STUDY ON TRAINING NEED ASSESSMENT OF BACKYARD POULTRY FARMERS OF BIHAR

THESIS

By

Dr. RAKHI BHARTI

(Admission No.: VM0001/2018-19)

Submitted to

BIHAR ANIMAL SCIENCES UNIVERSITY, PATNA, BIHAR

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IN

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DEPARTMENT OF A. H. EXTENSION EDUCATION
BIHAR VETERINARY COLLEGE, PATNA-14
(Bihar Animal Sciences University, Patna, Bihar)

Dr. Pankaj Kumar, *Ph.D.*

Assistant Professor & Head

CERTIFICATE - I

This is to certify that the thesis entitled **"Study on Training Need Assessment of Backyard Poultry Farmers of Bihar"** submitted in partial fulfilment of the requirement for the award of **Master of Veterinary Science (A. H. Extension Education)** of the faculty of Post-Graduate Studies, Bihar Animal Sciences University, Patna, Bihar is the original work carried out by **Dr. RAKHI BHARTI, Admission No.: VM0001/2018-19** under my supervision and guidance. No part of the thesis has been submitted for any other degree or diploma.

It is further certified that the assistance and help received during the course of this investigation and preparation of the thesis have been duly acknowledged.

Endorsed

(…….) **Dr. Pankaj Kumar**

Chairman/ Head of Department Major Advisor

DEPARTMENT OF A. H. EXTENSION EDUCATION
BIHAR VETERINARY COLLEGE, PATNA-14
(Bihar Animal Sciences University, Patna, Bihar)

CERTIFICATE - II

We, the undersigned members of the advisory committee of **Dr. RAKHI BHARTI, Admission No.: VM0001/2018-19,** a candidate for the degree of **Master of Veterinary Science** with major in **A. H. Extension Education** have gone through the manuscript of the thesis and agree that the thesis entitled **"Study on Training Need Assessment of Backyard Poultry Farmers of Bihar"** may be submitted by **Dr. RAKHI BHARTI** in partial fulfilment of the requirement for the degree.

Dr. Pankaj Kumar
Chairman, Advisory Committee

Members of the Advisory Committee

1. **Dr. Saroj K. Rajak**
   Assistant Professor …….
   Department of A. H. Extension Education
2. **Dr. S.P. Sahu**
   Assistant Professor …….
   Department of L.P.M.
3. **Dr. Ramesh K. Singh**
   Assistant Professor …….
   Department of A.G.B.
4. **Dr. Sushma Kumari**
   Assistant Professor …….
   Department of L.P.T.

Dean, PGS (Nominee)

DEPARTMENT OF A. H. EXTENSION EDUCATION
BIHAR VETERINARY COLLEGE, PATNA-14
(Bihar Animal Sciences University, Patna, Bihar)

CERTIFICATE - III

This is to certify that the thesis entitled **"Study on Training Need Assessment of Backyard Poultry Farmers of Bihar"** submitted by **Dr. RAKHI BHARTI, Admission No.: VM0001/2018-19,** in partial fulfilment of the requirements for the degree of **Master of Veterinary Science (A. H. Extension Education)** of the faculty of Post-Graduate Studies, Bihar Animal Sciences University, Patna, Bihar was examined and approved on ……/…../ 2020.

(……..) (.....)

Chairman, Advisory Committee External examiner

Members of the Advisory Committee

1. **Dr. Saroj K. Rajak**
   Assistant Professor …….
   Department of A. H. Extension Education
2. **Dr. S.P. Sahu**
   Assistant Professor …….
   Department of L.P.M.
3. **Dr. Ramesh K. Singh**
   Assistant Professor …….
   Department of A.G.B.
4. **Dr. Sushma Kumari**
   Assistant Professor …….
   Department of L.P.T.

Dean, PGS (Nominee)

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Date ……. **(RAKHI BHARTI)**

Place …….....

DEDICATED TO:

MY PARENTS

&

LOVED ONES

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Chapter - 1

INTRODUCTION

Livestock plays an important role in Indian economy. About 20.5 million people depends upon livestock for their livelihood. It plays a vital role with an annual contribution in total GDP of 4.5 per cent at current prices during 2015-16 (BAHS, 2017). It contributes 16 percent to the income of small farm households as against an average of 14 percent for all rural households. According to Livestock census report published by Gov. of India , the poultry population in India has increased by 16.80 percent over previous census and total poultry population in the country is 851.81 million in numbers in 2019 as compared to world population of 23 billion (FAOSTAT, 2016). The total backyard poultry population in the country is 317.07 million, increased by 45.80 per cent over the previous census period (20th Livestock census).

Small and large scale poultry farming is seen as one of the most significant activities of rural people. According to NSSO report (GOI, 2012), Livestock owners, landless, marginal and small farmers accounted for about 91 percent of the population having 88 percent of the total poultry stock.

Backyard poultry production is age old practice in rural India. Most of the backyard poultry production comprises rearing of indigenous birds with poor production performance. The potentiality of indigenous birds in terms of egg production is only 70 to 80 eggs/bird/year and meat production is also very less. However, the backyard poultry production can be easily boost up with adoption of improved varieties of chicken and can promise a better production of meat and egg. To improve the socio- economic status of the traditional farmers, backyard poultry is a handy business with low- cost initial investment, but high economic return along with providing nutritional security for underprivileged community through good quality animal protein for eggs and meat.

Poultry birds can be easily reared in in different agro-climatic conditions, as the fowl possess marked physiological adaptability, requirement of small space, low capital investment, quick return from outlay and well distributed turn over throughout the year make poultry farming remunerative in both rural and urban areas (NCA, 1976).

The rearing of poultry provides an excellent opportunity for gainful employment to idle or unemployed members of rural communities by adopting this as their main or subsidiary occupation.

The Bihar state covers an area of about 94,163 km^2 with a population density of 1,102 per square kilometres. The total population of Bihar 10.68 crores (19^{th} census). The projected population for 2019 is 12.57 crores. State has 38 districts and a total of 534 blocks. It shares boundary on the North with Nepal, Jharkhand to the south, West Bengal to the east and with U.P. to the west . About 89 percent of population belongs to rural households. The population consist of 51 % backward class, 16% SC, 1.3% ST and rest others. (Census 2011)

Bihar is the 3^{rd} most populous state. It has the lowest per capita income of Rs. 5772 against the national average of Rs. 22,946. About 35% of the population are below poverty line. Unemployment rate in Bihar is 7.2%. Per capita land availability is much lower as 0.1 hectare per person against the national land availability of 0.3 hectare.

Hence the state demographic and socio-economic scenarios forces that there is urgent need to explore the productive potential especially for rural community for their sustainable livelihood. The land – man ratio is declining gradually due to still growing population. Hence animal husbandry and poultry remains the only way for economic generation of the rural mass.

Backyard poultry farming by and large is a low input venture and is characterized by rearing in indigenous night shelter (Berte 1987, Aklobessi 1990, Nkodia 1990, Singh and Johari 1990, Upindi 1990, Zoungrana and Slenders 1992, Dana 1998, Saha 2003), scavenging system (Kabatange and Katule 1989, Kassambara 1989, Musharaf 1989, Andrews 1990, Houadfi 1990, Lul 1990, Mbugua 1990), with little supplementary feeding (Singh and Johari 1990, Dipeolu et al 1996, Rangnekar and Rangnekar 1996, Dana 1998, Saha 2003), natural hatching of chicks (Singh and Pani 1986, Van Veluw 1987, Saha 2003), poor productivity of birds (AACMC 1984, Rao and Thomas 1984, Balaraman and Kaul 1985, Singh and Pani 1986, Berte 1987, Rashid et al 1995), local marketing (Rehman 1995, Dana 1998, Saha 2003) and less health care practice (Dana 1998, Saha 2003).

Recently, the traditional poultry farming in villages, which was the primary source of animal protein, and supplementary income for more than 50 percent of the population of this country, has suffered in the wake of commercialisation (Singh 2000). One

must remember that the cheapest egg and poultry meat is one of which is produced in the backyard or semi- scavenging system. Consequently, due to the changing rural scenario backyard poultry farming has taken a back seat and unless we lay down a sound strategy, it would be impossible to revive this age old practice which is an important tool for nutritional security. Therefore, an appropriate strategy is necessary in backyard poultry farming for hitting two birds with one stone. Firstly, this would help alleviate the nutritional status of the rural people and secondly, we could have our stress-free, harmful residue free birds.

In India, poultry farming occupies a pivotal position in bringing about the rapid economic growth. India has one of the largest and fastest poultry industry, ranking 3rd in egg production and 7thin poultry meat production. (BAHS,2019)

Though poultry development in country has taken a tremendous growth during last three decades, the growth has been restricted to commercial poultry. Backyard poultry though contributing 30% to the national egg production, is the most neglected one. It is well known that the majority (91%) of the population are landless and marginal farmers , are carrying out their living from poultry and other small ruminants. Backyard poultry requiring hardly any infrastructure setup is a potent tool for upliftment of the poorest of the poor. Besides income generation, backyard poultry provides nutrients supplementation in the form of valuable animal protein and empowers women. It has also been noticed that the demand for rural backyard poultry quite high in tribal areas.

There is a huge gap in per capita availability of egg and meat among rural and urban people. The per capita availability of egg and meat is 69 egg/person/year and 3.1 kg/person/year respectively against the ICMR recommendation of 180 egg/person and 10.8 kg/person respectively to meet the growing demands of the people and to improve the per capita consumption. In Bihar per capita availability of egg is 11 egg /person /annum and of poultry meat is 2.08 kg/person/year.

Thus Backyard poultry farming can help state to bridge the gap between demand and supply of egg and poultry meat as well. The backyard poultry may emerge as a potent tool for poverty alleviation. Rural people can generate their livelihood through backyard poultry farming because it is very less expensive having lesser risk and high capital growth with less time. For high production and productivity, backyard poultry farming requires scientific training and management to gain benefit from it. Hence, development of training process

with respect to the training needs of the backyard poultry farmers is the need of the hour to improve the production and productivity of poultry farmers.

Training is a process of attaining new skills, attitude and knowledge so as to improve the productivity in an enterprise. Training is the function of helping other to acquire and apply knowledge, skill and abilities needed. In order to make training more effective, the training needs have to be identified prior to commencement of any training programmes so that the subject matter of the training could be determined on the basis of the needs of the trainees (Singh and Gill, 1982). Training needs is the gap that exist between "what is" and "what should be" in terms of the trainees knowledge, skill, attitude and the behaviour in a given situation and time. It is important to analyse the training needs for designing an appropriate and effective training programme as the programme must address the training needs of the trainees. The main purpose of identification of training needs is to close the gap that exist between actual and desired situations by establishing the discrepancies in outcomes, arranging them based on priority and selecting the most crucial for closure or reduction (Roth well and Kazanas, 1998).Majority of the rural backyard poultry farmers need support for building up their capacity development through institutional training programme which help them to upgrade their knowledge and create confidence in their endeavour in the existing farming system.

In the wake of the preceding discussions about the status of the backyard poultry farming in Bihar, there is requirement of identification of need of training in broader areas of housing, feeding, breeding, health care and marketing so that the farmers can get need based information and thereby this sector can emerged as one of the potent tools for poverty alleviation specially for landless, marginal and resource constrained community.

There are few studies directly related to the particular theme in our state. The modern thoughts of training demand through understanding about science of andragogy which treats learners as active and co- partner in learning.

Thus designing of training must be governed by a systematic process. It must ensure that participants are treated as co-equal and have the opportunity of dialogue and action. Trainers must act as facilitators. Training session must flow naturally with the active involvement of participants to help them acquire abilities need to become successful. The

emphasis of training needs to be on practical and element of flexibility, continuous negotiation with participants should be the rule than exception.

Keeping the aforesaid points in views the present study is proposed with following objectives:

i) To study the socio- personal, psychological characteristics of respondents.
ii) To identify the training needs in selected areas of training of poultry farmers.
iii) To explore the relationship between the training needs and socio-personal and psychological characteristics of respondents.
iv) To study the constraints faced by poultry farmers.

1.1 Need and Scope of the Study:

Previous researches showed that lack of training was one of the major constraint faced by the backyard poultry farmers. The study focuses on identifying the training needs of the backyard poultry farmers in scientific poultry farming. The study will help various organizations, institutions, agencies and extension workers to formulate appropriate training programme and execution of such programme will help to increase skills in scientific poultry practices to improve the production and productivity of backyard poultry and also to improve the socio-economic conditions of the poultry farmers.

1.2 Limitations of the Study:

Like any other student research project, this study has also its own limitations:

- Since the study has been conducted in three districts where there were not good facilities and the conditions were not the same everywhere, so the findings emerging from the study may not be same in case of different study areas and would be readily applicable to areas having similar conditions.
- The findings of this study are based on the ability of the respondents to recall and on their verbal expressions. The findings are, therefore conditioned by the extent of frank fair expressions of the respondents.
- The study being longitudinal and multifaceted in nature, requires a great deal of time, money and team work efforts. Its tangible outcomes, in terms of how many

participants have actually plunged into poultry farming, cannot be seen immediately after the completion of any training. Results would have been more rewarding, had there been a proper provision of maintaining continuous liaison with the trainees through follow-up meetings at frequent intervals

1.3 Organisation of the Thesis

The dissertation is divided into five chapters. The introduction chapter deals with the concept of backyard poultry farming, its historical background, present scenario, scope in poultry sector and highlights objectives and limitations of the study. The second chapter gives a comprehensive review of relevant literature having a bearing on this study. This chapter provides guidelines based on logical reasoning so as to explain concepts used in the study. Research methodology has been described in the third chapter. This chapter deals with locale, sampling procedure, operationalization of concepts, variables and their measurements, data collection and statistical analysis. The findings and discussion have been presented in fourth chapter objective wise. The last chapter deals with summary and conclusions and suggestions for further research.

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Review of Literature

Chapter - 2

REVIEW OF LITERATURE

A comprehensive and systematic review of the past relevant literature is a pre- requisite for carrying out research in scientific manner. A reference to the past studies provides guidelines not only to frame future areas of research to be covered and methodology to be adopted but also to confirm and repudiate research outcome with possible reasons. A detail review and study of the previous work done helps an individual to develop a proper understanding of the research problem and enables to develop a conceptual framework in the area under the study and provides guidance for the selection of variables. The present study "Study on Training Need Assessment of Backyard Poultry Farmers of Bihar" covers almost a new study in that area. However, peripheral studies have been covered.

Literatures that are directly or indirectly related to the present study are presented below under the following sub- heads:

2.1 Socio – personal and psychological characteristics of the respondents.

2.2 Training needs identification in selected areas of trainings.

2.3 Correlation between training needs and socio- personal and psychological characteristics of the respondents.

2.4 Constraints faced by the poultry farmers.

2.1 Socio- personal and psychological characteristics of the respondents

2.1.1 Age

Dipeolu *et al.* (1996) reported that the majority (55.00%) of the respondents were over 40 years of age i.e. old age followed by (34.00%) and (11.00%) belongs to 30- 40 years age and 20-30 years age group respectively.

Sapcota and Ray (1997) found that majority (80.00%) of the respondents were young, below 25 years in comparison to middle and old age group i.e. 20.00 per cent showing that poultry farming was becoming popular among the youth for self-employment.

Saha (2003) in his study on rural poultry in West Bengal reported that majority (54.00%) of the respondents were of young age group (< 35 years) whereas, 38.00 per cent belonged to middle age (35-50 years) and only a mere of 8.00 per cent hailed from the old age group and had an age of over 50 years. The overall average age was 35.18 years.

Kannadhasan (2004) reported that majority of the backyard poultry farmers in Tamil Nadu were middle to old age category.

Prakash *et al.,* (2003) revealed that majority (70.83%) of backyard poultry farmers of Meghalaya belongs to middle age category (31-35 years), whereas 19.16 per cent and 10.00 per cent belonged to young age (25-30 years) and old age (above 35) category respectively.

Singh and Jilani, (2005) stated that most (60.00%) of backyard poultry farmers in Garhwal Himalayas belonged to old age category (above 40 years) followed by 26.00 per cent middle age (31-40 years) and 14.00 per cent young age (20-30 years).

Mandal *et al.,* (2006) revealed that majority (63.75%) of backyard poultry owners in Bareilly district of Uttar Pradesh belonged to young age group (less than 32 years) while 19.58 per cent poultry owners were from middle age group (32-47 years) and 16.67 per cent hailed from the old age group (above 47 years).

Nanjesh (2010) reported that majority of the backyard poultry farmersinKarnataka state were from middle age group.

A.Razzaq et al (2011) illustrated in their study that majority of backyard poultry farmers were of middle age group (36-50 years).

Deka P. et al (2013) illustrated in their findings that the majority of the respondents belonged to middle (49.00%) and young (45.00%) followed by old age group (6.00%).

Abha (2014) found that majority of the respondent belonged to middle age group (55.83%) that is between 31 to 50 years.

Bishwajeet and Bibhu (2015) emphasized in their research findings that maximum numbers (51.11%) of the poultry farmers in Cuttack district of Odisha fell under the middle age category of 36-50 years of age.

Oladunni and Fatuase(2014) illustrated in their findings in Onde State of Nigeria that majority (54.60%) of the backyard poultry farmers belonged to young age group of 18-50 years.

Dumarya et al (2015) in their research study emphasized that majority (72.00%) of backyard poultry farmers fell within the age group of 20-45 years.

Sunita and Dharmendra (2017) illustrated in their study that majority (43.97%) of the backyard poultry farmers were of middle age group.

Pratap et al (2017) illustrated in their study that most (52.00%) of the backyard poultry farmers belonged to middle age group of 35-47 years.

Rajkumar et al (2017) illustrated in their research findings that majority (65.00%) of the backyard poultry farmers were of middle age group.

2.1.2 Sex

Amos (2007) observed in his study that majority of the backyard poultry farmer were male who dominated the poultry farming.

Ogundale and Adebayo (2009) emphasized in their study that number of female participated in backyard poultry production is always higher than males.

Maikasuwa and Jabo (2011) illustrated in their study that majority of the backyard poultry farmers were male.

Deka P. et al (2013) found in their research findings that 100.00 percent of the background poultry rearing amongst tribal community in Assam district were managed by the female members of the family.

Oladunni and Fatuase (2014) illuminated in their study that the majority (54.00%) of the respondents were female indicating that the female dominated the enterprise.

Dumarya et al (2015) illustrated in their research study that the maximum (75.60%) of the backyard poultry farmers in the Sunderban region were female.

Sunita et al (2017) illustrated in their research findings that maximum numbers (80.76%) of backyard poultry farmers in Katihar district were female.

2.1.3 Family Type

Saha (2003) revealed that majority of the poultry farmers irrespective of the system of the rearing intensive (59.60%), semi-intensive 85.80 per cent and backyard 64.60 per cent belonged to the nuclear family type.

Mandal et al (2006) observed that most (92.92%) of the poultry owners belonged to nuclear family whereas only 7.06 per cent belongs to joint family.

Deka P. et al (2013) illustrated in their research findings that majority of the poultry owners (83.00%) of tribal community belonged to joint family whereas only 17 per cent belonged to nuclear family.

Kumari A. (2014) found that majority of the respondents 73.50 per cent belonged to nuclear type of family and remaining 37.50% belonged to joint family.

Pratap et al (2017) illustrated in their research findings that the majority of the respondents had joint family

Rajkumar et al (2017) illustrated in their findings that about 80.00 per cent of the respondents belonged to joint family whereas only about 20.00 per cent had nuclear family type.

2.1.4. Family Size

Prakash et al.(2003) reported that most (40.83%) of the poultry farmers in Meghalaya had medium family size(6-8 members), 30.00 per cent respondents had small (3-5 members) and 12.50 per cent and large (more than 8 members) size family.

Saha (2003) observed that majority (50.00%) of the backyard poultry owners had family with 5-8 members (medium size) whereas 31.20 per cent had small size (1-4 members) family and 18.80 per cent had large family size (more than 8 members).

Singh and Jilani (2005) studied that majority (53.00%) of backyard poultry farmers had medium family size (6-8 members) followed by 25.00 per cent had small family size (3 – 5 members) and 22.00 per cent had large family size (more than 8 members).

Mandal et al.,(2006) illustrated in their research study that the majority of the respondents (73.75%) had a medium family size.

Ahire et al.,(2007) investigated that majority (48.00%) of the member farmers belonged to family size of 6 to 10 members (medium family) while, 38.67 per cent of the members farmers belong to the family size of below 5 members (small family) and 13.33 per cent members had family size more than 10 family members (large family).

Emaikwu et al (2011) illustrated in their study that a large number of the respondents belonged to large family size among the farming households supplies the most needed labour requirements for production activities.

Deka P. et al (2013) found in their study that the majority of the respondents (64.00%) had a medium family size, 19.00 percent poultry owners had large family size and about 17.00 per cent fell in the category of small family size.

Oladunni and Fatuase (2014) illuminated in their study that the majority (89.00%) of the backyard poultry farmers owner's household had a large family size which shows a good source labour.

Pratap et al (2017) observed in their study that majority (50.00%) of the respondents had medium size family.

2.1.5 Educational status

Gowde et al.(1991) found that 92.00 per cent of the respondents were literate, 35.00 per cent had college education and only 8.00 per cent respondents were illiterate.

Nimje et al.(1993) investigated that education and adoption of managemental practices were significantly associated with each other.

Dipeolu et al.(1996) revealed that the majority (70.00%) of village indigenous chicken rearers had no formal education followed by primary education 15.00 per cent, secondary education 10.00 per cent and education from tertiary institution 5.00 per cent.

Sapcota and Ray, (1997) observed that majority (40.00%) of the respondents had educational qualification up to high school followed by 27.00 per cent were degree holders and remaining 33.00 per cent respondents had education level up to higher secondary.

Prakash *et al.* (2003) reported in their study that most of the backyard poultry farmers (61.66%) were illiterate followed by 28.33 per cent respondents had up to primary level education and 10.00 per cent respondents had up to high school and above education.

Saha (2003) in his study on rural poultry in West Bengal observed that majority (59.30%) of the respondents had above primary level of education and only 18.70 per cent were illiterate. It can further be seen that majority (63.70%) of the intensive poultry farmers had an education ranging from middle school whereas 78.10 per cent backyard poultry farmers had

an education up to primary level and below. Therefore, the average education was found up to primary level.

Khandekar (2003) stated that the rural peoples are illiterate and uneducated in general and do not have any idea about the strains/breeds to be reared in backyard.

Singh and Jilani, (2005) revealed that most (45.00%) of the poultry farmers had up to high school and above educational level, whereas, 35.00 per cent respondents had up to primary education and remaining 20.00 per cent respondents were illiterate.

