ADOPTION OF INDIGENOUS AND MODERN ANIMAL HUSBANDRY PRACTICES AMONG THE TRIBES OF ATTAPADDY IN PALAKKAD DISTRICT

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2010

DECLARATION

I hereby declare that the thesis entitled **"ADOPTION OF INDIGENOUS AND MODERN ANIMAL HUSBANDRY PRACTICES AMONG THE TRIBES OF ATTAPADDY IN PALAKKAD DISTRICT"** is a bonafide record of research work done by me during the course of research and that the thesis has not previously formed the basis for the award to me of any degree, diploma, associateship, fellowship or other similar title, of any other University or Society.

Mannuthy   **Bimal. P. Bashir.**

CERTIFICATE

Certified that this thesis entitled **"ADOPTION OF INDIGENOUS AND MODERN ANIMAL HUSBANDRY PRACTICES AMONG THE TRIBES OF ATTAPADDY IN PALAKKAD DISTRICT"** is a record of research work done independently by **Bimal. P. Bashir.,** under my guidance and supervision and that it has not previously formed the basis for the award of any degree, fellowship or associateship to him.

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ACKNOWLEDGEMENTS

*I express boundless gratitude and heartfelt thanks to my respected and beloved mentor **Dr. P. J. Rajkamal**, Professor & Head, Department of Veterinary & Animal Husbandry Extension and Chairman of the advisory committee. I consider myself lucky to have him as my advisor. I thank him for his excellent and scholarly guidance. Above all, I happily acknowledge his brilliance to sort out problems, which saved me many times from distress.*

*   **Dr. T. S. Rajeev**, Assistant Professor, Department of Veterinary and Animal Husbandry Extension and member of the advisory committee, inarguably influenced the strategy of my work. I recollect with immense gratitude, the interest he bestowed upon my project and the constant encouragement he has given to me.*

*   *I am fortunate to have **Dr. Reeja George .P,** Assistant Professor, Department of Veterinary and Animal Husbandry Extension as a member of the advisory committee, who was also there to help me through out the research work. I recollect with immense gratitude the interest she took in my work.*

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*   *I am grateful to **Dr. K. A. Mercey,** Professor, Department of Statistics and member of the advisory committee for the valuable suggestions she put forth when the prospects of this effort appeared bleak. Her advises on statistical tests are invaluable.*

*   *I am grateful to the **Dean**, Faculty of Veterinary and Animal Sciences, for providing the facilities for the study.*

*   *Gratitude and thanks with extreme fidelity are due to the Veterinary Extension faculty members **Mohanan chettan (Rtd)**, **Kabeer and Kumaran** for their support and help during the study period.*

*   *I am thankful to **Ilyas C** for his immense help and support during the study period*

*   *I gratefully thank **Mr. Anil,** PhD scholar in forestry for his immense help in identifying the plants.*

Bimal. P. Bashir.

To The Indigenous People

‘*Civilization is the denial of instinct*’

Sigmund Freud

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24	Castrating the bull
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26	The practice of disposing the placenta by hanging it on trees.
27	Livestock market (Santhai) conducted on every Saturday at Kottathara.

ABBREVIATIONS

A. I.	-	Artificial Insemination
A. S. S. O.	-	Attappady Social Service Organisation
AHADS	-	Attappady Hills Area Development Society
F. M. D.	-	Foot and Mouth Disease
G. O. I.	-	Government of India
H. S.	-	Hemorrhagic Septicemia
I. T. D. P.	-	Integrated Tribal Development Programme.
N. G. O.	-	Non-Governmental Organisation
R. D.	-	Ranikhet Disease
R. P.	-	Rinderpest

Introduction

1. INTRODUCTION

In the field of animal husbandry, tribal societies have nurtured a vast fund of indigenous knowledge and practices. But they are little documented and studied. These indigenous practices may be an alternative or complementary to modern technology and can generate ideas for future research. Farming System Research views indigenous practices as one of the elements of farming in which such practices play a role in deciding the overall production of farming system. More research on indigenous livestock management practices will certainly aid in improved livestock production.

Indigenous knowledge in animal husbandry exists as beliefs that are transferred from generation to generation through folklore of people. These are mostly unwritten and are only recorded in the human mind. Grenier (1998) defined indigenous knowledge as unique, traditional, local knowledge existing within and developed around the specific conditions of women and men indigenous to a particular geographical area. Some of the synonyms of indigenous knowledge according to Seeland (2000) were 'traditional knowledge', 'folk knowledge', 'local knowledge' and 'wisdom of the elders'. These synonyms refer to the local origin and promotion by a community. So much so that inventorying of traditional beliefs should be the first step towards any intensive study of ethno-veterinary practices or other husbandry practices. Documenting should go hand in hand with translating and combating animal ills and management practices to western terms.

Mathias-Mundy and McCorkle (1989) stated that ethno-veterinary medicine consisted of local people's knowledge dealing with folk beliefs, skills, methods and practices pertaining to animal health care and production. This knowledge was based on close observation of animals or the oral transmission of experience from one generation to next, or both. They further opined that, ethno-

veterinary medicine had emerged as a challenging field in more recent times that promised to benefit rural and pre-urban stock raisers, not just in the developing countries, but everywhere by virtue of the generation or generations of certain animal health technologies. Further, Rao *et al* (1995) reported the several uses of indigenous technical knowledge in animal husbandry and compared it with modern practice. They stressed the need for documentation of this knowledge.

The beliefs need to be tested or validated for rationality, applicability, feasibility and acceptability. Testing rationality could enable categorizing them as rational (scientific) and irrational (superstitious) beliefs. Superstitious beliefs cannot be recommended for use as they definitely engender heavy economic loss. Irrational beliefs may act as techno cultural obstacles in the acceptance of improved practice. At the same time, rational or scientific beliefs should be recommended for extensive use. These could be even melded with modern techniques for better results and an integrated technology could only be sustainable.

Of late, a branch of science has emerged called as veterinary anthropology, an applied field of cultural anthropology, dealing with folk veterinary knowledge, theory and practice, which has its root in social customs, beliefs, values, norms, attitude etc. This science is also known as ethno-veterinary research and development. The villagers have their own concepts, superstitions, etiologies, techniques and remedies for issues related to livestock health and production. Evidently, an overall improvement in this sector cannot be achieved without understanding this folk wisdom. The discipline of veterinary anthropology is the guidepost in this context. Its goal is to increase livestock production and productivity through improved management of animal health as informed by an interdisciplinary understanding of folk veterinary medicine and related husbandry techniques.

Foundation of veterinary anthropology lies on investigation of folk knowledge systems and the associated semantic and taxonomic systems, which guide and encode animal management practices. This should begin with translating folkways of conceptualizing, describing and combating animal ills to western scientific terms. This is not an easy job because veterinary science classifies diseases based on etiological information (afforded by sophisticated laboratory experiments) while ethno-veterinary procedures rely on morbid science, sorcery or a combination of these. This science however, needs to be enriched by including indigenous knowledge pertaining to livestock management like selection of animals, breeding, feeding, housing, culling etc. The perspective therefore is to give a systems approach enabling this branch of science to deal with livestock production holistically.

As mentioned elsewhere our tribal societies have nurtured a vast fund of indigenous knowledge and practices. The Imperial Gazetteer of India, 1911, defines a tribe as a "collection of families bearing a common name, speaking a common dialect, occupying or professing to occupy a common territory and is not usually endogamous though originally it might have been so". India has the second largest tribal population of the world next only to the African countries; as two hundred and fifty tribal groups live in isolated regions and constitute 8.2 per cent of the total population of the country (GOI, 2008). They differ considerably from other races in language, culture and beliefs in their myths and customs. The characteristics like primitive traits, geographical isolation and distinct culture, shy of contact with community at large and economic backwardness isolate them from others. Most of the tribal communities live in remote corners of the country and in hilly forest regions.

Tribes constitute about 1.14 per cent of the total population of Kerala (2001 census report). Attappady, the location of the present study, is the largest tribal settlement area of Kerala. The tribal folk of Attappady are the most backward among vulnerable ethnic groups of the state. They have a traditional

economy depending mainly on land, livestock and forest. The population of (2001 Census) Attappady was 66,171 of which 27,121 belong to scheduled tribes. Tribes constitute about 41% of total population of Attappady, which comprises mainly of three ethnic groups, viz., "Irula", "Kurumba" and "Muduga".

"Irula" is the numerically and socially dominant tribal group of Attappady. They occupy 84% of total hamlets in the area. They are of Tamil origin and derived their name "Irula" from their pitch-black complexion. Hunting and gathering, trapping of birds and animals, shifting cultivation, animal husbandry and pastoralism were their traditional occupations. Presently their major source of income is wage labour (Velluva, 2004). Those who possess small plots of land near their hamlets engage in dry land agriculture, mainly indigenous grains and cotton.

"Muduga" is the second largest tribal group. The name "Muduga" is derived from the practice of carrying their children on their 'Muthuku' (back). They live in clusters with twelve or so households in each settlement. They consider themselves superior to "Irulas" and "Kurumbas". Their occupations include agriculture, hunting and fishing

"Kurumbas" were the earliest group of tribes to settle in Attappady. They climbed down the Nilgiri hills and settled in the northern area of Attappady. They live in 19 hamlets spread across the catchment area of Bhavani River. "Kurumbas" were shifting cultivators and food gatherers. It is said that they have vast knowledge of ethno-veterinary practices.

These tribes live in hamlets, which are a collection of a few families of the same community in a place. In the local language this is called as 'Ooru'. There are a total of 183 hamlets in Attappady, of which 140 belong to "Irulas", 24 belong to "Mudugas" and the remaining 19 hamlets belong to "Kurumbas".

"Irulas" possess 84% of the hamlets, followed by "Mudugas" (10%) and "Kurumbas" (6%) the least number.

As reported by Aslam (2009), there were fifteen thousand eight hundred and three cattle and eighteen thousand five hundred and ninety one goats in Attappady block. Velluva (2004) reported that tribal livestock keepers of Attappady possessed an average of 2.85 cows and 6.15 goats. Much of the livestock possessed by the tribal livestock keepers were of desi breeds and hence of low productivity. Hence, a systematic and well-planned effort must be there to propagate modern animal husbandry practices as well as indigenous practices based on rational beliefs. In fact the former and the latter need to be melded for better results as an integrated technological approach would only be sustainable. It needs no mention that irrational beliefs and attitudes discourage the spirit of enquiry and scientific out look among the believers hindering technological improvement. In other words, irrational beliefs may act as techno-cultural obstacles in the acceptance of improved practices. It is also to be noted that any one science will not explain the complexity of factors impinging on animal health. Therefore a multidisciplinary team of scientists drawn from the field of veterinary science, animal husbandry, biochemistry, pharmacology, anthropology, sociology etc. should contribute towards documenting the indigenous knowledge in veterinary and animal husbandry practices.

The above package of practice of techniques drawn from both modern as well as rational indigenous animal husbandry practices could be the guideline for livestock owners for decision-making. Now there are too many options before the ordinary livestock owners especially the tribal livestock owners and many of these options are irrational.

The ultimate aim of such scientific pursuits nevertheless is improving livestock productivity so that livestock keeping becomes an economically enduring livelihood activity. That apart, it should not compromise with the stability of

ecosystems in which the tribal livestock farmers operate. It has been a vociferous complaint that modern husbandry practices are hazardous to the environment and ecosystem. Therefore an integrated approach melding judiciously and appropriately modern and indigenous husbandry is what is significant as mentioned elsewhere. In view of the above facts the present study was undertaken with the following objectives.

(1) Inventorying indigenous and modern animal husbandry practices.
(2) To study the degree of belief in selected indigenous and modern animal husbandry practices.
(3) To study the extent of adoption of selected indigenous and modern animal husbandry practices.
(4) To find out the determinants of adoption.

Limitations of the study

1) Although rationality decision is based on opinion of the scientists/ experts from the field of veterinary and animal husbandry and indigenous medicines yet it cannot be the final word as the experts rated them within their knowledge limitations. Clinical studies/trials are warranted before such beliefs are recommended for wider application.

2) There was profound paucity of literature, however relevant literature has been incorporated.

Review of Literature

2. REVIEW OF LITERATURE

A review of literature indicated that there have been only limited attempts to empirically study the indigenous and modern animal husbandry practices among the tribes, in our country. Nevertheless, an earnest attempt was made to review whatever literature was available pertaining to work done among tribes in India and abroad related to indigenous and modern animal husbandry practices besides those from the related fields of crop husbandry and human health.

Review of literature is presented under the following headings.

2.1 Ethno-veterinary practices.

2.2 Socio-personal.

2.3 Socio-psychological.

2.4 Communication.

2.5 Extension support.

2.6 Indigenous animal husbandry practices.

2.7 Modern animal husbandry practices.

2.8 Dependent variables.

2.1 ETHNO-VETERINARY PRACTICES.

Pushpangadan and Atal (1984) conducted an investigation among the seven primitive tribes of the Western Ghats and reported a variety of herbs used by them in treating various ailments. The medicinal treatment of diseases of most of these tribals involved mysticism, magical incantation, sacrificial practices and divining.

Marx and Wiegand (1987) studied the nomadic tribes of Somalia and reported the traditional medicines used for treating clamydiosis and Q-fever. He also reported that traditional medicine had an important role in the nomadic life of Somali societies.

Mathias-Mundy and McCorkle (1989) stated that ethno-veterinary medicine consisted of local people's knowledge dealing with folk beliefs, skills, methods and practices pertaining to animal health care and production. This knowledge was based on close observation of animals or the oral transmission of experience from one generation to next, or both. They further opined that ethno-veterinary medicine had emerged as a challenging field in more recent times that promised to benefit rural and peri-urban stock raisers, not just in the developing countries, but everywhere by virtue of the generation or generations of certain animal health technologies.

According to Kumar (1991) scientifically relevant and appropriately modified indigenous animal husbandry practices, which were practiced from generation to generation would have better adoption.

Rao *et al.* (1995) reported several uses of indigenous technical knowledge in animal husbandry and compared it with modern practices. They stressed the need for documentation of this knowledge.

Grenier (1998) defined indigenous knowledge as unique, traditional, local knowledge existing within and developed around the specific conditions of women and men indigenous to a particular geographic area.

Padmakumar (1998) in his study among the members of the Malabar Regional Co-operative Milk producers Union in Kerala found that 70 per cent of livestock farmers used traditional knowledge and therapies in caring for their animals. Foot and mouth disease, mastitis, fever, bloat, diarrhea and helminthiasis

were the common diseases treated. The plants customarily used for ethno-veterinary treatment were pepper, ginger, turmeric, garlic and preparations made from neem and tamarind.

A study conducted by Sankhala and Chand (1998) among tribal dairy farmers in Rajasthan revealed that constraints in training, as perceived by trained tribal dairy farmers were, inability to purchase the supply inputs, lack of co-ordination with other agencies for input availability and supply and inadequate practical demonstration facilities. On the other hand, constraints in training as perceived by training organizers and associates were lack of transport facilities for field visits, migration of tribals to urban areas for labour during off season and unwillingness of tribal farmers to come for on-campus training programmes.

A study conducted by Kumar and Dhaka (1999) among the tribal dairy farmers of East Singhbhun district of Bihar revealed that income per animal during the year of study was more among non-tribals than tribal dairy farmers. The investigation highlighted that only with higher productivity could animal rearing become viable and generate reasonably good income in the study area.

Some of the synonyms for indigenous knowledge according to Seeland (2000) were 'traditional knowledge', 'folk knowledge', 'local knowledge' and 'wisdom of the elders'. These synonyms reflect the local origin and promotion by a community.

Kashyap *et al.* (2000) reported that traditional or indigenous practices did not simply exist nor were they divinely revealed. Rather these practices were researched and developed by practitioners.

A study conducted by Sagar and Singh (2001) in the tribal areas of Nainital district revealed that the productivity of dairy animals owned by beneficiary livestock owners was positively and significantly correlated with the

variables, income from dairy animals, attitude towards scientific dairy farming, adoption of agriculture and animal husbandry practices and opinion leadership in agriculture. However, productivity of dairy animals was negatively and significantly correlated with status of land ownership.

Sah and Chand (2001) studied various indigenous dairy farming practices in Bihar. They reported the need to scientifically validate these practices for incorporation into the technology development process.

A study conducted by Singh (2002) conducted among tribal livestock farmers in Kanke block, Ranchi, Jharkhand revealed that livestock was the main source of farm income of landless households while crop husbandry was an important income source for marginal, small, medium and large farmers.

