
- (a)  Full time -
- (b)  Part time -
8. Family
- |        |                          |        |                          |       |                          |
|--------|--------------------------|--------|--------------------------|-------|--------------------------|
| - Male | <input type="checkbox"/> | Female | <input type="checkbox"/> | Male  | <input type="checkbox"/> |
| adult  | <input type="checkbox"/> | adult  | <input type="checkbox"/> | Child | <input type="checkbox"/> |
|        |                          |        |                          |       | Female                   |
9. Herd size
- |         |       |       |               |              |            |             |
|---------|-------|-------|---------------|--------------|------------|-------------|
| - 0-1 Y | 1-2 Y | 2-3 Y | <u>Heifer</u> | <u>Milch</u> | <u>Dry</u> | <u>Work</u> |
| C B     | C B   | C B   | C B           | C B          | C B        | C B         |
- Goat      Y -
- A -
- Poultry    Y -
- A -
10. Education
- a) Illiterate
- b) Primary
- c) High school
- d) College
11. Income (Annual)
- a) Agricultural & Animal Husbandry sources
- b) Other sources.

12. Are you a member or office bearer in any of the following:

	<u>Member</u>	<u>OB</u>	<u>N.P.</u>
a) Dairy Co-operative Society	--	--	--
b) Marketing of service society	--	--	--
c) Livestock Improvement Association	--	--	--
d) Panchayath	--	--	--
e) Block Development Committee	--	--	--
f) Political organisations	--	--	--
g) Library	--	--	--
h) Sports Clubs	--	--	--
i) Other Welfare organisations	--	--	--

13. Have you participated in the following:

	<u>Yes</u>	<u>No</u>
a) Group discussions	--	--
b) Study classes or Tours	--	--
c) Extension Lectures	--	--
d) Demonstration	--	--
e) Cattle show	--	--
f) Calf rally	--	--
g) Exhibitions	--	--
h) Milk yield competitions	--	--
i) Seminars	--	--
j) Developmental activities sponsored by other organizations	--	--

14. How frequently do you meet the following persons:

	<u>Frequent</u>	<u>Sometimes</u>	<u>Never</u>
a. Village Level Worker	--	--	--
b. Dairy Farm Instructor	--	--	--
c. Livestock Assistants	--	--	--
d. Veterinary Surgeons (SFDA/Block)	--	--	--
e. Other experts	--	--	--

15. Economic Motivation.

Have the following reasons induced you to take up dairying:

	<u>Yes</u>	<u>No</u>
a. To learn better methods of dairying and to take it as an occupation	--	--
b. To become an ideal dairy man	--	--
c. To earn additional income	--	--
d. Other occupations are not available	--	--
e. For better health by drinking more milk	--	--
f. Having a good animal is prestigious	--	--
g. Others are doing the same	--	--
h. For utilizing the extra time available	--	--
i. The financial and technical help	--	---
j. Any other	--	--

16. Financial Assistances - SchemesAwareness Availed

a) Calf subsidy	--	--
b) Cattle purchase	--	---
c) Cattle shed construction	--	---
d) Grass cultivation	--	---
e) Feed supplements	--	---
f) Insurance	--	---
g) Vaccinations	--	---

## 17. Reasons for not availing the assistances:

	<u>Yes</u>	<u>No</u>
1. Other sources of finance	--	---
2. Administrative reasons	--	---
3. Early experience with other types of loans	---	---
4. Risk of repayment	--	---
5. Others experiences	--	---
6. Not eligible	--	---
7. Not aware	--	---

## 18. Have you adopted the following practices:

	<u>Yes</u>	<u>No</u>
1. Weaning	--	--
2. Regular deworming	--	--
3. Nose punching in calves	--	--
4. Weight recording at birth	--	--
5. Periodical weight recording	--	--
6. Selection of females for breeding	--	--
7. Feeding colostrum to calves	--	--
8. Early breeding	--	--
9. Artificial insemination for breeding	--	--
10. Pregnancy diagnosis after two months	--	--
11. Veterinary aid in sterility cases	--	--
12. Feeding supplements to pregnant animals	--	--
13. Exercise to pregnant animals	--	--
14. Daily washing of animals	--	--
15. Brushing regularly	--	--
16. Feeding ready-made cattle feed	--	--
17. Feeding in relation to production	--	--
18. Feeding extra on pregnancy	--	--
19. Feeding concentrate dry	--	--
20. Feeding enough roughage	--	--
21. Feeding enough grass	--	--
22. Sufficient water at frequent intervals	--	--
23. Pre-calving stripping of udder	--	--
24. Pre-parturient care	--	--
25. Anti-septic application to navel at birth	--	--
26. Frequent suckling of calves for the first 10 days	--	--
27. Pre-milking udder cleaning	--	--
28. Milking more than twice daily	--	--
29. Drying of the cow prior to parturition	--	--



	<u>Yes</u>	<u>No</u>
30. Adopting full hand method of milking	--	--
31. Breeding within three months after calving	--	--
32. Veterinary aid for ailments	--	--
33. Vaccination to prevent diseases	--	--
34. Foot bath as a preventive measure	--	--
35. Enough floor space in the shed	--	--
36. Enough slope for the floor	--	--
37. Enough manger space	--	--
38. Cleaning shed periodically	--	--
39. Scientific disposal of dung	--	--
40. Washing the shed daily	--	--

\*\*\*

**ROLE OF FINANCIAL ASSISTANCE  
AND INCENTIVES IN FARMER  
MOTIVATION IN DAIRYING**

By  
**V. RAJU**

**ABSTRACT OF A THESIS**

Submitted in partial fulfilment of  
the requirement for the degree

**Master of Veterinary Science**

Faculty of Veterinary and Animal Sciences  
Kerala Agricultural University

Department of Extension  
COLLEGE OF VETERINARY AND ANIMAL SCIENCES  
Mannuthy - Trichur

1981

## ABSTRACT

The objectives of the study were to understand the awareness of the various assistances and incentives provided for the dairy development and whether these assistances have influenced the farmers to adopt improved dairy husbandry practices, besides the socio-economic characteristics of the respondents and its influence on the adoption of improved practices as well as the reasons for not availing the assistances by them.

The members of Chalakudy Milk Co-operative Society who have availed the assistances given by the Small Farmers Development Agency were selected as beneficiaries (50 respondents randomly selected) and those who have not availed any assistance from any source were selected as the non-beneficiaries (50 respondents).

Forty improved practices recommended by the University were included for the study and the six socio-economic characteristics of the respondents included in the study were age, education, income, herd size, social participation and extension contact.

The data were gathered from the selected respondents using a pretested interview schedule.

The analytical procedure adopted were simple percentage analysis, chisquare test and regression analysis.

All the beneficiaries were found to have adopted atleast 15 recommended practices whereas only 12 practices were adopted by all the non-beneficiaries. Practices like premilking udder cleaning had 93 per cent of adoption among both the groups of respondents, and the practice of feeding commercial feed had 96 per cent adoption among the beneficiaries and 68 per cent adoption among the non-beneficiaries. The practice like weaning had the least adoption of zero per cent among both the groups of respondents. The mean adoption index among the beneficiaries and non-beneficiaries were 53.75 and 55.55 respectively. Among the six socio-economic characteristics studied significant influence was shown by education and herd size on adoption among the non-beneficiaries and income among the beneficiaries. Dairying appeared to be a supplementary enterprise aimed at additional income in both the groups. Other than the natural aversion to get involved in debts no other reason seems to be predominant among the non-beneficiaries for not availing the assistances. The assistances as such did not reveal any significant influence on the adoption behaviour, but can be said to have some prohibition on employment and income generation.