Mandal et al.(2006) observed that majority (47.50%) of poultry owners were illiterate, followed by 25.83 per cent who could read and write and 16.67 per cent were in primary category. Only 6.25 per cent respondents were educated up to middle and mere 3.75 per cent poultry owners were educated above high school level, this indicate that majority of backyard poultry farmers had low level of education.

Oladeji (2010) in his research findings illustrated that majority of the farmers (44.40%) had secondary school level education followed by higher secondary level 37.30 per cent.

A. Razzaq et al (2011) emphasized in their study that a large number (37.33%) of backyard poultry farmers had up to high school level of education.

Deka P. et al (2013) observed in their study that the majority of the poultry owners had middle (36.00%) or primary level (27.00%) of education and (18.00%) of the poultry owners were illiterate followed by high school level (13.00%) and (16.00%) were graduate and above.

Oladunni and Fatuase (2014) observed in their study that majority (33.60%) of the backyard poultry farmers had no formal education followed by 28.30 per cent having up to primary level education.

Dumarya et al (2015) in their research study illustrated that majority (42.30%) of the poultry farmer had education up to only primary level education.

Bishwajeet and Bibhu (2015) emphasized in their research study that most (58.88%) of the backyard poultry farmers had education up to high school.

Sunita and Dharmendra (2017) illustrated in their research study that among the respondents 36.92 per cent were primarily educated followed by high school (38.46%), illiterate (10.76%), intermediate (8.46%) and graduate (6.15%).

Pratap et al (2017) illustrated in their study that majority of the backyard poultry farmers had education up to high school.

Rajkumar et al (2017) observed in his study that a large number of backyard poultry farmers had education up to high school.

2.1.6 Land holding

Saha (2003) found that in backyard system majority of the respondents (57.30%) had marginal land, 38.50 per cent were landless respondents and 4.20 per cent with small land holding.

Mandal et al.,(2006) investigated that (27.08%) of poultry owners had no land. The majority (47.92%) respondents possessed less than one hectare of land and belonged to marginal farmers category while 20.00 per cent of the farmers had 1-2 hectare of land and fell in the small farmers category. Only 5.00 per cent of poultry owners were having more than 2 hectare of land and belonged to large farmer's category.

Ahire et al.,(2007) observed that 4.67 per cent of the member farmers were landless, 37.67 per cent of the member farmers had small farm size (less than 2 hectare) whereas 42.00 per cent had medium farm size and the remaining (18.66%) of the member farmers had large farm size (above 4 hectare). Land holding of poultry farmers found significantly associated with adoption.

Kumari A. (2014) observed that 63.33 per cent of backyard poultry owners were marginal land holders.

2.1.7 Occupation

Saha (2003) recorded that agriculture is the main occupation of (76.10%) backyard poultry owner and rest 8.30 per cent, 8.30 percent and 7.30 per cent had labour, service and other occupation respectively.

Mandal et al. (2006) in their research study found that the majority (52.92%) of backyard poultry farmers had labour as a major occupation followed by agriculture (22.50%) animal husbandry (14.58%) business (7.08%) and service (2.92%) respectively.

Babu et al. (2013) illustrated in their research study that 28.33 per cent of the respondents find poultry farming as a primary occupation followed by 71.67 per cent of respondents it as secondary occupation.

Deka P. et al. (2013) observed in their research study that majority of the respondents (74.00%) had agriculture as their primary occupation followed by 14.00 per cent, 7.00 per cent of the respondents earning through labour and animal husbandry respectively and about 4.00 per cent and 1.00 per cent of respondents had business and services as their secondary occupation respectively.

Sunita and Dharmendra (2017) illustrated in their study that majority (49.24%) of the respondents had no occupation (labour) followed by 31.53 per cent of respondents as farmers and rest followed by business 19.23 per cent.

Pratap et al. (2017) illustrated in their research study that majority (53.34%) of the poultry farmers were practicing agriculture as their main occupation followed by poultry farming (29.57%), business (16.00%) and service (1.33%) respectively.

Rajkumar et al. (2017) illuminated in their research study found that large number (56.67%) of the backyard poultry farmer had agriculture as their primary occupation.

2.1.8 Flock Size

Dana (1998) reported that the average flock size of backyard poultry farming in the Midnapore district of West Bengal was 15.27(±6.2).

Kazi (1999) stated that about 89.00 per cent of the rural households in Bangladesh rear poultry and the average no. of birds per household are 6.8.

Panda and Nanda, (2000) observed that average of 10.29 birds is maintained by per family. These birds are mostly the native indigenous fowl.

Qazi (2002) studied backyard poultry rearing practices in Palas valley observed that the average flock size per household is about 20-25 birds/chicken.

Saha (2003) reported that under the backyard system of poultry majority of the respondents (44.80%) generally kept up to 5 birds, whereas, 35.50 per cent, 13.50 per cent, 4.20 per cent and 20.00 per cent respondents kept 6- 10, 11-15, 16 – 20 and above 20 birds respectively.

Mandal et al.(2006) observed that majority (72.92%) backyard poultry owners in Bareilly district had a medium flock size (more than 8 birds). Only 10.41 per cent poultry owners had a small flock size. The average flock size reported in the study area was 4.69 birds.

Ciamarra and Otte (2009) in their study of poultry, food security illustrated that an average number of flock size of 8-9 birds/ poultry keeping households in India.

Babu et al.(2013) illustrated in his study that the average flock size per batch was 2333 birds.

Deka P. et al.(2013) observed in their research study that the majority of the poultry owners (87.00%) had small flock size, followed by 13.00 percent respondents with medium flock size. None of the respondents had large flock size.

Dumarya et al. (2015) illustrated in their research study that the majority of the poultry owner (73.13%) has small flock size (<25) followed by flock size 25-50 (15.90%), flock size 51-75 (8.46%) respectively.

Sunita et al. (2017) illustrated in their study that majority (50.76%) of the respondents have a flock size of 101-150 bird per flock.

Pratap et al. (2017) illuminated in their study that average flock size per batch was 3472 birds.

2.1.9 Annual income from backyard poultry farming

Prakash et al.(2003) investigated that majority (51.66%) of the backyard poultry farmers in Meghalaya had low annual income (less than Rs. 16000 and above) annual income.

Saha (2003) found that most (76.20%) of the backyard poultry farmers had low annual income (Rs. 12000 – 42000), followed by 13.50 per cent very low (less than Rs.12000), 6.20 per cent high (more than Rs.62000) and 4.10 per cent had medium (Rs. 42000-62000) annual income respectively.

Singh and Jilani (2005) observed that majority (51.00%) of the poultry farmers having low annual income (less than Rs. 12000), 6.20 per cent high (more than Rs. 62000) and 4.10 per cent had medium (Rs.42000 – 62000) annual income respectively.

Ahire et al. (2007) revealed that majority (46.00%) of the poultry farmers had low annual income (Rs. 25001 – 50000) followed by 23.33 per cent, 16.00 per cent and 14.67 per cent had medium (Rs. 50001 – 75000), high (Rs. 75001 and above) and low (up to Rs. 25000) annual income respectively.

Dumarya et al. (2015) illustrated in their study in Sunderban region shows that 36.80 per cent of the poultry farmers earned only less than Rs.500 per month due to small flock size and unorganized type of poultry rearing system. Only 15.90 per cent have earning greater than Rs 1500 per month.

Sunita et al. (2017) illustrated in their study that about (43.07%) of the respondents obtained an annual income of Rs. <50,000/- from backyard poultry farming while 40.46 per cent obtained Rs.51,000- 1 lakh in their poultry business.

Rajkumar et al. (2017) illustrated in their research study that majority (43.33%) of the respondents had medium level of annual income followed by 41.67 per cent of respondents having low income and 15.00 per cent having high income.

Dumarya et al. (2015) reported in their findings that majority (58.70%) of poultry farmers belonged to low income group Rs. 2500- 5000 per month.

2.1.10. Annual income from other sources

Kumtakar (1999a) reported that 67.00 per cent of the respondents had annual earning up to Rs.700 from poultry. About 70.00 per cent respondents earned up to Rs.6000 from labour work (agriculture and construction) and 26.00 per cent earned up to Rs.4000 from agriculture.

Kumtakar (1999b) stated that more than 80.00 per cent earned up to Rs.300-800 annually from poultry whereas a similar percentage earn about Rs.1000-6000 annually from agriculture. Agriculture earning being many times more, poultry is an important supplementary source of income but for the landless labourers, poultry is an important source of income.

2.1.11. Social Participation

Social participation refers to the involvement of the respondents in the social institutions as a member or a office bearer.

Fulzele (1986) and Mishra (1994) indicated that majority of the trainees were found to have a medium level of social participation.

Katarya and Singh (1987) observed that social participation was found to be significantly associated with the gain in knowledge.

Prasad (1992) indicated that participant farmers has an edge over the non- participant farmers in context of adoption.

Bibhu et al. (2015) stated that the majority of the respondents were member of poultry association (55.00%) and village panchayat (20.00%) followed by cooperative society (17.00%), socio-cultural (14.00%) and labour organisation (11.00%).

2.1.12. Mass media exposure

It refers to both acquaintance and frequency of farmer's contact with the experts, extension personnel, newsletter, farm magazine, exhibition etc. with respect to backyard poultry farming.

Saha (2003) revealed that the backyard poultry farmers (60.40%) and (27.10%) never used institutional and mass media sources respectively and 39.60 per cent and 72.90 per cent used it, but to a low level with regards to non-institutional source 84.40 per cent had low, followed by 14.60 per cent medium and 1.00 per cent no source utilization.

Ahire et al.(2007) noticed that above half of the member farmers (53.33%) had low use of source of information whereas 32.67 per cent of the member farmers had medium use of source of information. Only 14.00 per cent of the members farmers had high use of source of information and found statistically significant.

Kumari A. (2014) stated that majority of the respondents were in low category in respect of their level of information source utilisation.

Pratap et al. (2017) concluded in their study more than one-third (44.89%) of the backyard poultry farmers had low mass media exposure followed by medium 20.00 per cent and high 31.11per cent respectively.

2.1.13. Cosmopoliteness

Talwar et al. (1990) found that among the existing information sources "Other poultry farmers" were the most consulted source (78.75% of poultry farmers) for knowing the management practices of poultry farming followed by different formal sources as animal husbandry (63.75%), regional poultry farm personal (40.00%), farm personal source (33.75%), veterinary livestock inspector (15.00%), commercial agencies (11.25%), poultry co-operatives (7.50%), neighbour's (6.25%), newspaper (3.75%), agriculture college (3.75%),books (3.75%) and scientists (2.50%) respectively.

Mandal et al.(2006) stated that majority (97.92%) of the respondents gave first preference to neighbours followed by feriwal (85.42%), relatives (40.42%), veterinary Doctors (13.30%), radio (7.08%), television (6.25%) and newspapers (5.00%) as a source of information respectively.

Bibhu et al. (2015) illustrated in their research study that only 38.88 per cent respondent contacted weekly with block level official and 7.77 per cent field level extension functionaries.

Pratap et al. (2017) stated in their research findings that only 10.00 per cent of the backyard poultry farmers considered veterinary doctor as less utilized source of information under personal cosmopolite sources.

2.1.14. Knowledge level about backyard poultry farming

Talwar et al. (1990) studied knowledge level and consultancy pattern in poultry farming observed that 80.28 per cent of respondent farmer knew the feeding practices followed by 75.66 per cent who knowing about housing and other management practices. Only 66.57 per cent farmers were having knowledge about diseases and its control.

Nimje et al.(1993) stated that 2/3rd of poultry entrepreneurs 76.19 per cent were having high level of knowledge whereas about 1/3rd of poultry entrepreneurs 21.42 per cent had medium

level of knowledge regarding poultry enterprise aspect. Only few 21.39 per cent had very low knowledge.

Kumar and Mahalati (1994) revealed that 74 percent of the respondents had high level of knowledge about poultry farming whereas 22 percent of respondents were in medium level of knowledge and only a few 4.00 per cent respondents possessed very poor knowledge which may be attributed to the factors like ignorance in getting sufficient information and lack of conviction.

Narmatha et al. (1995) studied knowledge level of women in scientific poultry farming in Namakkal block of Tamil Nadu revealed that three-fourth 74.00 per cent of the poultry farm women possessed medium knowledge level and the rest had almost low 14.00 per cent or high 12.00 per cent level of knowledge.

Kannadhasan and Sudeep kumar (2005) studied knowledge level of backyard poultry farmers on recommended backyard poultry farming practices in Erode district of Tamil Nadu. The average knowledge level was comparatively low in the area of disease management 50.21 per cent, while in general management it was high 78.98 per cent and knowledge was cent percent on aspects of laying and marketing.

Thammi Raju et al. (2007) noticed that majority of the layer and total farmers had high knowledge while majority of broiler farmers had medium knowledge on poultry production. The factor such as scientific orientation in case of layer farmers; education, economic motivation, computer awareness in case of total farmers were found to be significantly related to the knowledge level.

Rajini and Vasantha kumar (2004) reported in their study that 90.00 per cent of family poultry farmers knew about Newcastle disease vaccination.

Nath et al. (2012) found that majority (64.80%) respondents were medium level adopters followed by high level 19.20 per cent and low level 16.00 per cent adopters.

Pratap et al. (2017) illustrated in their research study that majority (81.31%) of the backyard poultry farmer have low knowledge level about poultry rearing followed by medium level 10.00 per cent and high level 2.70 per cent of knowledge.

Rajkumar et al. (2017) emphasized in their research study that maximum number (58.40%) posses high level of knowledge followed by medium 33.33 per cent and low 8.27 per cent level respectively.

2.1.14.1 Housing knowledge

Mishra et al. (2000) stated that in Orissa state poultry houses with concrete roof were less in number (about 2.00%) compared to thatched roof (68.50%) and asbestos/tile/khoper roof (29.50%).

Qazi (2002) revealed that housing of the poultry is very poor in whole of the Palas valley. About 90.00 per cent of the people of the Palas valley have a one room for kitchen, animals and as well as for sleeping purpose for human being with poultry shelter at night. However 40 per cent people of Palas Valley have a room of birds besides their sleeping areas within a one room without any ventilation system. Houses should be made up of wood, stone, bamboo and straw at the side of the house with proper ventilation. Generally 2 – 2.5 sq. feet space is required for male and female birds and other side for growing birds. Space of the house of poultry is small as compared to flock size.

Saha (2003) reported that in backyard poultry rearing system respondents generally made houses with locally available materials viz., bamboo, mud, wood, net, jute stalk, tiles, tin, straw etc. Generally, the adult birds were housed together during the night with little consideration of space available per bird. Chicks were kept separately in order to avoid huddling and consequent death. Although, birds were left in free range during day time, however, some respondents housed the birds in the poultry houses or bamboo basket in the afternoon in order to avoid dispute with neighbours and attack of predators.

Mandal et al.(2006) investigated that majority of the poultry owners were rearing the birds in backyard/free – range system but they made necessary arrangement for night shelter of the birds to protect them from predators. Majority (97.50%) poultry owners constructed separated house for birds whereas, only 2.50 per cent respondents reported that majority 89.58 per cent house poultry owners kept the birds in kaccha house prepared by using locally

available material viz., wood, mud, broken bricks, tiles, wire net etc, whereas, 10.42 per cent respondent kept the birds in pucca house. Few respondents were also housed the chicks separately in order to avoid huddling and consequently death. The average length, breadth and height of the poultry house were 4ft., 3.5ft., 2.5ft., respectively. Such houses are easy to clean and facilitate frequent removal of droppings thus reducing susceptibility to diseases and parasites. Majority of the respondents (93.75%) did not provide any litter material for their birds, whereas, only 96.25 per cent poultry owners provided litter material. The respondents who did use litter material, all the respondents used wheat bhusa however others make use of rice husk, straw, dry leaves and gunny bags as litter material. The respondents reported that they managed the litter by stirring it at regular intervals and the wet litter if any was removed and replaced by new dry litter. Nobody used disinfectants for cleaning coops.

2.1.14.2 Feeding knowledge

Qazi (2002) stated that in the Palas Valley birds under scavenging system seek their own food and water from the open fields and given very small amount of supplementary feed (e.g. maize/ wheat is common). In addition to crop residues, their diet consists of earth worms, variety of insects, young shoots of tree, grass wheat and surplus vegetables.

Saha (2003) reported that all the respondents offered rice/ broken rice and kitchen waste to the birds, 89.60 per cent respondents give boiled rice as supplementary seed and 39.50 per cent gave broken wheat to the birds. 28.10 per cent respondents some time purchased readymade ration from the market for few respondents. The source of drinking water was open drains around hand pump and sometime fresh water was open drains around hand pump and sometime freshwater was provided in waterers. The poultry houses were constructed at different heights from ground in order to prevent the attack from predators.

Mandal et al. (2006) revealed that under backyard poultry farming system birds released early in the morning and left the birds for scavenging in the surroundings of the house, village valleys, gardens, fields etc. from where they fulfil their requirement of feed. During scavenging, the birds generally fed on kitchen waste, earthworms, grasshoppers, ant green grasses, leafy vegetables, seeds etc. In addition to scavenging, all the poultry owners offered a handful of broken wheat, rice, bajra, maize etc. to their birds. The source of drinking water

for backyard poultry was the open drain and stagnant water. However all the poultry owners provided water to birds in summer season in a container kept in backyard.

Rama Rao (2008) recorded that backyard poultry can scavenge well for its feed in the fields. During the process of scavenging on grass fields these birds will have an access to insects, white ants, green grass, grass seeds, waste grains etc., thereby the supplemental feed requirement is much less than those reared under intensive poultry farming. Feed supplementation in the form of scratch usually given in the morning or evening to develop habit to reach owner's place for laying eggs and for night shelter. Depending on the availability of free range area and also the intensity of vegetative growth, the requirement of supplemental feed varies between 25 to 50g/bird/day. These birds can also perform well on whole grain feeding under scavenging conditions.

2.1.14.3 Health care knowledge

Qazi (2002) investigated that in Palas Valley the mean age of specific mortality rate in native chicken hatched has 75.00 per cent(under 2 month of age), 24.00 per cent between(2 to 6 months of age) and 22.00 per cent(over 6 month of age). New Caste Disease is considered to be the major cause because New Castle Disease out breaks occurring twice in a year.

Saha (2003) reported that 37.50 per cent backyard poultry farmers treated the birds by qualified veterinary doctor compounder whereas 3.10 per cent respondents treated the birds themselves at home and nearly one third (35.50%) respondents in the backyard system did not treat their birds at all. Only 38.50 per cent respondents under backyard poultry rearing system vaccinated their birds and rest of did not vaccinate their birds. The backyard respondent (32.40%), (40.60%), (19.80%), (18.70%) and (14.80%) encountered Ranikhet, Fowl fox, IBD, CRD and Coccidiosis diseases respectively.

Mandal et al.(2006) stated that the rural poultry owners were not much bothered about diseases aspect of the birds. All the respondents treated their sick birds by themselves, while only 4.58 per cent and 1.67 per cent consulted local expert and veterinary doctors respectively. All the backyard poultry owners did not know the importance of vaccination

and had never vaccinated their birds. The mortality rate in desi birds due to Ranikhet disease was highest, followed by fowl pox, coccidiosis, respiratory problems and other miscellaneous diseases.

Rama Rao (2008) reported that the Project Directorate on Poultry (ICAR) realized the importance of initial brooding and vaccination, has taken initiative to supply the grown up chicks (about 4 to 6 weeks of age) to the rural/tribal population either directly or through any non – Govt. Or Govt. agencies after protecting the chicks with Marek's and Newcastle diseases. This resulted in higher survivability up to 97 to 98% under field conditions. In addition to following the prescribed vaccination schedule the farmers are advised to practice routine deworming of the birds at every 35 to 40 days interval.

2.2 Training needs identification in selected areas of training

Trainees are the persons who come for training and are here synonymous with participants, members, respondents, farmers and the like.

"Training consist largely of well organised opportunities for trainees to acquire the necessary understanding and skill. The trainer is very close to trainee in the learning process. He is like a farmer, who prepares the soil, plants good seed, tends and nurtures the new growth. He does not harbour the illusion that he makes things grow or determines their ultimate size and shape" (Lynton and Pareek, 1967).

Sharma et al. (2009) illustrated in their findings that animal health care was the most preferred area for training as perceived by the farmers.

Pharate et al. (2010) concluded in their study that a large number of the dairy farmers 55.00 per cent required training on healthcare management followed by feeding of animals 47.08 per cent.

Sajeev et al. (2012) stated that a large number (54.00%) of the respondent opined training needs for disease management as the most important.

Rajput et al. (2012) observed that maximum numbers of the dairy farmers perceived needs for training in fodder production.

Roy (2015) in his study reported that training need index of the pig farmers was highest for animal health care management followed by feeding management and general management. He also reported that the use of antibiotics drugs during illness, preparation of low cost feed, special care of sow after farrowing, sign and symptoms of pregnancy were most preferred sub-topic on animal health management, feeding, general management and breeding management respectively.

Gour et al. (2015) concluded that the respondents opined management practices as the most important area for training and ranked first (weighted mean score 2.47). Second ranked was assigned to area of feeding practices (2.28) followed by health care practices (2.26) and breeding practices (2.20) respectively.

Dhaka et al. (2017) stated that a large number (62.40%) of the women farmers opined the needs for intensive training on health care management.

Singh et al. (2018) in their study observed that management practices was the most preferred area for the purpose of training by the farmers (mean weighted score 2.138) and ranked first followed by area of health care (2.103), breeding practices (2.095) and feeding practices (2.066) respectively.

2.3 Correlation of training needs and socio-personal and psychological characteristics of the respondents

Gaikwad (2003) found out in his findings that the family size, annual income and knowledge level of the farmers had non-significant correlation with training needs and land holding was positively and significantly related with training needs.

Jawale (2005) emphasized that the knowledge level of the farmers was positively and significantly correlated with training needs.

Kumar and Jiji (2008) illuminated in their findings that knowledge level of the farmers had positive and significant correlation with the training needs.

Patel et al. (2009) illustrated in their research study that education, herd size, social participation, knowledge and mass media exposure had a positive and significant correlation with training needs of the respondents.

Singh (2011) observed in his findings that education, occupation, social participation, mass media exposure and knowledge level had a positive and significant relationship with training needs at 5 per cent level of significance.

Tekale et al. (2013) reported in their findings that all the socio-personal and economics characteristics had positive correlation with training needs.

Kandeeban and Velusamy (2016) emphasized that social participation was positively and non-significantly correlated with the training needs.

Rokonuzzaman (2013) stated in his study on training needs of tribal people regarding income generating activities that the farm size of the farmers was negatively and significantly correlated with the training needs.

Raghuvanshi (2017) revealed in his study that age of the dairy farmers was negatively and non-significantly correlated with training needs.

Sarita et al. (2017) illustrated in their study that the family type of the farmers was negatively and non-significantly correlated with the training needs.