A study conducted by Meena and Fulzele (2004) among the Meena tribes of Rajasthan revealed that the main constraints in the adoption of improved dairy farming practices were lack of good breedable bulls, high cost involved in purchase of ingredients of concentrate mixtures, non-availability of veterinary doctors, distant location of veterinary dispensary, limited space and other resources available for providing scientific housing to dairy animals and preference for growing food/cash crops rather than fodder crops, as well as limited irrigation facilities for fodder crop round the year. The authors also reported that these constraints could be overcome with the help of education, training and some effective measures by extension workers.

Misra and Kumar (2004) studied the ethnography of community based indigenous knowledge and method of caring for, healing and managing livestock by the Konda Reddi tribes groups in the state of Andhra Pradesh. The study shed light on their methods for classification of common livestock ailments, as well as diagnosis and treatment by the local medicine man, the *vijju*.

Singh (2004) reported about the local knowledge related to usage of medicinal plants and various leaves of Eugenia, Jugalans and Salix plant for fodder purpose during the lean season by the tribal people of the Sangla valley of Kinnar district in Himachal Pradesh.

As per the survey conducted by Velluva (2004) among the tribal households of Attappady area revealed that average family wise ownership of cows and goats were found to be 2.85 and 6.15 respectively. The survey also revealed that presently the major source of income for tribal people was wage labour.

Ayyanar and Ignacimuthu (2005) conducted investigation among the ethnic groups of Kani/kanikaran in the Southern Western Ghats of India and identified 54 plant species traditionally used. These ethno-medicinal plants were used mostly for curing skin diseases, poison bites, wounds and rheumatism.

Jadeja *et al* (2006) studied ethno-veterinary practices, prevalent in the district of Porbandar among the tribals and reported that tribal communities such as Kohi, Ahir and Maher had better knowledge of the use of plants in animal treatment.

A study conducted by Majumdar et al (2006) among 19 ethnic tribes in Tripura state revealed 33 medicinal plants along with their local names, parts and ethno-veterinary uses. The authors expressed immense scope for the active principles analyses and clinical studies of these plants for future drug development.

Nagnur *et al.* (2006) reported that women were considered the storehouses of indigenous knowledge indigenous among the dairy farmers of six agro-climatic zones of Northern Karnataka

Reddy *et al.* (2006) reported 35 species of plants used in ethno-veterinary practices pertaining to the diseases viz., anthrax, ephemeral fever and trypanosomiasis by the tribals of the Eastern Ghats region of Andhra Pradesh.

A study conducted by Singh and Misri (2006) among the Gaddis tribes of Chamba district in Himachal Pradesh revealed that many areas suffered because of non-availability of veterinary services. The farmers had devised their own traditional methods of treating animals and had sufficient indigenous knowledge of the diseases and their treatment. The authors concluded that these farmers knew how to cure diseases and to maintain animals in good health.

Tiwari and Pande (2006) reported that Bhotiya tribes of Pithorgrh district of Uttaranchal had vast knowledge of ethno-veterinary practices. The authors observed that the treatment methods used were totally traditional, very effective and obtained from their ancestors through word of mouth. The study reported about 47 plant and plant products as well as 9 animal and animal products used in the treatment of animals.

A study conducted by Devi et al (2007) among the tribal and non-tribal families of Ranchi district in Jharkhand revealed that most of the decisions with regard to animal husbandry activities were taken by the male members in both the tribal and non-tribal families.

Lakra and Mahanta (2007) documented the indigenous knowledge of ten ethnic groups of Jharkhand, Orissa and West Bengal. Altogether 22 plant species were reported to be used by the tribals of the study area for a long time, for curing stomach ailments. Of the 22 plant species studied, twelve were used for stomach pain, eight for gastric trouble and two species were used in cases where worm infestation was suspected.

Okitoi *et al.* (2007) documented plant materials and other traditional preparations used by poultry keepers in the poultry production systems of Kimilili and South Wanga in Western Kenya. The study confirmed the existence of vast local knowledge for indigenous poultry health management. Aloe vera, pepper, sesal and neem were the most used medicinal plants.

Singh and Dhaliwal (2007) identified the indigenous practices besides collecting scientific opinion on ten common diseases which included indigestion, foot and mouth, dermatitis, diarrhoea, and wound among farmers of Malwa region in Punjab state.

A study conducted by Das and Tripathi (2009) among the livestock farmers of 4 blocks of Sundarbans in West Bengal revealed three types of treatments for wounds encountered in disease cases. These included the foot and mouth wounds, practice of washing of foot and mouth lesions with pulverized materials made of *Ficus relegiosa*, badi tree, *Allium sativum* and *Acacia catechu*; rubbing the lesion with a paste made of soot (uchhali) common salt and chili (paste) and the application of a mixture made of tobacco (*Nicotina tabacum*), the fruit of *Terminalia bellerica* and decoction of beera fruit. A total of 23 ethno-veterinary preparations and practices were reported by them.

2.2 SOCIO-PERSONAL

Tyagi and Sohal (1984) studied the factors associated with adoption of dairy innovations among the dairy farmers of Karnal. They reported that the variables occupation, economic motivation, price of milk and knowledge of the technology had a significant relationship with the adoption of dairy technology innovation whereas, the variables farm size was negatively and non-significantly related to the level of adoption of the dairy technology innovations.

A study conducted by Sharma *et al.* (2000) among the tribal and non-tribal buffalo keepers of Udaipur district in Rajasthan revealed that there was a significant difference in the adoption of improved buffalo rearing practices among the two groups of buffalo keepers. The authors further opined that the difference in adoption levels might be due to the low knowledge and literacy levels of tribals when compared to non-tribals.

Kumar and Singh (2002) studied the role of tribal women goat farmers of Ranchi district in Bihar and reported that majority (76.5%) of the respondents studied were illiterate and goat rearing was subsidiary occupation for most of the tribal farmers.

Reddy and Prakash (2002) reported that in the five states Mizoram, Nagaland, Sikkim, Kerala and Manipur the literacy level of the Adivasi population was higher than the national average. He also noted that the literacy gap between the Adivasi population and general literacy level has been getting wider, making the Adivasi a more illiterate group.

A study conducted by Singh and Sastry (2002) among the tribal dairy farmers of West Kameng district in Arunachal Pradesh revealed that majority of the respondents were from middle aged (31-46 years) and illiterate, economically non-active and less enthusiastic. He also observed that the dairy husbandry profession was mostly headed by uneducated farmers which might be the reason for less acquaintance with new innovative measures in animal husbandry.

Singh and Sharma (2003) reported that majority of the selected livestock rearing tribal men and women studied in Meghalaya and Nagaland were illiterate, had low annual income and poor extension contact and mass media exposure.

A study conducted by Chauhan *et al.* (2004) among the tribal dairy farmers of Kinwat Tahsil in Nanded district of Maharasthra revealed that age and

education of the farmers had no significant relationship with milk production whereas occupation of the farmers had a positive and significant relationship with milk production.

A study conducted by Rahman (2007) among the pig farmers of Aizawl district of Mizoram reported that the variables, farming experience and herd size were positively and significantly associated with adoption of improved technologies, whereas age of the farmer was negatively and significantly associated with adoption of improved technologies.

2.3 SOCIO-PSYCHOLOGICAL

Sushama *et al.* (1981) studied the adoption behaviour of modern living practices in selected tribal settlements in the Kozhikode and Cannanore districts of Kerala. The study revealed that in less developed areas, the variables level of aspiration had a significant relationship with adoption. The authors further observed that level of aspiration and value orientation had maximum direct effect on the adoption of modern living practices by the tribals.

Sundarambal and Annamalai (1995) studied the extent of adoption of dryland technology by rainfed cholam growers of Pongalur block in Coimbatore district. The study revealed that the variable scientific orientation was positively and significantly correlated with extent of adoption of technologies.

Kumar (2003) studied the entrepreneurial behaviour of poultry farmers of Namakkal district. He reported that just above half of the respondents with small flock size had medium level of value orientation.

Rahman (2007) in a study on the adoption level of improved technologies by pig farmers of Aizawl district of Mizoram found that the variables, education, farm size, scientific orientation, extension contact, farming experience and

financial help received were positively and significantly associated with adoption of improved technologies.

2.4 COMMUNICATION

2.4.1 Mass Media Exposure

Tyagi and Sohal (1984) conducted a study in the operational area of the Intensive Cattle Development Project, Karnal and reported that the variable, mass media exposure showed substantial negative direct effect on the adoption of dairy technology.

A study conducted by Singh and Tyagi (1993) in the Operational Research Project Area of National Dairy Research Insitiute, Karnal found that radio, gossip group and newspaper were most frequently used channels of communication for getting information on scientific dairy farming practices.

Gunawardana and Sharma (2007) carried out a study in tribal and non-tribal areas of Udaipur district of Rajasthan and reported that information seeking behaviour varied greatly between the non- tribal and the tribal areas. The source and channels utilized by non-tribal respondents for seeking information were not similar to the sources and channels used by tribal respondents. The sources most often utilized by tribal respondents were neighbours. Radio, newspaper and television were the most utilized impersonal channel for seeking information on improved farm practices both by tribal and non-tribal respondents.

George *et al.* (2008) reported the meager use of mass media such as television, radio and newspaper for information seeking by tribals of Pozhuthana panchayat of Wayanad district in Kerala. The authors also observed that most of the tribals studied resorted to interpersonal relationships (Self help groups) for information.

2.4.2 Extension Agency Contact

Ratnakar and Reddy (1991) found that knowledge of recommended technologies regarding package of practices in agriculture and animal husbandry to be poor among tribal farmers of Mandals Khammam District in Andhra Pradesh. The authors suggested urgent measures to disseminate technological information about the recommended practices as well as the use of motivational techniques like result demonstration and method demonstration to encourage adoption.

A study conducted by Singh and Sastry (2002) among the tribal dairy farmers of West Kameng district in Arunachal Pradesh indicated that majority of respondents had medium level of extension contact with the technical expert of the animal husbandry.

Yadav and Rani (2002) studied the dairy farmers of Rewari district of Haryana state and observed that majority of the respondents used indigenous method for treating animals. Only a few respondents visited the veterinary doctor, usually when the condition of the animals become worse. Knowledge levels of the respondents after the exposure to the subject, using prepared lecture and demonstration showed considerable improvement. Most of the respondents had gained sufficient knowledge, changed their attitude to some extent and had acquired medium level of symbolic adoption with regard to all in the diseases studied.

Singh and Sharma (2003) reported that majority of the selected tribal men and women studied in Meghalaya and Nagaland were illiterate, with low annual income, poor extension contact and mass media exposure.

Gunawardana and Sharma (2007) reported that there was an association between selected personal characteristics viz., education, size of land holding,

extension contact, innovation proneness and information seeking behaviour of the respondents.

Rahman (2007) reported that the variables, education, farm size, scientific orientation, extension contact, farming experience and financial help received were positively and significantly associated with adoption level of improved technologies by pig farmers of Aizawl district of Mizoram.

2.5 EXTENSION SUPPORT

Sharma and Nair (1974) studied the adoption of high yielding varieties of paddy among the farmers of four blocks of Palakkad and Quilon district in Kerala. They reported that the variable, market perception and credit orientation had positive and significant correlation with adoption of improved practices.

Tyagi and Sohal (1984) conducted a study in the operational area of the Intensive Cattle Development Project, Karnal and reported that the variables occupation, price of milk and knowledge of the technology had a significant relationship with the adoption of dairy technology innovation.

Sundarambal and Annamalai (1995) studied the extent of adoption of dry land technologies by rain fed cholam growers of Pongalur block in Coimbatore district revealed that the variable, credit orientation was positively and significantly correlated with extent of adoption of technologies.

Reddy and Prakash (2002) reported that the tribes of India remained the poorest of the poor in terms of both income and opportunity, both social and economic, largely because policy initiatives had not addressed the specific needs of this group.

2.6 INDIGENOUS ANIMAL HUSBANDRY PRACTICES

A study conducted by Srivastava (1982) among the tribal dairy farmers of Bihar revealed that indigenous practices of pregnancy diagnosis in cattle and the practice of feeding gur, methi, rice bran and gundali grass to increase milk yield in animals was followed.

Srivastava and Kharde (1983) studied the traditional beliefs on cattle husbandry among the tribal Mundas of Bihar and reported that 85.01 per cent of total respondents studied believed that colostrum feeding to calves was harmful. The reason put forth by them was that feeding colostrum would cause diarrhoea resulting in the death of calves.

Kokate and Tyagi (1991) studied the dairy farming practices of tribal cattle owners of Thane district in Maharashtra and reported the following beliefs/ practices.

i.) A majority of the tribals did not provide colostrum to the newborn calves. They had the misconception that colostrums induce diarrhea in calves.

ii.) A majority (77.55%) adopted the traditional method of castrating the male calves at the age of 3-5 years.

iii.) A majority of the tribal cattle owners (66.6%) diagnosed pregnancy of their animals in the advanced stage from external appearance.

iv.) Applying tobacco dust mixed with kerosene as a treatment for ecto-parasitic infestations.

v.) Application of a paste made of turmeric powder and salt after cleaning without water for treating wounds.

vi.) Bandaging the fracture with triturating the stem and leaves of herbal 'handmele' on the affected part and fixing it with bamboo splints.

Sah and Chand (2001) studied the indigenous dairy farming practices among the dairy farmers of Banka district in Bihar and reported the following beliefs/ practices.

i.) Allowing the animal to remain standing in mud for few hours to control Foot and Mouth Diseases.

ii.) Majority of dairy farmers got their animals served with local bulls available in the village either on payment (61.11%) or free of cost at the time of grazing (25.5%).

iii.) Only one third of the respondents allowed their newly born calves to take milk within one hour of birth and the rest provide milk to calves later on because of the misconception that colostrum would induce diarrhoea in calves.

iv.) Majority of respondents (68.89%) followed knuckling method of milking and only 13.33 per cent of the respondents followed full hand method of milking which is considered more scientific.

v.) Majority of the respondents (72.22%) got their male calves castrated by crushing the testis.

vi.) Generally farmers did not have faith to wean the calves after birth and allowed their calves to remain with the dams.

vii.) Majority (80.0%) of the respondents studied preferred katcha house for their animals and 10 per cent preferred open system of housing.

viii.) To increase the milk yield of lactating animals majority of the farmers provided oil seed cakes (100.0%), maize grain (55.56%) and *Gur* (22.22%).

Mohanty (2003) studied the folklores account of selection of cattle among rural dairy farmers of Orissa and reported fifteen folklores concerned with physical behavioural characters of cattle based on which farmers could select a bullock befitting his farming necessities. The study revealed that bullocks with black or brownish body colour were unsuitable for field work due to their intolerance to persistent exposure to sunlight.

A study conducted by Singh and Sastry (2002) among the tribal dairy farmers of West Kameng district in Arunachal Pradesh revealed that all dairy farmers took their animals for grazing. No respondent had any specific type of shed to keep their animals and no farmer practiced fodder cultivation.

A study conducted by Misra and Kumar (2004) among the Konda Reddi tribal group of Andhra Pradesh revealed the indigenous practices of castrating oxen by hitting the scrotum of the animal with a stone and applying 'Pasapa' (*Curcuma longa*) powder and 'nalla chedi' (*Semecarpus anacrdium*) fruit juice to the scrotal sac.

Avinashilingam *et al*. (2008) studied the existing dairy farming practices of six major dairy tribes of Niligiris district in Tamil Nadu and reported the following.

i.) All the respondents studied did not prefer to castrate the male calves.

ii.) Among the respondents studied, 13.75% disposed off the placenta of their animals by hanging it on a tree.

iii.) Majority of the tribal households (85.29%) diagnosed pregnancy of their animals after three months.

Saha *et al.* (2006) studied the indigenous knowledge in the livestock health care system among livestock owners of Rudranagar village in West Bengal. Five quantification of indigenous knowledge matrices were employed to validated performance of 11 indigenous knowledge used in five different health care practices against five parameters and reported that the practice of treating F.M.D. with neem leaves, allowing the animals to walk in the mud to control F.M.D. and treating open wounds with lime, garlic and turmeric to be equally effective as that of treating with modern medicines.

Das and Tripathi (2009) reported the following ethno-veterinary practices in the selected villages of Sundarbans region in West Bengal.

i.) Application of warm turmeric paste on the sprained/ strained area.

ii.) Feeding of 'ban mula' after parturition to compensate post partum body

pain in cows.

