IDENTIFICATION OF TRAINING NEEDS OF DAIRY FARMERS IN PATNA DISTRICT OF BIHAR

A Thesis

Submitted to the

West Bengal University of Animal and Fishery Sciences

In partial fulfillment of the requirements for the degree of

MASTER OF VETERINARY SCIENCE

In

VETERINARY & ANIMAL HUSBANDRY EXTENSION EDUCATION

By

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FACULTY OF VETERINARY AND ANIMAL SCIENCES

WEST BENGAL UNIVERSITY OF ANIMAL AND FISHERY SCIENCES

BELGACHIA, KOLKATA, WEST BENGAL

2011

Dedicated
To
My
Beloved parents

West Bengal University of Animal and Fishery Sciences

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CERTIFICATE

This is to certify that the work recorded in the thesis entitled "***Identification of training needs of dairy farmers in Patna district of Bihar***" submitted by **Dr.Raghunandan Singh** in partial fulfillment of the requirements for the Degree of Master of Veterinary Science in Veterinary & Animal Husbandry Extension Education of the west Bengal University of Animal And Fishery Sciences, is the faithful and bonafide research work carried out by the candidate himself under my personal supervision and guidance. The results of the investigation reported in the thesis have not so far been submitted for any other Degree or Diploma. The assistance and help received during the course of investigation have been duly acknowledged.

Dated: Belgachia, Kolkata-37.

The.....25/1/..... **2011.**

Debasis Ganguli

(Dr. Debasis Ganguli)
Chairman
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APPROVAL OF EXAMINERS FOR THE AWARD OF THE DEGREE OF MASTER OF VETERINARY SCIENCE

We, the under signed, having been satisfied with the performance of **Dr. Raghunandan singh**, in the viva-voce examination,for the award of the degree of **Master of veterinary science** in the discipline of **veterinary & Animal husbandry Extension Education**, West Bengal University of Animal & Fishery sciences conducted today, the 23/8/ , 2011 and recommend that the thesis be accepted for the award of the degree.

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Raghunandan Singh

Belgachia, Kolkata. (RAGHUNANDAN SINGH)

LIST OF Tables

ABBREVIATIONS

Sl. No.	Abbreviations	Description
1	A.H	Animal Husbandry
2	A.I	Artificial Insemination
3	ANOVA	Analysis of variance
4	DMP	Daily milk production
5	F.M.D	Foot and mouth Disease
6	GOI	Government Of India
7	GOB	Government Of Bihar
8	H.S	Haemorrhagic Septicemia
9	M.T	Million Tone
10	NDDB	National Dairy Development Board
11	R.P	Rinder Pest
12	K.V.K	Krishi Vigyan Kendra
13	SGDP	State Gross Domestic Products
14	N.D.R.I	National Dairy Research Institute
15	W.B.U.A.F.S	West Bengal University Of Animal And Fishery Sciences

Chapter- 01

Introduction

INTRODUCTION

India is predominantly based on agrarian economy, with more than 75 percent population in villages depending upon agriculture, animal husbandry & allied activities for their livelihood. Livestock enterprises are the most ancient occupation established in the rural setting of our country. Livestock sector contributes significantly in generating employment opportunities and supplementing the income of small and marginal farmers and landless laborers of rural India, besides providing food security. Livestock rearing is visualized by the farmers in the country as part of an integrated agricultural system where livestock and agriculture complements each other. The importance of milk and milk products for the physical development and well being is universally recognized.

According to 17th livestock census report the country has about, 185.2 million cattle, 97.9 million buffaloes, 61.5 million sheep, 124.4million goats and13.5 million pigs. India ranks first in the world in milk production, which increased from 17 million tones (MT) in 1950-51 to about 102 MT by 2007-08. The per capita availability of milk has also increased from 112 grams per day in 1968-69 to 246 grams during 2006-07. But it is still low compared to the world average of 265 grams/day (GOI, 2007).

Dairy sector in India plays an important role in the national economy and in the socio- economic development of the country. It has a significant role in supplementary family income and generating employment in the rural areas, particularly among the landless, small, marginal farmers and farm women, besides providing cheap and nutritious food to millions of people.

The Dairy sector also equally plays a significant role in the welfare of rural population of India particularly the small holders. More importantly small and marginal farmers account for three-quarters of these households. Income from livestock production accounts for 14-15 percents of the total farmhouse holds income in different states. Thus, an increase in demand for livestock products can be a major factor in raising the income and living standard of the rural households.

The rapid growth of milk production in India has been mainly because of the increase in the number of animals rather than that of improved productivity of dairy animals. This is of great concern and average productivity of Indian cow is only 987 kg/lactation as against the world average of 2038kg/lactation (Patil, 2009). The gradual breed deterioration generally occurs from negligence over centuries and consequent rise in the population of non descript cow (80%) and buffaloes (50%) along with the chronic shortage of feed and fodder coupled with their nutritive values and low fertility of our dairy animals has resulted in the low productivity.

Productivity and reproductive performance of Indian dairy animals is largely affected by poor nutritional, health management practices due to variable climatic, social and economical factors. A dairy farmer should have sound knowledge of each of the different sub systems of dairying and the integrated approach will facilitate the producers for sustained milk production fortifying the rural economy.

India possesses enormous bovine wealth, but their per capita production is one of the lowest in the world due to reason that the farmers do not adopt improved dairy management practices desired.

In Bihar Animal Husbandry contributes 16 percent to the SGDP despite its low share of 0.75 percent of total state budgetary allocation (GOB, 2007). Animal husbandry is a core sector of the state economy. The economy of 89 percent population of the state is directly or indirectly linked with this sector (GOB, 2008).

As per 17th livestock census conducted in the year 2003 the total cattle population in Bihar is 18.38 lakhs and buffalo population is 25.47 lakhs. The estimated milk production in the state is 59.34 lakhs MT, and also per capita availability of milk is 149gms per day (NDDB, 2008).This is far lower than other states of India. Dairy farmers of Bihar lack knowledge and awareness about improved dairy farming practices. This is because they have less exposure and access to training through which they can increase their knowledge to keep pace with the changing scenario.

Training is very much essential for rural dairy farmers which help to improve trainees' skill, desired attitude and values required for the work. Training is the function of helping other to acquire and apply knowledge, skill and abilities needed. While imparting training, the attitude of the trainees not only get sharpend but also moulded to suit the ever changining need of environment, the society and the technology.

"Training is aimed at introducing the relevant concepts, theories, desired knowledge, skill and attitude among the trainees" (Mishra and Bhatt, 1988). It is an important crucial input for development in life, be it agriculture, animal husbandry, industry, health or any other field for bringing about a break through in the production on target. It is usually an integral part of human resource development, which helps in increasing the knowledge level and changining the attitude of the farmers. The transfer of available and emerging techonologies in dairying from the research station to the dairy farmers by means of training is consequential.

Majority of the rural dairy farmers need support for building up their capacity through a massive extension education in the form of training programme which help them to upgrade their knowledge and create confidence in their endeavour in the existing farming system. Training helps to adopt technology considering their resources and creates a sustainable, economically viable enterprise for dairy farmers with continous persuasion, communication and diffusion of technology in the field. Thus in many a fold, training acts as a catalyst to animal husbandry practices.

In order to make any training meaningful and effective, it is important to identify the training needs of the farmers. Training need is the gap between 'what is' and 'what ought to be'. Based on this suitable training model can be developed so that the appropriate training is given to the right people, in right form, at right time so that his/her degree of productivity and profitability can be achieved.

Keeping this in view the present study was undertaken to identify the training needs of dairy farmers with reference to their personal and socio-economic characteristics.

OBJECTIVES OF THE STUDY:

General objective:

The general objective of the study was to find out the relationship of the dependent variable (Training needs of the dairy farmers) with the independent variables (Personal and socio-economic variables)

Specific objectives:

The specific objectives of the study were as follows:

(i) To identify the personal and socio-economic characteristics of dairy farmers.

(ii) To study the knowledge level of dairy farmers about selected dairy farming practices.

(iii) To identify the training needs of dairy farmers.

(iv) To co-relate personal and socio-economic characteristics with the training needs of dairy farmers.

(v) To study the perception of dairy farmers about area, duration, season, place, interval and time of training.

NEED OF THE STUDY:

In order to augment milk production, increase productivity and income, as well as to generate self employment training of dairy farmers are important. Assessment of training needs is necessary to make such training meaningful and effective. So the present study was taken up to identify the training needs of dairy farmers.

PRCTICAL UTILITY:

The present study has to identify the training needs of dairy farmers in relation to some personal and socio-economic characteristics. Previous researches showed that lack of training is one of the main factors for poor production performenees in part of the dairy farmers. The study has the potential to generate information on training needs of the dairy farmers which will help to formulate appropriate training programme and execution

of such training programme will help to increase skill to apply scientific dairy practices to improve the productivity of animals and socio-economic conditions of the dairy farmers.

LIMITATIONS OF THE STUDY:

Due to limited time and resources the study was confined in two blocks of Patna districts of Bihar. The findings of the study were obviously based on data obtained from the population covered under the study. Hence the objectivity would be limited to the extent of the respondents' honest opinion and the results of the study may not have relevant application to other areas in the country.

Chapter- 02

Review of Literature

REVIEW OF LITERATURE

To form a sound basis of any study a comprehensive review is very much essential. **"Identification of training needs of dairy farmers"** has wide potentiality for scientific investigation. After going through several journals, magazines, thesis and literatures an attempt has been made in this chapter to review the studies relevant to the present study.

The main functions of review of literature are:

a) To determine what work, both theoretical and practical has been done previously;
b) To assist in the delineation of the problem areas;
c) To provide a basis for the theoretical framework;
d) To provide an insight into method and procedure;
e) To suggest operational definitions of major concepts and to provide a basis for interpretation of the findings.

Critical reporting of the studies in the past investigations is important for scientific presentation. Literature having direct or indirect bearing on the study has been presented below under the following sub heads.

A) Knowledge level of dairy farmers about selected dairy farming practices.
B) Training needs of dairy farmers.
C) Variables related with the training needs of dairy farmers, which has been divided into two groups.
    i) Socio-economic
    ii) Communication.

A. Knowledge level of dairy farmers about selected dairy farming practices.

Hanny (1960) reported that the knowledge and experience should have given due consideration while planning and training programme in dairy management.

Kakoty (1975) observed that 60 percent of the respondents were not aware about feeding of green fodder and concentrate.

Minhas (1976) identified that dairy farmers of Ludhiana had low level of knowledge in the areas of breeding, feeding, housing and animal health, whereas they had medium knowledge in management and marketing of milk.