Singh (2017) in his research study emphasized that the age of the farmers was negatively and non-significantly correlated with training needs.

2.4 Constraints faced by the poultry farmers

Constraints are the problems or hurdles faced by the poultry farmer in adopting or practising the backyard poultry farming. Constraints were taken as circumstances or the causes which prohibited backyard poultry owners in the adoption of improve managemental practices of the backyard poultry rearing. There are various constraints related to backyard poultry farming such as high mortality, low production potential of native birds, early chick

mortality, non-availability of good breeds, lack of technical and financial input, predation and low level of literacy among the farmers etc.

Saha (2003) recorded that low production of village poultry, attack by predators, low knowledge about health care, lack of adequate scavenging land and high mortality rate of birds were the constraints as encountered by 81.30 per cent, 65.52 per cent, 61.50 per cent, 42.70 per cent and 40.60 per cent respondents respectively.

Mandal et al.(2006) investigated that high mortality due to incidence of disease was the major constraints which was encountered by all the respondents, followed by, lack of suitable germ – plasm (91.23%), attack of predators (86.67%) hatching mortality (75.00%), lack of financial support (67.50%) and high cost of inputs/ chicks (54.56%). Inadequate knowledge, shortage of space, complaints by neighbours and hygiene menace was also reported as constraints by 19.17 per cent, 18.75 per cent, 19.58 per cent and 24.17 per cent of the poultry owners, respectively.

Sethi (2007) reported that predation by wild cats and other wild animals is a problem in most of the village in the Orissa which are situated either near or within the forest area.

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Chapter - 3

RESEARCH METHODOLOGY

The research design, techniques used and the proper processing and interpretation of the collected data are an integral part of any scientific study. In the previous chapter on the basis of review of literature related to the research problem, an attempt was made to present the theoretical background and its orientation towards accomplishment of objectives of the study. This chapter deals with the discussion of the study area, research methods, sampling techniques, variables included for the study, tools of field data collection and the statistical methods used.

The procedure and steps used in conducting the study are presented under the following section:

3.1 Selection of study locale

3.2 Sampling techniques

3.3 Selection of variables and their measurements

3.4 Developments of tools for data collection

3.5 Tools and techniques of data collection

3.6 Statistical analysis

3.1 Selection of Study Locale

3.1.1 Universe of Study

Selection of state: The study was conducted purposively in the Bihar state considering the fact of familiarity of the researcher with the local dialect and accents of the farmers. This proved to be immense help for rapport building and easy access to source of information. Bihar is the third populous state in India. The state with an area of 94.16 lakh hectares lies

between latitudes N. 24^0 20'10" and 27^0 31' 15" and longitudes E 83^0 19' 15" and 88^0 17' 40". The state is bounded on the north by Nepal, on the east by West Bengal and Bangladesh, on the west by Uttar Pradesh and on the south by Jharkhand. The state lies between 35 to 85 meters above the mean sea level. The state comprises of two distinct zones viz. North Bihar and South Bihar. The River Ganges separates the States in the north and south.

The state is divided into three agro- ecological zones, these are North-West Alluvial Plains (Zone-I), North-East Alluvial Plains (Zone-II), and South Bihar Alluvial Plains (Zones-IIIA and IIIB). The natural resources in the endowments of the states are dominated by land and water. These resources are vital for the development of Agriculture and Animal Husbandry in the state. After bifurcation Bihar is left with few industries. Agriculture and livestock are the main occupation of people of Bihar.

Table-I. State Profile:

1.	Latitude	N. 24^0 20' 10" and 27^0 31' 15"
2.	Longitude	E 83^0 19' 15" and 88^0 17' 40"
3.	Height from Mean Sea Level	173 feet
4.	Average annual rainfall	1205 mm
5.	Major River	Ganga, Gandak, Kosi, Bagmati, Mahananda, Sone.
6.	Total land	28.20 LAKH ACRES
7.	Forest	6764.14 sq. km
8.	Total Cattle	15311.17 thousand
9.	Total Buffalo	7719.79 thousand
10.	Total Bovine	13034.60 thousand
11.	Total Poultry	16525.35 thousand
12.	Total Livestock	36454.0 thousand

Source: - Basic Animal Husbandry Statistics 2019

3.1.2 Selection of the Districts

The three districts were purposively selected out of 38 districts of Bihar. The present study was conducted in the livestock rich districts viz., Muzaffarpur, Darbhanga and Nalanda. These districts were selected purposively on the basis of agro- climatic zones and backyard poultry rearing pattern. Muzaffarpur has predominantly agricultural economy. It seems to

have average level of livelihood potential social vulnerability and social capital, yet the present poverty level is below average. This makes a district a "performing one" to overcome its natural and social constraints to attain a none-too-low level of development whereas in Nalanda poverty level is very low besides having relatively higher level of social capital. Nalanda seems to be "failing districts" where the existing economic and social potential are not fully utilized to reach a matching level of developments. Thus making Nalanda prompt for innovative intervention such as backyard poultry. Darbhanga district is largely inhabited by backward section of society having small land holding coupled with low agriculture production and food security problems. Darbhanga seems to be "performing districts" where limitation of the natural endowment can be overcome by certain development effort.

Muzaffarpur district also called "Land of litchi", is located centrally in Tirhut Division and forms the part of North Bihar plains. It has an area of 3173 sq.km. The District is situated between $25^0 54'$ and $26^0 23'$ North latitude and $84^0 53'$ and $85^0 45'$ East longitude It is divided in two subdivisions, viz., Muzaffarpur East and Muzaffarpur West. The district is bounded on the north by Purba Champaran, Sheohar and Sitamarhi districts, on the south by Vaishali and part of Saran district, on the east by the district of Darbhanga and Samastipur (part) and on the West by Saran and Gopalganj districts. The district is traversed by Gandak, Bagmati and other rivers. The district has chain of shallow marshes which serve the purpose of excessive water due to rainfall and overflow of stream. This lead to frequent floods during the rainy season particularly in north east and southern part of the district. Livestock is very important in a district like Muzaffarpur with a predominantly agricultural economy.

Darbhanga district is located in Northern portion of state of Bihar. The Districts is situated between longitude $85^0 45'$ East and $25^0 53'$ North. The district is bounded on the North by Madhubani district, on the South by Samastipur, on the East by Saharsa district and on the West by Muzaffarpur and Sitamarhi districts. The entire district is divided into sub-micro regions namely Darbhanga Plain West and Darbhanga Plain East on the basis of topological features. The Kamla and Karai river flows from north to south in the region. The Eastern part contain silt deposited by Kosi river. The district contain doab and chaurs.It gets flooded every year.

Nalanda district is a part of Patna division. The District is situated between $25^0 12'$N Latitude and $85^0 45'$ E Longitude. The district falls under Agro climatic Zone III B. The district is bounded on the North by Patna district, on the South by Gaya and Nawada district,

on the east by Sheikhpura and Lakhisarai district and on the west by Patna and Jehanabad district. Nalanda district lies in South Bihar and a greater part of the district is comprised of Gangetic alluvial except Rajgir Hills. The entire district is dissected with small streams, majority of which are seasonal. Agriculture is the main source of occupation. Majority of the population (85.00%) are dependent on Agriculture. The land holding distribution indicates a predominance of small and marginal farmers. About 83% of the working population belongs to agriculture sector. It is often inundated by floods except few areas such as Rajgir Hills.

3.1.3. Selection of Blocks:

DISTRICT: MUZAFFARPUR

Considering the need for availability of data and usual limitation of a student research project, Kanti and Musahari blocks were randomly selected for the present study.

Kanti Block: It is situated in the western part of the district .It is situated in the Motihari-Bettiah road from Muzaffarpur. It consist of fertile tract with clay loam soils. It is situated 15 km away from district Headquarter. It belongs to Tirhut division. As per census 2011, around 14.30 per cent of the total population of Kanti block lives in urban areas while 85.0 per cent lives under rural areas. So major portion of the population lives in rural areas. A majority share about (70.00%) of the population are unemployed having higher share about (58.00%) of the women. Thus backyard poultry farming can be an essential tool for livelihood development of the resource poor families particularly of women section.

Musahari Block: The Musahari block is situated in the eastern part of the district. It belongs to Tirhut division. It consist of fertile tract with loam and clay soil. Musahari is the most populated block of Muzaffarpur, located in rich alluvial plain of North Bihar. Its neighbouring district are Patna (North), Darbhanga (East) and Champaran and Saran (West). Budhi Gandak is to the north, causing frequent flood in villages of Musahari Block. Musahari block had a relatively large agricultural labour population. The average for the whole district was only 33.30 per cent, whereas agricultural labourers with their dependents made up 39.20 per cent of the total rural population. Overall, the situation is characterised by lack of land for many in the area, an uncommon dominance of the land owing families, exceptionally low wages, a high degree of unemployment, extreme poverty of agricultural labourers and a general climate of discontent.

DISTRICT: DARBHANGA

From the Darbhanga district, Darbhanga and Biraul blocks are randomly selected for the convenience of researcher.

Darbhanga Block: Darbhanga block is situated in plain-west region of Darbhanga. The Kamla and Karai river flow from North to South in these regions. This region often gets affected by floods. Animal husbandry is very important in Darbhanga with a predominantly agricultural economy. People rear cattle buffaloes, sheep, goat and poultry. Due to severe damage to the cattle due to floods, poultry farming is also relevant in the area.

Biraul Block: Biraul is situated in the south- eastern part of Darbhanga. The entire region is a plain one having a gentle slope from north-west to south-east. It is narrow in south. The river Kamla flows from north to south provides water for irrigation. Agriculture and animal husbandry is the main occupation of the people of Biraul block. It is a low-lying area and is always liable to inundation, from which the cattle suffers severely. People also do poultry farming for their livelihood.

DISTRICT: NALANDA

From the Nalanda district, Harnaut and Rajgir blocks are randomly selected for the convenience of researcher.

Harnaut Block: Harnaut small city situated in central Bihar, south of the Ganges basin. Bihar Sharif, Rajgir and Patna are its nearest city. It is situated on bank of Panchanan river. There are many local rivers such as Dhoba, Panchanan etc. The Ganges river passes nearby from it. It often get inundated by flush flood of river Panchanan and other rivers. Agriculture is the main occupation and source of livelihood of the people. Livestock is also very important for economy besides the predominant agriculture.

Rajgir Block: Rajgir is a beautiful city positioned in Nalanda district in the sage of Bihar. The place is enveloped by rocky hillocks and is placed in valley. It is situated at the elevation of 73 feet from sea level. It do not gets readily affected by floods. Due to hilly region and presence of low land distribution backyard poultry rearing will prove to be good source of occupation for the upliftment of the people.

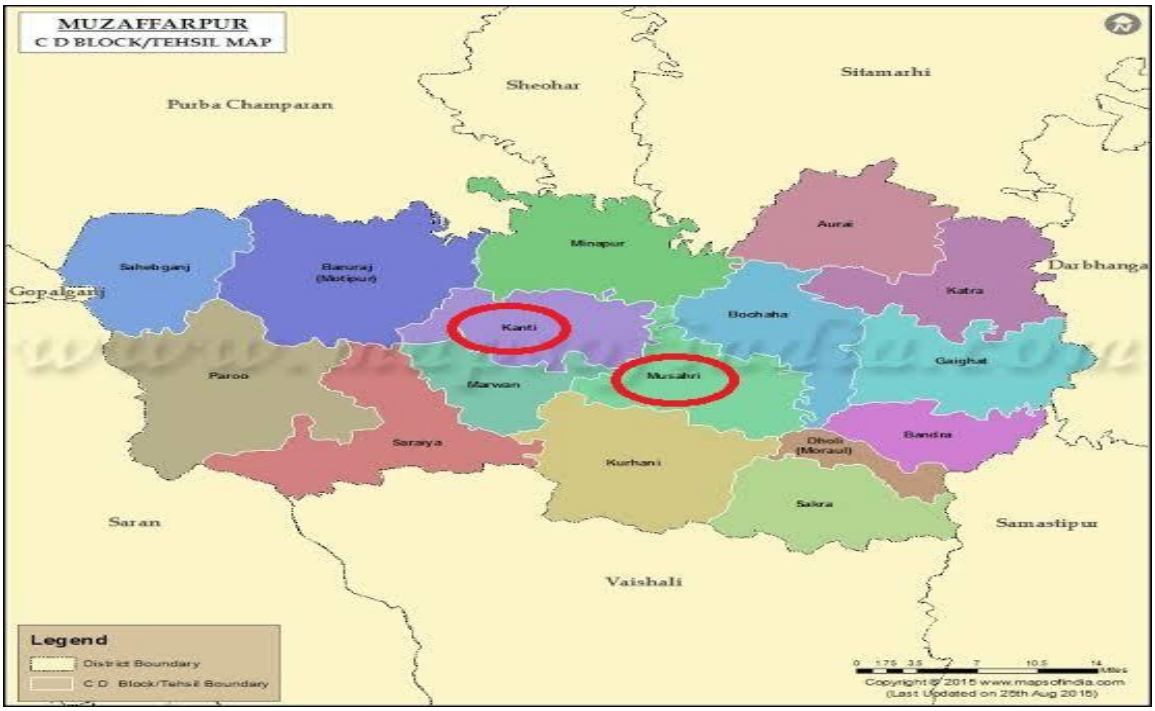
Figure-I: MAP OF INDIA HIGHLIGHTING THE STATE

Source: www.mapsofindia.com

Figure –II: MAP OF BIHAR HIGHLIGHTING THE DISTRICTS

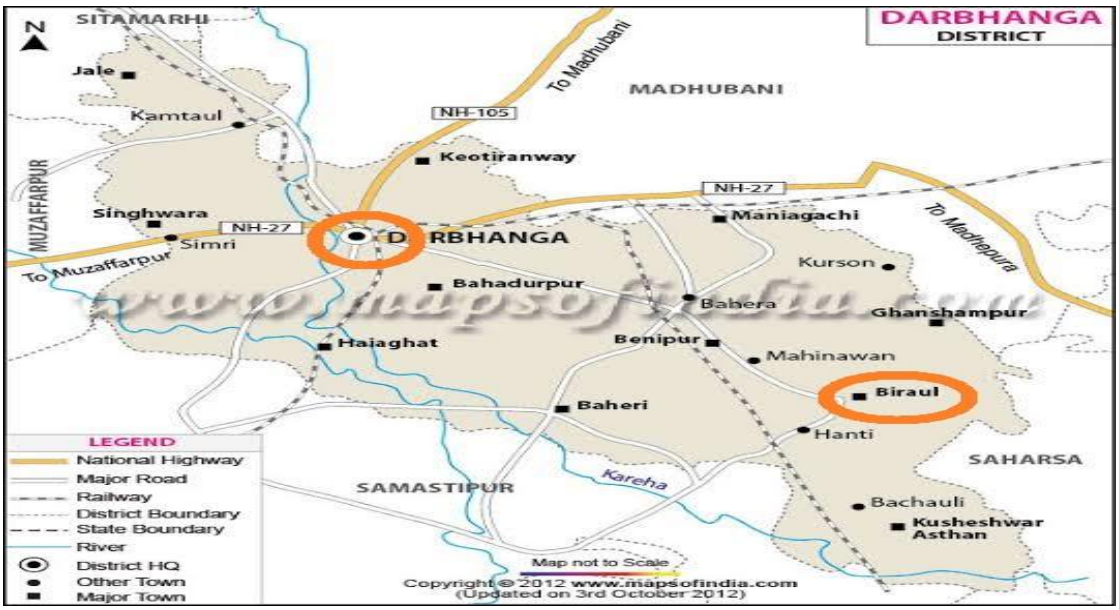
Source: www.mapsofindia.com

Figure – III: MAP OF MUZAFFARPUR DISTRICT HIGHLIGHTING THE BLOCKS



Source: www.mapsofindia.com

Figure- IV: MAP OF DARBHANGA DISTRICT HIGHLIGHTING THE BLOCKS



Source: www.mapsofindia.com

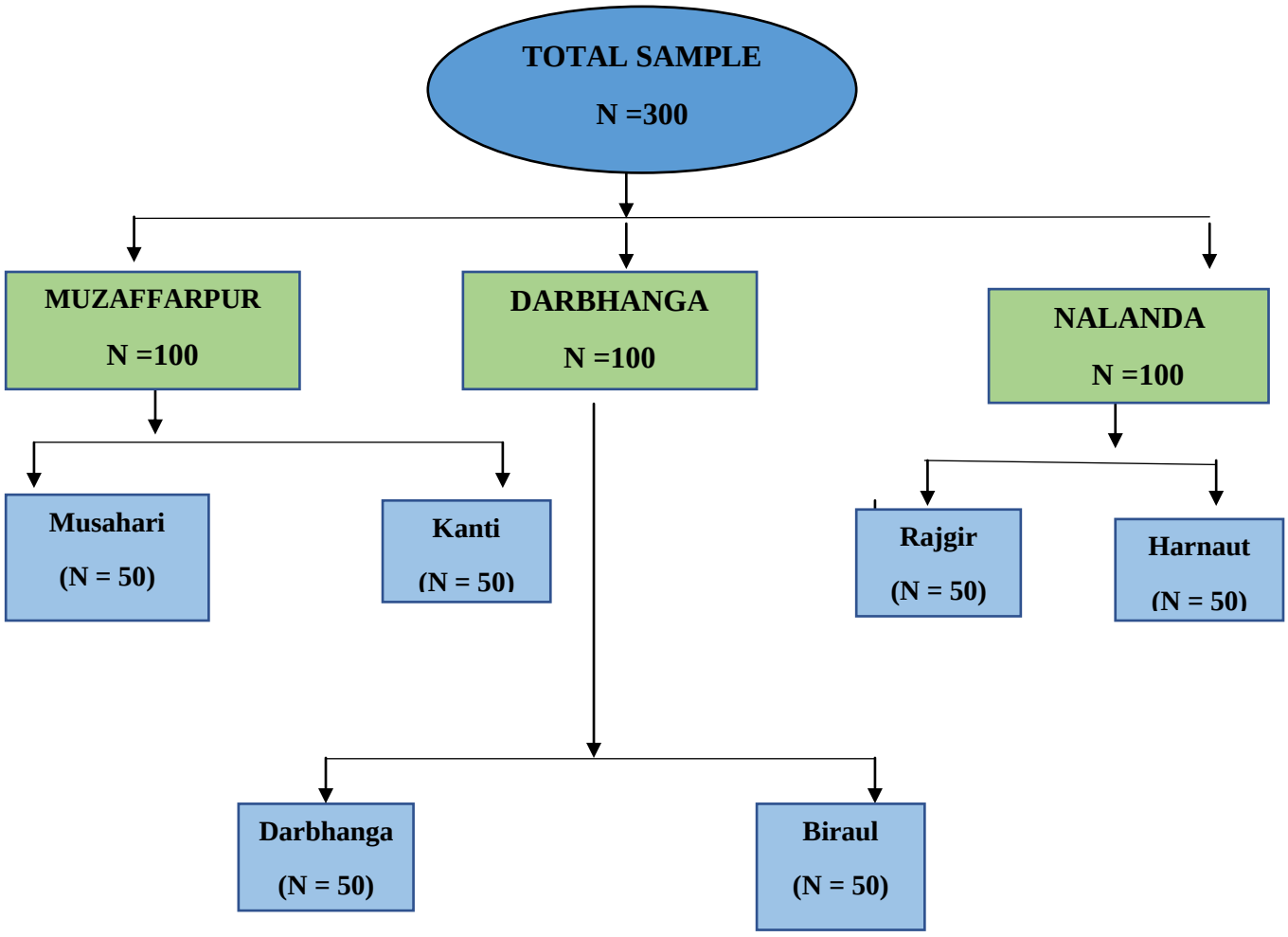
Figure-V: MAP OF NALANDA DISTRICT HIGHLIGHTING THE BLOCKS

Source: www.mapsofindia.com

3.2 SAMPLING TECHNIQUES

Selection of Respondents – From each randomly selected blocks based on the agro-climatic zones and backyard poultry rearing pattern, 50 respondents were randomly selected for the research study. Thus, a total of 300 respondents were selected for the research study.

Figure – VI: SHOWING SAMPLE SELECTION



3.3 Selection of Variables and their Measurements

Table 2 shows the selected variables and tools and techniques used for their measurement.

Table – II: Selection of variables and their measurement

Sl.No.	Variables	Measurements
A. Socio-personnel profile		
1.	Age	Chronological age -indexed
2.	Sex	Schedule developed for the purpose
3.	Family type	
4.	Family size	
5.	Education	
6.	Land holding	
7.	Occupation	
8.	Flock size	
9.	Annual Income from backyard poultry farming	Modified schedule of Singh R.K.P., 1992
10.	Annual Income from other sources	
B. Socio-behavioural profile		
1.	Social participation	Bandyopadhaya, 1986
2.	Mass media exposure	
3.	Cosmopoliteness	
4.	Knowledge	Goswami, 2014
C. Training Need Assessment		
1.	Housing management	Scheduled developed for the purpose
2.	Feeding management	
3.	Breeding management	
4.	Health care management	
5.	Marketing strategies	

3.4 Development of Tools for data collection

Tool is the device used to collect the data. The tool was developed on the basis of thorough review of available literature on various aspect of objectives of the study and collected information.

The data were collected in different phases. In the first phase the researcher made informal visits to the selected blocks. During these visits the researcher had explored the general information about understanding of backyard poultry rearing pattern, egg production and marketing pattern etc.

3.4.1 Interview schedule

Interview schedule was used as a tool, it may be defined as a formal list, a category or inventory and it may be added that it is a counting device used in formal and standardized inquiries, the sole purpose of which is aiding the collection of quantitative cross sectional data. The respondents were interviewed through structured interview schedule prepared for the purpose. It was divided into two major sections. The schedule consisted of questions related to different socio- personnel variables (Age, Sex, Education, Occupation, Flock size etc.) and socio- behavioural profile (Social participation, Mass media exposure, Cosmo politeness and Knowledge).

In second section, interview schedule had structured questions regarding the training need assessment in five broad areas viz., Housing management, Feeding management, Breeding management, Health care management and Marketing strategies. The schedule was used for data collection from backyard poultry farmers.

Data collection by the researcher

3.5 Tools and techniques of data collection

A. SOCIO – PERSONAL PROFILE

3.5.1. Age

It refers to the approximate age of the respondents at the time of data collection. The approximate age of the respondents in years on the of interview was recorded. The respondents were classified into three age groups as follows:

Sl. No.	Age (yrs.)	Frequency
1.	Young (18 -35)	
2.	Middle (36 – 55)	
3.	Old (>55)	

3. 5.2. Sex

It refers to the gender classification of the respondents. Respondents were classified into their respective gender as follows:

Sl. No.	Sex
1.	Male
2.	Female

3.5.3. Family Type:

It refers to the type of family system of the respondent's family i.e.; either a nuclear family or a joint family system. The scoring system was self- scheduled developed in order to quantify the family type of respondents.