Ponnusamy *et al.* (2009) studied the indigenous technical knowledge among the dairy farmers of Tiruvallur and Thanjavur districts in Tamil Nadu and reported the following beliefs / practices.

i.) Administering *Tribulus Terrestis* (Nerinji), moring flowers, Adalsa (*Adhatoda vasica*) with neem oil to induce heat in dairy animals.

ii.) Feeding the animals cotton seeds, horse gram and Bengal gram soaked in water for retention of placenta.

iii.) Administering black pepper and coconut oil for treating indigestion in cattle.

iv.) Administering thorn apple (*Datura stramonium*) seeds and areca nut for diarrhea.

v.) Administering *Acalypha indica* (Kuppaimeni) mixed with sacred basil (*Ocimum sanctum*) leaf juice for cough.

2.7 MODERN ANIMAL HUSBANDRY PRACTICES

Srivastava and Kharde (1983) studied the traditional beliefs of rural Mundas of Khunti sub-division of Chotanagpur plateau in Bihar. They reported that the respondents believed artificial insemination to be injurious to the health of animals. The respondents believed in the purity of breed and considered cross bred animals born out of artificial insemination to be impure. Some of the respondents also believed that artificial insemination deprives cows and she-buffaloes of normal sexual pleasure.

Kokate and Tyagi (1991) studied dairy farming practices of tribal cattle owners of Thane district in Maharashtra. They reported that 23.0 per cent of cattle belonged to tribal people and it survived on grazing alone. Majority of the tribal farmers provided paddy straw, grass and tree leaves to their animals in addition to allowing them for grazing. Only 22.0 per cent of the tribal cattle owners fed their milch and pregnant animals with concentrates. The study further revealed that only 30.5 per cent of tribal respondents sought the help of a veterinarian and this was usually after trying out an indigenous medicine.

A study conducted by Sagar and Singh (2003) to measure the extent of adoption of agriculture and animal husbandry practices among the Tharu tribe of Nainital district in Uttar Pradesh revealed the following.

i) Green fodder cultivation was adopted by 85.0 per cent of I. T. D. P beneficiaries and 87.5 per cent of non-beneficiaries.

ii) Extra concentrate feeding to pregnant cows and buffaloes were adopted by 46.25 per cent of the I. T. D. P. beneficiaries and 58.75 per cent of the non-beneficiaries.

iii) All the respondents studied allowed colostrum feeding to their calves.

iv) Regular vaccination against H. S, F. M. D. and R. P. was adopted by 30.0 per cent of the I. T. D. P. beneficiaries and 16.25 per cent of the non-beneficiaries.

v) Occasional deworming for internal parasites was adopted by 25.0 per cent of the I. T. D. P. beneficiaries and 21.25 per cent of the non-beneficiaries.

Stephan *et al.* (2005) reported that Attappady black goats were mainly reared by the tribes of Attappady region in Palakkad. These animals were maintained extensively on grazing. Concentrate were seldom fed to these goats.

Biradar *et al.* (2007) studied the traditional livestock feeding practices among the dairy farmers of Dharawad district in Karnataka. They reported that

farmers preferred to feed cottonseed cake, hay of mixed crop and had a daily feeding pattern for bullocks and milch animals.

Avinashilingam *et al.* (2008) studied the existing dairy farming practices of six major dairy tribes of Niligiri district in Tamil Nadu and reported the following.

i) Majority of the tribal respondents (90.2%) got their animals treated by priests and they isolated their animals during sickness.

ii) Majority of the respondents practiced natural means of navel separation in the calf and disposed the placenta by burying.

iii) Allowed colostrum feeding to their new born calves and believed it would prevent the spirits from attacking the young calf and hence the diseases.

iv) Majority of the respondents (75.82%) did not get their calves dewormed.

v) Only a few tribal households (9.15%) got their cows artificially inseminated.

vi) Almost all the tribal respondents allowed grazing of animals, but a few (1.96%) of the respondents practiced stall-feeding and almost all the tribal households offered feeds and fodders to animals for the purpose of increasing milk yield.

vii) Majority (96.73%) of the tribal households did not vaccinate their animals and reason was that the tribal household feared any kind of injection and had faith in native medicine.

viii) Majority of tribal dairy farmers (65.69%) had separate cattle shed for their animals, whereas 34.31 per cent of tribal households had no separate shed.

ix) Majority (93.14%) of tribal respondents practiced knuckling as a method of milking, followed by stripping (5.88%) and full hand milking (0.98%) in that order.

2.8 DEPENDENT VARIABLES

Sharma and Nair (1974) studied the adoption of high yielding varieties of paddy among farmers of four blocks of Palakkad and Quilon district in Kerala and found that the variables, level of aspiration, and extension agency contact were positively and significantly correlated with adoption of improved practices.

Tyagi and Sohal (1984) conducted a study in the Operational area of the Intensive Cattle Development Project, Karnal and reported that increase in the knowledge of dairy innovations led to higher adoption of dairy technology by dairy farmers.

Selvanayagam (1986) studied traditional beliefs among the dry land farmers of Tamil Nadu, along with their strength and rationality. The study identified strongly held superstitious beliefs that could be blockers of technological diffusion. The study also revealed that the variables, years of experience, economic motivation and age were negatively correlated with degree of belief and extent of adoption of traditional practices, whereas innovativeness, scientific orientation, mass-media exposure and extension agency contact were positively correlated.

Ganadeepa (1991) studied traditional practices of rice farmers of Tamil Nadu. The study revealed that the variables, age and experience had positive correlation with degree of belief and extent of adoption of traditional practices, whereas the variables, scientific orientation, mass media exposure and extension agency contact were negatively correlated with degree of belief and extent of adoption of traditional practices.

Kalaivany (1992) studied 62 traditional beliefs of dryland farmers of Tamil Nadu, and measured their strength and rationality. The study also revealed that the variables, age and experience in dairying were positively correlated with

degree of belief and extent of adoption of traditional practices, whereas scientific orientation, mass-media exposure and extension agency contact were negatively correlated.

Somasundaram (1995) reported 217 indigenous practices in dairy husbandry among the farmers of Tamil Nadu. The adoption and rationality of these practices were studied and reported. Out of 19 variables studied six variables viz., farm size, family type, occupational status, annual income, social participation and mass media exposure had no association with degree of belief and extent of adoption of traditional practices. The study further revealed that the variables age and years of experience in dairying were positively correlated with degree of belief and extent of adoption of traditional practices, whereas herd size, innovativeness, and extension agency contact were negatively correlated with degree of belief and extent of adoption of traditional practices.

Sundarambal and Annamalai (1995) studied the extent of adoption of dryland technologies by rainfed cholam growers of Pongalur block in Coimbatore district revealed that the variables extension agency contact was positively and significantly correlated with extent of adoption of technologies.

Suresha *et al.* (1995) studied the characteristics of marginal and small contact farmers of Tumkur district in Karnataka. The study revealed that a majority of the respondents had extension participation (70.0%) and low value orientation (70.0%).

Karthikeyan *et al.* (1996) studied the factors influencing the adoption behaviour of sugarcane growers of three divisions of Pondicherry and Tamil Nadu. The study revealed that the variables, age, farm size and contact with extension personnel were positively and significantly correlated with adoption of recommended practices.

A study conducted by Sagar and Singh (2001) in the tribal areas of Nainital distict revealed that productivity of dairy animals was positively and significantly correlated with income from dairy animals, employment generation from animal husbandry, and attitude towards scientific dairy farming but negatively and significantly correlated with herd size. They also observed that majority of the respondents had medium level of overall adoption of animal husbandry practices.

Sah and Chand (2001) stated that adoption of modern dairy farming practices required some infrastructural and input support which were not always available and accessible to all livestock owners in the country.

Sunil (2001) studied the correlation of degree of belief and extent of adoption of traditional belief system in dairy husbandry among the tribes of Attappady. Out of the 14 variables studied 3 variables viz., age, years of experience in dairying and livestock owned had a positive correlation with degree of belief and extent of adoption of traditional belief system in dairy husbandry, whereas man-nature orientation, scientific orientation, extension agency contact and mass media exposure had negative correlation.

A study conducted by Tripathi and Gautam (2003) among the goat farmers of Etawah district in Utter Pradesh revealed that family education, information and source utilization had positive correlation with adoption of goat rearing practices, whereas age was not significantly correlated with adoption of goat rearing practices.

Chandra *et al.* (2005) studied adoption behaviour among the tribal goat keepers in Terai belt in West Bengal. The study revealed that adoption of improved practice in goat keeping was positively and significantly correlated with education, family income and communication sources. The study also identified communication sources and family education status as key elements

that directly and indirectly promoted the adoption of improved practices in goat keeping by the tribal goat keepers

Rahman (2007) studied the adoption of improved technologies by the pig farmers of Aizawl district of Mizoram. He reported that a majority of the pig farmers partially adopted improved technology on pig rearing, whereas 34 per cent and 15 per cent adopted at higher and lower levels respectively.

Materials and Methods

3. METHODOLOGY

The methodology of the study is presented under the following headings.

3.1. Area of study

3.2. Sampling procedure

3.3. Selection of variables

3.4. Operationalisation and measurement of variables

3.5. Statistical analysis

3.1 AREA OF STUDY

The area chosen for the study was Attappady rural development block of Mannarghat taluk in Palakkad district of Kerala.

3.1.1. Geography

Attappady is situated in the Western Ghats, between 10°55' 10" and 11°14' 19" north latitude and 76°27' 11" and 76° 48' 8" east longitude. Attappady stretches from Mukkaly to Anakatty in the west-east direction and Thazhemully to Muthikkulam in the north-south direction. It is bordered by Palakkad taluk in the south and Karimba, Pottessery and Mannarkad revenue villages of Mannarkad taluk and Ernad taluk of Malapuram district in the West. Nilgiri and Coimbatore districts of Tamil Nadu are situated on the north and east respectively.

Fig. 1 Location Map of Study Area

Tamil Nadu

PALAKKAD DISTRICT
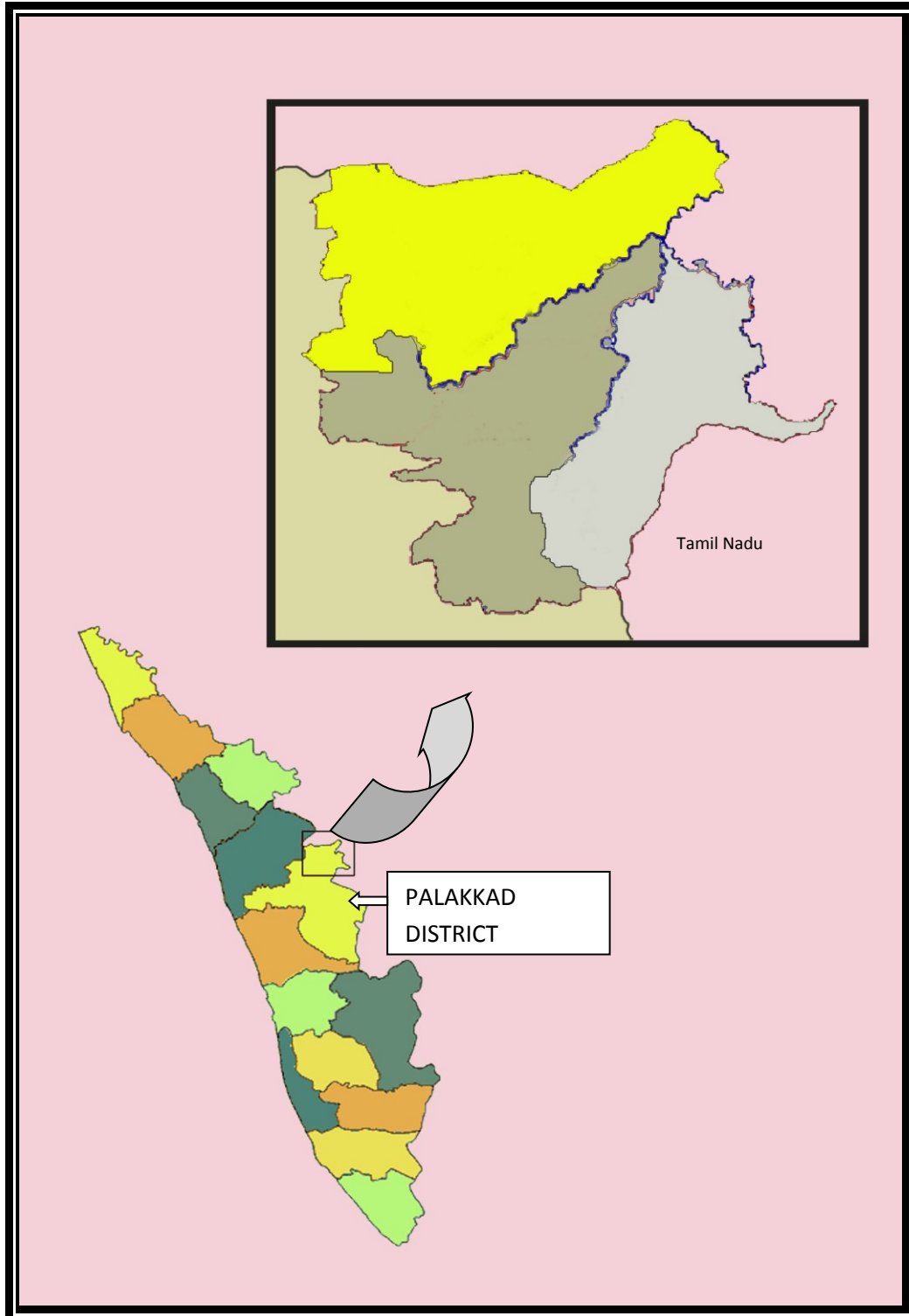
Fig. 2 Map of Attappady Block Panchayat
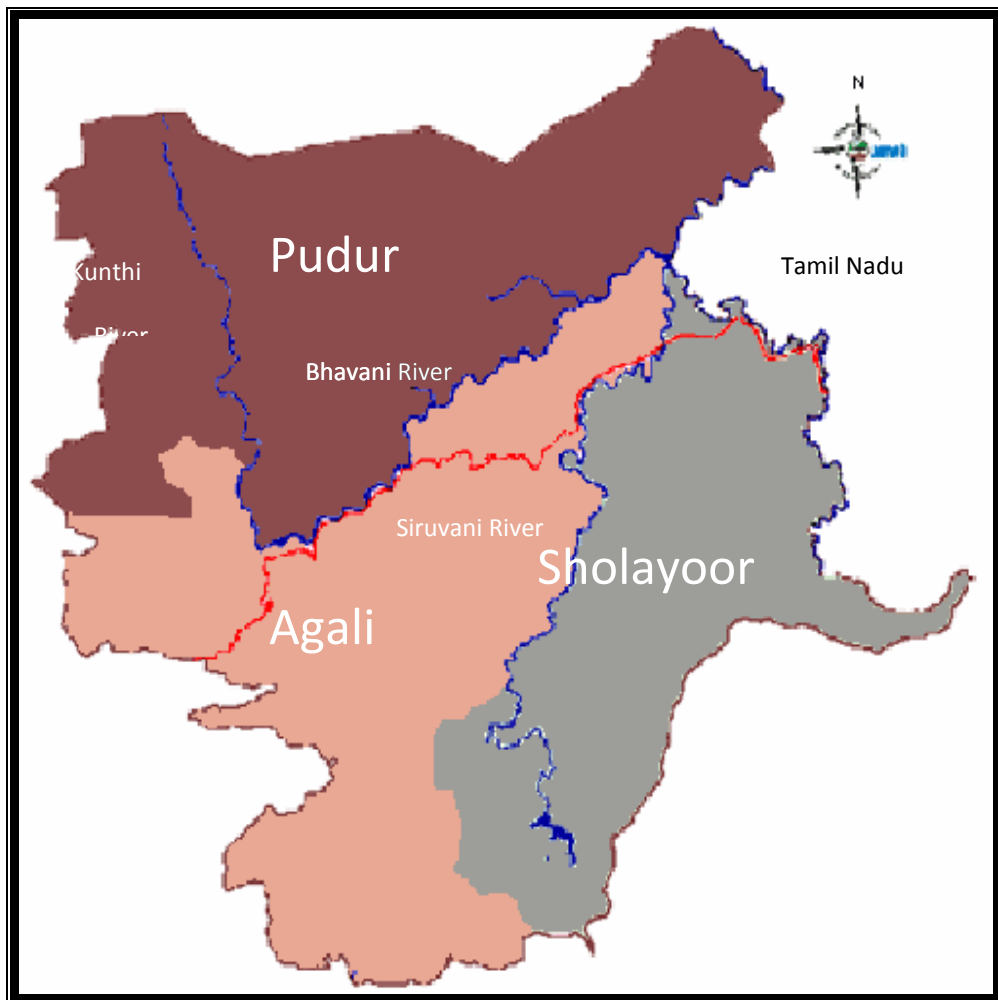
The terrain of Attappady is marked by hills and valleys, with high mountains and narrow valleys in the western half. The area lies between two ranges of the Western Ghats with a general slope towards the north-east. The northern boundary of Attappady block lies at an elevation of around 2300 m in the Nilgiri peak, from where it decreases along the south-west and later climbs up to 2000 m at Muthikulam. Attappady has a total geographical area of 745 square kilometres of which 444 sq. km is forest land, 170.6 sq. km is waste or fallow land and the rest 130.3 sq. km is used for agricultural purposes.