Chauhan *et al.* (1976) while analyzing the training needs of cattle owners in Karnal district found that poor knowledge about animal husbandry practices of cattle owners was mainly responsible for low milk production.

Gill and Singh (1977) revealed that Knowledge of dairy farmers in breeding, feeding, housing and animal health was low, their knowledge in management and marketing of milk were at medium level.

Sohal and Tyagi (1978) studied the composite knowledge about dairy innovation in the areas of breeding, feeding and health care in both rural and urban society of cross breed cow owners in ICDP, karnal. It was observed that knowledge level was extremely poor in labour group.

Pawar (1979) stated that very poor knowledge was found about management practices in the livestock farmers.

Gite (1980) observed a maximum of 71.14 percent knowledge level in the management practices.

Ramchand *et al.* (1982) observed that majority of respondents had medium level of knowledge in the areas of breeding, health care and management practices.

Nataraju and channegowda (1986) reported that majority (67.3 Percent) of the

dairy farmers had medium knowledge and 19.4 percent had high level of knowledge of recommended animal husbandry practices.

Fulzela and Sohal (1986) reported that the knowledge gain in the area of dairying, fodder and cereal crops were 89.26 percent, 192.53 percent, 147.16 percent in on campus training programme, whereas 56.54 percent, 96.52 percent, 16.62 percent respectively in off- campus training programme. Knowledge retention was found to be 11.15 percent, 18.36 percent and 24.48 percent in on campus training and 21.86 percent, 20.14 Percent and 14.48 percent in off campus training in dairying, fodder and cereal crop, respectively.

Goswami (1987) revealed that approximately 42.00 per cent of livestock owners had low level of knowledge about deworming. Medium level of knowledge about cultivation of green fodder crops was found amongst 77.00 per cent of livestock owners, whereas 52.21 per cent had high level of knowledge about feeding green fodder to animals. High level of knowledge about artificial insemination, deworming and cultivation of green fodder crops were found amongst 23.00, 18.58 and 6.19percent respondents respectively.

Kakoty and Sharma (1988) revealed that the majority of the farmers possessed low level of knowledge with respect to feeding and management, where as they were having medium to high level of knowledge in breeding and disease control practices of dairy farming.

Talwar *et al.* (1990) revealed that 80 percent of poultry farmers knew the feeding practices followed by 75 percent knew about housing and other management practices. About two third of farmers had knowledge about disease and their control.

Narwal and Dixit (1991) revealed that 20, 60 and 70 percent farmers possessed low, medium and high level of knowledge respectively, about the feeding practices of buffaloes.

Maheswaran (1993) stated that 68 percent of the sheep farmers had moderate knowledge, 17 percent had high level of knowledge and only 15 percent had poor knowledge about recommended sheep farming practices.

Verma and Tyagi (1993) reported that the overall knowledge about animal husbandry practices such as breeding, feeding, management and health care among the majority of members of co-operative societies was medium compared to the non co-operatives members whose level was poor.

Reeja *et al.* (2002) showed that 57.33 percent of women beneficiaries had high knowledge about scientific housing of calves while 25.33 percent and 17.33 percent had medium and low knowledge respectively, on the other hand 38.70 percent of non-beneficiaries women had high knowledge about scientific housing of calves while 32.00 and 29.33 percent had medium and low knowledge, respectively.

Gaikwad (2003) reported that 61.67 per cent of the goat keepers were having medium knowledge level, whereas 18.33 per cent of the respondents had high knowledge level about different goat management practices.

Hasib and Hazarika (2009) revealed that most of the respondents possessed high level of knowledge in feeding, management and health care aspects of improved animal husbandry practices, while in the breeding aspect of the same, most of them had medium to high level of knowledge.

Meena *et al.* (2009) in a study on farmers' knowledge on feeding practice of dairy animals in Jhansi district of Bundelkhand region found that majority of respondent (69.58 percent) had medium level of knowledge regarding feeding practices of dairy animals.

Sharma *et al.* (2009) revealed that majority of the respondents of all categories possessed moderate knowledge about buffalo husbandry management practices ranging from 55 to 60 percent followed by poor and high knowledge.

B) Training needs of dairy farmers:

Minhas (1976) reported that training needs of dairy farmers in the areas of breeding, housing and animal health care were high and in the areas of management and marketing of milk were medium.

Chauhan *et al.* (1976) while analyzing the training needs of cattle owners in karnal district found that poor knowledge about animal husbandry practices of cattle owners was mainly responsible for low milk production.

Sherwat (1989) in a study on training needs in different animal husbandry sector found that 52.05 percent, 44.83 percent, 10.95 percent, 9.59 percent and 8.21 percent respondents were interested in training of dairy, poultry, pig farming, beekeeping and fish culture respectively.

Jondhale and Chole (1989) observed that majority of the respondents i.e. about 60 percent suggested arranging trainings at their resident village followed by at university research centre (22.61 Percent). Veterinary key village centres as a place for training was suggested by only a negligible number of respondents. They also found that most convenient time for training of dairymen was May to June (55.93 per cent). One week's duration was suggested to be the most convenient followed by less than one week (39.27 percent).

Farooqui *et al.* (1992) stated that 84.30 percent farm women were interested to have training in care of cross breed and milch animals, 65.62 percent in vaccination of animals, 62.50 percent in animal nutrition, 32.25 percent in fodder crop, 87.50 percent in dairy management and 100.00 percent in poultry keeping.

Ingole *et al.* (1993) observed that 68.34 per cent of the respondents suggested to have a training in summer season, 23.33 per cent in winter, whereas only 8.33 per cent of respondents suggested to have the training during monsoon season. About month of the training, 39.17 per cent of the dairy farmers preferred it in the month of May followed by 14.17 per cent in the month of March. Regarding the duration for training, 45.00 per cent of dairy farmers wanted training for a period of three weeks, about 32.67 per cent of them expressed to have it for a period of two weeks, while one week period was preferred by 22.33 per cent of respondents. As regards the place of training, substantial percentage of the dairy farmers i.e. 75.83 per cent preferred veterinary college as the venue for the training while 24.17 per cent expressed to attend it at research centre.

Meena (1994) reported that 75.00 percent of women showed their desire for training in the areas of health care, breeding, management, fodder production and feeding in descending order.

Gangil *et al.* (2005) observed that health care and breeding were at first and second rank according to farmers' preference for training. It was also found that a majority of livestock farmers (66.24 Percent) found vaccination schedule as essential while a meager (6.84 Percent) reported as least essential. A majority (75.31 Percent) found their training need about deworming as essential, and few (8.97 Percent) as least essential.

Mohan *et al.* (2006) found that health management was the first area of training followed by housing management, other management, nutritional management and product management. Breeding management appeared to be the least preferred training area.

V.Rani Durga and subhadra (2009) revealed that the farm women needed training most about housing and identification of symptoms of common diseases.

Sharma *et al.* (2009) reported that the training about health care was the most desired compared to other areas. The farmers felt greater need for acquiring skill and knowledge about diagnosis of pregnancy and maturity age of buffalo heifers in general. They had least preference for training in the areas of construction, cleanliness and maintenance of buffalo sheds.

Patil *et al.* (2009) concluded that majority of the dairy farmers (62.67 Percent) perceived their training need in health care & disease prevention as the most important followed by important (22.22 percent) and not important (15.11Percent). About training need in care and management of animals, most of the respondent (50.67Percent) opined perceived it as the most important, while 26.22 percent of the respondent perceived it as important and 23.11 percent as not important. In breeding management 41.33 percent expressed training need as the most important, 32.00 percent respondent as important where as 26.67 percent as not important. 54.67 percent conveyed opinion regarding training need about feeding of animals as the most important followed by 24.00

percent as important while 23.11 percent as not important. Regarding training need about clean milk production 37.30 percent perceived it as the most important, 29.78 percent as important while 32.89 percent of the respondent as not important.

Pharate *et al.* (2010) revealed that majority of the dairy farmers (55.00 percent) mostly required training on health management followed by feeding of animals(47.08 percent) and 42.00 percent of the dairy farmers mostly needed training on care of cow at the time of calving and after calving. 37.08 percent, 36.25 percent and 30.42 percent of the dairy farmers opined that mostly needed training on animal breeding, milking of cow and marketing of milk, respectively.

C) Variable related to training needs of dairy farmers.

i) Socio-economic:

Kherde *et al.* (1987) in a study on "Training needs of contact farmers(key communication in Scientific dairy farming practices)." found that the herd size had non-significant relationship with perceived training needs.

Jondhale and chole (1989) reported that number of animals was significantly associated with training needs, Landholding was positively related and annual income found to be not associated with the training needs of respondent.

Ingole *et al.* (1993) stated that education, land holding and annual income did not show any relationship with the training needs of dairy farmers.

Meena (1994) stated that extent of training needs of tribal women of Rajasthan has negative and significant correlation with herd size.

Gurav and kamble (1995) reported that there was non-significant relationship between age and training needs of dairy farmers. They also found that landholding was positively and significantly associated with training needs.

Gaikwad (2003) observed that family size, annual income, knowledge showed non-significant relationship with training needs and landholding was positively and significantly related with training needs.

Ranjan and Singh (2006) observed that substantial impact of training over the knowledge in case of trained respondents than the untrained respondents.

Kumar and jiji (2008) observed that knowledge had positive and significant relationship with training needs.

Khode et al. (2009) found that majority (60.47 percent & 20.93 percent) of the dairy farmers were from age group of '31 to 50' and 'upto 30' years respectively.

Khode *et al.* (2009) stated that majority of the respondents had medium level of economic motivation and 91.86 per cent had never attended any training on dairy farming.

Patil *et al.* (2009) reported that education, herd size, annual income, daily milk production, daily milk sale and knowledge was significantly and positively correlated with training needs of dairy farmers. They also found that age, family size and land holding was positively but non-significant correlated with training needs, while caste was found that negatively and non-significantly correlated with training needs of dairy farmers.

ii) Communication:

Anantharaman and Subramanyan (1982) stated that extension contact and mass media-media exposure to be negatively correlated with training needs.

Pawar and Kherde(1983) found that extension contact and mass media exposure were negatively correlated with training need.

Shirolkar (1991) found that village extension workers and family members were the major sources of information used by the farm women and only 6.00 per cent farm

women received information from Gram Sevak. they also stated that there was significant association between use of source of information and training needs.

Bhele(1994) observed that use of source of information was highly associated with training needs.

Mande (1999) revealed that majority of the farm women (61.33 per cent) used medium sources of information and 13.59 per cent had high sources of information, while 23.33 per cent had used low sources of information, indicated that positive and highly significant correlation between use of sources and training needs.