Sl. No.	Family Type
1.	Nuclear family
2.	Joint family

3.5.4. Family size:

It refers to the numbers of members in the respondent's family. It was quantified by the schedule developed, by the presence of actual number of members in the family.

3.5.5. Educational qualification:

It refers to the respondent's academic qualification through schooling. The respondent's educational qualification was noted at the time of questioning. Respondents were classified into seven educational groups as following. The scoring was done as per the following procedure.

Sl. No.	EDUCATION LEVEL	SCORE
1.	Illiterate	0
2.	Can read only	1
3.	Can read and write	2
4.	Primary	3
5.	Middle school	4
6.	High school	5
7.	Graduate and above	6

3.5.6. Land Holding

The respondents were classified into three groups on the basis of possession of cultivable land viz., landless, marginal (up to 1 ha.) and small (1.1-2 ha.). The scoring procedure followed is given as below:

Sl. No.	Land Holding	Frequency
1.	Landless	
2.	Marginal (upto 1 ha)	
3.	Small (1.1-2 ha)	

3.5.7. Occupation

It refers to the chief source of livelihood of the respondents from where he generates his source of income. It was measured with the help of schedule developed for the purpose. It was measured with help of following scoring method.

Sl. No.	Occupation	Frequency
1.	Labour	
2.	Agriculture	
3.	Animal husbandry	
4.	Business	
5.	Service	

3.5.8. Flock Size

It refers to the total no. of poultry birds that are reared by the backyard poultry farmers. Its size was ascertained by direct questioning.

3.5.9. Annual income from Backyard Poultry Farming

It refers to the total income of backyard poultry farmers derived from backyard poultry farming in Rs. within a year. It was categorised into low, medium and high.

Sl. No.	Annual income from BYPF	Frequency
1.	Low (10,000-20,000)	
2.	Medium (20,000-30,000)	
3.	High (Above 30,000)	

3.5.10. Annual income from other sources

It refers to the total income of the backyard poultry farmers derived from every possible source of earning in Rs. within a year. It was ascertained by direct questioning and categorised into low, medium and high.

Sl. No.	Annual income from other sources	Frequency
1.	Low (20,000-30,000)	
2.	Medium (30,000-40,000)	
3.	High (Above 40,000)	

B. SOCIO-BEHAVIOURAL PATTERN

3.5.11. Social – participation

This refers to the degree of involvement of the respondents in formal organization either as a member or any office bearer. The score ranges from 0 to 3 as mentioned below.

Sl. No.	Social participation	Score
1.	No social participation	0
2.	Members of one organisation	1
3.	Members of more than one organisation	2
4.	Office bearer of any organisation	3

3.5.12. Mass Media Exposure

It has been defined as the tendency of an individual to be in contact with those outside his own community. The mass media exposure refers to the degree with which different mass media sources were utilized to get farm information by the farmers namely Radio, T.V., Newspaper, Farm visit, Poster, Exhibition, Kisan Mela, and Training. The response was noted on a 4-point continuum scale developed by Bandyopadhay (1986) based on how often respondents get the information about improved practices and divided into three categories:

Sl. No.	Mass media exposure	Score
1.	Low (0-5)	1
2.	Medium (6-10)	2
3.	High (11-15)	3

3.5.1.13. Cosmopoliteness

It refers to the mode of communication through which respondents obtained information. It may be obtained from Extension personnel, Local people, Veterinary doctor, Bank personnel, K.V.K.

The response was noted on four point continuum scale developed by Bandyopadhay (1986) based on how often respondents get the information about improved practices divided into three categories:

Sl. No.	Cosmo politeness	Score
1.	Low (0-5)	1
2.	Medium (6-10)	2
3.	High (11-15)	3

3.5.14. Knowledge level of farmers about backyard poultry farming

Refers to the information possessed by the respondents which are in accordance with established facts with respect to poultry farming. Measurement of respondent's knowledge was referred to acquisition to information in different sub distinctive areas related to backyard poultry farming practices based on the schedule and scale developed by Goswami (2014). The summation of the scores of all items in the different sub- distinctive areas of a particular respondents indicates his/her level of knowledge about backyard poultry farming practices.

Sl. No.	Knowledge	Score
1.	Low (0-3)	1
2.	Medium (4-6)	2
3.	High (7-10)	3

C. TRAINING NEED ASSESSMENT

A training need assessment schedule consisting of five main areas viz. Housing management, Feeding management, Breeding management, Health care and Marketing strategies were prepared to assess the training need of the poultry farmers. The training need of the poultry farmers were measured on the basis of their perception with the help of three point rating scale. The points of rating scale with their scores are given below:

Sl. No.	Training Need Assessment	Score
1.	Mostly needed	3
2.	Moderately needed	2
3.	Less needed	1

3.6 Statistical Tools

The data thus collected were scored, tabulated and analysed to approve or disapprove the aforementioned hypotheses formed as per the set objectives of the study. The data was analysed using following statistical tools.

3.6.1. Percentages

Percentages were calculated to show the distribution of the sample across different degrees/levels with regards to different variables.

3.6.2. Arithmetic Mean

Arithmetic mean was obtained by adding up all the scores and dividing their total by number of observations.

3.6.3. Standard Deviation

Standard deviation is the most widely used measure of dispersion of a series. It is defined as the square root of arithmetic mean of the squares of deviations of individual observations from their arithmetic mean. It was worked out by the following formula:

$$s = \sqrt{\frac{\sum(x - \bar{x})^2}{n - 1}}$$

Where,

S= Standard Deviation

x = Individual observations

$\bar{x}$ = Mean of X values

n = Number of items

3.6.4. Co-efficient of correlation:

The co-efficient of correlation between independent variables and dependent variables were calculated with the help of co-efficient of correlation with the formula given under

$$r = \frac{(N\sum XY - [\sum(X) - (\sum Y)])}{\sqrt{(N\sum x^2 - (\sum X)^2 \times [\sum y^2 - (\sum Y)^2])}}$$

Where,

r = co-efficient of correlation.

X = score of independent variables

Y = Score of dependent variables

Mx = Mean of x series

My = Mean of y series

N = Total number of respondents

Σx^2 = sum of squared x value

Σy^2 = sum of squared y value

(Snedecor and Cochran, 1967)

The values of the various statistical tests used to check the level of significance, were compared with the critical values give in the statistical tests. If calculated value is more than table value, it shows that there is significant difference in means/percentages.

In Bihar, 300 respondents belonging to three sample districts namely, Muzaffarpur, Darbhanga, Nalanda were elicited and analysed for training need assessment of backyard poultry farmers. It was done with all the detailed information relating to socio-personal, psychological and situational characteristics of poultry farmers, their training methods and desired techniques. Besides, training objectives, expectations and training evaluation processes were also considered. Respondents were also asked to indicate their views with respect to scoring objectives and evaluation process for relevant findings. Statistical tools were used for precise conclusion.

Need assessment process is vital which helps identifying desired training module to be made to provide desired information to the participants which will be compatible with their expectations from the training programme.

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Results and Discussion

Chapter - 4

RESULTS AND DISCUSSION

The present chapter deals with findings and discussion. Such information will provide an overview of the backyard poultry farmers and consequently their training needs. The information would provide an insight into the different training areas for sustainable backyard poultry entrepreneurship development. The findings also suggest for identification of various constraint faced by the poultry farmers and formulation of appropriate training module in different identified areas. For the convenience of presentation, the findings have been dealt under following sections:

4.1 Socio- personal and psychological characteristics of respondents

4.2. Training needs identification in selected areas of training

4.3 Correlation between training needs and socio-personal and psychological characteristics of the respondents.

4.4 Constraints faced by poultry farmers.

4.1. Socio- personal and psychological characteristics of the respondents:

This section deals with socio-personal, socio-psychological characteristics of the respondents taken under study. The distribution of the respondents are as follows:

4.1.1. Age

Age of respondents is most important variables which determines the level of entrepreneurship. It helps to understanding of their views about adoption of any entrepreneurship. Large age indicates level of maturity of individuals in that sense age becomes more important to examine the response.

Table 1. Distribution of the respondents according to their Age (N=300)

Sl. No.	Age (years)	Muzaffarpur (n = 100)	Darbhanga (n = 100)	Nalanda (n= 100)	Total (N =300)
1.	Young (18-35)	35 (35)	29 (29)	35 (35)	99 (33.00)
2.	Middle(36-55)	44 (44)	60 (60)	53 (53)	157 (52.33)
3.	Old (> 55)	21 (21)	11 (11)	12 (12)	44 (14.67)

(Figures in parenthesis indicates percentage)

Table 1 reveals that the majority of the respondents (52.33%) falls into the middle age category followed by 33.00 per cent in young age category and 14.67 percent belonging to old age category. This might be due to the reason that middle age group people are in stage of earning, have livelihood responsibility and are in immediate need of money, so they recognize BYPF as an instant cash profitable business and are directionally motivated for such improved practices, young respondents considers BYPF as attractive new venture and a future source of income and can decide it for doing in near future whereas old age group people are less interested may be due to their unwillingness, less energetic and less knowledge about the new venture.

These findings are in agreement with Nanjesh (2010), Razzaq et al (2011), Deka P. et al (2013) and Bibhu (2015), as they also found that the majority of the backyard poultry farmers belonged to middle age category.

4.1.2. Sex

Sex is an important variable which is variably affected to many social or economic phenomenon. It is divided in male and female and shows the involvement of any section in practising the enterprise.

Table 2. Distribution of the respondents according to their sex (N=300)

Sl. No.	Sex	Muzaffarpur (n=100)	Darbhanga (n=100)	Nalanda (n=100)	Total (N=300)
1.	Male	46 (46)	43 (43)	40 (40)	129 (43.00)
2.	Female	54 (54)	57 (57)	60 (60)	171 (57.00)

(Figures in parenthesis indicates percentage)

In Table 2 pooled data depicts that majority of the respondents (57.00%) were female followed by 43.00 percent of the respondents belonged to male, which indicates that the female dominated the enterprise. It might be evident from the study that the female shows more participation as they are much involved in household chores and they get plenty spare times and this farming can be done with little knowledge and no special skill is required.

These findings were in agreement with the findings of Deka P.et al (2013), Oladunni (2014) and Sunita (2017) that the maximum numbers of the backyard poultry farmers belonged to female category.

4.1.3 Family type

The type of the family in which a person lives and gets socialized has immense importance in deciding his values, beliefs, and behaviours pattern which are likely to affects his or her attitudes towards a particular entrepreneurship. The family type plays its own role in giving the response of an individual and therefore it is thought important to understand the family type of the respondents.

Table 3. Distribution of respondents according to their family type (N=300)

Sl. No.	Family type	Muzaffarpur (n=100)	Darbhanga (n=100)	Nalanda (n=100)	Total (N=300)
1.	Nuclear	39 (39)	42 (42)	34 (34)	115 (38.33)
2.	Joint	61 (61)	58 (58)	66 (66)	185 (61.67)

(Figures in parenthesis indicates percentage)

The findings depicts that majority of the respondents about (61.67%) had joint family type and only 38.33 percent had nuclear family type. In joint family the women and children of household get sufficient time to take up BYPF as other household works were shared by other members of the family, as less time and labour demanding work. These findings shows that the trend of joint family increasing for practising backyard poultry farming.

Similar trends have been observed by Deka P. et al (2013), Pratap et al (2017) and Raj Kumar et al (2017) during their studies in BYPF in different part of India.

4.1.4 Family size

Family size refers to the total number of individuals in a family, from demographic perspective. It refers to the numbers of members in the respondent's family.

Table 4. Distribution of respondents according to their family size (N=300)

Sl. No.	Family Size (in no.)	Muzaffarpur (n=100)	Darbhanga (n=100)	Nalanda (n=100)	Total (N=300)
1.	Small (Up to 5)	48 (48)	45 (45)	48 (48)	141 (47.00)
2.	Large (Above 5)	52 (52)	55 (55)	52 (52)	159 (53.00)

(Figures in parenthesis indicates percentage)

Table 4 reveals that majority (53.00%) of the respondents had a family size of more than 5 members in a family whereas 47.00 percent of the respondents had family size of up to 5 members. It is evident from the study that in large family size, the women children and other olderly persons get the sufficient time for BYPF due to its less time and labour consuming nature.

These findings are in line with the observed findings of Deka P. et al (2013), Fatuase (2014) and Pratap et al (2017) which shows the similar results.

4.1.5. Educational qualification

Education is one of the most important characteristics that have direct effect on the individual's attitudes, their way of looking and understanding on any particular social phenomena. Different traits of entrepreneurship have significant positive relationship with the individual's education status. So, the response of any individual towards BYPF is likely to be determined by his educational status and therefore it become imperative to know the educational background of the respondents.

Table 5. Distribution of respondents according to their educational qualification (N=300)

Sl. No.	Educational level	Muzaffarpur (n=100)	Darbhanga (n=100)	Nalanda (n=100)	Total (N=300)
1.	Illiterate	04 (04)	02 (02)	02 (02)	08 (2.67)
2.	Can read only	15 (15)	01 (01)	02 (02)	18 (6.000
3.	Can read & write	19 (19)	03 (03)	04 (04)	26 (8.66)
4.	Primary school	31 (31)	17 (17)	15 (15)	63 (21.67)
5.	Middle school	07 (07)	27 (27)	25 (25)	59 (19.67)
6	High school	18 (18)	46 (46)	48 (48)	112 (37.33)
7.	Graduation	06 (06)	04 (04)	04 (04)	14 (4.67)

(Figures in parenthesis indicates percentage)

The pooled data reveals that the majority of the respondents (37.33%) had education up to high school level followed by 21.67 percent respondents had education up to primary level, 19.67 percent of the respondents had education up to middle school level and only 4.67 percent of the respondents had education up to graduation level. It can be seen that maximum number of respondents were educated till high school education level. It depicts that BYPF can be done even with less knowledge and low educational level. So, transfer of technology for BYPF can be concentrated more to people belonging to primary to high school level of education. So, that it can be easily adopted by the community.

The findings are in line with the observations of Razzaq et al (2011), Bibhu (2015), Pratap et al (2017) and Rajkumar et al (2017) as they also found that majority of the farmers had education up to high school level, during their studies on BYPF in different regions of India.

4.1.6. Land holding

Land holding distribution shows how much land does the respondent possess. Land holding describes the background of the respondents whether they come from agricultural, labour or animal husbandry background.

Table 6. Distribution of the respondents according to their land holding

(N = 300)

Sl. No.	Land holding	Muzaffarpur (n=100)	Darbhanga (n=100)	Nalanda (n=100)	Total (N=300)
1.	Landless	21 (21)	27 (27)	33 (33)	81 (27.00)
2.	Marginal (up to 1 ha.)	49 (49)	46 (46)	52 (52)	147 (49.00)
3.	Small (1.1-2 ha.	30 (30)	27 (27)	15 (15)	72 (24.00)

(Figures in parenthesis indicates percentage)

The data in table 6 depicts the distribution of respondents as per their land holding in the study area. Pooled data revealed that 49 per cent of the respondents belonged to marginal land holding size followed by 27.00 and 24.00 per cent belonging to landless and small land holding size respectively. This might be due to the fact that even landless and marginal farmers can adopt BYPF as it requires less space. People can utilize their backyard space for scavenging and their house for night shelter .It also requires less capital therefore, this BYPF is easily adopted by landless and marginal community.

These findings are similar to Saha (2003) and Mandal et al (2006) that majority of the respondents had marginal land followed by landless respondents and small land holding respectively.

4.1.7 Occupation

Occupation of any respondents refers the mean of livelihood for a person or a family. Person occupation do have a bearing of an individual also socialised him or her in a particular fashion which in turn reflects his/ her pattern of behaviour of his /her level of understanding and practising any entrepreneurship.

Table 7. Distribution of the respondents according to their main occupation (N = 300)

Sl. No	Occupation	Muzaffarpur (n=100)	Darbhanga (n=100)	Nalanda (n=100)	Total (N=300)
1.	Labour	33 (33)	27 (27)	24 (24)	84 (28.00)
2.	Agriculture	49 (49)	31 (31)	58 (58)	138 (46.00)
3.	Animal Husbandry	11 (11)	20 (20)	15 (15)	46 (15.33)
4.	Business	03 (03)	09 (09)	02 (02)	14 (4.67)
5.	Service	04 (04)	13 (13)	01 (01)	18 (6.00)

(Figures in parenthesis indicates percentage)

The data in table. 7 reveals that the agriculture provide primary occupational livelihood for the majority (46.00%) of the BYPF followed by 28.00, 16.00, 6.00 and 4.00 per cents of the BYPF were getting primary occupation from labour, animal husbandry, services and business respectively.

Poultry breeds reared for BYPF purposes can be reared on agricultural by-products. These birds can be maintained on green leaves, insects, vegetable by-products etc. which is easily available in agricultural system. It may be the reason for higher no. of agricultural farmer were found involved in BYPF. BYPF is conceptualised as low input and high output system. It can be easily affordable and maintained with agricultural labourers. However, 28 per cent of the respondents were from labourers category. It was perhaps due to the fact that the rural labourers requires subsidiary income for their livelihood for which the backyard poultry farming might be one of the important source of income generation because it can be done even by their other family members viz., women and children in spare time as subsidiary occupation. Other respondents having primary occupation Animal Husbandry, Business and Service were found less involved on BYPF mainly due to shortage of time.

Similar trends were observed by Deka P. et al (2013), Pratap et al (2017) and Rajkumar et al (2017) in their research study that majority of the BYPF were having agriculture as primary occupation.

4.1.8. Flock Size

Flock size refers to the total numbers poultry birds possessed by the respondents.

Table 8. Distribution of the respondents according to flock size (N=300)

Sl. No.	Flock Size	Muzaffarpur (n=100)	Darbhanga (n=100)	Nalanda (n=100)	Total (N=300)
1.	Small (1-10)	49 (49)	12 (12)	16 (16)	77 (25.67)
2.	Medium(11-20)	43 (43)	57 (57)	47 (47)	147 (49.00)
3.	Large (>20)	08 (08)	31 (37)	37 (37)	76 (25.33)

(Figures in parenthesis indicates percentage)

Table- 8 shows that the majority of respondents (49.00%) of the respondents had the flock size of medium (11 to 20) poultry birds followed by 25.67 percent of the respondents having flock size of small (1-10) and 25.33 percent of respondents having more than 20 poultry birds. The flock size maintained by majority of the farmers were in medium to small flock size. One of the main reason for preferring medium flock size by the community might be they were of landless or marginal land having less income. The sharp decline in per capita land in the district under study was another reason for smaller flock size.

The findings are in conformity with Mandal et al (2006) and Dumarya et al (2015) who also found medium to small flock size for BYPF.