3.1.2. Climate and Rainfall

The observed mean maximum temperature ranged between 26.22°C (June) to 33.8°C (April) and mean minimum temperature ranged between 14.71°C (January) to 23.1°C Agali region. Average humidity was 77.2 per cent in Agali and 77.27 per cent in Sholayoor. Mean rainfall was 137.13 centimeter (cm) in Agali and 199.71 cm in Sholayoor.

3.1.3. Administration

Attappady is situated at a distance of 75 kilometers from the district headquarters of Palakkad. Attappady block consists of three Grama panchayats namely Agali, Pudur and Sholayur with 20, 12 and 13 wards respectively

3.1.4. Livestock Population and Distribution

Table 1. Livestock population of Attappady.

2007

	Agali	Pudur	Sholayoor	Total
Cattle	6780	3906	5117	15803
Buffalo	79	15	17	111
Goat	6225	5056	7310	18591
Sheep	0	0	177	177
Pig	48	0	415	463
Poultry	8587	7975	9031	25593
Duck	15	16	0	31
Rabbit	582	608	65	1255

As reported by Aslam (2009), the livestock species of the area consisted of cattle, goat, buffalo, sheep, pig, rabbits and poultry. Much of the livestock is concentrated in the watersheds adjoining or nearer to the major river Bhavani and its tributary Siruvani. However, livestock are also concentrated in the watersheds adjoining/nearer to the two other tributaries of Bhavani viz., Varagar and Kodungarapallam

3.2. SAMPLING PROCEDURE

Attappady tribal block of Palakkad district was selected as the area of study. This tribal block is comprised of three panchayats which are Agali, Pudur and Sholayoor. Pudur and Sholayoor panchayats are located on either side of Agali panchayat and are comparatively interior panchayats. A pilot study was conducted to identify various indigenous animal husbandry practices which were prevalent in the area. Personal observations, group interviews of tribal livestock

farmers, discussion with local healers, head clan ('Moopan') and such other key informants were conducted to document the various beliefs and practices. A total of 53 beliefs based practices were selected for the final study. In the case of beliefs regarding modern animal husbandry practices a total of 51 scientifically recommended animal husbandry practices were subjected to study.

3.2.1. Sampling Design

Ten hamlets each from peripheral and deep areas were purposefully selected. Sixty respondents each were selected from the hamlets of peripheral and deep areas following a stratified random sampling procedure. The sample drawn was as follows.

Table 2. Sample drawn from periphery area.

Sl.No.	Hamlets	Total Households	Number of households rearing Livestock	Sample taken
1)	Vandampara	23	8	3
2)	Mele kallamala	32	14	4
3)	Naikarapady	76	28	10
4)	Kavundikkal	43	19	6
5)	Boothivazhy	56	31	7
6)	Mele Agali	64	12	4
7)	Vellamari	82	34	8
8)	Narasimukku	57	27	7
9)	Ommala	62	18	5
10)	Pattimalam	78	26	6
	Total	573	217	60

Table. 3. Sample drawn from deep area.

Sl.No.	Hamlets	Total Household	Number of households rearing Livestock	Sample taken
1)	Pudur	71	17	6
2)	Swarnagatha	45	15	3
3)	Thazhe Ummathampady	32	9	3
4)	Vallavatty	37	22	8
5)	Doddugatty	72	43	6
6)	Mele Mulli	73	52	11
7)	Mele Boothiyar	23	18	5
8)	Pazhayoor	27	21	5
9)	Varagampady	68	41	6
10)	Paloor	70	34	7
	Total	528	265	60

3.2.2. Selection of Judges.

Thirty scientists/ experts belonging to different but relevant disciplines were chosen to judge the rationality of indigenous practices. The expert panel comprised of senior practicing veterinarians, veterinary scientists cum teachers in the disciplines of veterinary medicine, veterinary pharmacology, veterinary surgery and senior ayurvedic practitioners.

3.3. SELECTION OF VARIABLES

Table. 4. Variables and their measurement.

Variables   **Measuring tools**

3.3.1. Independent Variables

  I.   Socio-personal variables

  X_1 Age   Structured schedule

  X_2 Literacy   -do-

  X_3 Occupation   -do-

  X_4 Years of experience in Animal Husbandry   -do-

  X_5 Herd size   -do-

  II. Socio-psychological variables

  X_6 Man- nature orientation   Scale developed by Sankariah and
                                     Riethmuller (1977)

  X_7 Value orientation.   Scale developed by Kittur (1976) with
                                     necessary modification

  X_8 Scientific orientation   Supe's scale (1969) as modified by
                               Somasekharan (1980).

  III. Communication variables

  X_9 Mass media exposure   Structured schedule

  X_{10} Extension agency contact   -do-

  IV. Extension support variables

  X_{11} Market support.   -do-

X$_{12}$ Policy support.   . Structured schedule

X$_{13}$ Organizational support.   -do-

V. Belief based variables
* X$_{14}$ Strength of belief   -do-

* X$_{15}$ Rationality of belief   -do-

VI. Adoption based variables
* X$_{16}$ Level of adoption   -do-

Variables	Measurement
3.3.2 Dependent Variables	
Y$_1$ Degree of belief in the selected indigenous beliefs	Structured schedule
Y$_2$ Degree of belief in the selected modern animal husbandry practices.	Structured schedule
Y$_3$ Extent of adoption of selected indigenous animal husbandry practices. .	Method adopted by Ramkumar (1987)
Y$_4$ Extent of adoption of selected modern animal husbandry practices	Method adopted by Ramkumar (1987)

* Not subjected to correlation analysis

3.4 OPERATIONALISATION AND MEASUREMENT OF VARIABLES

3.4.1 Independent Variables

3.4.1.1 Socio-personal Variables

3.4.1.1.1 Age

This referred to the chronological age of the respondent at the time of study. The tribal respondents were categorized into three groups as given below

Age group	**Age**
Young	30 years and below
Middle	31 – 50 years
Old	Above 50 years

3.4.1.1.2 Literacy

It meant the level of literacy of the tribal livestock farmer. Accordingly they were classified either as literate or illiterate and the corresponding scoring procedure was as given below.

Category		Score
Literate	-	1
Illiterate	-	2

3.4.1.1.3 Occupation

Occupation meant the job/profession of the respondents. The profession that took away much of the time in a month or year was considered to be the major occupation. The respondents were categorized on the basis of the main occupation and accordingly they were classified as respondents pertaining to agricultural sector and non-agricultural sector. The agricultural sector included agricultural farmers, livestock farmers and agriculture labourers. The non-

agricultural sector included non-agricultural labourers, petty businessmen / traders and government servants. The scoring procedures followed is given below.

Category		Score
Agricultural sector	-	1
Non- agricultural sector	-	2

3.4.1.1.4 Years of experience in animal husbandry

This referred to the number of years that the respondent was in livestock keeping at the time of study. Three groups of respondents were drawn on the basis of number of years in livestock keeping. Based on mean frequency and standard deviation three categories were drawn as given below.

High	- Above 37 years
Medium	- 13 – 37 years
Low	- Below 13 years

3.4.1.1.5 Herd size

This referred to the total number of livestock viz:- cattle, buffaloes and goats owned by the respondent. On the basis of the number of livestock and the mean, the respondents were grouped either owning small herd or large herd size.

Small (<mean)	- <8.7
Large (>mean)	- >8.7

3.4.1.2 Socio-psychological Variables

3.4.1.2.1 Man-nature orientation

Man–nature orientation scale enables ordering respondents in a continuum, from those oriented to live subjugated to nature to those oriented to have mastery over nature. To measure this variable the four item man-nature orientation scale developed by Sankariah and Riethmuller (1977) was used. There were four statements in the scale and the responses had to be recorded either as agree or disagree bearing score 1 and 2 respectively. Therefore the minimum and maximum scores a respondent could attain were respectively four and eight. The respondents were categorized into two groups as given below.

Category		Score
Low	-	4-6
High	-	7-8

3.4.1.2.2 Value orientation

Values largely influence the individual behavioural pattern. Value is the relative importance people attribute to different objects, phenomena and circumstances. People's action towards different things of life is based on the value they hold.

In the present study value orientation was measured with the help of a scale developed by Kittur (1976). To know the value held by the livestock farmers, four values were selected. They were cosmopoliteness versus localiteness, scienticism versus fatalism, liberalism versus conservatism and high aspiration versus low aspiration. For cosmopoliteness, scienticism, liberalism and high aspiration a score of 3, 2 and 1 were given to agree, undecided and disagree respectively. In the case of localiteness, fatalism, conservatism and low aspiration a score of 1, 2 and 3 were assigned to agree, undecided and disagree respectively.

The score obtained for each value was added to get individual respondent's value orientation score. This ranged from 8 to 24. The respondents were categorized into low and high group on the basis of scores obtained by them.

Category		Score
Low	-	8 - 16
High	-	17- 24

3.4.1.2.3 Scientific orientation

It was conceptualized as the degree to which a tribal livestock owner was oriented to the use of scientific methods, in decision making. To measure this variable the scale developed by Supe (1969) and modified by Somasekharan (1980) was used. There were in all six items out of which 5 were positive and one negative. However, in this study the items were rated on a three point continuum viz. agree (3), undecided (2) and disagree (1).
Based on total scores and means the respondents were categorized as belonging to either low or high groups.

Category		Score
Low (<mean)	-	<11.02
High (>mean)	-	>11.02

3.4.1.3 Communication
3.4.1.3.1 Mass media exposure

This meant the exposure of the respondents to media such as newspaper, radio, T.V, literature as magazines, bulletins, leaflets etc. in the field of animal husbandry. Scoring as 3, 2 and 1 was made respectively on a three point continuum viz., regular exposure, occasional exposure and no exposure at all.

The scores ranged from 5 to 15 and were categorized into either low or high group based on the scores obtained by the individual respondent.

Category		Score
Low (<mean)	-	<8.83
High (>mean)	-	>8.83

3.4.1.3.2 Extension agency contact

It referred to the frequency of contact with various extension / development agents, in connection with animal husbandry, in the year preceding the date of interview. The number of times contacted is added on the basis of the mean, the respondents were categorized either as low or high group.

Category		Score
Low (<mean)	-	<8.83
High (>mean)	-	>8.83

3.4.1.4 Extension Support
3.4.1.4.1 Marketing support

It referred to the opinion of the livestock owners regarding the current availability of regular cattle markets, storage / collection facilities, price information, transport facilities and liaisoning facilities. All together there were 5 positive statements. Scoring as 3, 2 and 1 were made respectively on a three point continuum viz., satisfactory, somewhat satisfactory and not satisfactory. The scores obtained for each statement were added to get individual respondent's score. The scores ranged from 5 to 15 and respondents were categorized into low (<mean) and high (>mean) based on the score obtained by them.

Category	Score
Low (<mean)	- <9.75
High (>mean)	- >9.75

3.4.1.4.2 Policy support.

It referred to the opinion of the livestock owners regarding the current policy support on breeding of animals, insurance, loan and subsidies on livestock, price policy of livestock products and availability of feeds and medicines for livestock. All together there were 5 positive statements. Scoring as 3, 2 and 1 were made respectively in a three point continuum viz., satisfactory, somewhat satisfactory and not satisfactory. The scores obtained for each statement were added to get individual respondent's score. The scores ranged from 5 to 15 and respondents were categorized either as low or high group based on the scores obtained by them.

Category	Score
Low (<mean)	- <9.08
High (>mean)	- >9.08

3.4.1.4.3 Organizational support.

It referred to the opinion of the livestock owners regarding the support obtained by the livestock farmers form various organizations such as banks, co-operatives societies, farmers associations, AHADS and other non-governmental organizations. All together there were 5 positive statements, which were scored as 3, 2 and 1 respectively on a three point continuum viz., satisfactory, somewhat satisfactory and not satisfactory. The score obtained for each statement was added to get individual respondent's score. The scores ranged from 5 to 15 and respondents were categorized into two groups viz., low and high groups based on the scores obtained by them.

Category   Score
Low   (<mean)   -   <8.2
High (>mean)   -   >8.2

3.4.1.5 Belief Based Variables
3.4.1.5.1 Strength of Belief

It indicated the strength of each and every belief selected for the study in terms of respondent's weak or strong feeling towards the same. In other words it denoted how strongly a belief was held by the respondent. The beliefs were individually rated over all the respondents on a five point continuum viz., strongly agree, agree, undecided, disagree and strongly disagree with respective weightages of 5, 4, 3, 2 and 1. Every belief was later categorized either as a strong belief or weak belief depending on the mean score. Accordingly the following categories were drawn

3.4.1.5.1.1 Strength of indigenous animal husbandry belief

Category   Score
Strong beliefs (>mean)   > 3.28
Weak beliefs   (<mean)   < 3.28

3.4.1.5.1.2 Strength of modern animal husbandry belief

Category   Score
Strong beliefs (>mean)   > 3.05
Weak beliefs   (<mean)   < 3.05

3.4.1.6 Rationality

3.4.1.6.1 Rationality of indigenous animal husbandry belief

It indicated the prima facia opinion of the scientific community based on empirical/scientific evidence about the selected indigenous animal husbandry belief regarding its scientific validity. The beliefs were individually rated by 30 judges on a five- point continuum viz., strongly agree, agree, undecided, disagree and strongly disagree with weightages 5, 4, 3, 2 and 1 respectively. Every belief was then classified either as rational or irrational belief depending on the mean score. Accordingly beliefs were classified as given below.

Category	Score
Rational (> mean)	>3.25
Irrational (<mean)	< 3.25

3.4.1.7 Adoption Based

3.4.1.7.1 Level of Adoption

To know the level of adoption of the selected animal husbandry belief based practices, the following procedure was adopted. The number of respondents adopting each practice was added to arrive at the total frequency. This total frequency was divided by the number of practices to derive the mean frequency. This is separately worked out for both rational and irrational indigenous belief based practices modern animal husbandry practices. Based on mean frequency and standard deviation three categories of animal husbandry practices were drawn for all the three categories. They are as given below.

3.4.1.7.1.1 Level of adoption of irrational indigenous animal husbandry practices

Category	Score
Practices with high level of adoption	> 92.9
Practices with medium level of adoption	50.44 – 92.44
Practices with low level of adoption	< 50.44

3.4.1.7.1.2 Level of adoption of rational indigenous animal husbandry practices

Category	Score
Practices with high level of adoption	> 80.87
Practices with medium level of adoption	42.92 – 80.87
Practices with low level of adoption	< 42 .92

3.4.1.7.1.3 Level of adoption of modern animal husbandry practices

Category	Score
Practices with high level of adoption	> 70.77
Practices with medium level of adoption	39.23 – 70.77
Practices with low level of adoption	< 39.23

3.4.2 Dependent Variables

3.4.2.1 Degree of belief in the selected indigenous animal husbandry practices

Degree of belief was conceptualized as the level of agreement or disagreement of the respondent with the selected beliefs that the respondents were aware of. The respondents were individually rated over all the beliefs on a five point continuum viz., strongly agree, agree, undecided, disagree and strongly disagree with respective weighages of 5, 4, 3, 2 and 1. Accordingly respondents

were categorized either as strong or weak believers. This was done on the basis of total score and mean.

Category	Score
Strong believers (>mean)	> 172.75
Weak believers (<mean)	< 172.75

3.4.2.2 Degree of belief in the selected modern animal husbandry practices

Degree of belief was conceptualized as the level of agreement or disagreement of the respondent with the selected beliefs that the respondents were aware of. The respondents were individually rated over all the beliefs on a five point continuum viz., strongly agree, agree, undecided, disagree and strongly disagree with respective weighages of 5, 4,3, 2 and 1. Accordingly, respondents were categorized into strong and weak believer groups. This was done on the basis of total score and mean.