Rathod (1999) observed that social participation and source of information of dairy farmers was positively and significantly associated with training needs.

Gaikwad (2003) reported that there was positive and significant relationship between source of information and training needs of the goat keepers.

Jawale (2005) stated that the relation between source of information and training needs as positive and significant.

Patil *et al.* (2009) reported that social participation, mass media source was to be positively and significantly associated with training needs.

Khode *et al.* (2009) stated that majority of the dairy farmers (61.63percent) had medium level of utilization of communication sources.

Chapter- 03

Materials and Methods

MATERIALS AND METHODS

A sound methodology is the integral to any scientific study. The research setting process and techniques used make difference in the quality of the collected data and thereby severely affect the findings of the study. This chapter deals with the discussion of the study area, sampling design, variables included, theoretical orientation of the research problem, tools of data collection and statistical methods used according to the objectives of the study.

This chapter has been divided into four sub-heads namely,

3.1 Sampling Techniques,

3.2 Variables and their empirical measurements,

3.3 Techniques of field data collection, and

3.4 Statistical methods used.

3.1 SAMPLING TECHNIQUES:

3.1.1 Selection of the District:

Patna district in Bihar was purposively selected for the study considering the familiarity of the student researcher with the local dialect and accents of the farmers. This was of great help in rapport building and easy access to source of information.

3.1.1.1 The District: Patna:

The district of Patna, extending over an area of 3172 sq.km, is situated in the south of Bihar. It lies between 15°13' and 25° 45'North latitude and 84° 43' and 86° 44' East longitude. The district comprises 6 taluks, 23 blocks, 344 panchayat and 1433 villages. As for census of India,2001 total population of the district is 47.09 lakhs of which males account for 25.14 lakhs and females account for 21.94 lakhs. The average annual rainfall is 1076 mm. The principal cereal crops of this district are Paddy, wheat, maize, and pulses. The principal rivers in the district are Ganga, Sone and Punpun.

The primary source of irrigation is dugwell, tubewell and ponds. The district consists of 60545 hectare of irrigated land. According to livestock Census 2007, this district has a large livestock population which comprises of cattle- 2.82 lakhs, buffaloes-2.74 lakhs, sheep-5.6 thousand and goat-1.60 lakhs.

3.1.2 Selection of Blocks:

Considering the need for availability of data and usual limitations of a student research project, Naubatpur and Masaurhi block of Patna district in Bihar were purposively selected for the present study as these two blocks had largest population of cattle and buffaloes in Patna district.

3.1.2.1 Block: Naubatpur:

Naubatpur block has a total population of 116394. Males constitute 52.6 per cent of the population and females 47.39 per cent. The block has 23 panchyats and 28112 houses. The literacy rate is 45.67 per cent, lower than the national average, with male literacy rate of 56.79 per cent and female literacy rate of 33.30 per cent. The economy of block is primarily agricultural, including cultivation of rice, wheat, pulses, sunflower, maize and vegetables. According to livestock census 2007, the livestock population of the block is Cattle-30371, Buffaloes-13816, Sheep-681 and Goat-10756.

3.1.2.2 Block: Masaurhi:

Masaurhi block has a total population of 108184. Males constitute 53 per cent of the population and females 47 per cent. The block has 18 panchyats and 32172 houses. The literacy rate is 44.13 per cent, lower than the national average, with male literacy rate of 55.09 per cent and female literacy rate of 32.1 per cent. The economy of this block is primarily agricultural, including cultivation of rice, wheat pulses, vegetables and dairy farming. According to livestock census 2007, the livestock population of the block is Cattle-10426, Buffaloes-18719, Sheep-459 and Goat-13231.

3.1.3. Selection of the Villages:

From each of the purposively selected two blocks, 5 villages were selected randomly. Therefore, a total of 10 villages were selected for the present study.

Sl.No.	Name of the block	Name of the villages
1.	1.Naubatpur	Baditengraila, Beaduali Faridpur Chechual Motipur
2.	2.Masaurhi	Charma Bhagwanganj Daulatpur Nura Sharma

3.1.4 Selection of the Respondents:

From each village, 10 farmers were selected randomly from those who were engaged in dairy cattle farming. In this way 100 respondents formed the sample of the study.

3.2 VARIABLES AND THEIR EMPIRICAL MEASUREMENTS:

3.2.1 DEPENDENT VARIABLE:

3.2.1.1 Training needs of dairy farmers (Y_1):

Kherde (1987) developed a device to measure the training needs in five major areas viz. Animal health and diseases control, breeding and management, Feeding and management, care and management and clean milk production. The same areas were used for the present study with slight modifications. Three point continuums was used and the training needs were quantified by assigning the score 2, 1 and 0 for the most important, important and not important respectively for each area of training.

3.2.2 INDEPENDENT VARIABLES:

3.2.2.1 SOCIO-ECONOMIC:

(X_1) Age:

Age refers to the number of years the respondent has completed since birth at the time of interview and was rounded off to the nearest whole number. The chronological age was taken as a measure of age of the respondents. Age was categorized into three groups.

The categories were:

Young	<35years
Middle	35-50years
Old	>50years

(X_2) Occupation:

Occupation of the livestock owner refers to the primary occupation from where his main source of income comes. In the present study, occupations of the selected respondents were categorized as follows:

Primary Occupation	Score
Labour	1
Caste Occupation	2
Business	3
Independent Profession	4
Cultivation	5
Service	6

(X_3) Caste:

It is a social category whose members are assigned to a permanent status within a given hierarchy and whose contacts are restricted accordingly. It was operationalised as the hierarchical status of the respondent in a given society. In the present study, castes of the selected respondents were categorized as follows:

Scheduled Tribe	: (1)
Scheduled Caste	: (2)
Most Backward Caste	: (3)
Other Backward Caste	: (4)
General Caste	: (5)

(X_4) Education of livestock owner:

Scoring system developed by Pareek and Trivedi (1964) in their "Socio-economic status scale-rural" was used to quantify the educational status of the respondents.

Level of Education	**Score**
Illiterate	0
Can read only	1
Can read and write	2
Primary	3
Middle School	4
High School	5
Graduate	6

(X_5) Family Educational Status:

The method followed by Ray (1968) in computing the Family Educational Status was followed in the present study. In this method, the educational achievement of each member of the family was noted and scored as suggested by Pareek and Trivedi (1964) in their "Socio-economic status scale-rural".

(X_6) Family Type:

Family is a group defined by sex relationship sufficiently precise and enduring to provide for the procurement and upbringing of children. In the present study, family refers to whether it is nuclear or joint family system in respondent's family. A family was considered as nuclear when it consisted of husband, wife and unmarried children. A joint family consisted of other blood relatives also.

The scoring system developed by Pareek and Trivedi (1964) in their "Socio-economic status scale-rural" was followed to quantify the family type of the livestock owners.

Nuclear family - (1)
Joint family - (2)

(X_7) Family size:

It refers to the number of members in the family of the individual livestock owner. This variable was quantified by the actual number of members in the family. But the effective family size was quantified by subtracting the members who were below four years of age from the family size.

Generally, families consisting of one to five members are being regarded as small sized families while large sized families consist of more than five members. Here also the scoring system developed by Pareek and Trivedi (1964) in their "Socio-economic status scale-rural" was followed.

Up to five members- (1)
Above five members- (2)

(X_8) Land:

The amount of land is an important economic parameter to assess the economic standing of that person in the society. Components of "Socio-economic status scale-rural" developed by Pareek and Trivedi (1964) was used and score allotted to each category was as follows:

Landless (No land) : (0)
Marginal (Up to one Hectare) : (1)
Small (Up to two Hectare) : (2)
Medium - large (Above two Hectare) : (3)

(X_9) House Type:

The possession of a house and the nature of the house are important indicators of socio-economic status. Components of "Socio-economic status scale-rural" developed by Pareek and Trivedi (1964) was used and score allotted to each type of house was as follows:

No house	: (0)
Hut	: (1)
Kutcha house	: (2)
Mixed house	: (3)
Pucca house	: (4)
Mansion	: (5)

(X_{10}) Farm Power:

The possession of farm power positively contributes towards earning from the farm. This variable was measured as below (Pareek and Trivedi, 1964).

No Draught animal	: 0
1-2 Draught animals	: 2
3-4 draught animals or 1 or more prestige animals	: 4
5-6 draught animals or tractor	: 6

(X_{11}) Material Possession:

Some material possessions are indicators of modernization. Components of "Socio-economic status scale-rural" developed by Pareek and Trivedi (1964) was used and score allotted to each item of material possession was as follows:

Material Possession	**Score**
Bullock Cart	1
Cycle	1
Radio	1
Chair	1
Developed Agricultural Implements	2

(X_{12}) Herd size:

It refers to the number of dairy animals owned by the respondent at the time of interview. The scoring procedure as developed by khode *et al.* (2009) was used. It was classified into five categories.

Very small	: (1)
Small	: (2)
Lower medium	: (3-5)
Upper medium	: (6-10)
Large	: (11& above)

(X_{13}) Economic status:

The Economic Status of the Livestock owners was measured with the help of some components of the "Socio-economic status scale-rural" developed by Pareek and Trivedi (1964). The scale consisted of nine items, of which four items- land, house, farm power and material possession were taken into consideration for measuring economic status. The summation of scores of all the four items indicated the economic status of an individual livestock owner. The items of the "Socio-economic status scale-rural" and scores allotted to each of them are given in the Interview schedule.

(X_{14}) Training of dairy farming:

Farmers were asked to respond whether they attended training or not. The scoring procedure adopted by Khode *et al.* (2009) was used for this study.

Attended	: (1)
Not attended	: (0)

(X_{15}) Social Participation:

It refers to the voluntary sharing in person to person and in group to group relationship beyond the immediate household. It shows the degree to which the livestock owners were involved in formal organizations as member and / or office bearers. The score given for member was added to the score given for the office bearer to get final score (Pareek & Trivedi, 1964).

No Social Participation	: 0
Member of one organization	: 1
Member of more than one organization	: 2
Office bearer of any organization	: 3

(X_{16}) Annual income:

Total annual income refers to the total income of the respondents in rupees derived from the main and subsidiary occupation within a year. The total annual income was calculated on the basis of income derived from land, dairy farming, business and others (Patil *et.al.* 2009).

Category	score
Low income (up to Rs 50000)	1
Medium income (Rs 50001-Rs 100000)	2
High income (Above Rs 100001)	3

(X_{17}) Daily milk production:

Daily milk production refers to the average quantity of milk in liters produced by the farmer in a day. The categorization of daily milk production of the respondents was done according to Patil *et al.* 2009.