Fig. 1 Distribution of respondent according to their Age

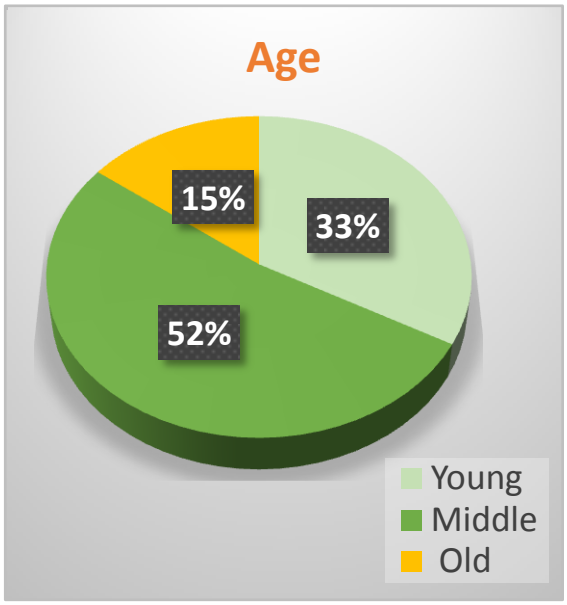


Fig. 2 Distribution of respondent according to their Sex

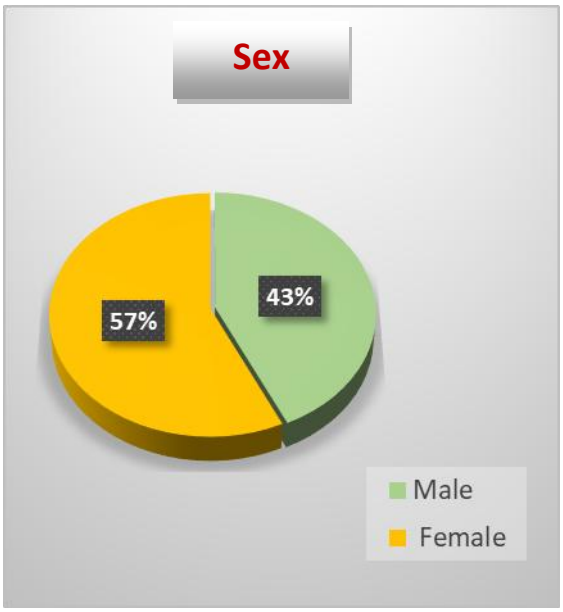


Fig. 3 Distribution of respondent according to their Family type

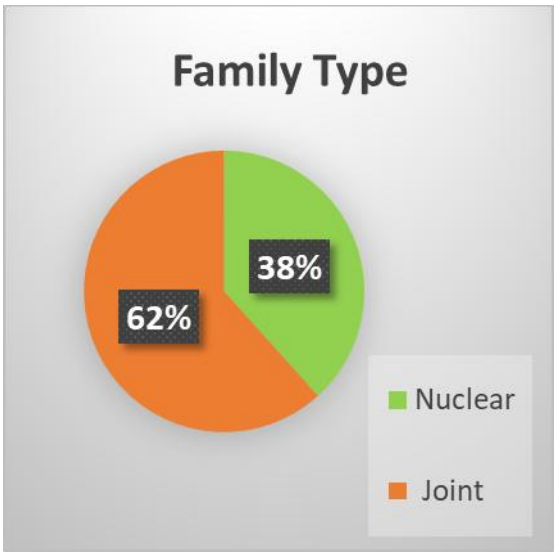


Fig. 4 Distribution of respondent according to their Family size

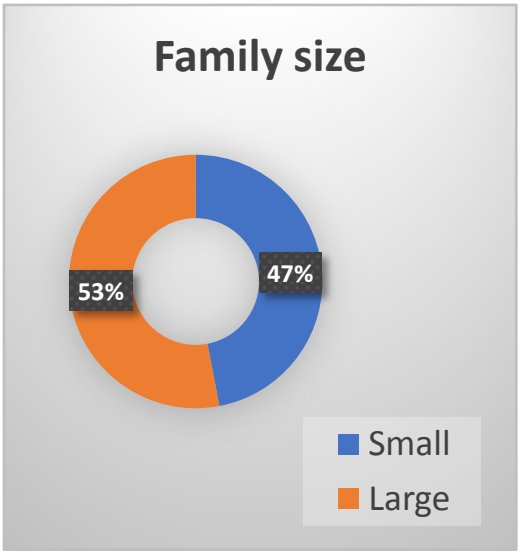


Fig. 5 Distribution of respondent according to their Educational Level

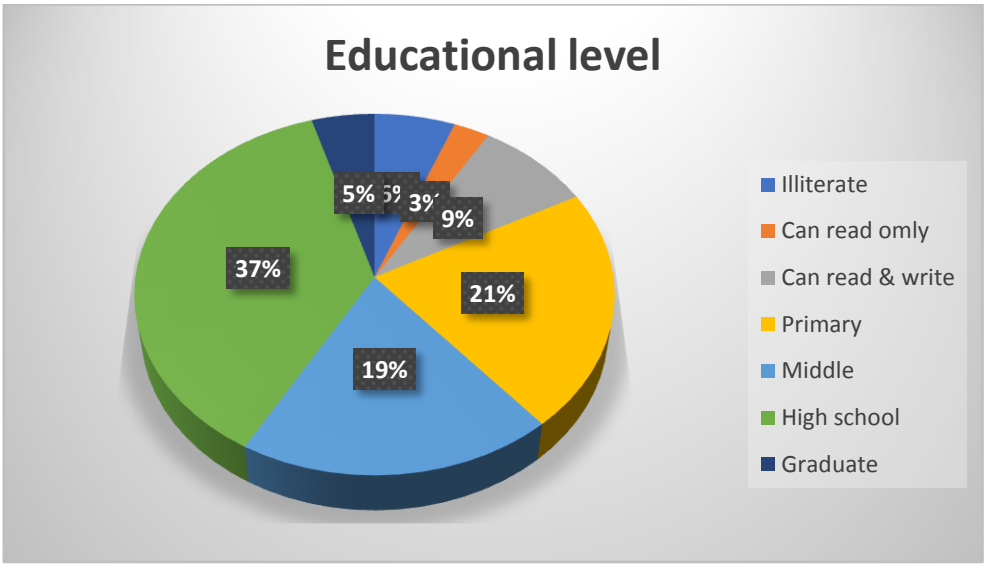


Fig. 6 Distribution of respondent according to their Land Holding

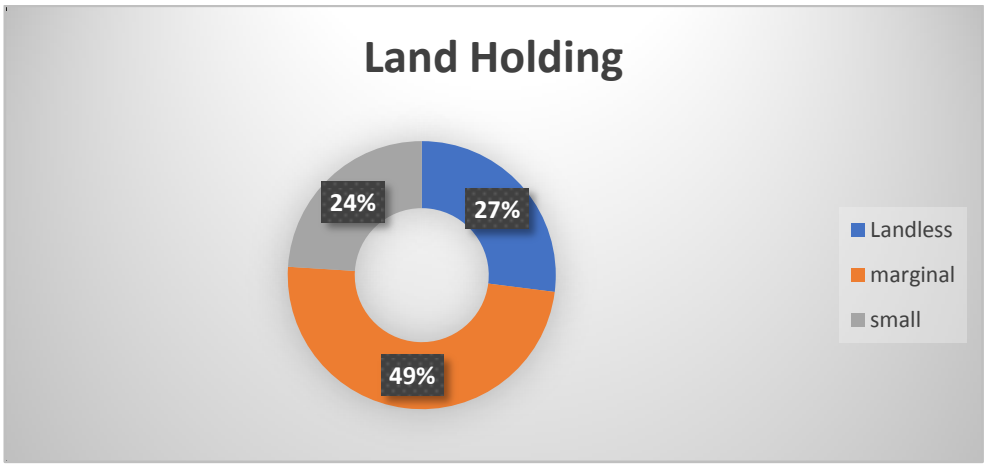


Fig. 7 Distribution of respondent according to their Occupation

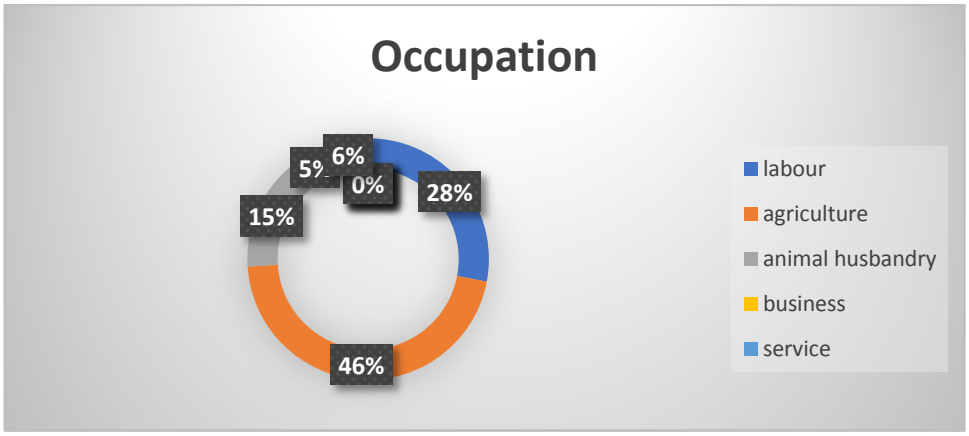
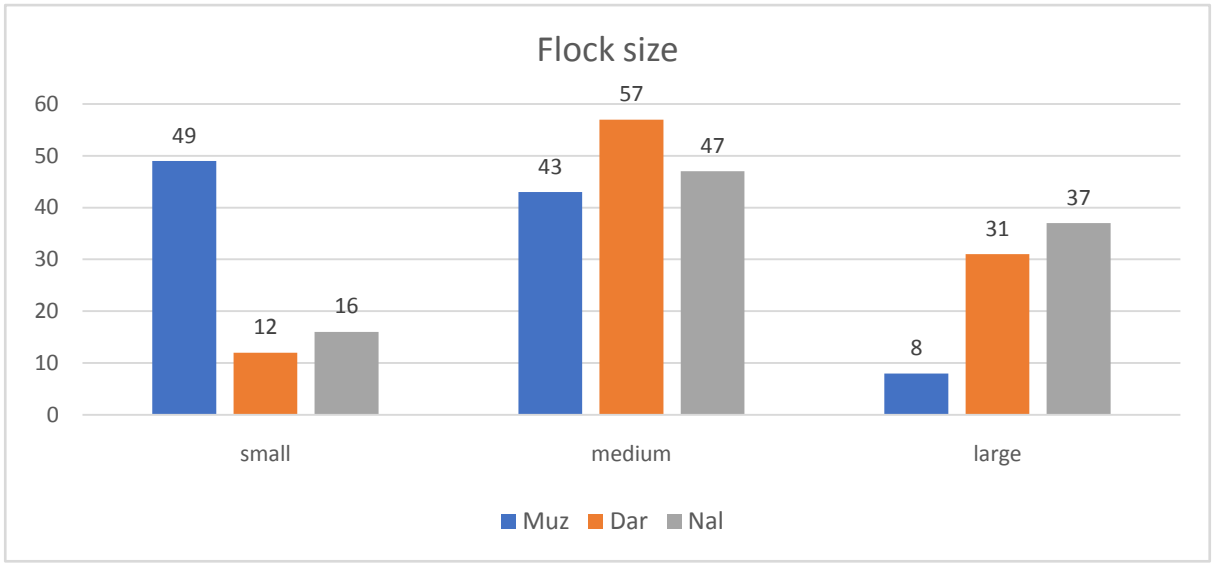


Fig. 8 Distribution of respondent according to their Flock size



4.1.9. Annual income from backyard poultry farming

Income of a person plays an important role in shaping the economic condition of the households. Total annual income refers to the total income of the respondents in rupees derived from the BYPF within a year

Table 9. Distribution of the respondents according to their annual income from backyard poultry farming (N=300)

Sl. No.	Annual income (Rs.)	Muzaffarpur (n=100)	Darbhanga (n=100)	Nalanda (n=100)	Total (N=300)
1.	Low (10,000-20,000)	37 (37)	29 (29)	49 (49)	115 (38.33)
2.	Medium (20,000-30,000)	47 (47)	51 (51)	44 (44)	142 (47.33)
3.	High (above 30,000)	16 (16)	20 (20)	07 (07)	43 (14.34)

(Figures in parenthesis indicates percentage)

Table 9 pooled data revealed that the majority (47.33%) of the respondents had medium level of annual income derived from BYPF followed by low 38.33 per cent and 14.34 per cent of the respondents were in the low and high annual income group from the BYPF. Income from BYPF comes in terms of eggs and meat which can be easily sold out in local market as people has better preference for these product over the commercial eggs and chicken meat. However, a very low high income was observed might be due to the fact that the respondents prefer to rear flock size of 11-20 birds, as it was evident by Table no. 8.

The findings are in line with the findings of Rajkumar (2017), who reported in study that majority (43.33%) of the respondents had medium level of annual income and Dumarya et al (2015) who reported in their findings that majority (58.70%) of poultry farmers belong to low income group Rs. 2500- 5000 per month.

4.1.10. Annual income from other sources

It refers to the total annual income of the respondents obtained from main and other subsidiary occupation within a year. This income is derived from land, dairy farming, business and others.

Table 10. Distribution of the respondents according to their annual income from other sources (N=300)

Sl. No.	Annual income from other sources (rupees)	Muzaffarpur (n=100)	Darbhanga (n=100)	Nalanda (n=100)	Total (N=300)
1.	Low (Rs. 20,000-30,000)	42 (42)	49 (49)	20 (20)	105 (35.00)
2.	Medium (Rs. 30,000-40,000)	47 (47)	41 (41)	56 (56)	150 (50.00)
3.	High (Rs. Above 40,000)	11 (11)	10 (10)	24 (24)	45 (15.00)

(Figures in parenthesis shows percentage)

Table-10 reveals that majority (50.00%) of the respondents had medium level of annual income from other sources followed by low (35.00%) and high (15.00%) annual income from other sources respectively. This might due to the fact that mostly the respondents were labourers and from agriculture background and also they earn money from other sources.

These findings are in agreement with the findings of Kumtakar (1999b) stated that more than 80% earned up to Rs.300-800 annually from poultry whereas a similar percentage earn about Rs.1000-6000 annually from agriculture. Agriculture earning being many times more, poultry is an important supplementary source of income, but for the landless labourers, poultry is an important source of income

B. Socio-behavioural profile of the respondents:

4.1.11 Social Participation

Social participation of a person is a variable which shows the degree of involvement of respondents in formal organisation as member and or office bearers. This is likely to have an impact on this views and attitudes about adoption of any entrepreneurship.

Table 11. Distribution of the respondents according to their Social participation (N=300)

Sl. No.	Social participation	Muzaffarpur (n = 100)	Darbhanga (n = 100)	Nalanda (n= 100)	Total (N =300)
1.	No social participation	52 (52)	10 (10)	10 (10)	72 (24.00)
2.	Member of one organization	35 (35)	48 (48)	41 (41)	124 (41.33)
3.	Member of more than one organisation	4 (04)	30 (30)	34 (34)	68 (22.67)
4.	Office bearer of any organization	9 (09)	12 (12)	15 (15)	36 (12.00)

(Figures in parenthesis shows percentage)

The data in Table 11 depicts the social participation of the respondent. Pooled data revealed that the majority (41.33%) of the respondents had membership of one organisation and 24.00 per cent of respondents having no social participation followed by 22.67 percent of the respondents were member of more than one organisation and 12.00 percent of the respondents were office bearer of any organisation. From the above pooled data it was revealed that about 40.00 per cent of the respondents were having membership of at least one organisation. This might be due to the fact that respondent's background was agriculture and animal husbandry, and there were Primary Agricultural Co-operative Societies (PACS), District Co-operative Societies (DCS), Self Help Groups (SHGs), Joint Liability Group (JLG), Agricultural Technology Management Agency (ATMA) Club like organisation are functional in their area and they are actively involved with those organisation for their economic benefit.

These findings are in agreement with findings of Bibhu (2015) who stated that the majority of the respondents were member of poultry association (55.00%) and village panchayat (20.00%) followed by cooperative society (17.00%), socio-cultural (14.00%) and labour organisation (11.00%).

4.1.12 Mass Media Exposure

Mass media information is the extent of individual exposure to the various mass media like radio, television, newspapers, farm visit etc. These were relevant for the area under investigation and finalized after discussion with the corresponding respondents.

Table 12. Distribution of the respondents according to their Mass media exposure (N = 300)

Sl. No.	Mass media exposure	Muzaffarpur (n = 100)	Darbhanga (n = 100)	Nalanda (n = 100)	Total (N = 300)
1.	Low (0-5)	47 (47)	50 (50)	42 (42)	139 (46.00)
2.	Medium (6-10)	39 (39)	32 (32)	28 (28)	99 (33.00)
3.	High (11-15)	14 (14)	18 (18)	30 (30)	62 (21.00)

(Figures in parenthesis shows percentage)

Table 12 reveals that majority (46.00%) of the respondents had low access to mass media followed by 33.00 per cent having medium access to mass media sources and 21.00 per cent of the respondents having high exposure to mass media sources. This might be evident due to the fact large number of the respondents belong to poor community, they earn low income and they had low accessibility to the various mass media resources.

These findings are in agreement with the findings of Pratap (2017), stated that majority of the poultry farmers had medium to low level of mass media exposure however Saha (2003), revealed that the majority backyard poultry farmers never used media sources for getting relevant information.

4.1.13 Cosmopoliteness

The cosmopolite sources of information considered for the present study were specialist from extension personal, veterinary doctor, veterinary field assistant, bank personal and Krishi Vigyan Kendra etc. These were relevant for the area and were finalised after discussion with the experts.

Table 13. Distribution of the respondents according to their cosmopolite nature (N = 300)

Sl. No.	Cosmo politeness	Muzaffarpur (n=100)	Darbhanga (n=100)	Nalanda (n=100)	Total (N = 300)
1.	Low (0-5)	47 (47)	51 (51)	29 (29)	127 (42.33)
2.	Medium (6-10)	39 (39)	26 (26)	41 (41)	106 (35.33)
3.	High (11-15)	14 (14)	23 (23)	30 (30)	67 (22.34)

(Figures in parenthesis shows percentage)

The present table reveals that the majority (42.33%) of the respondents were found to have low level in their cosmopoliteness followed by 35.33 per cent of the respondents had medium level of their cosmopoliteness and were found to have low level in their cosmopoliteness followed by 35.33 per cent of the respondents had medium level of their cosmopoliteness and only about 22.34 per cent were having high level of cosmopoliteness. Pooled data revealed that more than 40 per cent were having low exposure in term of their cosmopoliteness. It might be probably due to their less educational level and less knowledge about local resources for getting appropriate information in time.

These findings are in contrary with the findings of Bibhu (2015) who reported that the only 38.88 per cent respondents contacted weekly with block level official and 7.77 per cent field level extension functionaries.

4.1.14 Knowledge level of the respondents of backyard poultry farming

Table 14. Distribution of the respondents according to their knowledge level in Housing management area of backyard poultry practices (N=300)

Sl. No.	Housing knowledge	Muzaffarpur (n=100)	Darbhanga (n=100)	Nalanda (n=100)	Total (N=300)
1.	Low (0-3)	21 (21)	33 (33)	21 (21)	75 (25.00)
2.	Medium (4-6)	31 (31)	46 (46)	30 (30)	107 (35.67)
3.	High (7-10)	48 (48)	21 (21)	49 (49)	118 (39.33)

(Figures in parenthesis shows percentage)

The above Table 14 shows that the majority (39.33%) of the respondents had high knowledge regarding housing management followed by about 35.67 per cent of the respondents having medium knowledge and 25.00 per cent of the respondents had low knowledge. This might be due to the fact that backyard poultry is done mostly in free-range and had the knowledge of roofing materials, flooring, litter bed and proper ventilation. However, Nalanda district possess large no. of the respondents having high knowledge might be due to it is situated close to Patna from where respondents have greater access to the institutional services.

Table 15. Distribution of the respondents according to their knowledge level in Feeding management area of backyard poultry practices (N=300)

Sl. No.	Feeding knowledge	Muzaffarpur (n=100)	Darbhanga (n=100)	Nalanda (n=100)	Total (N=300)
1.	Low (0-3)	20 (20)	23 (23)	33 (33)	76 (25.33)
2.	Medium (4-6)	27 (27)	49 (49)	41 (41)	117 (39.00)
3.	High (7-10)	53 (53)	28 (28)	23 (23)	104 (34.67)

(Figures in parenthesis shows percentage)

The data in Table 15 depicts the knowledge level of the respondents in feeding management area of the backyard poultry. Pooled data reveals that about 39.00 per cent of the respondents had medium level of knowledge followed by 34.67 per cent had high level of knowledge and only 25.33 per cent had low level of knowledge. However, collectively about 64 per cent of the respondents had low to medium level of feeding knowledge. This might be evident due to

the fact that mostly in BYPF, the poultry birds are mostly reared upon vegetable waste and kitchen residue. They do not require any essential supplementary feeds.

Table 16. Distribution of the respondents according to their knowledge level in Heath care management area of backyard poultry practices (N=300)

Sl. No.	Health care knowledge	Muzaffarpur (n=100)	Darbhanga (n=100)	Nalanda (n=100)	Total (N=300)
1.	Low (0-3)	32 (32)	53 (53)	21 (21)	106 (35.33)
2.	Medium (4-6)	45 (45)	29 (29)	28 (28)	102 (34.00)
3.	High (7-10)	23 (23)	18 (18)	51 (51)	92 (30.67)

(Figures in parenthesis shows percentage)

The data in the Table 16 clearly indicates the distribution of health care knowledge level of the respondents. Pooled data revealed that the about 35.33 per cent of the respondents were found to have low level of health care knowledge followed by 34.00 per cent had medium level and 30.67 per cent had high level of health care knowledge respectively. Collectively about 70.00 per cent of the respondents had low to medium knowledge level. It might be due to the lack of knowledge regarding vaccination schedule, prophylactic measures for control of severe problems such as high chick mortality rate reduced production etc. However, Nalanda district respondents had high knowledge level in health care amongst the other districts might be due to its location near to Patna city, Bihar veterinary college, Livestock research institutes etc. from where they often get institutional services and health care assistance.

Table 17. Distribution of the respondents according to their knowledge level in Breeding area of backyard poultry practices (N=300)

Sl. No.	Breeding knowledge	Muzaffarpur (n=100)	Darbhanga (n=100)	Nalanda (n=100)	Total (N=300)
1.	Low (0-3)	67 (67)	69 (69)	53 (53)	189 (63.00)
2.	Medium (4-6)	27 (27)	21 (21)	30 (30)	78 (26.00)
3.	High (7-10)	06 (06)	10 (10)	17 (17)	33 (11.00)

(Figures in parenthesis shows percentage)

The data in above Table 17 indicates the distribution of breeding practices knowledge level of the respondents. It revealed that about 63.00 per cent of the respondents were found to have low level of knowledge level in breeding area followed by 26.00 per cent had medium level and only 11.00 per cent had high level of breeding practices knowledge respectively. Collectively about more than 85.00 per cent of the respondents had low to medium knowledge level. It might be due to the lack of knowledge regarding brooding of hen, hatchability of eggs, culling of non- brooding hens and selection of breeds etc. However Nalanda district's respondents possess considerable medium to high level of knowledge amongst the other district might be due to its location near to Patna city, Bihar veterinary college etc. from where they often get institutional support for rearing of backyard poultry.

Table 18. Distribution of the respondents according to their knowledge level in marketing strategies of backyard poultry practices (N=300)

Sl. No.	Marketing knowledge	Muzaffarpur (n=100)	Darbhanga (n=100)	Nalanda (n=100)	Total (N=300)
1.	Low (0-3)	34 (34)	57 (57)	37 (37)	128(42.67)
2.	Medium (4-6)	44 (44)	27 (27)	29 (29)	100 (33.33)
3.	High (7-10)	22 (22)	16 (16)	34 (34)	72 (24.00)

(Figures in parenthesis shows percentage)

The above Table 18 depicts the knowledge level of the respondents in marketing area of the backyard poultry practices. The pooled data reveals that the majority (42.67%) of the respondents had low marketing knowledge level followed by 33.33 per cent of the respondents had medium knowledge level and 24.00 per cent had high knowledge level in

marketing area. Collectively it is revealed that about 75.00 per cent of the respondents had low to medium knowledge level in marketing strategies of the backyard poultry. It might be due to the reason that the respondents lack the knowledge regarding the nutritional value of the eggs and the meat products while deciding the market price of the products. Eventually they sell their products at very minimal price and are unable to make profit from the products.

4.1.14.1 Overall knowledge level of the respondents regarding backyard poultry farming:

For the calculation of the overall knowledge the score of each individual knowledge component (Housing management, Feeding management, Breeding management, Health care management and Marketing strategies) was summed up and converted into the index with the given formula:

$$I_K = \frac{\bar{X} - X_{min}}{X_{max} - X_{min}}$$

Where,

I_k = overall knowledge index

$\bar{X}$ = mean value of the observed knowledge score

X_{min}= minimum value of the observed knowledge score

X_{max}= maximum value of the observed knowledge score

Further, the knowledge index value obtained for each respondents were categorised in three category by equal interval method.

Table 19. Distribution of the respondents according to their overall knowledge level of backyard poultry practices (N=300)

Sl. No.	Overall knowledge	Frequency (Percentage)
1.	Low (0-0.33)	191.32 (38.26)
2.	Medium (0.34-0.66)	168 (33.60)
3.	High (0.67-1.00)	139.67 (27.94)

(Figures in parenthesis shows percentage)

The above Table 19 depicts the distribution of overall knowledge level of the respondents. The pooled data revealed that about 38.26 per cent of the respondents were found to have low level of overall knowledge followed by 33.60 per cent had medium level of overall knowledge and 27.94 per cent respondents had high level of overall knowledge. It is clearly evident that collectively about 70.00 per cent of the respondents had low to medium level of overall knowledge regarding backyard poultry farming.