Category	Score
Strong believers (>mean)	> 155.625
Weak believers (<mean)	< 155.625

3.4.2.3 Extent of adoption of selected indigenous animal husbandry practices.

Extent of adoption of selected indigenous animal husbandry practices was measured in terms of adoption quotient. Adoption quotient was calculated for each individual in order to correlate with the independent variable. Adoption quotient of selected indigenous animal husbandry practices was calculated as follows

Adoption quotient = Total number of selected

            indigenous beliefs adopted   X 100

           (Symbolic + Practice)

          ———————————————————

           Total number of selected

           indigenous beliefs studied

Extent of adoption was separately calculated for rational and irrational practices. Three categories of respondents were drawn based on adoption quotient as follows.

Categories	Adoption quotient
High	>66.6
Medium	33.3-66.6
Low	<33.3

3.4.2.6 Extent of adoption of selected Modern animal husbandry practices

Extent of Adoption of selected modern animal husbandry practices was measured in terms of adoption quotient. Adoption quotient was calculated for each individual in order to correlate with the independent variable. Adoption quotient of selected modern animal husbandry practices was calculated as follows

Adoption quotient = Total number of selected   X   100

           modern beliefs adopted

           (Symbolic + Practice)

          ———————————————————

           Total number of selected

           modern beliefs studied

However, the number of persons adopting symbolically and by actual practice were added for every belief. Three arbitrary categories of respondents were drawn based on adoption quotient as follows.

Categories	Adoption quotient
High	>66.6
Medium	33.3-66.6
Low	<33.3

3.5 STATISTICAL ANALYSIS

The data collected were subjected to the following statistical tests

1. Frequency
2. Percentage
3. Mean
4. Standard deviation
5. Correlation
6. Multiple regression
7. Z test.

Fig. 3 Conceptual model of the study

Independent variables   **Dependent variables**

I Socio personal variables

1. Age

2. Literacy

3. Years of experience in

   animal husbandry

4. Herd size

II Psychological variables

5. Man nature orientation

6. Value orientation

7. Scientific orientation

III Communication

8. Mass media exposure

9. Extension agency contact

IV Extension support

10. Market support

11. Policy support

12. Organizational support

1. Degree of belief of selected indigenous animal husbandry practices

2. Degree of belief of selected modern animal husbandry practices.

3. Extent of adoption of selected indigenous animal husbandry practices.

4. Extent of adoption of selected modern animal husbandry practices

Level of adoption of animal husbandry practices

Results

4. RESULTS

Results have been presented under 7 major sections viz.

4.1. Socio- personal profile of tribal animal husbandry farmers in relation to degree of belief and extent of adoption of selected indigenous and modern animal husbandry practices.

4.2. Relationship between independent and dependent variables.

4.3. Z-test of dependent variables.

4.4. Strength and rationality of belief in indigenous animal husbandry practices.

4.5. Strength of belief in modern animal husbandry practices.

4.6. Level of adoption of indigenous and modern animal husbandry practices.

4.7. Extent of adoption of indigenous and modern animal husbandry practices.

4.1. SOCIO-PERSONAL PROFILE OF TRIBAL ANIMAL HUSBANDRY FARMERS IN RELATION TO DEGREE OF BELIEF AND EXTENT OF ADOPTION OF SELECTED INDIGENOUS AND MODERN ANIMAL HUSBANDRY PRACTICES.

4.1.1 Socio-personal Variables

4.1.1.1 Age

Table 5. Age in relation to degree of belief and extent of adoption of selected indigenous and modern animal husbandry practices.

n=120

Sl. no	Cate-gory	Respond-ents	Indigenous animal husbandry practices			Modern animal husbandry practices		
			Strong believers	Weak believers	r-value	Strong believers	Weak believers	r-value
1	> 50 years	42 (35.0)	29 (69.05)	13 (30.95)		12 (28.57)	30 (71.43)	
2	30-50 years	67 (55.83)	23 (34.33)	44 (65.67)	0. 508** (Degree of Belief)	42 62.69)	25 (37.31)	-0.571** (Degree of belief)
3	<30 years	11 (9.17)	1 (9.09)	10 (90.91)	0.594** (Extent of adoption)	10 (90.91)	1 (9.09)	-0.499** (Extent of adoption)
	Total	120 (100)	53 (44.17)	67 (55.83)		64 (53.33)	56 (46.67)	

** denotes significant at 1 per cent level.

Based on age, the respondents (Table 5) were categorized as old (>50 years), middle aged (30-50 years) and young (<30 years). Thirty five per cent were old, 55.83 per cent were middle aged and the remaining 9.17 per cent were young respondents.

In the case of indigenous animal husbandry practices, among middle and young age categories there were more weak believers than strong believers, whereas among the old there were more strong believers (69.05%) than weak believers (30.95%).Data further revealed that age was significantly and positively related to degree of belief and extent of adoption of indigenous animal husbandry practices. In the overall sample there were 44.17 per cent strong believers and 55.83 per cent weak believers regarding indigenous animal husbandry practices.

In the case of modern animal husbandry practices, among young and middle age categories there were more strong believers than weak believers, whereas among the old there were more weak believers (71.43%) than strong believers (28.57%). Data further revealed that age was significantly and negatively related to degree of belief and extent of adoption of modern animal husbandry practices. In the overall sample strong and weak believers pertaining to modern animal husbandry practices were 53.33 per cent and 46.67 per cent respectively.

4.1.1.2 Literacy

Table 6. Literacy in relation to degree of belief and extent of adoption of selected indigenous and modern animal husbandry practices.

n=120

Sl. No	Cate-gory	Respond-ents	Indigenous animal husbandry practices			Modern animal husbandry practices		
			Strong believers	Weak believers	r-value	Strong believers	Weak believers	r-value
1	Illiterate	76 (63.33)	36 (47.37)	40 (52.63)	-0.073 (Degree of Belief)	37 (48.68)	39 (51.32)	0.160 (Degree of Belief)
2	Literate	44 (36.67)	17 (38.64)	27 (61.36)	-0.087 (Extent of adoption)	27 (61.36)	17 (38.64)	0.121 (Extent of adoption)
	Total	120 (100)	53 (44.17)	67 (55.83)		64 (53.33)	56 (46.67)	

** denotes significant at 1 per cent level.

There were more of illiterate (63.33%) than literate (36.67%) respondents (Table 6). In the case of indigenous animal husbandry practices, among the literates, weak believers were more (61.36%) as compared to strong believers (38.64%). But among illiterates 47.37 per cent were strong believers and the rest weak believers (52.63%). In the overall sample there were 44.17 per cent strong believers and 55.83 per cent weak believers regarding indigenous animal husbandry practices. The data further revealed that the degree of belief and extent of adoption of indigenous animal husbandry practices were negatively and non significantly correlated with literacy.

In the case of modern animal husbandry practices, among the literates strong believers were more (61.36%) as compared to weak believers (38.64%). But among illiterates more than half of the respondents were weak believers

(51.32%) and the rest strong believers (48.68%). In the overall sample strong and weak believers pertaining to modern animal husbandry practices were 53.33 per cent and 46.67 per cent respectively. Data further revealed that the degree of belief and extent of adoption of modern animal husbandry practices were positively and non significantly correlated with literacy.

4. 1.1.3 Occupation

Table 7. Distribution of tribal animal husbandry farmers based on occupation.

n=120

Sl. no.	Category	Respond-ents	Indigenous animal husbandry practices		Modern animal husbandry practices	
			Strong believers	Weak believers	Strong believers	Weak believers
1	Agricultural sectors	50 (41.67)	16 (32.0)	34 (68.0)	32 (64.0)	18 (36.0)
2	Non agricultural sectors	70 (58.33)	37 (52.86)	33 (47.14)	32 (45.71)	38 (54.29)
	Total	120 (100)	53 (44.17)	67 (55.83)	64 (53.33)	56 (46.67)

Based on occupation the respondents were categorized into those belonging to agriculture sector and non agricultural sector (Table 7). Out of the total 120 respondents, 41.67 per cent belonged to agricultural sector and 58.33 per cent belonged to non agricultural sector.

In the case of indigenous animal husbandry practices, weak believers were more (68.0%) than strong believers (32.0%) in the agricultural category. On the contrary, strong believers were more (52.86%) than weak believers (45.71) in the non agricultural category. In the overall sample there were 44.17 per cent

strong believers and 55.83 per cent weak believers regarding indigenous animal husbandry practices.

In the case of modern animal husbandry practices, strong believers were more (64.0%) than weak believers (36.0%) in agricultural category,. On the contrary, weak believers were more (54.29%) than strong believers (45.71) in the non – agricultural category. In the overall sample strong and weak believers pertaining to modern animal husbandry practices were 53.33 per cent and 46.67 per cent respectively.

4.1.1.4 Years of experience in Animal Husbandry

Table 8. Years of experience in animal husbandry in relation to degree of belief and extent of adoption of selected indigenous and modern animal husbandry practices.

n=120

Sl. no.	Cate-gory	Respond-ents	Indigenous animal husbandry practices			Modern animal husbandry practices		
			Strong believers	Weak believers	r-value	Strong believers	Weak believers	r-value
1	High (> 37 years)	22 (18.33)	15 (68.18)	7 (31.81)	0.501** (Degree of belief)	7 (31.82)	15 (68.18)	-0.575** (Degree of Belief)
2	Medium (13 –37 years)	72 (60.0)	36 (50.0)	36 (50.0)		32 (44.44)	40 (55.56)	
3	Low (<13 years)	26 (21.67)	2 (7.69)	24 (92.31)	0.591** (Extent of adoption)	25 (96.15)	1 (3.85)	-0.496** (Extent of adoption)
	Total	120 (100)	53 (44.17)	67 (55.83)		64 (53.33)	56 (46.67)	

** denotes significant at 1 per cent level.

Depending on experience in animal husbandry (Table 8) the respondents were categorized as high, medium and low. Out of the respondents studied 18.33 per cent had high experience (>37 years), 60 per cent had medium experience (13-37 years) and rest 21.67 per cent had low experience (>13 years).

In the case of indigenous animal husbandry practices, among the highly experienced group, strong believers (68.18%) were more than weak believers (31.81%). But among the lowly experienced group there were more weak believers (92.31%) than strong believers (7.69%). In the medium group, there were 50 per cent each of strong and weak believers. In the overall sample there were 44.17 per cent strong believers and 55.83 per cent weak believers regarding indigenous animal husbandry practices. The relationship between experience in animal husbandry and degree of belief and extent of adoption of indigenous animal husbandry practices were found highly significant and positively correlated.

In the case of modern animal husbandry practices, among the highly experienced group, weak believers (68.18%) were more than strong believers (31.81%). But among the lowly experienced group there were more strong believers (96.15%) than weak believers (3.85%). In the medium group there were 44.5 per cent strong believers and 55.5 per cent weak believers. In the overall sample strong and weak believers pertaining to modern animal husbandry practices were 53.33 per cent and 46.67 per cent respectively. The relationship between years of experience in animal husbandry and degree of belief and extent of adoption of modern animal husbandry practices were found highly significant and negatively correlated.

4. 1.1.5 Herd size

Table 9.   Herd size in relation to degree of belief and extent of adoption of selected indigenous and modern animal husbandry practices.

n=120

Sl. no.	Cate-gory	Respond-ents	Indigenous animal husbandry practices			Modern animal husbandry practices		
			Strong believers	Weak believers	r-value	Strong believers	Weak believers	r-value
1	large (>8.7)	48 (40.0)	21 (43.75)	27 (56.25)	0.024 (Degree of belief) 0.028 (Extent of adoption)	25 (52.08)	23 (47.92)	-0.064 (Degree of belief) -0.045 (Extent of adoption)
2	small (<8.7)	72 (60.0)	32 (44.44)	40 (55.56)		39 (54.17)	33 (45.83)	
	Total	120 (100)	53 (44.17)	67 (55.83)		64 (53.33)	56 (46.67)	

** denotes significant at 1 per cent level.

The herd size possessed was small among 60 per cent of the respondents, whereas it was large in 40 per cent (Table 9) of the respondents. In the case of indigenous animal husbandry practices, among the small herd size category, 44.44 per cent were strong believers and 55.56 per cent were weak believers. Among the large herd size category, 43.75 per cent were strong believers and 56.25 per cent were weak believers. In the overall sample there were 44.17 per cent strong believers and 55.83 per cent weak believers regarding indigenous animal husbandry practices. The degree of belief and extent of adoption of indigenous animal husbandry practices were positively and non-significantly correlated with the herd size.

In the case of modern animal husbandry practices, among small herd size category, 54.17 per cent were strong believers and 45.83 per cent were weak believers. Among the large herd size category, 52.08 per cent were strong believers and 47.98 per cent were weak believers. In the overall sample strong and weak believers pertaining to modern animal husbandry practices were 53.33 per cent and 46.67 per cent respectively. The degree of belief and extent of adoption of modern animal husbandry practices were negatively and non-significantly correlated with the herd size.