Category	Daily milk production (Liters)
Low milk production	: Up to 5
Low Medium milk production	: 6 to 10
High Medium milk production	: 11 to 20
High milk production	: 21 & above

(X_{18})Knowledge level about Health care:

This variable was measured with the help of knowledge test about symptom of diseases, vaccination against contagious diseases (HS, FMD, R.P) developed by Goswami and Sagar (1987).

The respondents were asked to answer the item in dichotomized form like 'correct- incorrect', 'yes- no' etc. some questions were of multiple choice type. One score was given for each correct answer.

(X_{19}) Knowledge level about Deworming:

This variable was measured with the help of knowledge test about deworming developed by Goswami and Sagar (1987). The respondents were asked to answer the items in dichotomized form. One score was given for each correct reply. The summation of the scores for correct replies over all the items of a particular respondent indicated his level of knowledge about deworming.

(X_{20}) Knowledge level about feeding:

This variable was measured with the help of knowledge test about feeding of green fodder and concentrates developed by Goswami and Sagar (1987). The respondents were asked to answer the items in dichotomized form. One score was given for each correct reply. The summation of the scores for correct replies over all the items of a particular respondent indicated his level of knowledge about feeding of green fodder and concentrate.

(X_{21}) Knowledge level about Breeding:

This variable was measured with the help of knowledge test about breeding developed by Goswami and Sagar (1987). The respondents were asked to answer the items in dichotomized form. One score was given for each correct reply. The summation of the scores for correct replies over all the items of a particular respondent indicated his level of knowledge about breeding.

(X_{22}) Knowledge level about Care and Management:

This variable was measured with the help of knowledge test about care and management developed by Patil *et.al.* (2009). The respondents were asked to answer the items in dichotomized form. One score was given for each correct reply. The summation of the scores for correct replies over all the items of a particular respondent indicated his level of knowledge about care and management.

(X_{23}) Knowledge level about clean milk production:

This variable was measured with the help of knowledge test about clean milk production developed by Patil *et.al.* (2009). The respondents were asked to answer the items in dichotomized form. One score was given for each correct reply. The summation of the scores for correct replies over all the items of a particular respondent indicated his level of knowledge about clean milk production.

3.2.2.2 COMMUNICATION:

(X_{24}) "Mass Media Communication" as Sources of Information:

The mass media sources of information considered for the present research work were Radio, TV, News Paper, Farm Broad cast, Exhibition/ Mela, Farm Publication, Poster. These were relevant for the area under investigation and were

finalized after discussion with the extension personnel and other subject matter specialists.

To measure the degree of utilization of the mass media sources, each respondent was asked to indicate on a four-point continuum as to how often he got information about improved practices of animal husbandry. The scoring procedure for the response was most often- 3, often- 2, sometimes- 1, and never- 0. The score for an individual livestock owner was obtained by adding the scores over different sources. The range of the score, therefore, was from 0 to 21.

(X_{25}) "Personal Cosmopolite" (Institutional communication) as Sources of Information:

The personal cosmopolite sources of information considered for the present study were specialist from Department of Animal Husbandry, Government of Bihar, Veterinary Assistant surgeon, Livestock Inspector, Extension Personnel, Co-operative Society Personnel, Input dealer, Bank personnel, and Panchayat personnel. These were relevant for the area and were finalized after discussion with the experts and extension personnel of the University.

To measure the degree of utilization of the personal cosmopolite sources of information, each livestock owner was asked to indicate on a four point continuum as to how often he got information about improved dairy farming practices. The scoring procedure for the response was most often- 3, often- 2, sometimes- 1, and never- 0. The score for an individual livestock owner was obtained by adding the scores over different sources. The range of the score, therefore, was from 0 to 21.

(X_{26}) "Personal Localite" as a Source of Information:

The "Personal Localite" sources of information considered for the present study was Own Family Member, other farmer of the same village, relatives and friends. These were relevant for the area of the investigation and were finalized after discussion with the experts and extension personnel of the University.

The scoring pattern to measure the degree of utilization of the personal cosmopolite sources of information was same as that followed for personal cosmopolite. The range of the score in this case was from 0 to 12.

(X_{27}) Utilization of Communication Sources:

This variable was measured by adding the scores obtained by the respondent in the utilization of mass media, personal cosmopolite and personal localite sources of information. The range of score in this case was from 0 to 54.

Table : VARIABLES SELECTED FOR THE STUDY AND THEIR EMPIRICAL MEASUREMENTS:

Sl No.	Variables	Measures
A. Dependent Variable (Y)		
(Y_1)	Training needs of dairy farmers : a) Health care and diseases control b) Breeding management c) Feeding management d) Care and management e) Clean milk production	Kherde (1987)
B. Independent Variables (X)		
Socio-economic:		
(X_1)	Age	Schedule developed
(X_2)	Occupation	Schedule developed
(X_3)	Caste	Schedule developed
(X_4)	Education of livestock owner	Pareek and Trivedi (1964)
(X_5)	Family educational status	Ray (1968)
(X_6)	Family type	Pareek and Trivedi (1964)
(X_7)	Family size	Pareek and Trivedi (1964)
(X_8)	Land	Pareek and Trivedi (1964)
(X_9)	House type	Pareek and Trivedi (1964)
(X_{10})	Farm power	Pareek and Trivedi (1964)

(X_{11})	Material possession	Pareek and Trivedi (1964)
(X_{12})	Herd size	Khode *et al.*(2009)
(X_{13})	Economic status	Pareek and Trivedi (1964)
(X_{14})	Training of dairy farming	Khode *et al.*(2009)
(X_{15})	Social participation	Pareek and Trivedi (1964)
(X_{16})	Annual income	Patil *et al.*(2009)
(X_{17})	Daily milk production	Patil *et al.*(2009)
(X_{18})	Knowledge level about Health care	Goswami and Sagar (1987)
(X_{19})	Knowledge level about deworming	Goswami and Sagar (1987)
(X_{20})	Knowledge level about Feeding	Goswami and Sagar (1987)
(X_{21})	Knowledge level about breeding	Goswami and Sagar (1987)
(X_{22})	Knowledge level about Care and management	Patil *et.al* (2009)
(X23)	Knowledge level about clean milk production	Patil *et.al* (2009)
Communication:		
(X_{24})	Utilization of Mass Media Communication	Bandyopadhay (1986)
(X_{25})	Utilization of Personal cosmopolite sources of information	Bandyopadhay (1986)
(X_{26})	Utilization of Personal localite sources of information	Bandyopadhay (1986)
(X_{27})	Utilization of communication sources	Bandyopadhay (1986)

3.3. TECHNIQUES OF FIELD DATA COLLECTION:

Before construction of the data collection instrument, pilot study was undertaken in two selected villages of the study area.

3.3.1. Construction of the schedule:

The draft interview schedule incorporating the tools and techniques to measure different variables was presented to the dairy farmers. In the pretesting, care was taken not to include livestock owners who were selected as sample for final data collection.

On the basis of experience in pretesting, appropriate changes in the construction and sequence of questions were made. The schedule was then finalized and duplicated. The final format of the interview schedule is placed at Annexure I.

3.3.2. Field data collection:

The data were collected during October and November, 2010 with the help of the schedule constructed for the study. In each village, before starting the interview, certain time was devoted to develop rapport with the respondents.

The schedule was administered to the respondents and the responses were recorded. The researcher himself had taken the interviews of all the dairy farmers.

3.4. STATISTICAL METHODS USED:

The statistical methods used in the study include percentage analysis, Spearman's correlation and Non-parametric analysis of variance.

3.4.1. Percentage analysis:

The percentage was calculated for making simple comparison. For calculating percentage, the frequency of a particular cell was divided by the total number of respondents in that particular category and multiplied by 100. Percentage was calculated up to two places after decimal point.

3.4.2. Non-parametric Analysis Of Variance:

Non- parametric analysis of variance is the separation of the variance ascribable to one group of causes from the variance ascribable to other groups (Weatherburn, 1961).

The analysis of variance was used to see the significance of difference of means of the dependent and independent variables.

3.4.3. Spearman's Correlation:

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

The intensity of correlation is measured by a co-efficient, usually indicated by the symbol of r which is computed according to the formula:

$$\text{Spearman's co-efficient of correlation } (r_s) = 1 - \left(\frac{6\Sigma di^2}{n(n^2-1)} \right)$$

Where,

d= difference between ranks.

n= number of set of individuals.

An increase in one variable go hand in hand with a decrease in the other, these two variables are said to be negatively correlated. If there is no relationship between two variables, they are said to be independent or un-correlated.

Chapter- 04

Results and Discussion

RESULTS AND DISCUSSION

The results along with discussions are presented under the following sub-heads:

4.1 Socio-economic and communication profile of the farmers.

4.2 Knowledge level of farmers about dairy farming practices and its relationship with other independent variables.

4.3 Training needs of dairy farmers with respect to areas of training, duration, season, place, interval and month of training.

4.4 Relationship between training needs of dairy farmers with some independent variables.

4.1. Socio-economic and Communication profile of the farmers:

4.1.1. Socio – economic profile of the farmers: The distribution of the respondents according to personal and socio-economic characteristics is presented in table-1.

Age:

It was revealed from the study that majority of the respondents (62 per cent) belonged to middle age group followed by old age group (28 per cent) and rest (10 per cent) belonged to young age group.

Occupation:

Cultivation was the main occupation of majority (50 per cent) of the respondents, followed by caste occupation (15 per cent), labour (13 per cent), business (11 per cent), Independent (8 per cent) and service (3 per cent).

Caste:

It is clearly evident from table1, that 23.00 per cent respondents belonged to the Scheduled categories, 7 per cent to Most Back-Ward categories and 20 per cent to the General class. Most of them respondent i.e 50 per cent were in OBC category.

Education of the respondent:

About one-third (33 per cent) of the respondents were illiterates and remaining 67 per cent varied in their educational status from 'can read only' to 'graduate levels'. 19 per cent of the respondents were found to be under 'High School' category, followed by 'primary' (18 per cent), 'middle school' (17 per cent), and 'can read and write' (7 per cent) and 6 per cent of the respondents upto 'graduate level'.

Family type:

Most of the respondents (74 per cent) maintained joint family type and rest (26 per cent) had nuclear family.

Family size:

Majority (64 per cent) of the respondents had more than 5 members in the family while the rest (36 per cent) had less than 5 members.