Fig. 9 Distribution of respondent according to their Annual income from BYPF

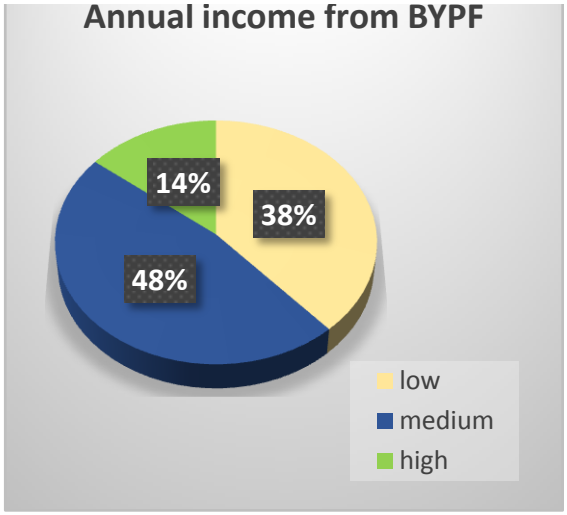


Fig. 10 Distribution of respondent according to their Annual income from Other Sources

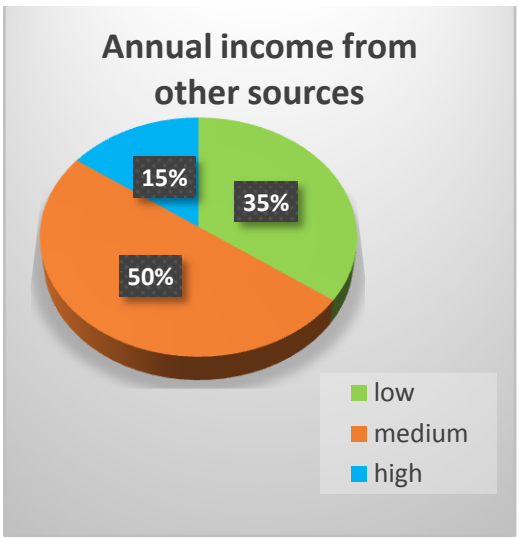


Fig. 11 Distribution of respondent according to their Social Participation

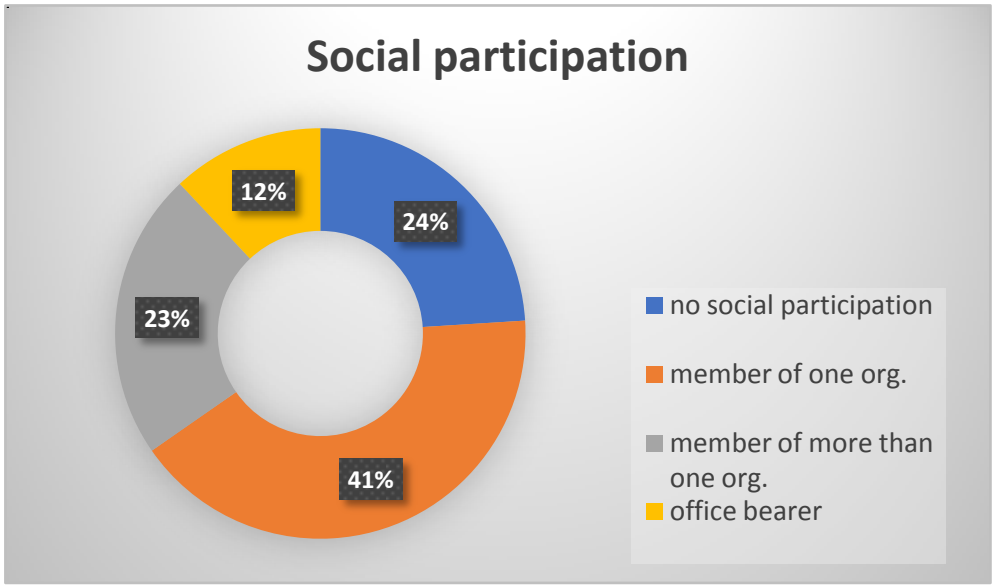


Fig. 12 Distribution of respondent according to their Mass Media Exposure

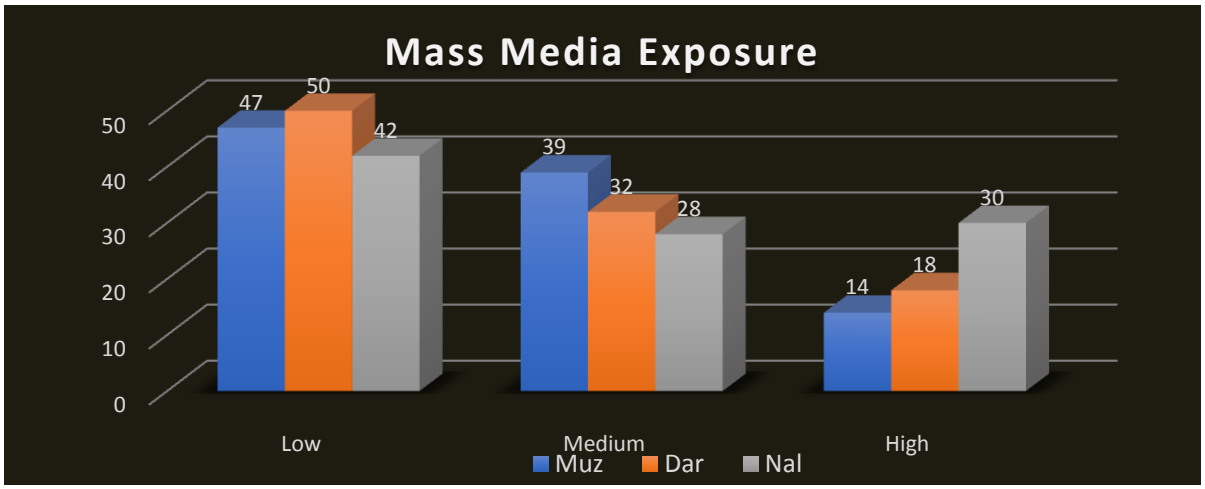


Fig. 13 Distribution of respondent according to their Cosmopoliteness nature

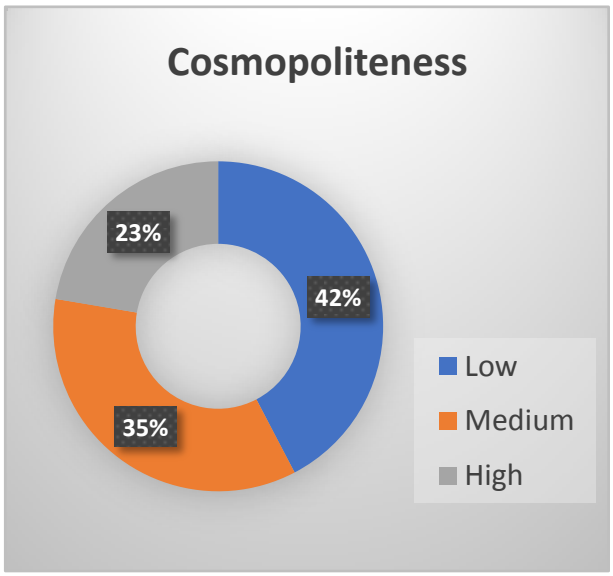


Fig. 14 Distribution of respondent according to their Housing knowledge level

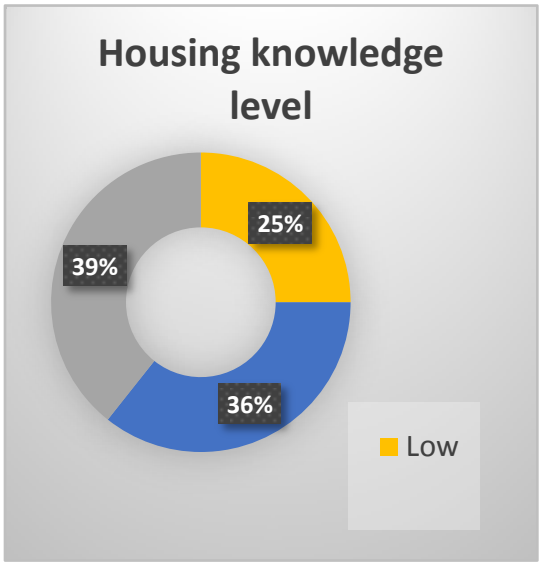


Fig. 15 Distribution of respondent according to their Feeding knowledge level

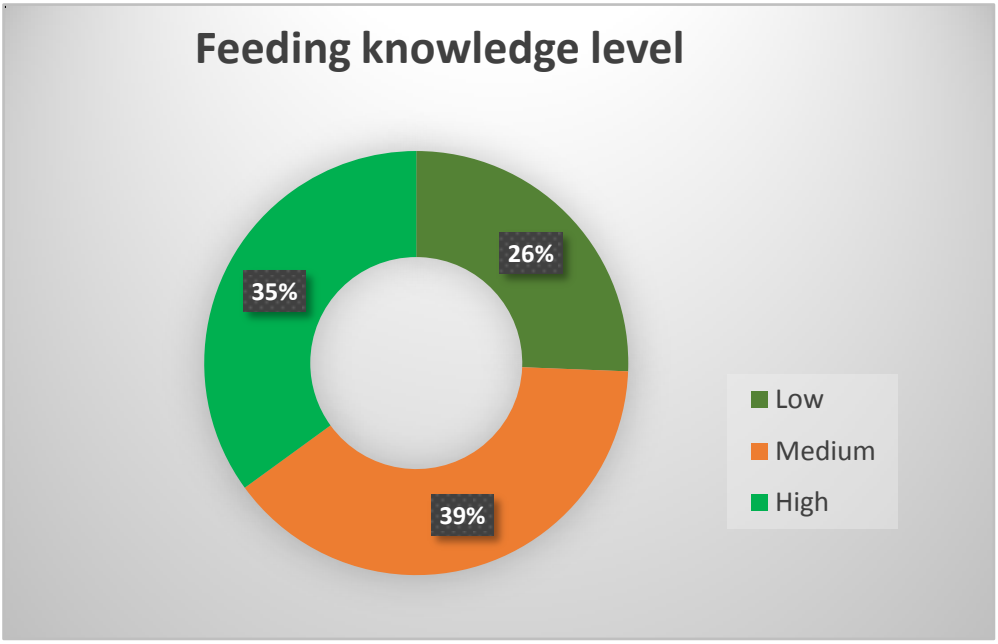


Fig. 16 Distribution of respondent according to their Health care knowledge level

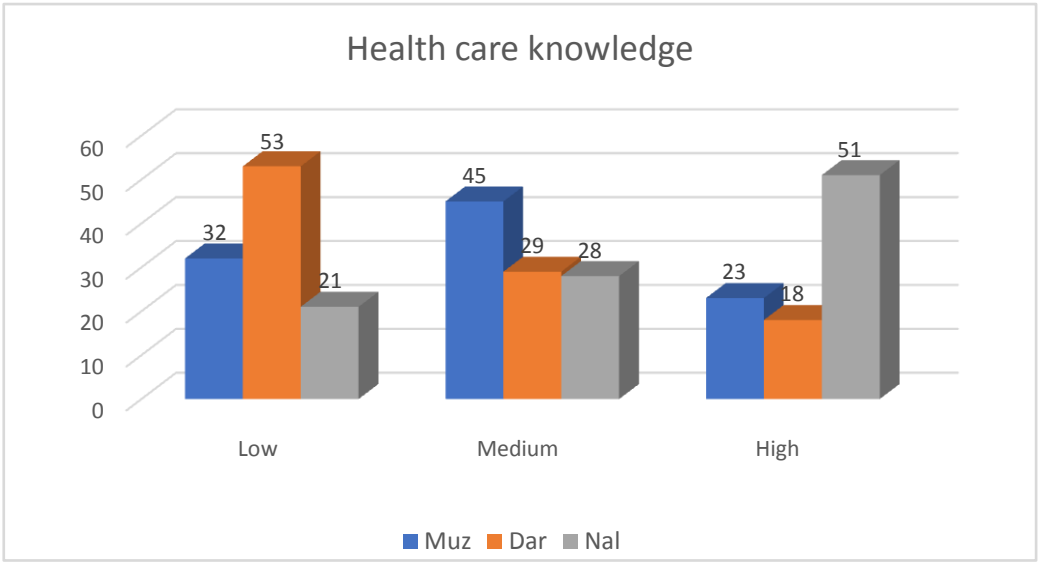


Fig. 17 Distribution of respondent according to their Breeding Knowledge level

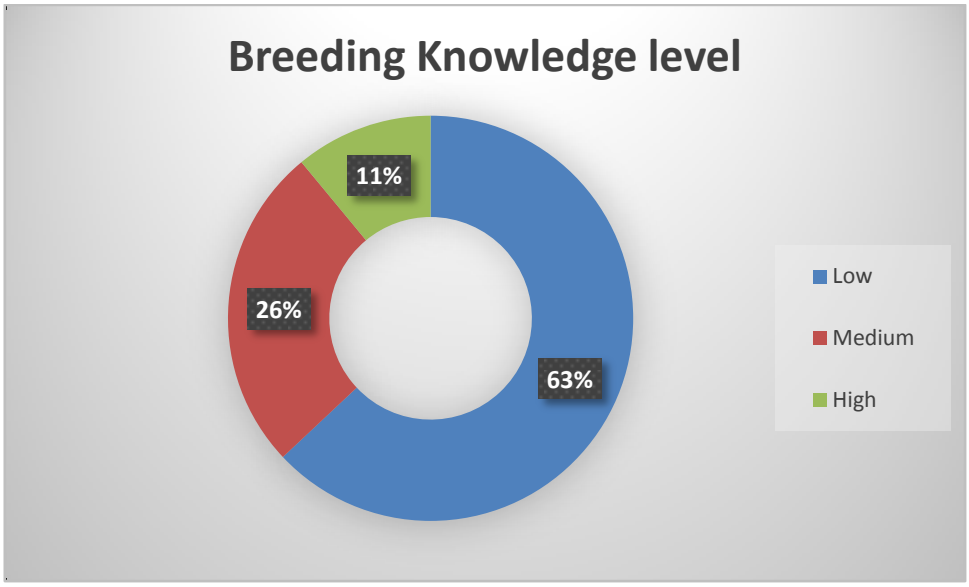


Fig. 18 Distribution of respondent according to their Marketing Knowledge level

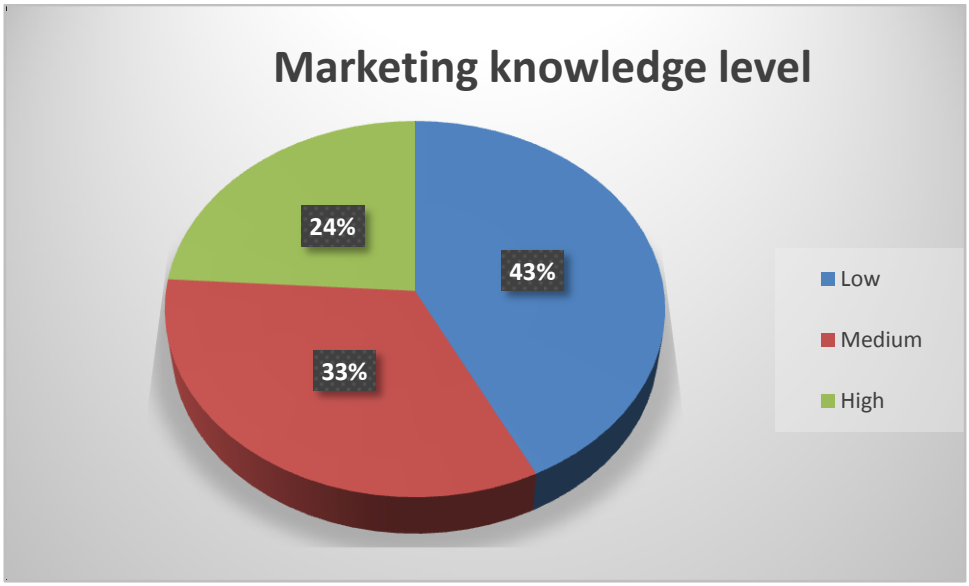
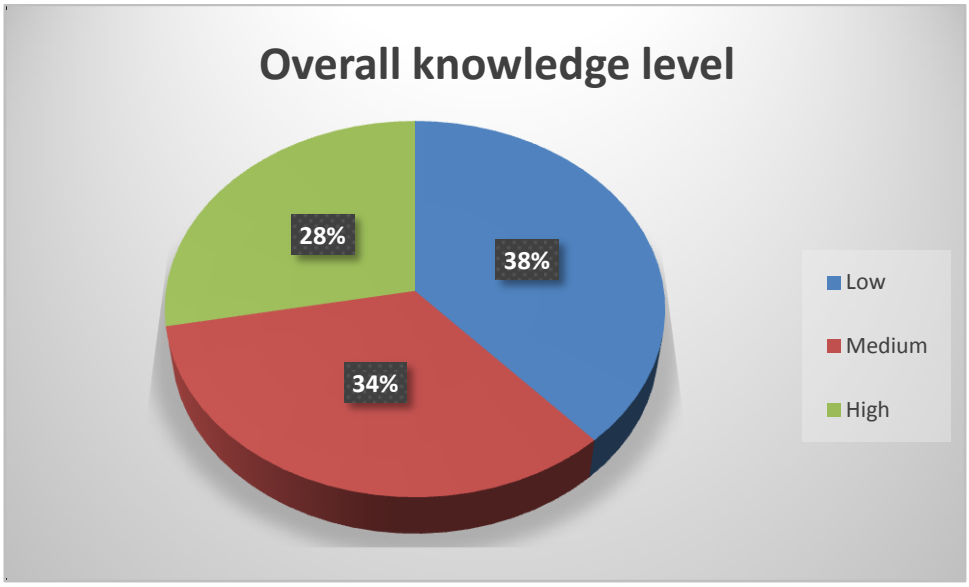


Fig. 19 Distribution of respondent according to their Overall Knowledge level



4.2 Training needs identification in selected areas of training of poultry farmers.

This section deals with the training needs of the poultry farmers. Their training needs for selected areas of training has been assessed in five broad categories viz. housing management, feeding management, breeding management, health care management and marketing strategies. This would provide detailed information to the trainers so that a better course module could be developed for training in the area of poultry sector.

Training is effective and purposeful if it is based on the local needs and requirements. The training will be more effective when training needs of the poultry farmers have been established prior to starting the training programme.

In the present study the training needs was assessed by taking the perception of poultry farmers in the areas of housing, feeding, breeding, health care, and marketing.

After the calculation of Training Need score, Training need index was calculated with the help of formula developed by Sharma et al (2014). The formula is given below:

$$\text{Training Need Index} = \frac{\text{Total training need score for the item}}{\text{Maximum possible score for the item}} \times 100$$

Training Need assessed for each component of BYPF in the form of Training Need Index was categorised with equal interval method in three categories viz.,- less needed, moderately needed, and highly needed.

Sl. No.	**Major Operations**	**Highly Needed (3)**	**Moderately Needed (2)**	**Less Needed (1)**
1.	Housing management			
2.	Feeding management			
3.	Breeding management			
4.	Health care management			
5.	Marketing strategies			

The perceived training need of the backyard poultry farmers in different areas are given below:

Table 20. Training need assessment of backyard poultry farmers in the area of Housing management (N=300)

Sl. No.	Housing management	Muzaffarpur (n=100)	Darbhanga (n=100)	Nalanda (n=100)	Total (N=300)
1.	Less needed (0 –33)	17 (17)	28 (28)	34 (34)	79 (26.33)
2.	Moderately needed (34-66)	51 (51)	64 (64)	49 (49)	164 (54.67)
3.	Highly needed (67-100)	32 (32)	8 (8)	17 (17)	57 (19.00)

(Figures in parenthesis shows percentage)

The above table reveals that majority (54.67%) of the respondents felt that training is moderately needed in housing management area followed 26.33 per cent of the respondents felt that it is less needed and 19.00 per cent felt it as highly needed. This might due to they lack knowledge in housing management. However, collectively 79.00 per cent of the respondents consider training need in housing area as less to moderately needed due to the fact that BYPF does not require any special housing constructional for the poultry birds. They can be reared free- range and in backyard of the houses also. It is also quite evident from the Table 8 and Table 9 that even landless to marginal farmers can do BYPF with an considerable small flock size. This findings are supported by Saha (2003) and Mandal *et al.* (2006)

Table 21. Training need assessment of backyard poultry farmers in the area of Feeding management (N=300)

Sl. No.	Feeding management	Muzaffarpur (n=100)	Darbhanga (n=100)	Nalanda (n=100)	Total (N=300)
1.	Less needed (0-33)	20 (20)	29 (29)	16 (16)	65 (21.67)
2.	Moderately needed (34-66)	57 (57)	41 (41)	53 (53)	151 (50.33)
3.	Highly needed (67-100)	23 (23)	30 (30)	31 (31)	84 (28.00)

(Figures in parenthesis shows percentage)

Pooled data from Table 21 illustrates that about 50.22 per cent of the respondents considers training need to be moderately needed in feeding management followed by 28.00 per cent considers it to be highly needed and 21.67 per cent considers less needed respectively. However, collectively 72.00 per cent considers it to be less to moderately needed. It might be due to the fact that in BYPF, poultry birds can be easily reared and maintained on vegetable and kitchen wastes and other feeding needs is supplemented with scavenging. It is also evident from the Table 15 that respondents had medium feeding knowledge level

Table 22. Training need assessment of backyard poultry farmers in the area of breeding management (N=300)

Sl. No.	Breeding management	Muzaffarpur (n=100)	Darbhanga (n=100)	Nalanda (n=100)	Total (N=300)
1.	Less needed (0-33)	18 (18)	9 (9)	11 (11)	38 (12.67)
2.	Moderately needed (34-66)	31 (31)	44 (44)	30 (30)	105 (35.00)
3.	Highly needed (67-100)	51 (51)	47 (47)	59 (59)	157 (52.33)

(Figures in parenthesis shows percentage)

The data in the Table 22 depicts the training need characteristics of the respondents. Pooled data revealed that the about 52.33 per cent of the respondents considers training need in breeding area as highly needed followed by 35.00 per cent perceiving it moderately needed and 12.67 per cent of the respondents considering it to be less needed. Collectively more than 85.00 per cent of the respondents considers it to be moderate to highly needed. This might be due to the fact that unavailability of improved breeds, lack of coloured native disease resistant birds etc. The respondents also consider it as highly needed might with the aim of having high yield, better production and reduced mortality.

Table 23. Training need assessment of backyard poultry farmers in the area of Health care management (N=300)

Sl. No.	Health care management	Muzaffarpur (n=100)	Darbhanga (n=100)	Nalanda (n=100)	Total (N=300)
1.	Less needed (0-33)	10 (10)	7 (7)	9 (9)	26 (8.67)
2.	Moderately needed (34-66)	29 (29)	40 (40)	22 (22)	91 (30.33)
3.	Highly needed (67-100)	61 (61)	53 (53)	69 (69)	183 (61.00)

(Figures in parenthesis shows percentage)

The present table 23 reveals that the majority (61.00%) of the respondents considers training needs in health care area to be highly needed followed by 30.33 per cent perceived it as moderately needed and only 8.67 per cent less needed. Collectively about 90.00 percent of the felt it as moderate to highly needed. It was evident from Table no. 16 that majority about 69.00 per cent of the respondents had low to medium level of health care knowledge due to which they face many economic losses and mental chaos due to high mortality of birds and lack of any prophylactic measures for prevention and control.