Fig. 4. Distribution of tribal animal husbandry farmers based on age.
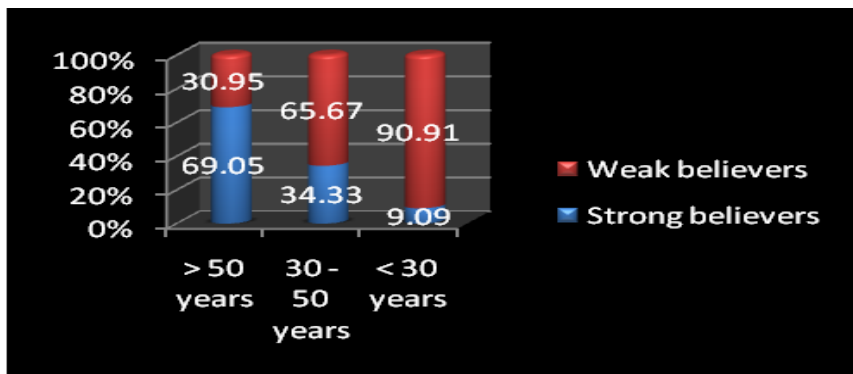
Fig. 5. Distribution of believers in indigenous animal husbandry practices based on age.
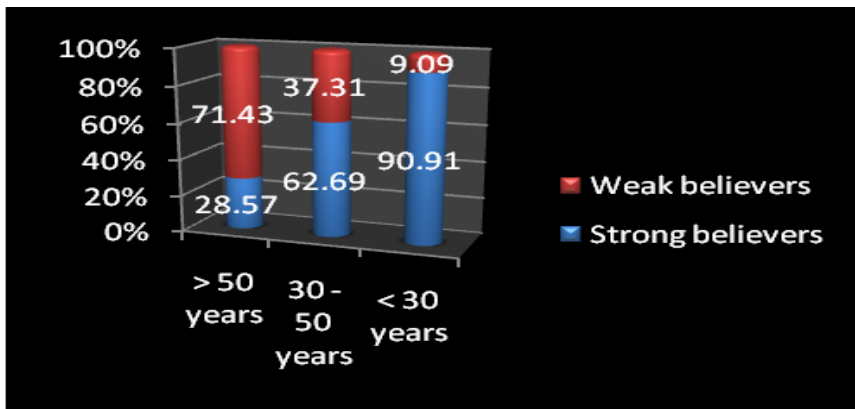
Fig. 6. Distribution of believers in modern animal husbandry practices based on age.
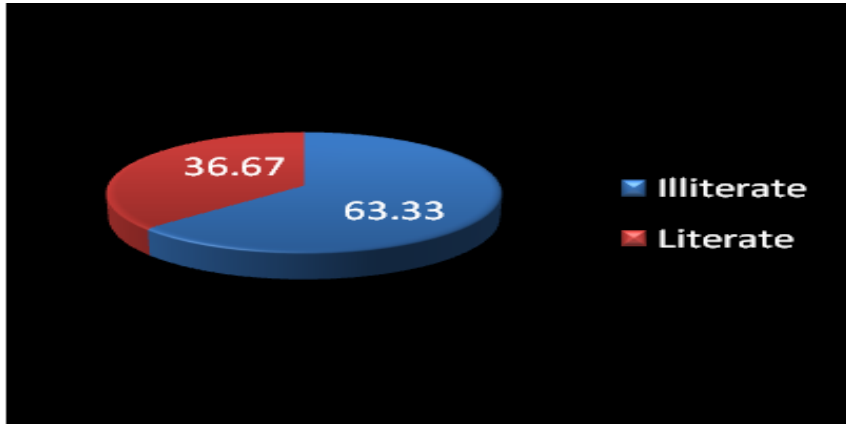
Fig. 7. Distribution of tribal animal husbandry farmers based on literacy.
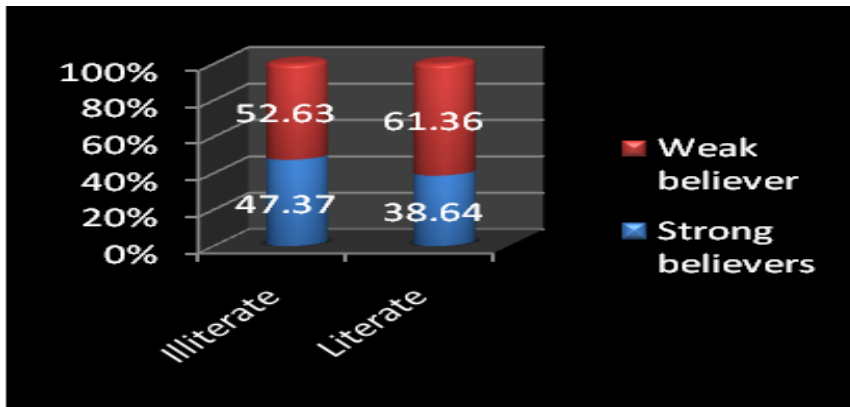
Fig. 8. Distribution of believers in indigenous animal husbandry practices based on literacy.
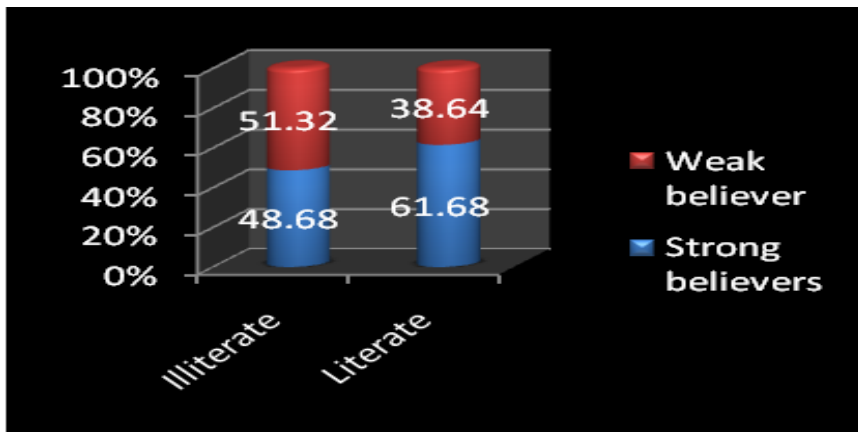
Fig.9. Distribution of believers in modern animal husbandry practices based on literacy.
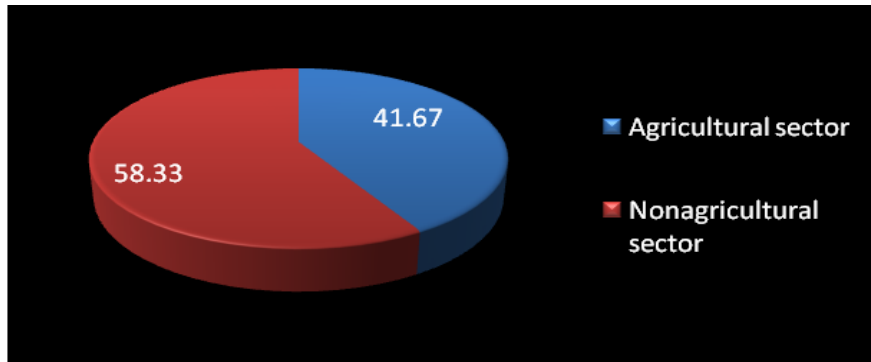
Fig.10. Distribution of tribal animal husbandry farmers based on occupation.
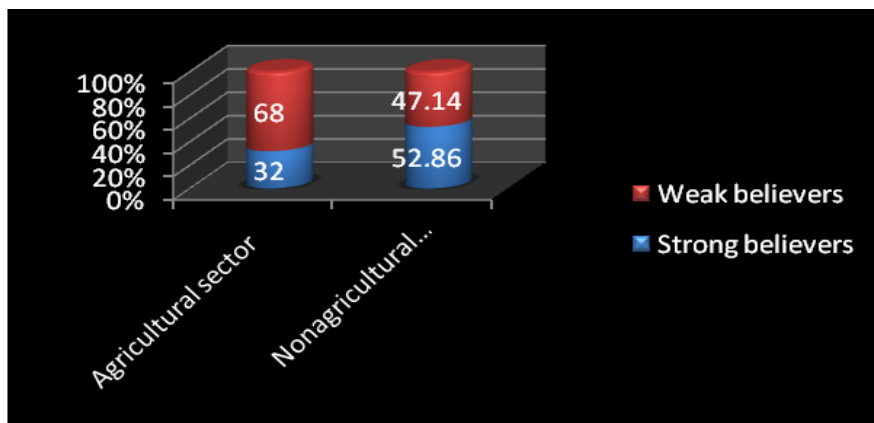
Fig. 11. Distribution of believers in indigenous animal husbandry practices based on occupation.
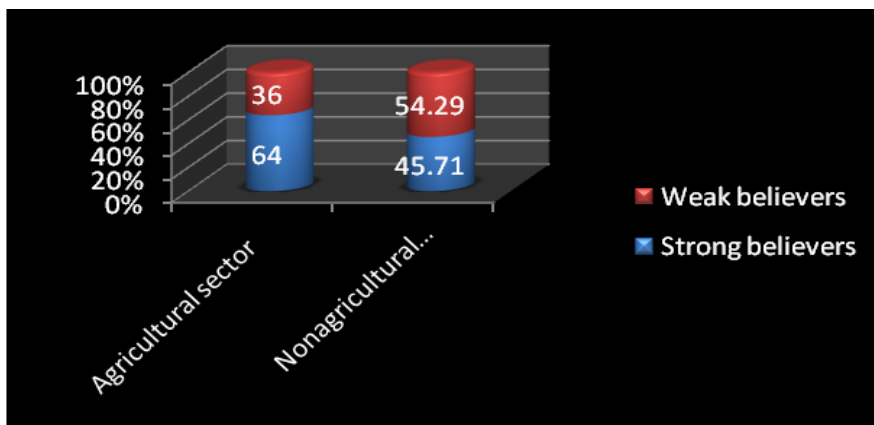
Fig. 12. Distribution of believers in modern animal husbandry practices based on occupation.
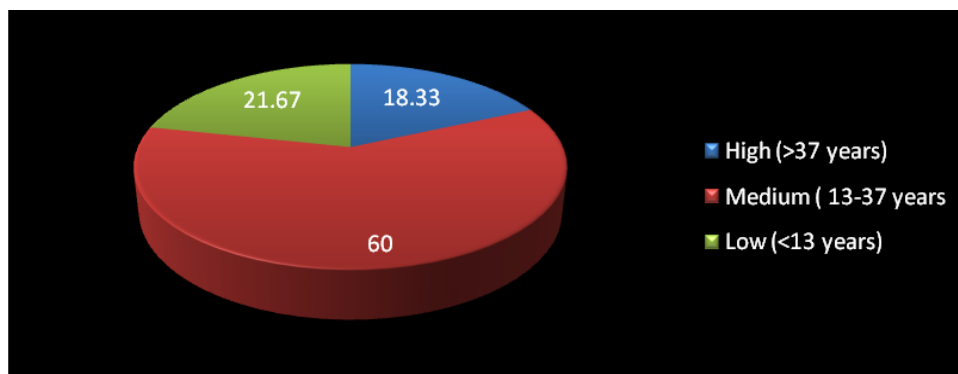
Fig. 13. Distribution of tribal animal husbandry farmers based on years of experience in animal husbandry.
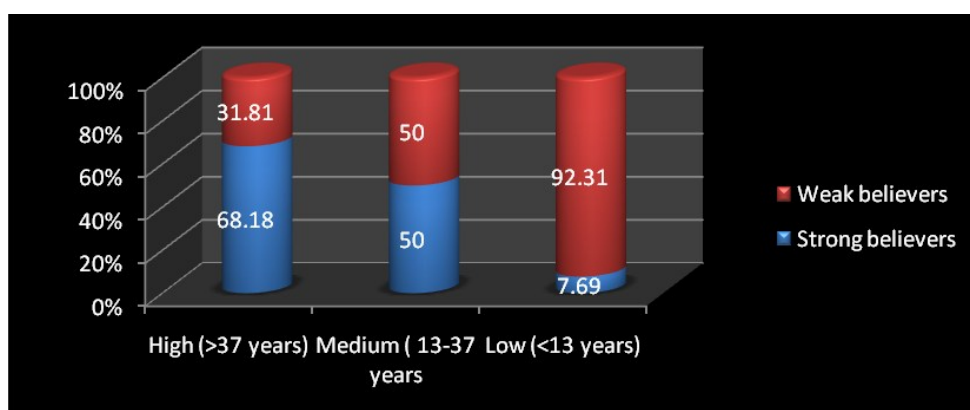
Fig. 14. Distribution of believers in indigenous animal husbandry practices based on years of experience in animal husbandry.
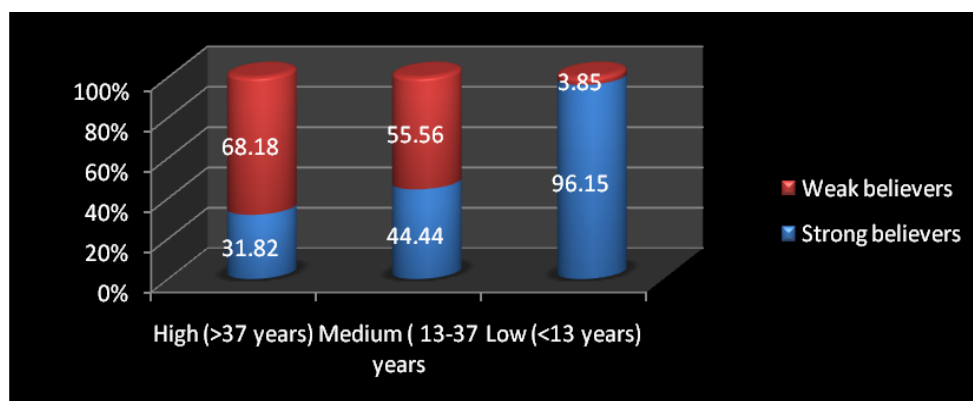
Fig. 15. Distribution of believers in modern animal husbandry practices based on years of experience in animal husbandry.
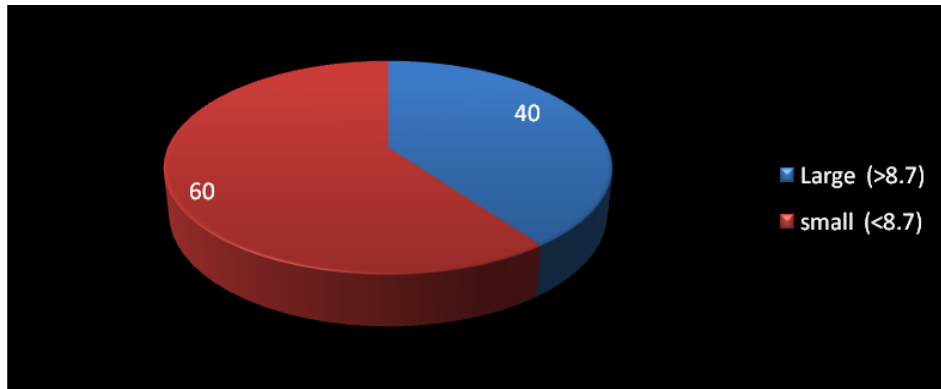
Fig. 16. Distribution of tribal animal husbandry farmers based on herd size.
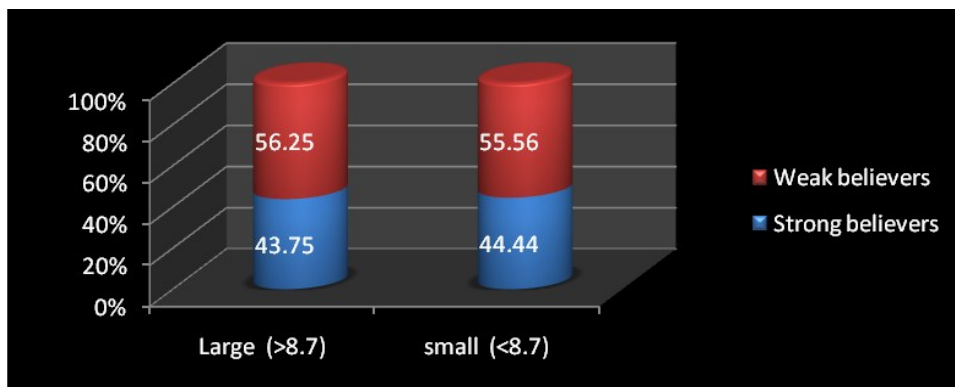
Fig.17. Distribution of believers in indigenous animal husbandry practices based on herd size.
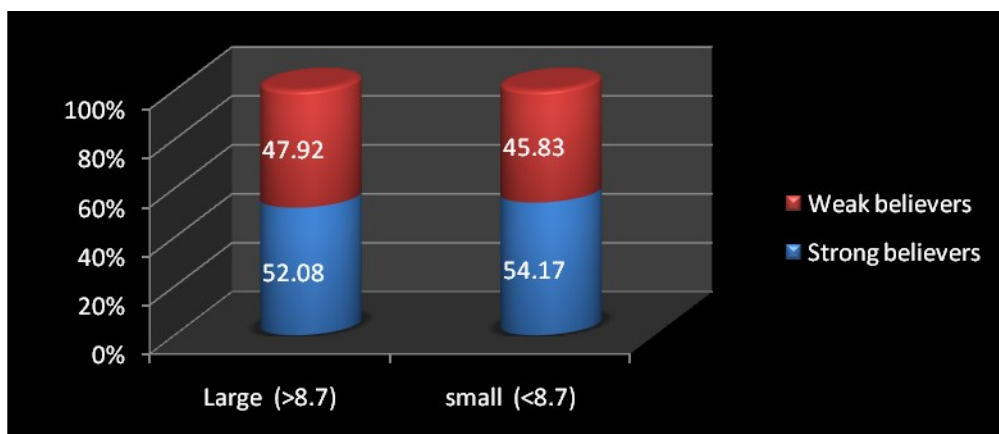
Fig. 18. Distribution of believers in modern animal husbandry practices based on herd size.

The findings of this section are as follows

1) In general, weak believers of indigenous animal husbandry practices were more than strong believers

2) Middle aged respondents were the majority followed by those of old age and young age in that order.

3) Strong believers of indigenous animal husbandry practices were more in the old age group.

4) Both degree of belief and extent of adoption of indigenous animal husbandry practices were significant and positively correlated with age.

5) In general, strong believers of modern animal husbandry practices were more than weak believers.

6) Strong believers of modern animal husbandry practices were more among middle and young age groups

7) Strong believers of modern animal husbandry practices were less among old age group.

8) Both degree of belief and extent of adoption of modern animal husbandry practices were significant and negatively correlated with age.

9) In general, there were more illiterate than literate respondents.

10) Weak believers of indigenous animal husbandry practices were more among literates, whereas strong believers were more among illiterates.

11) Both degree of belief and extent of adoption of indigenous animal husbandry practices were negatively and non significantly correlated with literacy.

12) Strong believers of modern animal husbandry practices were more among literates, whereas weak believers were more among illiterates.

13) Both degree of belief and extent of adoption of modern animal husbandry practices were positively and non significantly correlated with literacy.

14) In general, occupation of the majority of respondents was non-agricultural.

15) Weak believers of indigenous animal husbandry practices were more among agricultural category, whereas strong believers were more among non-agricultural category.

16) Strong believers of modern animal husbandry practices were more among agricultural category whereas, weak believers were more among non-agricultural category.

17) In general, majority of respondents had medium level of experience in animal husbandry.

18) Strong believers of indigenous animal husbandry practices were more among highly experienced group in animal husbandry, whereas weak believers were more among lowly experienced group.

19) Both degree of belief and extent of adoption of indigenous animal husbandry practices were significantly and positively correlated with years of experience in animal husbandry.