Land holdings:

It is evident from the table-1 that almost one-half (49per cent) of the respondents were landless, followed by marginal (33 per cent), small farmer (11 per cent) and the remaining 7 per cent were found to be under medium-large land holding category.

House type:

Most of the respondents (39 per cent) were having 'Mixed house', followed by 'Kutcha house' (38 per cent), 'Pucca house' (19 per cent) and a merger 2 percent were having 'hut' and 'No house'.

Herd size:

Over half of the total respondents (51 percent) maintained 'small' herd size and the remaining 30 per cent, 13 per cent, 5 per cent and 1 per cent were having 'lower medium', 'very small', 'upper medium' and 'large' herd size respectively.

Farm power:

Majority (76 per cent) of the respondents had 'no draught animal' whereas 21 per cent , 2 per cent and 1 per cent of the respondents were having '1-2 draught animals' , '5-6 draught animals' , 3-4 draught animals respectively.

Material possession:

It is evident from table-1 that 88 percent of the respondents were having chair and 72 percent have cycle whereas 24 per cent and 78 per cent of the dairy farmers were having bullock cart and radio respectively. Meager percentage (5 per cent) of them were having improved agricultural implements.

Table 1. Distribution of respondents according to some Socio-Economic characteristics.

Total N=100

Sl. No	VARIABLES	CATEGORY	PERCENTAGE
1.	**Age**	a) Young age (Up to 35 years) b) Middle age (35-50 years) c) Old age (51 and above)	10 62 28
2.	**Occupation**	a) Labour b) Caste occupation c) Business d) Independent e) Cultivation f) Service	13 15 11 08 50 03
3.	**Caste**	a) Scheduled tribe b) Scheduled caste c) Most backward class d) OBC e) General	0 23 7 50 20
4.	**Education of respondent**	a) Illiterate b) Can read only c) Can read & write d) Primary e) Middle School f) High School g) Graduate	33 0 7 18 17 19 06
5.	**Family type**	a) Nuclear family b) Joint family	26 74
6.	**Family size**	a) Upto 5 members b) Above 5 members	36 64

7.	**Land Holding**	a) Land less (No land) b) marginal (Upto one hectare). c) small (Upto two hectares). d) Medium large (Above two hectares).	49 33 11 07
8.	**House type**	a) No house b) Hut c) Kutcha house d) Mixed house e) Pucca house f) Mansion	02 02 38 39 19 00
9.	**Farm power**	a) No draught animal b) 1-2 draught animals c) 3-4 draught animals d) 5-6 draught animals or tractor	76 21 01 02
10.	**Herd size**	a) Very small(1) b) Small(2) c) Lower Medium(3-5) d) Upper Medium(6-10) e) Large(11 and Above)	13 51 30 05 01
11.	**Material possession**	a) Cycle b) Chair c) Bullock cart d) Radio e) Improved agricultural implements	72 88 24 78 05
12.	**Annual Income**	a) Low (upto Rs 50,000) b) Medium (Rs 50,000-1,00000) c) High (above Rs 1,00000)	62 32 06
13.	**Daily Milk Production**	a) Low (upto 5 lts) b) Low-Medium (6-10 lts) c) High Medium (11-20lts) d) High (above 21 lts)	34 51 15 00

Annual Income:

Majority of the respondents (62 per cent) were belonged to lower income group whereas 32 per cent and 6 per cent belonged to medium and high income group respectively.

Daily Milk Production:

Table 1 revealed that 51 per cent of the respondents belonged to low-medium group followed by 34 per cent in low –milk production group and 15 per cent in high medium group.

4.1.2 Communication profile of the farmers: Distribution of the respondents as per their communication profile is presented in table 2.

Table 2. Distribution of respondents according to their communication characteristics

Sl.No.	Variables	Level	Percentage
1.	**Mass media contact**	Low (0-3) Medium(3-6) High(>6)	62 32 6
3.	**Personal cosmopolite**	Low (0-4) Medium(4-8) High(>8)	18 60 22
4.	**Personal localite**	Low (2–5) Medium(5-8) High(>8)	26 46 28
5.	**Social participation**	Low(<1) Medium(1-2) High(>2)	80 13 7
6.	**Training of dairy farming**	Attended Not attended	3 97

Mass media contact:

Majority (62 per cent) of the respondents had low level of mass media exposure, whereas 32 per cent and 6 per cent had medium and high level of mass media exposure, respectively. This finding is in line with the finding of Lawrence (2010) who reported that nearly three-fourth of the dairy farmers had medium level of mass media exposure.

Personal cosmopoliteness:

According to table-2 majority (60 per cent) of the respondents had medium level of personal cosmopoliteness followed by high (22 per cent) and low (18 per cent) level.

Personal localiteness: Table-2 depicts that 46 per cent of the respondents had medium level of personal localiteness followed by high (28 per cent) and low (26 per cent) level.

Social participation:

The results in table-2 indicates that most of the respondent (80 per cent) had low social participation while 13 percent of the respondents were member of one organization followed by 7 per cent were member of more than one organization whereas none of the respondent were office bearer of any organization. This findings is in agreement with the findings of Gaikwad (2003) who observed that majority of the farmers had low social participation.

Training of dairy farming:

It can be observed from table-2 that majority (97 per cent) of the respondents did not attend training on dairy farming and the rest (3 per cent) attended any such type of training programmes.

4.2. Knowledge level of farmers about selected dairy farming practices and its relationship with other independent variables.

The knowledge level of respondents were assessed and discussed in this section under the following sub-heads.

4.2.1. Knowledge about Health Care:

It is evident from the table-3 that 63 per cent of the respondents possessed Medium level of knowledge about Health Care, whereas 27 per cent of the respondents had low level of knowledge and 10 per cent had high level of knowledge about Health Care.These finding are supported by those of Reeja and Subhadra (2002).

4.2.2. Knowledge about deworming:

Over half (60 per cent) of the total respondents had medium level of knowledge about deworming, whereas 32 per cent of the respondents had low level. Only 8 per cent had high level of knowledge about deworming. Farmers were having poor knowledge about schedule of deworming, interval and route of administration of deworming etc.

4.2.3 Knowledge about feeding of green fodder: Table-3 revealed that 52 per cent of the respondents had medium level of knowledge about feeding of green fodder, whereas 38 per cent of them had low level of knowledge and 10 per cent of the respondents had high level of knowledge about feeding of green fodder.

4.2.4 Knowledge about breeding management:

Majority (48 percent) of the respondents had medium level Knowledge followed by low (32 percent) and high (20 percent). The low knowledge level in breeding management might be attributed to the fact that farmers had low social participation and low training in dairy farming leading to lack of technical a aspect in this area.

4.2.5 Knowledge about Care of Pregnant Animal:

It is evident from the table-3that more nearly two-third (63per cent) of the respondents possessed high level and remaining 37 percent had low level of Knowledge about Care of Pregnant Animal.

4.2.6 Knowledge about Clean Milk Production:

More than half (62 Percent) of the respondents had medium level of knowledge whereas 24 percent had low and 14 had high level Knowledge about Clean Milk Production.

Table 3. Knowledge level of the respondents towards Dairy Farming practices:

N=100

Sl.No.	Knowledge level	Level	Percentage
1.	Knowledge about Health Care.	Low (2-6) Medium (6--10) High (>10))	27 63 10
2.	Knowledge about deworming	Low (2-4) Medium (4-6) High (>6)	32 60 8
3.	Knowledge about feeding of green fodder	Low (0-3) Medium (3-6) High (>6)	38 52 10
4.	Knowledge about breeding management	Low (0-2) Medium(2-4) High(4-6)	32 48 20

5.	Knowledge about Care of Pregnant Animal	Low (0-1) High(>1)	37 63
6.	Knowledge about Clean Milk Production	Low (0-1) Medium(1-2) High(2-3)	24 62 14

4.2.7 Non parametric test of some socio economic variables in respect of Knowledge level.

Table 4. Non-parametric Analysis of some socio-economic variables in relation to Knowledge level:

Independent variables	χ^2 (chi-square value)	Degree of Freedom
Age	3.67	2
Occupation	11.12*	5
Caste	3.08	4
Education of respondent	13.09*	6
Family type	3.06	1
Family size	2.58	2
Land holding	2.79	3
House	9.06	5
Farm power	5.19	3
Material Possession	4.08	4
Herd size	9.84*	4
Social participation	11.29**	3

* Significant at 5% level

** Significant at 1% level

It is evident from Table-4 that variables like occupation, education of respondent and herd size were having significant at 5 percent level whereas social participation of the respondent showed significant at 1 percent level. Others independent variables were non significant.

4.2.8 Correlation between knowledge levels of Respondents with different independent variable.

Table 5. Spearman's correlation between knowledge levels of dairy farmers with different independent variable.

Variables	Spearman's correlation coefficient (r_s)
Age	0.148
Occupation	.406*
Caste	.031

Education of respondent	.456**
Family education status	.368**
Family size	.064
Land holding	.301
House type	.279
Farm power	.289
Material possession	.321
Herd size	.384*
Social participation	0.596**
Source of Information	0.659**
Annual Income	0.429*
Daily Milk Production	0.573**
Training needs in Health care and disease control	.748**
Training needs in Breeding management of animal	.627**
Training needs in Feeding management of animal	.586**
Training needs in Care and management of animal	.723**
Training needs in Clean milk production	.511**

* Significant at 5% level & ** Significant at 1% level

The study revealed that occupation, herd size and annual income were positively correlated with knowledge level at 5 percent significant level. Similarly education of the respondent, family education status, source of information and social participation were directly related with knowledge level at 1 percent significant level.

4.3. Training needs of dairy farmers with respect to areas of training, season, month, place, duration and interval of training.

4.3.1 Areas of training

Five major areas had been identified for the study which includes Health care and disease control, Breeding management of animal, feeding management of animal, Care and management of animal and Clean milk production to cover all aspect of husbandry practices in regard to cattle farming enterprise.

4.3.2 Season of training

Table-6 depicts that more than majority of the respondents (61 per cent) expressed their willingness to have their training in summer months, followed by 25 per cent in winter while 14 per cent of the respondents preferred monsoon as their season for training. This finding is in accordance with *Ingole et al.* (1993).

Table 6 Distribution of the respondents according to season of training.

Sl. No	Season	Percentage
1.	Monsoon	14
2.	Winter	25
3.	Summer	61

4.3.3 Month of training

Table7 Distribution of respondents according to month of training.