Table 24. Training need assessment of backyard poultry farmers in the area of marketing strategies (N=300)

Sl. No.	Marketing strategies	Muzaffarpur (n=100)	Darbhanga (n=100)	Nalanda (n=100)	Total (N=300)
1.	Less needed (0-33)	51 (51)	67 (67)	73 (73)	191 (63.67)
2.	Moderately needed (34-66)	40 (40)	20 (20)	17 (17)	77 (25.67)
3.	Highly needed (67-100)	9 (9)	13 (13)	10 (10)	32 (10.66)

(Figure in parenthesis shows percentage)

Table 24 depicts that from pooled data majority (63.67%) of the respondents felt training need in marketing area to be less needed followed by 25.67 per cent of the respondents felt it as moderately needed and 10.66 per cent felt it as highly needed. However, collectively about 89.34 per cent felt training needs in marketing area as less to moderately needed as the respondents can easily sell their eggs, birds to the local market often and can also exchange their birds in emergency situation as a mean of cash exchange.

Fig. 20 Training need assessment of backyard poultry farmer in the area of housing management

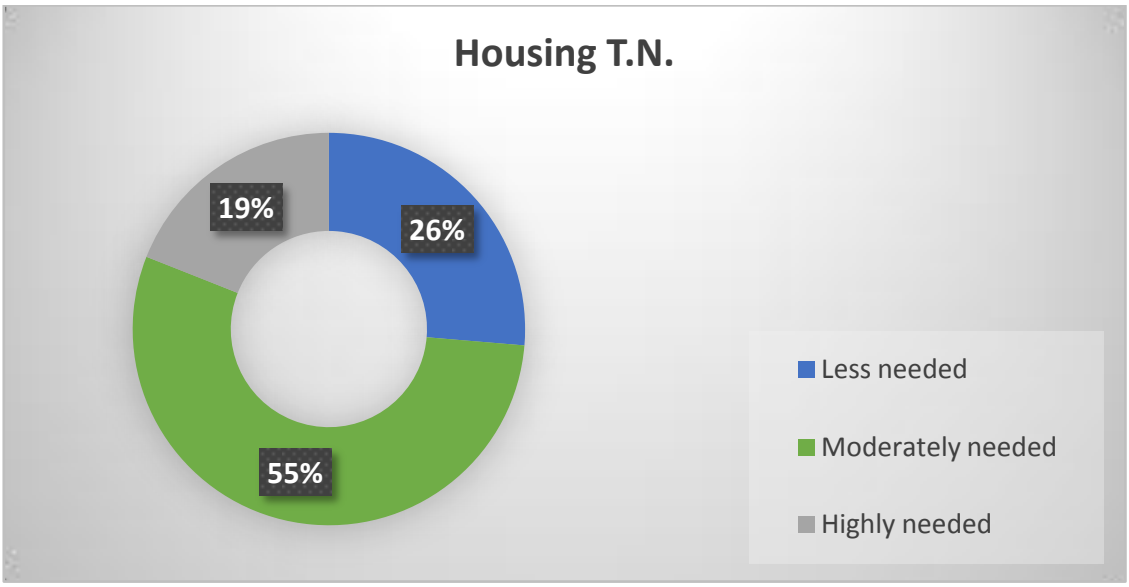


Fig. 21 Training need assessment of backyard poultry farmer in the area of Feeding management

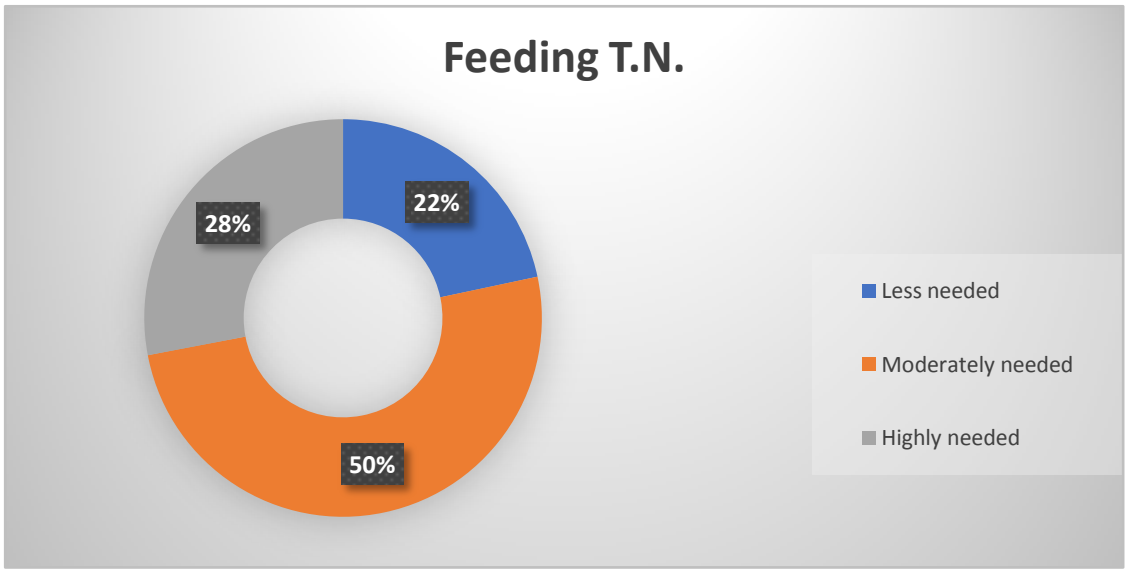


Fig. 22 Training need assessment of backyard poultry farmer in the area of Breeding management

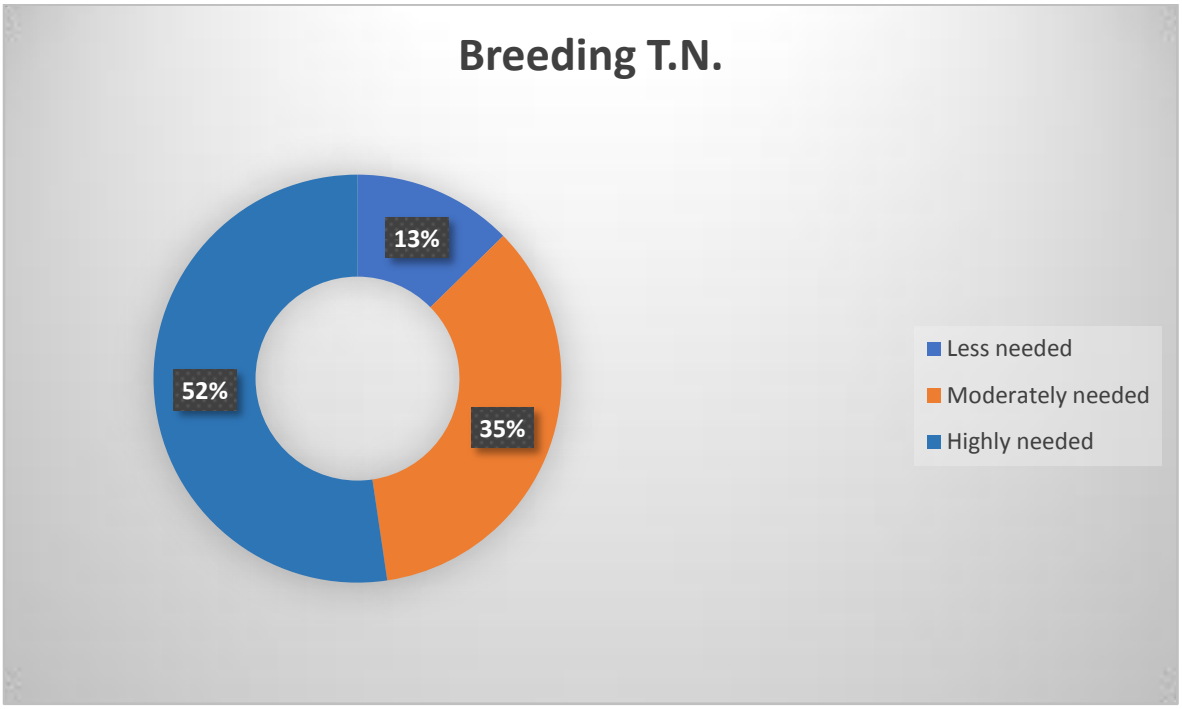


Fig. 23 Training need assessment of backyard poultry farmer in the area of Health care management

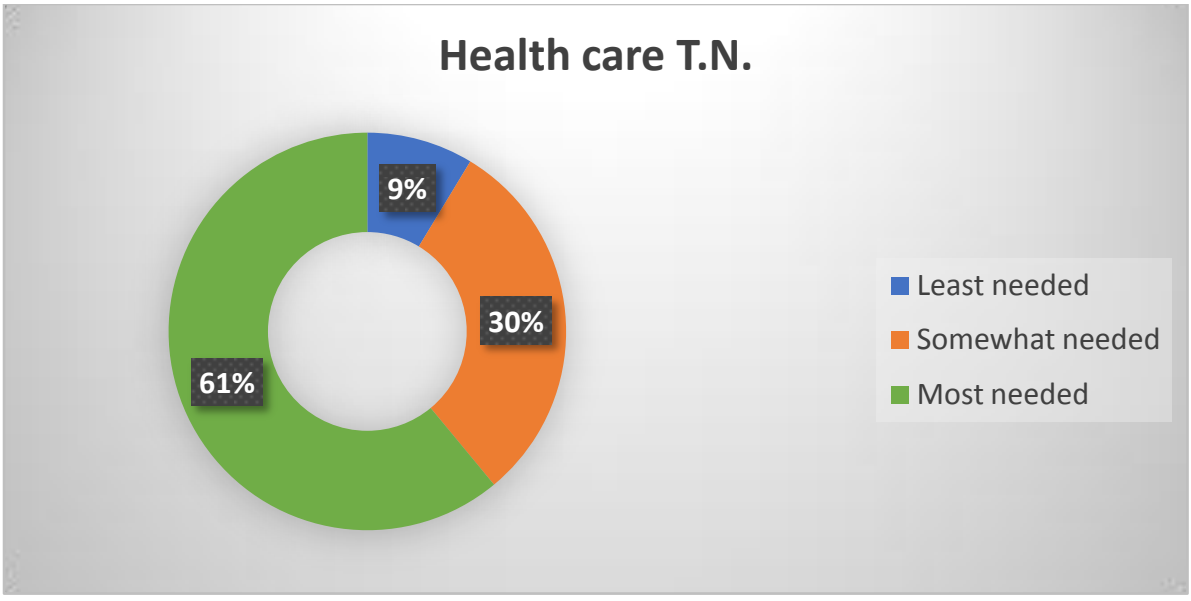
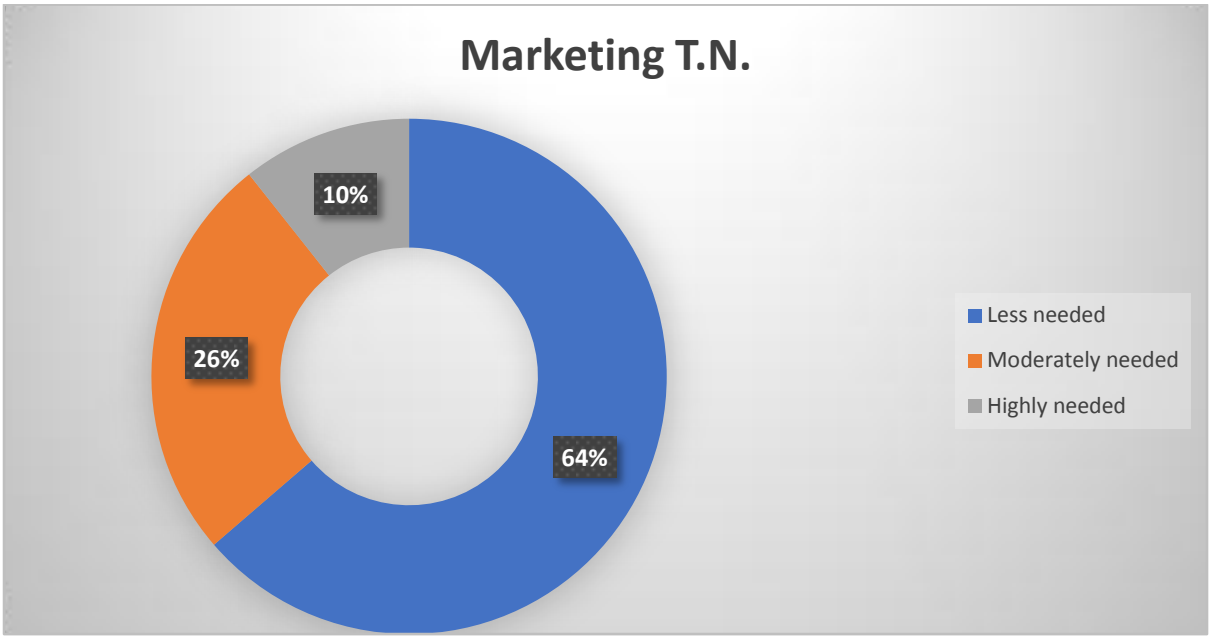


Fig. 24 Training need assessment of backyard poultry farmer in the area of Marketing strategies



4.3 Coefficient of correlation between training needs and socio-personal and psychological characteristics of the respondents.

Multi-collinearity analysis was performed in order to identify independent variables which can be further used for exploring relationship with different kind of Training needs among the backyard poultry farmers. For this analysis 10 independent variables were considered viz., (X_1= Age), (X_2 = Family size), (X_3 = Education), (X_4 = Land Holding), (X_5 = Annual income from BYPF), (X_6 = Annual income from other sources), (X_7 = Social Participation), (X_8 = Cosmopoliteness), (X_9 = Knowledge) and (X_{10}= Mass media exposure).

Table 25. Multi-collinearity analysis of the independent variables

Sl. No.		*Age*	*Family size*	*Education*	*Land Holding*	*Flock size*	*Annual income from BYPF*	*Annual income from other sources*	*Social participation*	*Cosmopoliteness*	*Mass Media Exposure*
X_1	Age	1.000									
X_2	Family size	0.101	1.000								
X_3	Education	0.167	0.178	1.000							
X_4	Land Holding	0.101	0.295	0.458	1.000						
X_5	Flock size	0.095	-0.018	0.488	-0.023	1.000					
X_6	Annual income from BYPF	0.077	0.069	0.219	0.243	0.765	1.000				
X_7	Annual income from other sources	0.038	0.231	0.106	0.426	0.318	0.127	1.000			
X_8	Social participation	0.016	-0.130	0.149	0.228	0.282	0.205	0.047	1.000		
X_9	Cosmopolitenes s	0.146	0.005	0.141	0.185	0.373	0.084	0.161	0.455	1.000	
X_{10}	MASS MEDIA EXPOSURE	0.036	-0.028	0.163	0.095	0.439	0.180	0.252	0.275	0.856	1.000

A glimpse of Table no. 25 revealed that a positive and significant collinearity was found between flock size (X_5) with annual income from BYPF (X_6) and cosmopoliteness (X_9) with Mass media exposure (X_{10}). So, for further relationship analysis among independent variables with different Training Needs components, flock size and mass media exposure was excluded.

Table 26: Relationship between socio-personal and psychological characteristics of the respondents and training need in Housing area

Sl. No.	Variables	Correlation (r)
1.	Age	-0.142^{NS}
2.	Family size	-0.321^{NS}
3.	Education	$+0.514^{*}$
4.	Land holding	$+0.113^{NS}$
5.	Annual income from BYPF	$+0.516^{**}$
6.	Annual income from other source	$+0.471^{*}$
7.	Social participation	$+0.441^{*}$
8.	Cosmopoliteness	$+0.395^{*}$
9.	Knowledge	$+0.451^{*}$

*= Significant @ 5% level of significance ($P \leq 0.05$) NS= Non-significant

**= Significant @ 1% level of significance ($P \leq 0.01$)

The data in Table 26 depicts the relationship between socio-personal and psychological characteristics of the respondents with training needs in housing area. The findings of the study revealed that the relationship of housing area was positively and significantly correlated with education, annual income from other sources, social participation, cosmo-politeness and knowledge. These factor are favourable to them and encourage them to attain training in housing area of the backyard poultry birds. Annual income from BYPF was also found to be

positively correlated (P<0.01) with training needs in housing area and the correlation was highly significant. However land holding was found to be positively correlated with the training needs in housing and the correlation was non-significant.

Age and family size were found to be negatively and non-significantly correlated with the training needs in housing area.

Table 27: Relationship between socio- personal and psychological characteristics of the respondents and training need in Feeding area

Sl. No.	Variables	Correlation (r)
1.	Age	-0.214^{NS}
2.	Family size	-0.159^{NS}
3.	Education	+0.435*
4.	Land holding	+0.359*
5.	Annual income from BYPF	+0.471*
6.	Annual income from other source	+0.342*
7.	Social participation	+0.590*
8.	Cosmopoliteness	+0.512*
9.	Knowledge	+0.495*

*= Significant @ 5% level of significance (P≤0.05) NS= Non-significant

**= Significant @ 1% level of significance (P≤0.01)

The data in Table 27 depicts the relationship between socio-personal and psychological characteristics of the respondents with training needs in feeding area. It was studied and was observed that the education, land holding, annual income from BYPF, annual income from other sources, social participation, cosmopoliteness and knowledge were found to be positively and significantly correlated with the training requirement in feeding management. These factors enable the respondents to perceive training because of higher social

participation and cosmopoliteness will increase their awareness and they will try to learn more innovative skills and capacities through the training.

Age and family size were found to be negatively correlated with the training need in poultry feeding and the relationship was non-significant.

Table 28: Relationship between socio- personal and psychological characteristics of the respondents and training need in Breeding area

Sl. No.	Variables	Correlation (r)
1.	Age	-0.341^{NS}
2.	Family size	-0.259^{NS}
3.	Education	$+0.501^{*}$
4.	Land holding	-0.191^{NS}
5.	Annual income from BYPF	$+0.491^{*}$
6.	Annual income from other source	-0.431^{NS}
7.	Social participation	$+0.321^{*}$
8.	Cosmopoliteness	$+0.493^{*}$
9.	Knowledge	$+0.551^{**}$

*= Significant @ 5% level of significance ($P \leq 0.05$) NS= Non-significant
**= Significant @ 1% level of significance ($P \leq 0.01$)

The data in Table 28 reveals that the relationship between socio-personal and psychological characteristics of the respondents with training needs in breeding area. It was observed that the coefficient of correlation was found to be positive and significant between education, annual income from BYPF, social participation and cosmopoliteness with the training need requirement in breeding area of backyard poultry farming. However knowledge was found to be positively correlated and correlation was highly significant ($P<0.01$). It might be due to fact that higher knowledge level of the respondents would lead to greater curiosity, awareness and change in attitude which would make them seek training to sharpen their skills in breeding area.

It was also found that coefficient of correlation was found to be negatively and non-significantly correlated between age, family size, land holding and annual income from other sources with the training need requirement in breeding area.

Table 29: Relationship between socio- personal and psychological characteristics of the respondents and training need in Health care area

Sl. No.	Variables	Correlation (r)
1.	Age	-0.225^{NS}
2.	Family size	$+0.239^{NS}$
3.	Education	$+0.514^{*}$
4.	Land holding	$+0.501^{NS}$
5.	Flock size	$+0.541^{*}$
6.	Annual income from BYPF	$+0.512^{*}$
7.	Annual income from other source	$+0.451^{*}$
8.	Social participation	$+0.341^{*}$
9.	Cosmopoliteness	$+0.491^{*}$
10.	Knowledge	$+0.344^{**}$

*= Significant @ 5% level of significance ($P \leq 0.05$) NS= Non-significant

**= Significant @ 1% level of significance ($P \leq 0.01$)

The present table depicts the relationship between socio-personal and psychological characteristics of the respondents with training needs in health care area. It was studied and found that the education, flock size, annual income from BYPF, annual income from other sources, social participation and cosmopoliteness were found to be positively and significantly correlated with the training need in health care management. However, knowledge characteristics was found to be positively ($P<0.1$) and highly significantly correlated with the training need in health care management area.

Whereas family size and land holding was found to be positively and non-significantly correlated with the training need in health care management. However, Age was negatively and non-significantly correlated with the training need under health care management.

Table 30: Relationship between socio- personal and psychological characteristics of the respondents and training need in Marketing area.

Sl. No.	Variables	Correlation (r)
1.	Age	$+0.295^{NS}$
2.	Family size	-0.191^{NS}
3.	Education	$+0.512^{**}$
4.	Land holding	$+0.154^{NS}$
5.	Annual income from BYPF	$+0.451^{*}$
6.	Annual income from other source	$+0.351^{NS}$
7.	Social participation	$+0.512^{*}$
8.	Cosmopoliteness	$+0.471^{*}$
9.	Knowledge	$+0.501^{**}$

*= Significant @ 5% level of significance ($P \leq 0.05$) NS= Non-significant

**= Significant @ 1% level of significance ($P \leq 0.01$)

The Table 30 shows the relationship between socio-personal and psychological characteristics of the respondents with training needs in marketing strategies of poultry products. It was observed that the social participation, annual income from BYPF and cosmopoliteness of the respondents were positively and significantly correlated with the training needs perceived in the marketing strategies areas. However, education and knowledge level were found to be positively ($P<0.01$) and highly significantly correlated with the training need in marketing strategies.

Whereas age, land holding and annual income from other sources were found to be positively and non-significantly correlated with the training needs in marketing strategies. However,

family size was negatively and non-significantly correlated with the training need requirement felt in exploring in marketing strategies.

4.4. Constraints faced by the poultry farmers in backyard poultry farming practices.

Table 31. Constraints faced by the respondents (N=300)

Sl. No.	Constraints	Frequency	Percentage	Rank
1.	High mortality rates of chicks	231	77	III
2.	Lack of vaccination facility	249	83	II
3.	Lack of technical support	147	49	X
4.	Unavailability of improved coloured variety of chicks	273	91	I
5.	Lack of veterinary services	171	57	VIII
6.	Attack by predators	213	71	IV
7.	Lack of government support	198	66	VI
8.	Lack of proper scavenging area	207	69	V
9.	Spoilage of eggs in summer	201	67	VII
10.	Lack of family support	159	53	IX

The ultimate goal of generating any technology particularly in the field of animal husbandry is for its speedy diffusion and quick adoption by the farmers who are considered as target groups. Table 31 shows the various constraint faced by the respondents while adopting backyard poultry farming. It was found that the unavailability of the coloured variety of chicks was the most frequent constraint as it was perceived by 91.00 per cent of the respondents and ranked as 1^{st}. It was followed by lack of vaccination facility (2^{nd}). High mortality rates of chicks was another important constraint as it was perceived by about 77.00 per cent of the respondents. Further attack by predators and lack of proper scavenging area emerged as fourth and fifth constraints respectively. Lack of governmental support, spoilage of eggs in summer and lack of veterinary services was perceived as constraint by 66.00 per cent, 67.00 per cent and 57.00 per cent of the respondents respectively. Whereas lack of family support and lack of technical support were also emerged as constraint in the way of backyard poultry farming as these were perceived by 53.00 per cent and 49.00 per cent of the respondents and ranked as IX^{th} and X^{th} respectively.