20) Weak believers of modern animal husbandry practices were more among highly experienced group in animal husbandry whereas, strong believers were more among lowly experienced group.

21) Both degree of belief and extent of adoption of modern animal husbandry practices were significantly and negatively correlated with years of experience in animal husbandry.

22) In general, majority of the respondents owned a small herd size of livestock.

23) Weak believers of indigenous animal husbandry practices were more among both large and small herd size category.

24) The degree of belief and extent of adoption of indigenous animal husbandry practices were positively and non significantly correlated with the herd size.
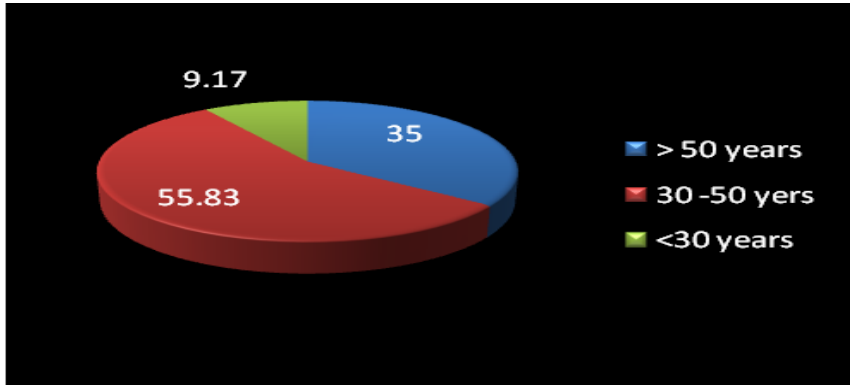
25) Strong believers of modern animal husbandry practices were more among both large and small herd size category.

4.1.2 Socio-psychological Variables

4. 1.2.1 Man- nature orientation

Table 10. Man-nature orientation in relation to degree of belief and extent of adoption of selected indigenous and modern animal husbandry practices.

n=120

Sl. no.	Cate-gory	Respond-ents	Indigenous animal husbandry practices			Modern animal husbandry practices		
			Strong believers	Weak believers	r-value	Strong believers	Weak believers	r-value
1	High (7-8)	42 (35.0)	3 (7.14)	39 (92.86)	-0.662** (Degree of belief)	37 (88.10)	5 (11.90)	0.690** (Degree of belief)
2	Low (4-6)	78 (65.0)	50 (64.10)	28 (35.90)	-0.639** (Extent of adoption)	27 (34.62)	51 (65.38)	0.569** (Extent of adoption)
	Total	120 (100)	53 (44.17)	67 (55.83)		64 (53.33)	56 (46.67)	

** denotes significant at 1 per cent level.

Majority of the respondents (65.0%) had only low man-nature orientation (table 10). In the case of indigenous animal husbandry practices, among those with low man-nature orientation (65.0%), 64.1 per cent were strong believers and 35.9 per cent were weak believers. Among those with high man-nature orientation (35.0%), 7.14 per cent were strong believers and 92.86 per cent were weak believers. In the overall sample there were 44.17 per cent strong believers and 55.83 per cent weak believers regarding indigenous animal husbandry practices. The result showed that man-nature orientation had a negative and

significant correlation with both degree of belief and extent of adoption of indigenous animal husbandry practice.

In the case of modern animal husbandry practices, among those with low man-nature orientation (65.0%), 65.38 per cent were weak believers and 34.62 per cent were strong believers. Among those with high man-nature orientation, 88.10 per cent were strong believers and 11.9 per cent weak believers. In the overall sample strong and weak believers pertaining to modern animal husbandry practices were 53.33 per cent and 46.67 per cent respectively. The result showed that man-nature orientation had positive and significant correlation with both degree of belief and extent of adoption of modern animal husbandry practices.

4.1.2.2 Value orientation

Table 11. Value orientation in relation to degree of belief and extent of adoption of selected indigenous and modern animal husbandry practices.

n=120

Sl. no	Cate-gory	Respond-ents	Indigenous animal husbandry practices			Modern animal husbandry practices		
			Strong believers	Weak believers	r-value	Strong believers	Weak believers	r-value
1	High (17-24)	39 (32.5)	3 (7.69)	36 (92.31)	-0.614** (Degree of belief)	35 (89.75)	4 (10.25)	0.695** (Degree of belief)
2	Low (8-16)	81 (67.5)	50 (61.73)	31 (38.27)	-0.553** (Extent of adoption)	29 (35.80)	52 (64.20)	0.620** (Extent of adoption)
	Total	120 (100)	53 (44.17)	67 (55.83)		64 (53.33)	56 (46.67)	

** denotes significant at 1 per cent level.

Majority of the respondents (67.5%) had only low value orientation (table 11). In the case of indigenous animal husbandry practices, among those with low value orientation (67.5%), 61.73 per cent were strong believers and 38.27 per cent weak believers. Among those with high value orientation (32.5%), 92.31 per cent were weak believers. In the overall sample there were 44.17 per cent strong believers and 55.83 per cent weak believers, regarding indigenous animal husbandry practices. The result further showed that value orientation was negatively and significantly correlated with both degree of belief and extent of adoption of indigenous animal husbandry practices.

In the case of modern animal husbandry practices, among those with low value orientation (67.5%), 64.2 per cent were weak believers and 35.80 per cent were strong believers. Among those with high value orientation (32.5%), 89.75 per cent were strong believers. In the overall sample strong and weak believers pertaining to modern animal husbandry practices were 53.33 per cent and 46.67 per cent respectively. The result moreover showed that value orientation was positively and significantly correlated with both degree of belief and extent of adoption of modern animal husbandry practices.

4.1.2.3 Scientific orientation

Table 12. Scientific orientation in relation to degree of belief and extent of adoption of selected indigenous and modern animal husbandry practices.

n=120

Sl. no.	Cate-gory	Respond-ents	Indigenous animal husbandry practices			Modern animal husbandry practices		
			Strong believers	Weak believers	r-value	Strong believers	Weak believers	r-value
1	High (>11.02)	33 (27.5)	4 (12.12)	29 (87.88)	-0.415** (Degree of belief)	28 (84.85)	5 (15.15)	0.456** (Degree of belief)
2	Low (<11.02)	87 (72.5)	49 (56.32)	38 (43.68)	-0.415** (Extent of adoption)	36 (41.38)	51 (58.62)	0.435** (Extent of adoption)
	Total	120 (100)	53 (44.17)	67 (55.83)		64 (53.33)	56 (46.67)	

** denotes significant at 1 per cent level.

Data in Table 12 revealed that 72.5 per cent of the respondents had low scientific orientation and 27.5 per cent had high scientific orientation. In the case of indigenous animal husbandry practices, there were more weak believers (87.88%) than strong believers among those having high scientific orientation. There were more strong believers (56.32%) than weak believers (43.68%) among those having low scientific orientation. In the overall sample there were 44.17 per cent strong believers and 55.83 per cent weak believers. The degree of belief and extent of adoption were negatively and significantly correlated with scientific orientation.

In the case of modern animal husbandry practices, there were more strong believers (84.85%) than weak believers among those having high scientific

orientation. There were more weak believers (58.62%) than strong believers (41.38%) among those having low scientific orientation. In the overall sample strong and weak believers pertaining to modern animal husbandry practices were 53.33 per cent and 46.67 per cent respectively. The degree of belief and extent of adoption were positively and significantly correlated with scientific orientation.

Fig. 19. Distribution of tribal animal husbandry farmers based on man-nature orientation.

Fig. 20. Distribution of believers in indigenous animal husbandry practices based on man-nature orientation.

Fig. 21. Distribution of believers in modern animal husbandry practices based on man-nature orientation.

Fig. 22. Distribution of tribal animal husbandry farmers based on value orientation.

Fig. 23. Distribution of believers in indigenous animal husbandry practices based on value orientation.

Fig. 24. Distribution of believers in modern animal husbandry practices based on value orientation.

Fig.25. Distribution of tribal animal husbandry farmers based on scientific orientation.

Fig. 26. Distribution of believers in indigenous animal husbandry practices based on scientific orientation.
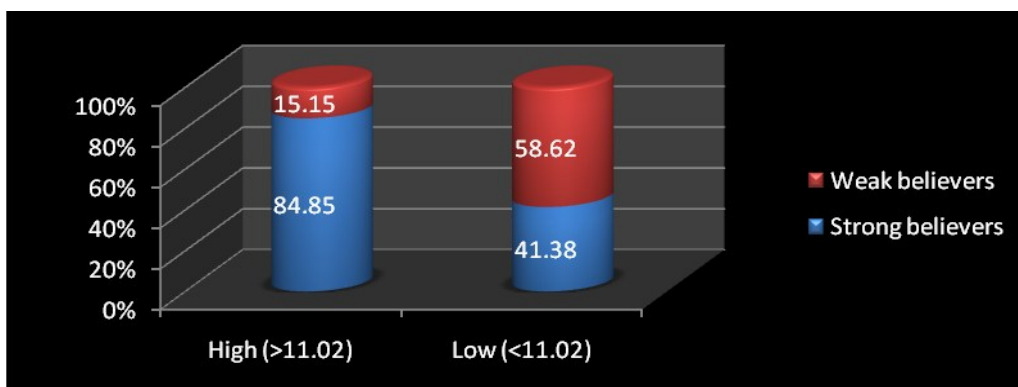
Fig.27. Distribution of believers in modern animal husbandry practices based on scientific orientation

The findings of this section are as follows

1) In general, majority of the respondents had only low man-nature orientation.

2) Strong believers of indigenous animal husbandry practices were more among those with low man-nature orientation.

3) Both degree of belief and extent of adoption of indigenous animal husbandry practices were significantly and negatively correlated with man-nature orientation.

4) Strong believers of modern animal husbandry practices were more among those with high man-nature orientation.

5) Both degree of belief and extent of adoption of modern animal husbandry practices were significantly and positively correlated with man-nature orientation.

6) In general, majority of the respondents had only low value orientation.

7) Strong believers of indigenous animal husbandry practices were more among those with low value orientation.

8) Both degree of belief and extent of adoption of indigenous animal husbandry practices were negatively and significantly correlated with value orientation.

9) Strong believers of modern animal husbandry practices were more among those with high value orientation.

10) Both degree of belief and extent of adoption of modern animal husbandry practices were positively and significantly correlated with value orientation.

11) In general, majority of the respondents had high scientific orientation.

12) Strong believers of indigenous animal husbandry practices were more among those having low scientific orientation.

13) Both degree of belief and extent of adoption of indigenous animal husbandry practices were negatively and significantly correlated with scientific orientation.

14) Strong believers of modern animal husbandry practices were more among those having high scientific orientation.

15) Both degree of belief and extent of adoption of modern animal husbandry practices were positively and significantly correlated with scientific orientation.

4.1.3 Communication

4. 1.3.1 Mass media exposure

Table 13. Mass media exposure in relation to degree of belief and extent of adoption of selected indigenous and modern animal husbandry practices.

n=120

Sl. no.	Cate-gory	Respond-ents	Indigenous animal husbandry practices			Modern animal husbandry practices		
			Strong believers	Weak believers	r-value	Strong believers	Weak believers	r-value
1	High (>8.83)	54 (45.0)	5 (9.26)	49 (90.75)	-0.658** (Degree of belief) -0.648** (Extent of adoption)	47 (87.04)	7 (12.96)	0.675** (Degree of belief) 0.586** (Extent of adoption)
2	Low (<8.83)	66 (55.0)	48 (72.73)	18 (27.27)		17 (25.76)	49 (74.24)	
	Total	120 (100)	53 (44.17)	67 (55.83)		64 (53.33)	56 (46.67)	

** denotes significant at 1 per cent level.

Data in Table 13 showed that 55 per cent of the respondents had only low mass media exposure, whereas 45 per cent had high mass media exposure. In the case of indigenous animal husbandry practices, among the low exposure group there were more strong believers (72.73%) than weak believers (27.27%). Among high exposure group there were more weak believers (90.75%) than strong believers (9.26%). In the overall sample there were 44.17 per cent strong believers and 55.83 per cent weak believers regarding indigenous animal husbandry practices. The degree of belief was negatively and significantly correlated with mass media exposure. Further the extent of adoption was negatively and significantly correlated with mass media exposure.

In the case of modern animal husbandry practices, among the low exposure group there were more weak believers (74.24%) than strong believers (25.76%). Among the high exposure group there were more strong believers (87.04%) than weak believers (12.96%). In the overall sample strong and weak believers pertaining to modern animal husbandry practices were 53.33 per cent and 46.67 per cent respectively. The degree of belief was positively and significantly correlated with mass media exposure. The extent of adoption was negatively and significantly correlated with mass media exposure.

4. 1.3.2 Extension agency contact

Table 14. Extension agency contact in relation to degree of belief and extent of adoption of selected indigenous and modern animal husbandry practices.

n=120

Sl. no.	Cate-gory	Respond-ents	Indigenous animal husbandry practices			Modern animal husbandry practices		
			Strong believers	Weak believers	r-value	Strong believers	Weak believers	r-value
1	High (>12.5)	49 (40.83)	8 (16.33)	41 (83.67)	- 0.580** (Degree of belief) -0.532** (Extent of adoption)	37 (75.51)	12 (24.49)	0.531** (Degree of belief) 0.502** (Extent of adoption)
2	Low (<12.5)	71 (59.17)	45 (63.38)	26 (36.62)		27 (38.03)	44 (61.97)	
	Total	120 (100)	53 (44.17)	67 (55.83)		64 (53.33)	56 (46.67)	

** denotes significant at 1 per cent level.

Data in Table 14 showed that 59.17 per cent of the respondents had low level of extension agency contact. Those who had a high level of extension agency contact were 40.83 per cent. In the case of indigenous animal husbandry

practices, among those having low level of extension agency contact, more respondents were strong believers (63.38%) than weak believers (36.62%); whereas in the case of those who had high level of extension agency contact weak believers were more (83.67%) than strong believers (16.33%). In the overall sample there were 44.17 per cent strong believers and 55.83 per cent weak believers regarding indigenous animal husbandry practices. The degree of belief and extent of adoption of indigenous animal husbandry practices were negatively and significantly correlated with extension agency contact.

In the case of modern animal husbandry practices, among those having low level of extension agency contact, weak believers were more (61.97%) than strong believers (38.03%); whereas in the case of respondents having high level of extension agency contact, strong believers were more (75.51%) than weak believers (24.49%). In the overall sample strong and weak believers pertaining to modern animal husbandry practices were 53.33 per cent and 46.67 per cent respectively. The degree of belief and extent of adoption of modern animal husbandry practices were positively and significantly correlated with extension agency contact.
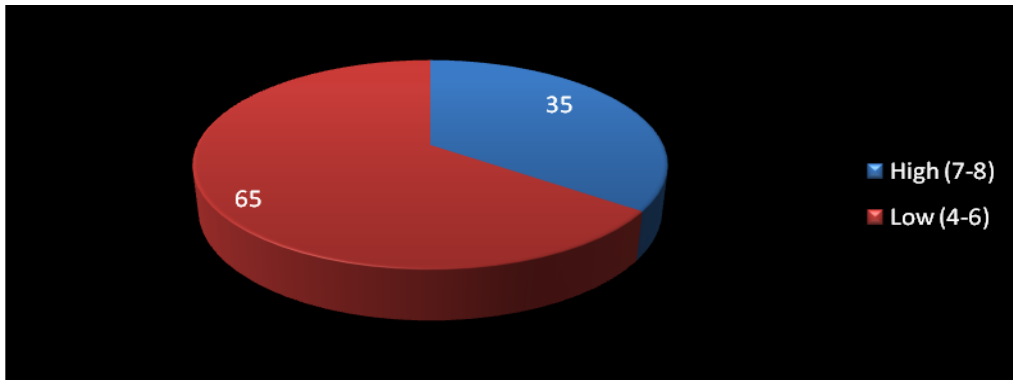
Fig. 28. Distribution of tribal animal husbandry farmers based on
mass media exposure.

Fig. 29. Distribution of believers in indigenous animal husbandry practices based on
mass media exposure.

Fig. 30. Distribution of believers in modern animal husbandry practices based on
mass media exposure.