Sr.	Month of training	Percentage
1.	January	4
2.	February	6
3.	March	30
4.	April	10
5.	May	18
6.	June	3
7.	July	3
8.	August	2
9.	September	5
10.	October	4
11.	November	10
12.	December	5

In regards month of training (table7), most of the respondents i.e. 30 per cent expressed their desire to have training in March, followed by 18 per cent respondents in May, 10 per cent respondents in April and November. For other months the percentages were less than 10 per cent. The month of training might be selected on the basis of their work schedule owing to agriculture and also their festivals. This finding is in contrast to *Ingole et al.* (1993).

4.3.4 Place of training

Table 8 Distribution of respondents according to place of training.

Sr.	Place of training	Percentage
1.	Resident Village	79
2.	Training Institute	10
3.	Veterinary College	11

Table 8 revealed that, more than one-third of the respondents i.e. 79 per cent expressed their interest to attend training in their Resident Village, followed by 11 per cent respondents in Veterinary College while 10 per cent of the respondents were interested to attend the training in Training Institutes. This finding is in agreement with the findings of

Patil *et al.* (2009) who also observed that nearly 91.55 per cent of the dairy farmers expressed their interest to attend training in their residents.

4.3.5 Duration of training

Table 9. Distribution of respondents according to duration of training.

Sr.	Duration of training	Percentage
1.	1 week	65
2.	2 week	23
3.	3 week	12

As regards duration of training, majority of the respondents (65 per cent) were expecting the duration of training as one week followed by 23 per cent respondents as two weeks while 12 per cent respondents expressed their desire for three weeks. This finding is in line with the finding of *Ingole et al.* (1993).

4.3.6 Interval of training

Table 10. Distribution of respondents according to interval of training.

Sr.	Interval of training	Percentage
1.	6 months	27
2.	1 year	62
3.	2 year	11

About interval of training, majority of the respondents i.e. 62 per cent opined to have training with an interval of one year, followed by 27 per cent respondents with six months interval while 11 per cent respondents expressed willingness to attend training with two years of interval. This finding is in accordance with the findings of *Patil et al.* (2009) who stated that 78.22 per cent of dairy farmers opined training interval of one year.

4.4 Relationship between training needs of dairy farmers with some independent variables.

4.4.1Training needs of dairy farmers engaged in dairy enterprise in five major areas of animal management practices:

To identify various areas in which training was needed, open-ended questions were asked to the respondents to talk about the areas for training as per their perception. The responses led to five main areas and many sub-areas for training. Training needs of dairy farmers were identified by using the scale developed by Kherde (1987).

Table 11. Distribution of respondents according to their overall training needs in five major areas of Dairy Farming practices.

N=100

Sr.	Training area	Most important		Important		Not important	
		Percent	Rank	Percent	Rank	Percent	Rank
1.	Health care and disease control	69	I	23	V	8	V
2.	Breeding management of animal	47	IV	36	I	17	III
3.	Feeding management of animal	48	III	33	II	19	II
4.	Care and management of animal	66	II	25	IV	9	IV
5.	Clean milk production	46	V	30	III	24	I

Table 11 indicates that majority of the dairy farmers (69 per cent) had perceived their training need as most important in heath care and disease control whereas 23 percent expressed it as important while 8 per cent respondents as not important. Majority of the dairy farmers (69 per cent) expressed their training need about health aspects as most important, might be because of lack of technical knowledge about health and clinical aspects, heavy economic losses because of diseases and unavailability of timely veterinary services in remote and rural areas in emergency situations. These findings are supported by Meena (1994) and patil *et al.* (2009).

In reference to breeding management of animal, most of the respondents (47 per cent) expressed their training need as most important, 36 per cent respondents as important whereas 17 per cent respondents as not important. Majority of the respondents conveyed their training need in breeding management as most important, might be because of low milk production by local breeds

and superiority in milk production of crossbreds over local breeds of animals. These finding are supported by Patil *et al.* (2009).

About Half of the total respondents (48 percent) conveyed their opinion regarding training need about feeding management of animals most important followed by 33 percent of the respondents as important while 19% respondents as not important. This might be because of their will to know the ways to enhance milk yield through proper feeding, balanced feeding at cheaper rates which is the key to progress in this dairy enterprise particularly when effective cost of feed is increasing day by day, with not so much corresponding increase in milk rates. These finding are supported by Pharate *et al.* (2010)

As regards information about care and management of animal, majority of the respondents (66 per cent) opined their training need as most important, 25 per cent of the respondents as important while 9 per cent expressed it as not important. These finding are supported by Patil *et al.(*2009).

In context of training need about clean milk production, most of the respondents i.e. 46 per cent opined it as most important, 30 per cent as important while 24 per cent of the respondents as not important.These finding are supported by patil *et al.(*2009).

In respect of most important factor among these five training needs healthcare & disease control position 1st followed by care & management, feeding of management, breeding of management and clean milk production, respectively. Similarly incase of important factor breeding management of animals position 1st while healthcare & disease control position at 5th. For not important factor the position of clean milk production at 1st followed by feeding of management, breeding of management, care & management and emergent of healthcare & disease control of animals.

4.4.2 Level of training needs of the respondents towards Dairy Farming practices:

Table 12. Training needs of the respondents towards Dairy Farming practices:

Sl.No.	Training area	Level	Percentage
1.	Health care and disease control	Low (0-3) Medium (3-6) High (6-9)	30 63 7
2.	Breeding management of animal	Low (0-3) Medium (3-6) High (6-9)	25 65 10
3.	Feeding management of animal	Low (0-3) Medium (3-6)	32 56

		High (6-9)	12
4.	Care and management of animal	Low (0-4) Medium(4-7) High(>7)	28 58 14
5.	Clean milk production	Low (0-2) Medium(2-4) High(4-6)	33 61 6

It is obvious from table 12 that regarding training needs in health care and disease control majority (63 per cent) of the respondent belonged in middle group followed by low (30 per cent) and high (7 percent).

In regard to training needs in breeding management of animal 65 per cent were in medium group whereas 25 per cent, 10 per cent belonged in lower and higher group respectively.

Table 12 reveals that in respect to training in feeding management more than half of the respondents (56 per cent) were in the medium group followed by low (32 per cent) and high (12 per cent).

In respect to care and management of animals, majority of the respondents were in the medium group (58 per cent) followed by 28 per cent and 14 per cent in the low and high group, respectively.

It is evident that in regards to training on clean milk production, majority of the farmers were in the medium level (61 per cent) while 33 per cent were in the low group and only a meager 6 per cent were in the high group.

4.4.3 Relationship between training need and some socio-economic variables.

Table 13. Non-parametric Analysis of some socio-economic variables in relation to Training needs:

Independent variables	χ^2 (chi-square value)	Degree of Freedom
Age	6.05*	2
Occupation	11.86*	5
Caste	5.23	4
Education of respondent	13.08*	6
Family type	2.65	1
Family size	3.14	2
House	12.05*	5
Land holding	7.96*	3

Farm power	7.09	3
Material Possession	8.27	4
Herd size	10.83*	4
Social participation	8.85*	3

* Significant at 5% level

Table 13 shows that Age, occupation, education of respondent, house, land holding, herd size and social participation were significantly related to training needs at 5 percent level of significance according to Kruskal wallis test.

Spearman's correlation between training needs of dairy farmers with different independent variable, was done and the results are placed in table 14.

Table 14. Spearman's correlation between training needs of dairy farmers with different independent variable.

Variables	Spearman's correlation coefficient (r_s)
Age	0.027
Occupation	.479**
Caste	-.034
Education of respondent	.526**
Family education status	.438**
Family size	.072
Land holding	.217
House type	.325
Farm power	.437*
Material possession	.528**
Herd size	.487**
Social participation	0.434*
Mass media sources	0.485**
Annual Income	0.584**
DMP	0.627**
Knowledge about Health	0.648**
Knowledge about deworming	0.583**
Knowledge about feeding	0.637**
Knowledge about Breeding	0.438*
Knowledge about Care of pregnant	0.416*

* Significant at 5% level

** Significant at 1% level

Age and training need:

Age of the respondent was not found to be significantly related with training needs of dairy farmers. The possible reason might be that, training need could be felt important depending upon

the situation, need and knowledge of the respondent and not mostly upon the age. These findings are in agreement with those of Ingole *et al.* (1993) and Gurav and Kamble (1995).

Occupation and training needs:

It is evident from table 14 that there is positive and significant relationship between occupation and training needs. The probable reason might be attributed to the fact that when farmers have a better occupation, their knowledge increases and their desire to learn is also enhanced. These findings are in agreement with those of Ingole *et al.* (1993).

Caste and training need:

It was observed that, there is negative and non-significant relationship between caste and training need of the dairy farmers. Similar findings were observed by Jawale (2005).

Education and training need:

It was noticed that, there is positive and significant relationship between education and training needs of the dairy farmers. It might be because education imparts knowledge and creates awareness and curiosity to learn skills and newer things. These observations are in line with those of Jondhale and Chole (1989).

Family education status and training need:

Table 14 revealed that there is positive and significant relationship between family education and training need. This implies that when the education status of the members of the family increases, the members of the family have a higher eagerness to learn which are reflected in training. These findings are in agreement with those of Ingole *et al.* (1993).

Family size and training need:

It was found that, there is a positive but non-significant relationship between family size and training needs of the dairy farmers. These findings are in conformity with those of *Patil et al.* (2009)

Land holding and training need:

With respect to land holding, it was observed that there is a positive and non-significant association between with training need. These findings are supported by those of Ingole (1993).

House type and training need:

There is a positive but non-significant relationship between house type and training need. The probable reason might be due to the fact that the housing system of the farmers do not governed their interest to behavioural changes. These observations is in accordance with those of Jondhale and Chole (1989).

Farm power and training need:

Farm power was found to be positive and significantly related with training need. The reason might be due to the fact that when the farm power of a farmer increases he acquire the knowledge and importance of a particular practices which in turn is depicted by training need.

Material possession and training need:

It is evident from the table that there is positive and significant relationship at 1 per cent level between material possession and training need. This implies that when more number of materials are possessed by the farmers, they are more cosmopolite in nature and tends to more behavioural changes.

Herd size and training need:

Herd size was found to be positively and significantly related with training need. The probable reason might be, more the herd size, more will be the training requirement to manage the herd for profitable dairy enterprise. These observations are in agreement with those of Jondhale and Chole (1989).

Social participation and training needs:

Social participation was found to be positively and significantly associated with training needs of the farmers. Probable reason may be that, social participation brings awareness among the farmers. These findings are in line with those of Gaikwad (2003).

Mass media sources and training needs:

Sources of information was observed to be positively and significantly associated with training needs. This might be because of that sources of information may act as vector for spreading the information amongst the people. This observation is in unison with those of Jawale (2005).