Summary and Conclusion

Chapter - 5

SUMMARY AND CONCLUSION

The chapter presents a brief report of the study under the following headings:

5.1 Summary

5.2 Important findings of the study

5.3 Conclusions

5.4 Future scope of the Research

5.1 Summary

The National Commission on Agriculture strongly recommends that backyard poultry could be an excellent opportunity for gainful employment to idle or unemployed members of rural communities by adopting this as their main or subsidiary occupation. It is possible in different agro-climatic conditions, as the fowl possess marked physiological adaptability, requirement of small space, low capital investment, quick return from outlay and well distributed turn over throughout the year make poultry farming remunerative in both rural and urban areas.

To improve the management practices as well as the production and productivity of the backyard poultry farming, the focus should be on identifying the areas of training needs as perceived by the respondents with respect to improved farming practices. The study was carried out with an aim to identify the training needs of the backyard poultry farmers in Bihar.

The objectives of the study were as follows:

i) To study the socio-personal and psychological characteristics of respondents.
ii) To identify the training needs in selected areas of training of Poultry farmers.
iii) To explore the relationship between the training needs and socio-personal and psychological characteristics of respondents.
iv) To study the constraints faced by poultry farmers.

Fourteen variables were selected for the study which was grouped as follows:

Socio- personal and psychological characteristics of the respondents

Age, Sex, Family size, Family type, Education, Land holding, Occupation, Flock size, Annual income from BYPF, Annual income from other sources

Socio-behavioural characteristics of the respondents

Social participation, mass media exposure, cosmopoliteness sources of information and knowledge about the backyard poultry farming.

Training needs assessment of the respondents

a. Housing management
b. Feeding management
c. Breeding management
d. Health care management
e. Marketing strategies

The study was carried out in three randomly selected district viz., Muzaffarpur, Darbhanga and Nalanda. Two blocks from each districts were randomly selected for the present study. From each blocks, 50 respondents were randomly selected for the interview. A total of 300 respondents were thus interviewed using a pre- tested interview schedule.

In order to understand the training needs and existing situation of the villages under study, qualitative data were also be gathered through observations case study and focused group discussion to support the quantitative data. Simple statistical tools like percentage, mean, co-relation were used for getting meaningful interpretation.

5.2 Important findings of the study:

The findings of the study were as follows:

5.2.1. Socio-personal and psychological characteristics of the backyard poultry farmers:

1. More than 50.00 per cent of the respondents belongs to middle age category of 36-55 years followed by young (33%) and old age (14.67%) respectively.

2. A large majority about 57.00 per cent of the farmers were female followed by 43.00 per cent of male.

3. Majority 62.00 per cent of the respondents had joint family type and about 38.00 per cent of the respondents had nuclear family type.

4. About 53.00 per cent of the respondents had family size of more than 5 members in a family followed by 47.00 per cent of the respondents had family size of up to 5 members.

5. Majority (37.33%) of the respondents had education up to high school level followed by 21.67 per cent of respondents had education up to primary school level, 19.67 per cent had education up to middle school, 8.66 per cent could read and write, 6.00 per cent were illiterate, 2.67 per cent could read only and about 4.67 per cent of the respondents had education up to graduate level.

6. About (49.00%) of the respondents had marginal land size followed by 27.00 per cent of the respondents were landless farmer and only 24.00 per cent of the farmer had small land size.

7. About 46.00 per cent of the respondents had agriculture as their main occupation followed by 28.00 per cent were labourers, 15.33 per cent were in animal husbandry, 6.00 per cent were in service sector and only 4.67 per cent were doing business as their main occupation.

8. Majority (49.00%) of the respondents had medium flock size (11-20) followed by 25.67 per cent respondents who had small flock size (1-10) and about 25.33 per cent of the respondents had large (>20) flock size.

9. Maximum numbers (47.00%) of the respondents had medium level of annual income derived from backyard poultry farming followed by 38.33 per cent had low level and 14.34 per cent had high level of income respectively.

10. About (50.00%) of the respondents had medium level of annual income from other sources followed by 35.00 per cent had low level and 15.00 per cent had high level of income respectively.

11. Knowledge level of the respondents were studied in housing management, feeding management, healthcare management, breeding management and marketing strategies and it was found that in housing management area, about (39.33%) of the respondents had high

knowledge level followed by 35.67 per cent of the respondents had medium knowledge level and 25.00 per cent had low knowledge level regarding housing management.

As feeding management knowledge is concern about 39.00 per cent of the respondents had medium level of knowledge followed by 34.67 per cent respondents had high level of knowledge and 25.33 per cent respondents had low level of knowledge. However, in health care management collectively about 70.00 per cent of the respondents had low to medium knowledge level and only 30.00 percent had high knowledge level. In breeding management knowledge, about 63.00 per cent of the respondents had low level of knowledge followed by 26.00 per cent had medium level of knowledge and only 11.00 per cent respondents had high level of knowledge. As far as marketing strategies knowledge is concern about 42.67 per cent of the respondents had low level of knowledge followed by 33.33 per cent respondents had medium level of knowledge and 24.00 per cent of the respondents had high knowledge level.

12. Overall knowledge distribution of the respondents shows that majority (38.26%) of the respondents had low level of overall knowledge followed by 33.60 per cent respondents had medium level and 27.94 per cent of the respondents had low level of overall knowledge.

5.2.2 Socio-behavioural characteristics of the respondents:

13. It was studied and found that about 41.33 per cent of the respondents were member of one organisation followed by 24.00 per cent had no social participation, 22.67 per cent were member of more than one organisation and only 12 per cent were office bearer of any organisation.

14. It was observed that about (46.00%) of the respondents had low level of mass media exposure followed by 33.00 per cent had medium level of mass media exposure and only about 21.00 per cent respondents had high level of mass media exposure.

15. A large number of the respondents (35.33%) of the respondents had low level of their cosmopoliteness followed by 35.33 per cent had medium level of cosmopoliteness and only 22.34 per cent had high level of cosmopoliteness.

5.2.3 Training needs identification in selected areas of training.

1. It was observed that about 54.67 per cent of the respondents perceived training under housing management as moderately needed followed by 26.33 per cent perceived it as less needed and 19.00 per cent felt it as highly needed.

2. It was studied that majority (50.33%) of the respondents perceived training under feeding management as moderately needed followed by 28.00 per cent perceived it as highly needed and 21.67 per cent felt it as less needed.

3. Collectively about 87.00 per cent of the respondents perceived training under breeding management as moderate to highly needed followed by 12.67 per cent of the respondents perceived it as less needed.

4. About 61.00 per cent of the respondent perceived training under health care management as highly needed followed by 30.33 percent of the respondents perceived it as moderately needed and only 8.67 percent felt it as less needed.

5. It was observed that majority (63.67%) of the respondent perceived training under marketing strategies as less needed followed by 25.67 per cent perceived it as moderately needed and only 10.66 per cent consider it as highly needed.

5.2.4 Correlation of training needs with socio-personal and psychological characteristics of the respondents.

1. It was found that the relationship of training needs in housing area was positively and significantly correlated with education, annual income from other sources, social participation, cosmo-politeness and knowledge. These factor are favourable to them and encourage them to attain training in housing area of the backyard poultry birds. Annual income from BYPF was also found to be positively correlated ($P<0.01$) with training needs in housing area and the correlation was highly significant. However land holding was found to be positively correlated with the training needs in housing and the correlation was non-significant. Age and family size were found to be negatively and non-significantly correlated with the training needs in housing area.

2. It was studied and found that the education, land holding, annual income from BYPF, annual income from other sources, social participation, cosmopoliteness and knowledge were found to be positively and significantly correlated with the training requirement in feeding management. These factors enable the respondents to perceive training because of higher

social participation and cosmopoliteness will increase their awareness and they will try to learn more innovative skills and capacities through the training. Age and family size were found to be negatively correlated with the training need in poultry feeding and the relationship was non-significant.

3. It was observed that the coefficient of correlation was found to be positive and significant between education, annual income from BYPF, social participation and cosmopoliteness with the training need requirement in breeding area of backyard poultry farming. However, knowledge was found to be positively correlated and correlation was highly significant ($P<0.01$). It might be due to fact that higher knowledge level of the respondents would lead to greater curiosity, awareness and change in attitude which would make them seek training to sharpen their skills in breeding area. It was also found that coefficient of correlation was found to be negatively and non-significantly correlated between age, family size, land holding and annual income from other sources with the training need requirement in breeding area.

4. It was studied and found that the education, flock size, annual income from BYPF, annual income from other sources, social participation and cosmopoliteness were found to be positively and significantly correlated with the training need in health care management. However, knowledge characteristics was found to be positively ($P<0.1$) and highly significantly correlated with the training need in health care management area. Whereas family size and land holding was found to be positively and non-significantly correlated with the training need in health care management. However, age was negatively and non-significantly correlated with the training need under health care management.

5. It was observed that the social participation, annual income from BYPF and cosmopoliteness of the respondents were positively and significantly correlated with the training needs perceived in the marketing strategies areas. However, education and knowledge level were found to be positively ($P<0.01$) and highly significantly correlated with the training need in marketing strategies. Whereas age, land holding and annual income from other sources were found to be positively and non-significantly correlated with the training needs in marketing strategies. However, family size was negatively and non-significantly correlated with the training need requirement felt in exploring in marketing strategies.

5.2.5 Constraints faced by the poultry farmers.

Constraints as perceived by the poultry farmers in the way of adoption of improved practices revealed that unavailability of the coloured variety of chicks and lack of vaccination facility for their birds on door were viewed as the most serious constraints as it was expressed by 91.00 per cent and 83.00 per cent of the respondents respectively on the pooled sample basis. High mortality rates of chicks was emerged as third serious constraint in the way of backyard poultry as it was perceived by 77.00 per cent of the respondents.

5.3 Conclusions

The present study reveals that a large percentage of the respondents rearing backyard poultry belonged to middle age category and agriculture and labour as their main source of income. More than half percentage of the respondents were female. Majority of the respondents had joint family type with a household size of more than 5 members. More than 65.00 per cent of the respondents were educated up to high school level. Majority of the respondents belonged to landless and marginal category. They preferably reared flock size of (11-20) birds on an average. A large no. of respondents had low to medium annual income from BYPF and other source of income. Majority of the respondents had low level of social participation, mass media exposure and cosmopoliteness nature. It was also observed from the study that the majority of the respondents had low to medium level of knowledge in housing and feeding management. However, it was observed that majority of the respondents had low knowledge level in health care management regarding vaccination schedule, disease treatment and proper hygiene and sanitation. With respect to the training needs of the respondents, it can be concluded that the respondents needs training mainly in areas of health care, feeding, breeding followed by housing management while marketing strategies was the least needed area of training.

There was positive and significant relationship between training needs of the farmers with respect to education, flock size, occupation, annual income, social participation, mass media exposure, cosmopoliteness and knowledge level. Whereas sex, familysize, family type, land holding were negatively and non- significantly correlated with the training needs. However age was negatively and significantly correlated with the training needs in most of the areas of management. Now the question arises, whether any training or need based training will be

helpful in human resource development especially in rural background. Thus it is a paramount importance to determine the training needs before organising the training programme but the training programmes are generally organised without accessing the need of the trainees.

Therefore, training institutions, organizations, extension agencies and government agencies should focus more in these aspects while imparting training programmes to the farmers so as to improve their skills, capacities and socio-economic condition.

Based on the present research study, it may be concluded that the need of the trainees should be the focal point in organising the training not only in livestock sector but in any paradigm. It has been experienced that if the training is organised after the need assessment, there will be certainly desired change in the knowledge, attitude and skill of the farmers.

Future scope of the research

Suggested areas for future research:

1. The same research can be taken up in different districts of state of Bihar and in different states of the country.
2. More variables can be concluded in future research study.
3. A bigger sample size can be taken up for comparative study.
4. Separate study can be undertaken for satisfaction level of farmers with respect to the level of training imparted by the different training institutes.
5. Study on various training methods and tools can be taken up to assess their effectiveness on improving skills of background poultry farmers.

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Appendix

APPENDIX

(गोपनीय)

पशुपालन प्रसार शिक्षा विभाग

बिहार पशुचिकित्सा महाविद्यालय

शोध प्रश्नावली

क्रम . संख्या : .....

प्रखंड : ..... ग्राम : ..... दिनांक : .....

A. सामान्य जानकारी :

1. उत्तरदाता का नाम .....
2. आयु : ..... वर्ष

3. लिंग : पुरुष / महिला .....

B. बैकयार्ड मुर्गी पालन सबंधित किसानों के प्रशिक्षण जरुरतों का मुल्यांकन :

i) उन्नत बैकयार्ड मुर्गी पालन के प्रमुख प्रशिक्षण जरुरतों का संचालन .

क्रम . संख्या .	**प्रमुख गतिविधि**	**अधिक जरुरत है(3)**	**कुछ हद तक जरुरत है (2)**	**कम जरुरत है(1)**
1.	आवास प्रबंधन			
2.	आहार प्रबंधन			
3.	प्रजनन प्रबंधन			
4	स्वास्थ्य रक्षा प्रबंधन			
5.	विपणन रणनीति			

C. सामाजिक आर्थिक स्थिति:

1. परिवार आकार : .....

2. परिवार प्रकार : i) एकल परिवार ..... ii) संयुक्त परिवार .....

3. शिक्षा : (निशान लगाये):

i) अशिक्षित ii) पढ़ने योग्य

iii) पढ़ने एवं लिखने योग्य iv) प्राथमिक शिक्षा तक

v) माध्यमिक शिक्षा तक vi) उच्च विद्यालय तक

vii) स्नातक एवं उपर

4. सामाजिक संस्थाओं में मात्र :

i. किसी भी संस्था के सदस्य नहीं .....

ii. एक संस्था के सदस्य .....

iii. अधिक संस्था के सदस्य .....

iv. किसी पद पर .....

5. किसानों की जमीन

i) भूमिहीन ii) सिमांत किसान iii) छोटे किसान

6. मुख्य पेशा: मज़दूर / खेती / पशुपालन / व्यवसाय /नौकरी / अन्य

7. झुंड आकार : .....

8. बैकयार्ड मुर्गी पालन से वार्षिक आय : .....

9. अन्य स्रोतो से वार्षिक आय : .....

10. मास मीडीया सुचना के स्रोत ;:

स्रोत	हमेशा (3)	अक्सर (2)	कभी-कभी (1)	कभी नहीं (0)
a) रेडियों				
b) टी.वी.				
c) अख़बार				
d) फार्म परिभ्रमण				
e) पोस्टर				
f) किसान मेला				
g) प्रदर्शनी				
h) प्रशिक्षण				

11. निम्न से किन –किन से और कितनी अवधि के अंतराल पर आप सुचना प्राप्त करते हैं :

स्रोत	हमेशा (3)	अकसर(2)	कभी- कभी (1)	कभी नहीं(0)
a) सुचना प्रसार कार्यकर्ता				
b) स्थानीय व्यक्ति				
c) पशु-चिकित्सा				
d) वेटनरी क्षेत्र सहायक				
e) दवा दुकानदार				
f) बैंक कर्मी				
g) कृषि विश्वविद्यालय / के.वी . के.				

12. बैकयार्ड मुर्गी पालन से सबंधित ज्ञान :

निम्न का उत्तर हाँ अथवा नहीं में दे: हाँ / नहीं

A. उन्नत आवास प्रबंधन सबंधित ज्ञान :

1. मुर्गी फार्म में चुना डालना चाहिये या नहीं ? ..... / .....

2. बिछाली बनाने के लिये धान का भुसा एवं लकडी का बुरादा उपयोग करना चाहिये ? ..... / .....

3. बिछाली को हमेशा बदलते रहना चहिये ? ..... / .....

4. बिछाली से बनने वाले अमोनिया को रोकने के लिये चुने का छिडकाव करना चाहिये ? ..... / ....

5. बर्तन को प्रतिदिन साफ करना चहिये ? ..... / .....

6. पानी के बर्तन रखने की जगह हमेशा बदलनी चाहिये ? ..... / .....

7. ब्रुडर हाऊस में 2 वाट के बल्ब का उपयोग किया जाता है ? ..... / .....

8. मुर्गी फार्म हाऊस का फर्श कनकृट का बना होना चाहिये ? ..... /.....

9. मुर्गी फार्म हाऊस के साइड के दीवार की ऊँचाई सामान्यतः 7-8 फीट होनी चाहिये ? ..... / .....

10. मुर्गी फार्म हाऊस के फर्श की ऊँचाई ज़मीन से 2 फीट होनी चाहिये ? ..... / .....

B. उन्नत आहार प्रबंधन सबंधित ज्ञान : हाँ / नहीं

1. एक दिन से सात दिनों तक के चुज़ों को प्री- स्टाटर दाना देना चहिये ? ..... / .....

2. 4-7 सप्ताह तक के चुज़ों को ग्रोवर दाना देना चहिये? ...../ .....

3. नये चुज़े लाने के बाद उन्हें ग्लुकोस या इलेक्ट्रोल पानी देना चाहिये ? ..... / .....

4. बैकयार्ड मुर्गी पालन में मुर्गियो को खुले में चरने के लिये छोडना चाहिये ? ..... / .....

5. बैकयार्ड मुर्गी पालन में मुर्गियो को 2-3 बार दान खिलाना चाहिये ? ..... / .....

6. मांस उत्पादन के लिये अतिरिक्त विटामिन सप्लिमेंट देना चाहिये? ..... / .....

7. ब्रायलर मुर्गी को पानि 2-3 ली./ किग्रा दाना देना चाहिये ? ..... / .....

8. मुर्गीयो को नियमित दाना के अलावा सांध्रित राशन 30-60 ग्राम/ मुर्गी देना चाहिये? ..... /.....

9. मुर्गीयो को साफ एवं नियमित पानी देना चाहिये ? ..... / .....

10. मुर्गीयो कोअतिरिक्त पुरक आहार देना चाहिये? ..... / .....

C. उन्नत स्वास्थ्य रक्षा प्रबंधन सबंधित ज्ञान: हाँ / नहीं

1. चुज़ों को अधिक देखभाल की जरुरत प्रथम दो- तीन सप्ताह में होती है? ...../ .....

2. ब्रुडीग काल का समय प्रथम पाँच – 6 सप्ताह होता है ? ..... /.....

3. रानीखेत का टीका 4 से 7 दिन के चुज़ें को लगाना चाहिये ? ..... /.....

4. रानीखेत का टीका आँख या नाक में दिया जाता है ? ..... / .....

5. अंतःकृमि एवं बाह्यकृमि के लिये कृमिनाशक देना चाहिये ? ..... /.....

6. टीकाकरण से ठीक पहले एंटिबायेटीक देना चाहिये ? ..... / .....

7. टीकाकरण से ठीक पहले कृमिनाशक देना चाहिये ? ..... / .....

8. टीकाकरण से पहले पानी में सेनेटाइज़र या लाल पोटाश से किटाणु रहित करना चाहिये ? .../ ...

9. मुर्गीयो का ईलाज़ पशु चिकित्सक द्वारा ही कराना चाहिये ? ..... / .....

10. बीमार मुर्गीयो को उनके झुंड से तुरंत अलग कर देना चाहिये ? ..... / .....

D. प्रजनन प्रबंधन संबंधित ज्ञान : हाँ / नहीं

1. बैकयार्ड मुर्गी पालन में अंडा उत्पादन के लिये ग्रामप्रिया नस्ल उपयुक्त है? ...../.....

2. बैकयार्ड मुर्गी पालन में मांस उत्पादन के लिये वनराजा नस्ल उपयुक्त है? ..... /.....

3. वनराजा मुर्गी एक वर्श में 100-120 अंडे देती है ? ..... /.....

4. चुज़ों की खरीदारी किसी सरकारी हैचरी से करनी चहिये ? ...../.....

5. अंडों का निरीक्षण समय–समय पर करना चाहिए या नहीं? ...../.....

6. चूजों की ब्रूडिंग करनी चाहिए या नहीं? ...../.....

7. ब्रूडर हाउस में कीटनाशक का छिड़काव जरूरी है या नहीं? ...../.....

8. अंडों को प्रतिदिन 1 या 2 बार पलटना चाहिए या नही? ...../.....

9. ब्रूडिंग मुर्गियों पर परजीवीनाशक का छिड़काव जरूरी है या नहीं? ...../.....

10. ब्रुडींग करने के दौरान चीक गार्ड की जरुरत होती या नहीं? ..... /.....

E. विपणन रणनीति संबंधित ज्ञान : हाँ / नहीं

1. प्रथम बार अंडा देने की निर्धारित आयु जरूरी है या नहीं? ...../.....

2. आप मुर्गियों को साप्ताहिक बेचते हैं या नहीं? ...../.....

3. आपके पास खरीददार स्वयं आते हैं या नहीं? ...../.....

4. आपको वाजिब दाम मिलता है या नहीं? ...../.....

5. आप मुर्गियों को बड़े बजार में बेचते हैं या नहीं? ...../.....

6. क्या आप एक बार में 10 मुर्गियाँ बेचते हैं या नहीं? ...../.....

7. आपको मुर्गी बेचने में परेशानी आती है या नहीं? ...../.....

8. बजार की जानकारी आपको वेटेरीनरी डाक्टर से मिलती है या नही? ...../.....

9. मुर्गी बेचने से होने वाले मुनाफे से आप संतुष्ट होते हैं या नहीं? ...../.....

10. आपको मुर्गी बेचने से अधिकतम आमदनी होती है या नहीं? ...../.....

F. आपके द्वारा बैकयार्ड मुर्गीपालन के अंगीकरण में कौन –कौन सी परेशानियों का सामना करना पडता हैं हाँ / नहीं

1. उन्नत रंगीन मुर्गियों की समय पर उपलब्धता ...../.....

2. मुर्गीयों की उच्च मृत्यु दर ..... / .....

3. तकनीकी सहायता का अभाव ..... /.....

4. परिवार के सदस्यों के समर्थन का अभाव ..... /.....

5. गर्मियों में अंडे का रख–रखाव ..... / .....

6. वेटेरीनरी सेवा का अभाव ...../ .....

7. शिकारियों से खतरा ..... /.....

8. टीकाकरण का अभाव ..... /.....

9. चरने के लिए पर्याप्त जगह की कमी ..... / .....

10. गरीब मुर्गी पालकों के लिये सरकारी सहायता का अभाव ..... / .....

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