Annual income and training needs:

Annual income was found to have a positive and significant relationship with training needs. Possibly, the reason behind it may be that more annual income prompts them to gain more knowledge and skills in order to earn more profit out of dairy enterprise with positive attitude. These observations are in conformity with those of *Patil et al.* (2009).

Daily milk production and training needs:

Daily milk production was found to be positively and significantly associated with training needs. It indicates that, dairy farmers with more milk production from high yielding milch breeds are willing to seek more information about training programme related with animal husbandry. These observations are in conformity with Jawale (2005).

Knowledge and training needs:

Knowledge was found to have a positive and significant association with training needs of the dairy farmers. It suggests that, knowledge creates awareness and change in the attitude to sharpen the skills through training programmes. These observations are supported by Jawale (2005).

Chapter- 05

Summary and Conclusion

SUMMARY AND CONCLUSION

SUMMARY:

The rapid growth of milk production in India has been mainly because of the increase in the number of animals rather than that of improved productivity. India possesses enormous bovine wealth but the per capita production is one of the lowest in the world.

India is the largest milk producer in the world, therefore role of dairy farmer is very important in dairy industry and socio-economic status of the society. The future of dairy industry lies in regenerating the local ecology with maximum participation of dairy farmers.

Productivity and reproductive performance of Indian dairy animals is largely affected by poor nutritional, health management practices due to variable climatic, social and economical factors. A dairy farmer should have sound knowledge of each of the different sub systems of dairying and the integrated approach will facilitate the producers for sustained milk production fortifying the rural economy.

Majority of the rural dairy farmers need support for building up their capacity through a massive extension education in the form of training programme which help them to upgrade their knowledge and create confidence in their endeavour in the existing farming system. Training helps to adopt technology considering their resources and creates a sustainable, economically viable enterprise for dairy farmers with continous persuasion, communication and diffusion of technology in the field. Thus in many a fold, training acts as a catalyst to animal husbandry practices.

In order to make any training meaningful and effective, it is important to identify the training needs of the farmers. Training need is the gap between 'what is' and 'what ought to be'. Based on this suitable training model can be developed so that the appropriate training is given to the right people, in right form, at right time so that his/her degree of productivity and profitability can be achieved.

Keeping this in view the present study was undertaken to identify the training needs of dairy farmers with reference to their personal and socio-economic characteristics.

The specific objectives of the study were as follows:

i. To identify the personal and socio-economic characteristics of dairy farmers.
ii. To study the knowledge level of dairy farmers about selected dairy farming practices.
iii. To identify the training needs of dairy farmers.
iv. To co-relate personal and socio-economic characteristics with the training needs of dairy farmers.
v. To study the perception of dairy farmers about area, duration, season, place, interval and time of training.

The study was conducted in Patna district of Bihar.Patna district was purposively selected for the study Considering the familiarity of the student researcher with the local dialect and accents of the farmers. Naubatpur and Masaurhi block of Patna district in Bihar were selected for the present study as these two blocks were largest in dairy animals population. From each of the purposively selected two blocks, 5 villages were selected randomly. Therefore, a total of 10 villages were selected for the present study. From each village, 10 farmers were selected randomly from those who were engaged in dairy cattle farming. In this way 100 respondents formed the sample of the study. Data were collected through pretested interview schedule and the variables measured are discussed hereunder.

Dependent Variable:

Training needs of dairy farmers.

Independent Variables: Twenty six variables were selected for the study which were grouped as follows:

Socio-economic (22 variables): Age, Occupation, Caste, Education of respondent, Family Educational Status, Family Type, Family size, Land, house type, farm power, material possession, herd size, Economic status, social participation, Annual income, Daily milk production, knowledge level about healthcare, knowledge level about deworming, knowledge level about feeding, Knowledge level about breeding,Knowledge level about care and management and Knowledge level about clean milk production.

Communication (4 variables): Utilization of Mass Media Communication, Utilization of Personal cosmopolite sources of information, Utilization of Personal localite sources of information, Utilization of communication sources.

IMPORTANT FINDINGS OF THE STUDY:

Socio-economic characteristics of the farmers:

It was found that more than half of the respondents belonged to middle age group. Cultivation was the main occupation of half of the respondents. Majority of the respondents belonged to other backward caste. About one-third of the respondents were illiterates and remaining two-third varied in their educational status from 'can read & write only' to 'graduate levels'. More than two-third of the respondents maintained joint family. Majority of the respondents had more than 5 members in the family. Almost one-half of the respondents were landless. Majority of the respondents were residing in 'mixed and kutcha' house. Half of the respondents maintained 'small' herd size. Majority of respondents were having cycle and chair, while only a meager of the dairy farmers were having radio. Majority of the respondents had no draught animal.

Majority of the farmers had low level of social participation. Majority of the respondents had not attended training on dairy farming. Majority of the respondents had low level of Annual income. Majority of the farmers had low-medium range of milk production.

Communication characteristics of the farmers:

Majority of the respondents had low level of mass media exposure followed by medium level of personal cosmopolite . Majority of the respondents had medium level of personal localite.

Knowledge level about dairy cattle farming practices:

Majority of respondents possessed medium level of knowledge about Healthcare, feeding, breeding, deworming and clean milk production. Majority of respondents possessed high level of knowledge about care of pregnant animal.

Relationship between Knowledge level and independent variables:

Occupation, education of respondent and herd size were having significant at 5 percent level whereas social participation of the respondent showed significant at 1 percent level. Others independent variables were non significant relationship with knowledge level.

Occupation, herd size and annual income were positively correlated with knowledge level at 5 percent significant level. Similarly education of the respondent, family education status, source of information and social participation were directly related with knowledge level at 1 percent significant level.

Training needs of Dairy farmers:

1. Training needs were divided into five major areas i.e. animal health care and disease control, care and management of animal, breeding and management of animal, feeding and management of animal and clean milk production.
2. Among five broader areas of training, respondents expressed their willingness to have training in the descending order as: animal healthcare and disease control, care & management,feeding and management, breeding and management and clean milk production.
3. As regard to training need about healthcare,majority of the dairy farmers(69 percent) perceived as the most important followed by important (23 percent) and not important (8 percent).
4. About training need in care and management of animals,most of the respondent (66 percent) opined perceived it as the most important,while 25 percent of the respondent perceived it as important and 9 percent as not important.
5. In feeding management 48 percent expressed training need as the most important,33 percent respondent as important where as 19 percent as not important.
6. About training need in breeding management of animals, most of the respondent (47 percent) opined perceived it as the most important while 36 percent of the respondent perceived it as important and 17 percent as not important.
7. Regarding training need about clean milk production 46 percent perceived it as the most important,30 percent as important while 25 percent not important.

8. Majority of the respondents preferred to have training during summer, followed by in winter and monsoon.
9. As regards the month of training, most of the respondents expressed their desire to attend the training in March followed by in May and April as per their convenience.
10. With respect to the place for training, majority of the respondents were of the opinion to have training programme in their resident village followed by a few to have it in the Veterinary College and training institute respectively.
11. Most of the respondents expressed their interest to attend the training for the duration of one week followed by two weeks and three weeks respectively.
12. About the interval of training programme, most of the dairy farmers opined to have one year as the interval between consecutive training programme followed by six months and two years.

Relationship between training needs and Socio-Economic variables:

Age, occupation, education of respondent, house, land holding, herd size and social participation were significantly related to training needs at 5 percent level of significance according to Kruskal wallis test.

Conclusion:

Implications of the study may serve as to make the training programme need based and problem oriented. The general implications based upon the present study which also serves to make the training programme successful are as follows:

1. There should be a special provision to impart frequent training to dairy farmers in the area with which they are concerned in their day-to-day life. There should be well equipped training institutes with infrastructural facilities in order to impart training to the rural farmers effectively.
2. Further research should be carried out with a broader coverage of area and sample size to have a wider applicability.
3. Training programme should be based upon judicious assessment and analysis of the training needs of the dairy farmers in the areas such as animal health care and

disease control, care and management of animal, breeding and management of animal, feeding and management of animal and clean milk production...etc.

4. Audio-visual aids or demonstration methods should be used for making the training effective and creates interest in the learning process. Appraisal by awards and certificates increases their involvement and makes the learning process active.
5. Training programme should give more emphasis on priority areas depending upon their order of merit and importance. Thus, in this present study, training should be organized on the priority areas like information on infectious diseases, their prevention and control as well as on information about vaccination schedule.
6. Some of the personal characteristics i.e. independent variables have positive and significant relationship with training needs based upon correlation studies. So, such farmers with higher herd size, social participation, extension contact and knowledge should be selected and given priority for training.
7. Suggestions and feedback should be taken immediately after the training and reviewed ones after its assessment and should be followed up regularly by the organizers.
8. Training programmes should be formulated by considering some important aspects like duration, time (season), place, month and interval of training as per the responses recorded by the farmers. Training fees should be meager and affordable by the rural dairy farmers, if at all charged.
9. Questions and queries should be addressed promptly and sympathetically by the subject matter specialists.
10. Even the government, co-operative or private institutes should organize training programme before distribution of loans and provide guidance to rural dairy farmers through guidance centre or counseling centers through an extension agency.

FUTURE SCOPE OF RESEARCH

SUGGESTED AREAS OF FUTURE RESEARCH:

(i) The same study can be undertaken in different areas.

(ii) Study on constraints of dairy farmers of improve animal husbandry practices.

(iii) Study on knowledge level of Dairy farmers in animal husbandry practices.

(iv) Study on various Training tools analysed for achieving better outcome of dairy farmers.

Chapter- 06

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Chapter- 07

ANNEXURE

ANNEXURE

West Bengal University of Animal & Fishery Sciences

Department of Veterinary & A.H. Extension Education

68, K.B Sarani, Belgachia, Kolkata-37

INTERVIEW SCHEDULE

TOPIC- Identification of Training Needs of Dairy Farmers in Patna district of Bihar.

A. ***IDENTIFICATION:***

1. SI. No: .... Date:-.....
2. Village:.....
3. Name of Block:.....
4. District:.....

B.*GENERAL INFORMATION:*

1. Respondent's Name: .....

2. Husband's / Father's Name: .....

3. Category:

i) Landless- (0 Hectares) ii)Marginal- (1 Hectares)

iii) Small- (2 Hectares) iv) Medium-Large (Above 2 Hectares)

4. Age: i) Upto 35 years ii) 35-50 years iii) 51 years & above

C.SOCIO- ECONOMIC:

1. Occupation: *i) Labour-* (1) ii) Caste Occupation- (2)

iii) Bussiness- (3) iv) Independent- (4)

v) Cultivation- (5) vi) Service- (6)

2. Caste: i) Scheduled tribe- (1) ii) Scheduled caste- (2)

iii) Most backward caste- (3) iv) Other backward class- (4)

v) General Caste- (5)

3. Education of the Respondent: i) Illiterate- (0) ii) Can read only-(1) iii) Can read & write- (2) iv) Primary- (3) v) Middle School- (4) vi) High School- (5) vi) Graduate & above-(6)

4. Family Education Status:

	Score	Number
Illiterate	(0)	( )
Can read only	(1)	( )
Can read and write	(2)	( )
Primary	(3)	( )
Secondary	(4)	( )
Higher Secondary	(5)	( )
Graduate	(6)	( )

5. Family Type: i) Nuclear family- (1) ii) Joint family - (2)

6. Family Size: a) Upto 5 members- (1) b)More than 5 members- (2)

i) No. of members in family:.....

a) Male..... b) Female..... c) Children.....

7. Economic Status:

a) land: i) No Land- (0) ii) Upto one Hectare- (1) iii) Upto two Hectares- (2) iii) Above 2 Hectares- (3)

b) House: i) No house- (0) ii) Hut- (1) iii) Kutcha house- (2) iv) Mixed house- (3) v) Pucca house- (4) vi) Mansion- (5)

c) Farm Power: i) No Draught animal- (0)
ii) 1-2 Draught animals- (2)
iii) 3-4 draught animal- (4)
iv) 5-6 draught animals or tractor- (6)

d) Material Possession: i) Bullock Cart- 1 ii) Cycle- 1
ii) Radio- 1 iv) Chair- 1
v) Improved Agricultural Implements -2

e) Herd size:

i) Very small (1)
ii) Small (2)
iii) Lower medium (3-5)
iv) Upper medium (6-10)
v) Large (11 & above)

8. Social participation:

1. No social participation (0)
2. Member of one organization (1)
3. Member of more than one organization (2)
4. Office bearer of any organization (3)

9.(i) Training of dairy Farming:

i) Attended (1)
ii) Non- attended (0)

If attended:-

a) topic
b) duration
c) venue
d) frequency
e) training material received
f) practical utility

(ii) Annual income

a) Low (upto Rs 50,000) b) Medium (Rs 5,0000-1,00000)
c) High (above Rs 1,00000)

(iii) Daily milk production

a) Low (upto 5 lits) b) Low-medium (6 to 10 lits)
c) High medium (11 to 20 lits) c) High (Above 21 lits)

10. SOURCES OF INFORMATION:

COMMUNICATION SOURCES

	FREQUENCY OF UTILIZATION			
	Never	**Sometime**	**Often**	**Most Often**
	(0)	**(1)**	**(2)**	**(3)**

i) MASS MEDIA SOURCES:

a) Radio:

b) T.V:

c) News Paper:

d) Farm Broad cast:

e) Exhibition/Mela:

f) Poster:

g) Demonstration:

ii) PERSONAL COSMOPOLITE:

a) Extension Personnel:

b) Co-operative society Personnel:

c)BLDO/Vety. Surgeon:

d) Livestock development assistant:

e)Input dealer:

f)Bank personnel:

g) Panchayat Personnel:

iii) PERSONNEL LOCALITE:

a) Own Family Member:

b)Other farmer of the same village:

c)Relatives:

d)Friends:

11. KNOWLEDGE LEVEL INFORMATION RELATED TO DAIRY FARMERS:

1. Knowledge Level about HEALTH CARE :

SI.NO	STATEMENT	ANSWER
a)	How will you dispose of the animal if It dies of H.S,FMD & R.P dises?	Burry the animal deep in the ground cover with lime(1)/any other(0)

What are the symptom of HS diseases?		**CORRECT/INCORRECT**	
a.	Diarrhoea	(0)	(1)
b.	Moves in circle	(0)	(1)
What are the symptom of FMD diseases?			
a.	Diarrhoea	(0)	(1)
b.	Frequent micturation	(0)	(1)
What are the symptoms of R.P diseases?			
a.	Lower surface of the tongue is ulcerated	(1)	(0)
b.	Swollen in throat & lower jaw	(0)	(1)
c.	Shooting diarrhoea	(1)	(0)
d.	Breathing trouble	(0)	(1)
e.	Offensive smell in feacer	(1)	(0)

11. What do you know about vaccination?

a) It is treatment against certain diseases (0)

b) It stop all diseases (0)

c) It is prophglactic measure against a diseases (1)

12.When an animal is vaccinated against HS it develops. swelling(1)/any other(0)

13. How long does it generally for the swelling to subside after vaccination

a) less than one week (0)

b) one week (1)

c) more than one week (0)

14. when an animal is vaccinated against FMD,R.P it develops

Temperature(1)/any other(0)

15. How long does it generally take for the temperature to subside after vaccination?

a) 1-2 days (1)

b) 3-5 days (0)

c) more than 5 days (0)

16. How many times R.P vaccination should be given? One in 3 years(1)/any other(0)

17. When is vaccination against R.P diseases done? During winter(1)/Any other(0)

18.What is the schedule of vaccination against FMD diseases?

a. First vaccination	Below 1 month of age(1)/Any other(0)
b. Second vaccination	2 month of age(1)/any other(0)
c. Third vaccination	5 month of age(1)/any other (0)
d. Fourth vaccination	one year of age(1)/any other(0)
e. Subsequent vaccination	Repeat yearly(1)/Any other(0)
f. When is vaccination against find done?	Before onset of monsoon(1)/ Any other(0).

2. Knowledge level about DEWORMING:

SI.	STATEMENT	CORRECT/INCORRECT	
1.	Why deworming should be followed ?		
	a) To reduce the parasitic load of the animal.	(1)	
	b) Medicine are available at free of cost.		(0)
	c) Doctor says.		(0)
2.	How do you administer coccidiostat to young calve	orally(1)	Anyother(0)

3. What is the schedule of the deworming in cattle?	Yes	No
a) Monthly interval for first three month of age.	1	0
b) Quarterly interval upto one year of age.	1	0
c) Every six month interval before and after winter season.	1	0
d) In adult one year interval.	1	0

4.How can the internal parasites be controlled? Deworming regularly(1)/Any other(0)

3. Knowledge level about FEEDING:

SI.	STATEMENT	ANSWERS
1.	**What is the appropriate quantity of green fodder be Feed to the animals per day?**	
	MILCH ANIMAL	
1.	Cow	30-40 Kg(1)/Any other(0)
2.	Buffalo	40-50 Kg(1)/Any other(0)

YOUNG ANIMAL	
3. Heifer	15-20 Kg(1)/Any other(0)
4. Buffalo Heifer	20-25Kg(1)/ Any other(0)
DRY ANIMAL	
5. Cow	30-40Kg(1)/Any other(0)
6. Buffalo	40-50Kg(1)/Any other(0)
PREGNANT	
7. Cow	30-40Kg(1)/Any other(0)
8. Buffalo	40-50Kg(1)/Any other(0)
SMALL ANIMAL	
9. Calf	5-10Kg(1)/Any other(0)
10. Buffalo calf	10-12Kg(1)/Any other(0)

2. What are the oil cake used for computation of ration for cows and buffaloes?

	CORRECT/INCORRECT	
1. Mustard oil cakes	(1)	(0)
2. Groundnut cakes	(1)	(0)
3. Cotton seed cakes	(1)	(0)

3. What are the pulse chuni used in computation of ration for cows and buffaloes?

1. Gram chuni	(1)	(0)
2. Gram husk	(1)	(0)

4. Knowledge level about BREEDING MANAGEMENT:

SI.	**STATEMENT**	**ANSWERS**
1.	In which heat cycle a heifer should be inseminated for first time?	Second (1)/Any other(0)
2.	How many times a cow should be artificially inseminated in one heat cycle for optimum result ?	Twice (1)/Any other(0)
3.	What is the appropriate time for detection of heat in a cow?	Morning (1)/Any other(0)
4.	After how many days does the cow repeat its heat cycle?	20-25days (1)/Anyother(0)
5.	What should be the body wt of a crossbred heifer at puberty for getting optimum benefit of AI?	200-250Kg(1)/Any other
6.	At what age does a crossbred heifer generally comes in heat for the first time?	18-24months(1)/Any other(0)

5. Knowledge level about CARE OF PREGNANT ANIMAL:

	CORRECT	INCORRECT
a) Separate pregnant animal before 2-3 week to parturition.	(1)	(0)
b) Dry off animal before parturition.	(1)	(0)

6. Knowledge level about CLEAN MILK PRODUCTION:

a) Cleaning of udder, teats & hind quarter before milking.	(1)	(0)
b) Full hand milking is correct method of milking.	(1)	(0)
c) Application of weak solution of pot per magnets prior & after milking.	(1)	(0)
d) Regular checkup of milk sample for mastitis.	(1)	(0)

5. Distribution of respondent according to their overall training needs on major area of animal management practices.

S.No	Training area	most important (2)	important (1)	not important (0)
1.	Health care & Disease Control.			
2.	Breeding management.			
3.	Feeding management.			
4.	Care & management of animal.			
5.	Clean milk production.			

6. Training needs About Health care & Disease.

S.No	Training area	most important	important	not important
6.	Symptoms of diseases.			
7.	Vaccination.			
8.	Use of deworming			

7. Training needs About Breeding management.

S.No	Training area	most important	important	not important
9.	Symptom of heat detection.			
10.	Artificial insemination			
11.	Pregnancy diagnosis.			

8. Training needs About Feeding management.

S.No	Training area	most important	important	not important
12.	Feeding of milking Animals.			
13.	Feeding of pregnant Animals.			
14.	Feeding of newborn calf.			

9. Training needs about care & management.

S.No	Training area	most important	important	not important
15.	Care & management of pregnant animals.			
16.	Care & management of milking animals.			
17.	Care of newborn calf.			
18.	Animal housing.			

10. Training needs About Clean milk production.

S.No	Training area	most important	important	not important
19.	Information & importance about Clean milk production.			
20.	Zoonotic diseases spraying through infected milk.			

11. Distribution of respondent according to season, month, place, interval & duration of Training.

A) Season of Training.

1. Monsoon
2. Winter
3. Summer

b) Month of Training.

1. January 2.February 3. March 4.April 5.May 6.June 7. July
8.August 9.september 10.October 11. November 12. December

C) Place of training.

1. Resident village
2. Training institute
3. Veterinary college

d) Duration of training.

1. one week
2. Two week
3. Three week

e) Interval of Training.

1. Six month
2. one year
3. Two year