Fig. 31. Distribution of tribal animal husbandry farmers based on extension agency contact.
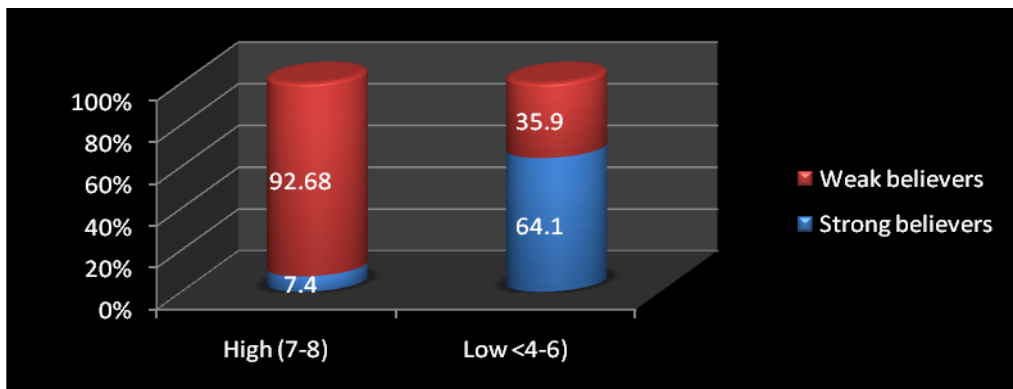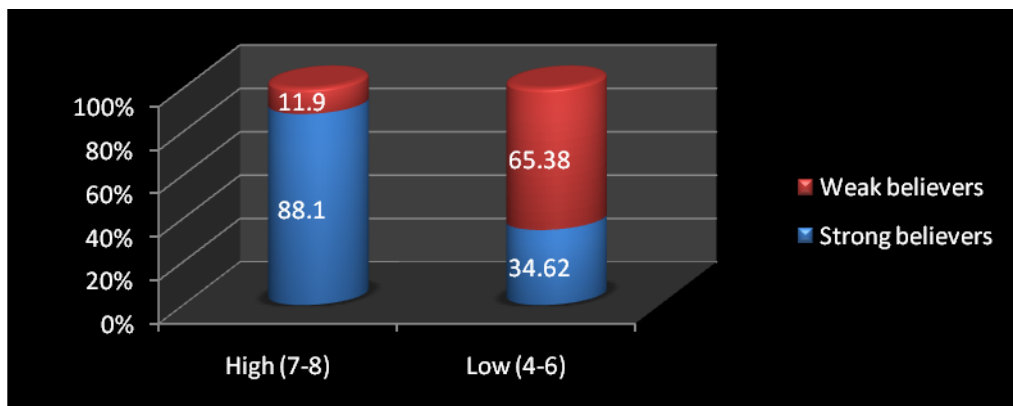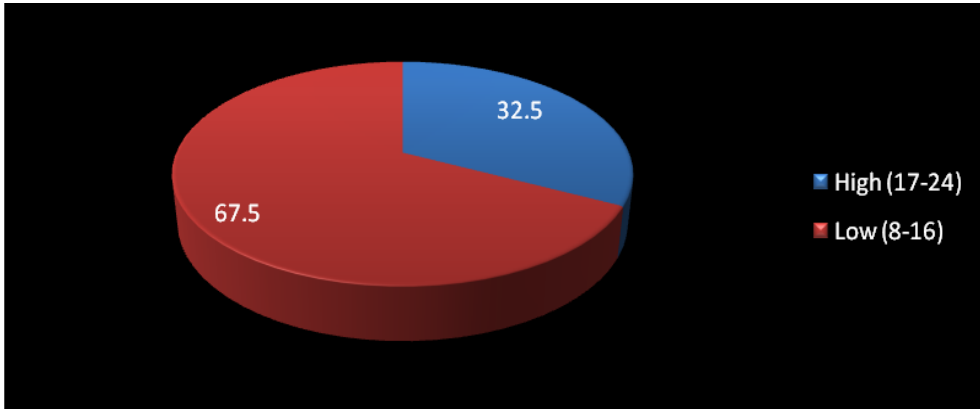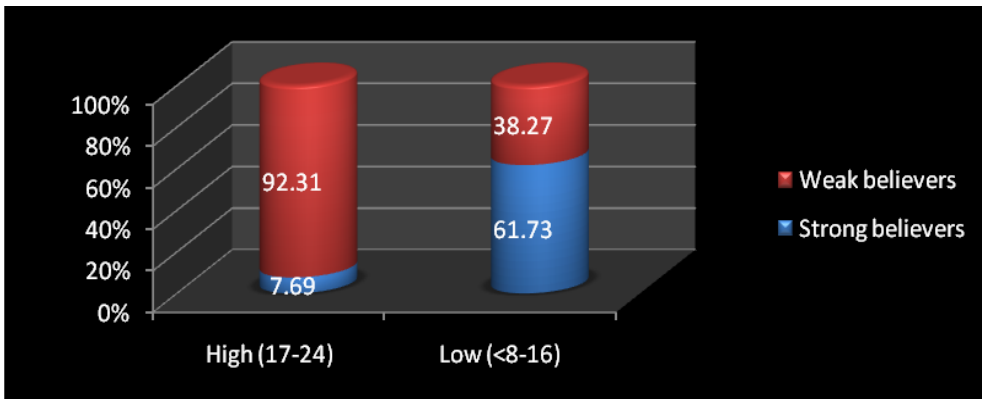

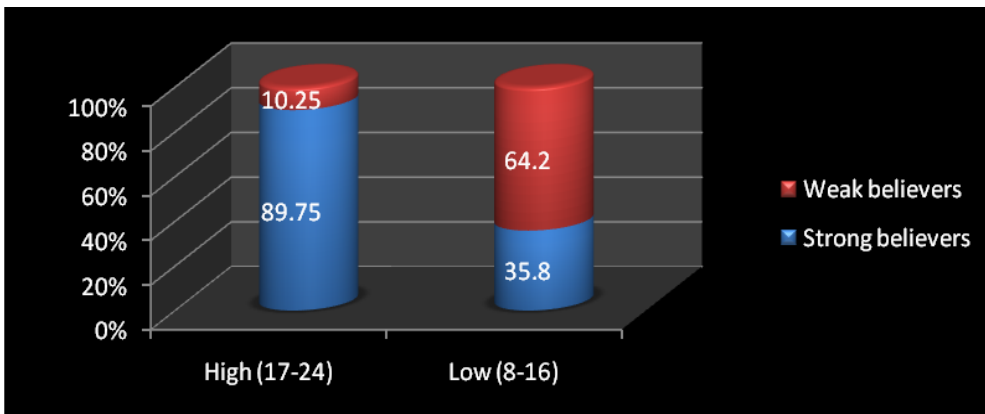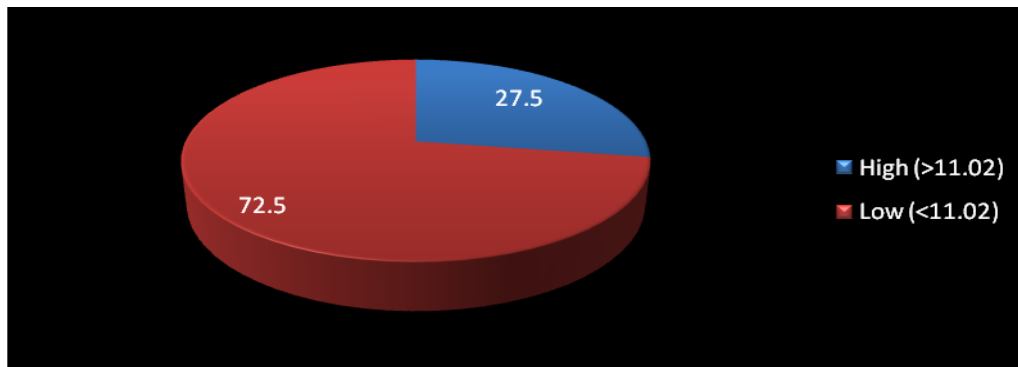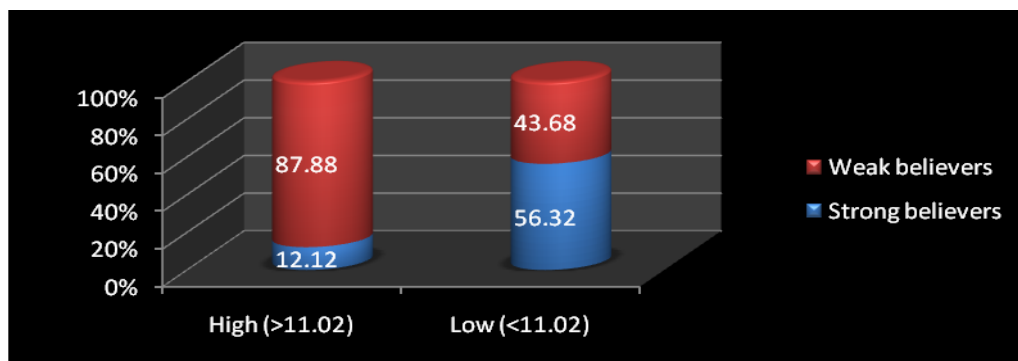Fig. 32. Distribution of believers in indigenous animal husbandry practices based on extension agency contact.
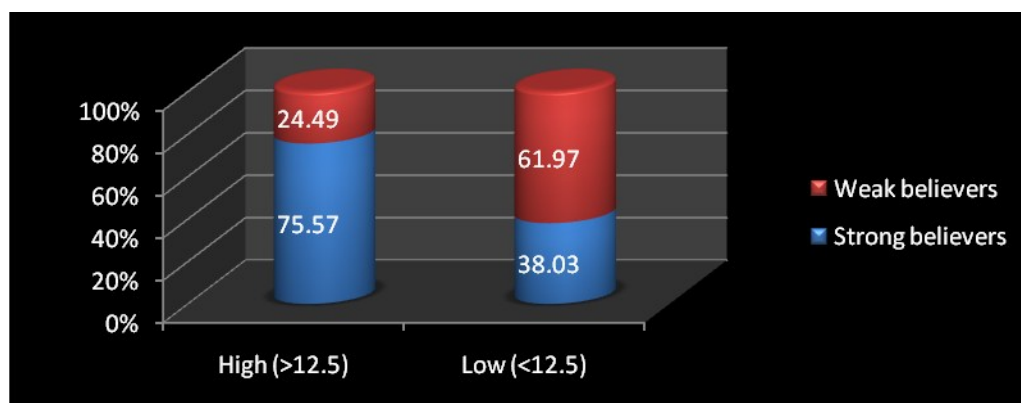
Fig. 33. Distribution of believers in modern animal husbandry practices based on extension agency contact.

The findings of this section are as follows

1) Mass media exposure of a majority was low.

2) Strong believers of indigenous animal husbandry practices were more among the respondents with low mass media exposure.

3) Both degree of belief and extent of adoption of indigenous animal husbandry practices were negatively and significantly correlated with mass media exposure.

4) Strong believes of modern animal husbandry practices were more among the respondents with high mass media exposure.

5) Both degree of belief and extent of adoption of modern animal husbandry practices were positively and significantly correlated with mass media exposure.

6) In general, majority of the respondents had low level of extension agency contact.

7) Strong believers of indigenous animal husbandry practices were more among the respondents with low level of extension agency contact.

8) Both degree of belief and extent of adoption of indigenous animal husbandry practices were negatively and significantly correlated with extension agency contact.

9) Strong believers of modern animal husbandry practices were more among the respondents with high level of extension agency contact.

10) Both degree of belief and extent of adoption of modern animal husbandry practices were positively and significantly correlated with extension agency contact.

4.1.4 Extension Support

4.1.4.1 Marketing support

Table 15. Market support in relation to degree of belief and extent of adoption of selected indigenous and modern animal husbandry practices

n=120

Sl. no.	Cate-gory	Respond-ents	Indigenous animal husbandry practices			Modern animal husbandry practices		
			Strong believers	Weak believers	r-value	Strong believers	Weak believers	r-value
1	High (>9.75)	64 (53.33)	10 (15.63)	54 (84.37)	-0.587** (Degree of belief)	50 (78.13)	14 (21.87)	0.546** (Degree of belief)
2	Low (<9.75)	56 (46.67)	43 (76.79)	13 (23.21)		14 (25)	42 (75)	0.426**
	Total	120 (100)	53 (44.17)	67 (55.83)	-0.587** (Extent of adoption)	64 (53.33)	56 (46.67)	(Extent of adoption)

** denotes significant at 1 per cent level.

Data in Table 15 revealed that 53.33 per cent of the respondents perceived market support as high, whereas 46.67 per cent perceived it as low. In the case of indigenous animal husbandry practices, among the high group, weak believers were predominant (84.37%), whereas in the low group, strong believers were predominant (76.79%). In the overall sample there were 44.17 per cent strong believers and 55.83 per cent weak believers regarding indigenous animal husbandry practices. The degree of belief and extent of adoption of indigenous animal husbandry practices showed a negative and significant correlation with marketing support.

In the case of modern animal husbandry practices, among the high group, strong believers were predominant (78.13%), whereas in low group, weak believers were predominant (75.0%). In the overall sample strong and weak believers pertaining to modern animal husbandry practices were 53.33 per cent and 46.67 per cent respectively. The degree of belief and extent of adoption of modern animal husbandry practices showed a positive and significant correlation with marketing support.

4.1.4.2 Policy support

Table 16.   Policy support in relation to degree of belief and extent of adoption of selected indigenous and modern animal husbandry practices

n=120

Sl. no.	Cate-gory	Respond-ents	Indigenous animal husbandry practices			Modern animal husbandry practices		
			Strong believers	Weak believers	r-value	Strong believers	Weak believers	r-value
1	High (>9.08)	48 (40.0)	3 (6.25)	45 (93.75)	-0.563** (Degree of belief)	39 (81.25)	9 (18.75)	0.446** (Degree of belief)
2	Low (<9.08)	72 (60.0)	50 (69.44)	22 (30.56)	-0.555** (Extent of adoption)	25 (34.72)	47 (65.28)	0.314** (Extent of adoption)
3	Total	120 (100)	53 (44.17)	67 (55.83)		64 (53.33)	56 (46.67)	

** denotes significant at 1 per cent level.

Data in Table 16 revealed that 40 per cent of the respondents perceived policy support as high, whereas 60 per cent perceived it as low. In the case of indigenous animal husbandry practices, among the high group, weak believers were predominant (93.75%), whereas in low group, strong believers were predominant (69.44%). In the overall sample there were 44.17 per cent

strong believers and 55.83 per cent weak believers regarding indigenous animal husbandry practices. The degree of belief and extent of adoption of indigenous animal husbandry practices showed a negative and significant correlation with policy support.

In the case of modern animal husbandry practices, among the high group, strong believers were predominant (81.25%), whereas in the low group, weak believers were predominant (64.28%). In the overall sample strong and weak believers pertaining to modern animal husbandry practices were 53.33 per cent and 46.67 per cent respectively. The degree of belief and extent of adoption of modern animal husbandry practices showed a positive and significant correlation with policy support.

4.1.4.3 Organizational support

Table 17. Organizational support in relation to degree of belief and extent of adoption of selected indigenous and modern animal husbandry practices

n=120

Sl. no.	Cate-gory	Respond-ents	Indigenous animal husbandry practices			Modern animal husbandry practices		
			Strong believers	Weak believers	r-value	Strong believers	Weak believers	r-value
1	High (>8.2)	45 (37.5)	5 (11.11)	40 (88.89)	-0.435** (Degree of belief)	36 (80.0)	9 (20.0)	0.390** (Degree of belief)
2	Low (<8.2)	75 (62.5)	48 (64.0)	27 (36.0)	-0.440** (Extent of adoption)	28 (37.33)	47 (62.67)	0.337** (Extent of adoption)
3	Total	120 (100)	53 (44.17)	67 (55.83)		64 (53.33)	56 (46.67)	

** denotes significant at 1 per cent level.

Data in Table 17 revealed that 37 per cent perceived organization support as high, whereas 62.5 per cent perceived it as low. In the case of indigenous animal husbandry practices, among the high group, weak believers were predominant (88.89%) whereas in the low group, strong believers were predominant (64.0%). In the overall sample there were 44.17 per cent strong believers and 55.83 per cent weak believers regarding indigenous animal husbandry practices. The degree of belief and extent of adoption of indigenous animal husbandry practices showed negative and significant correlation with organizational support.

In the case of modern animal husbandry practices, among the high group, strong believers were predominant (80.0%) whereas in the low group, weak believers were predominant (62.67%). In the overall sample strong and weak believers pertaining to modern animal husbandry practices were 53.33 per cent and 46.67 per cent respectively. The degree of belief and extent of adoption of modern animal husbandry practices showed positive and significant correlation with organizational support.

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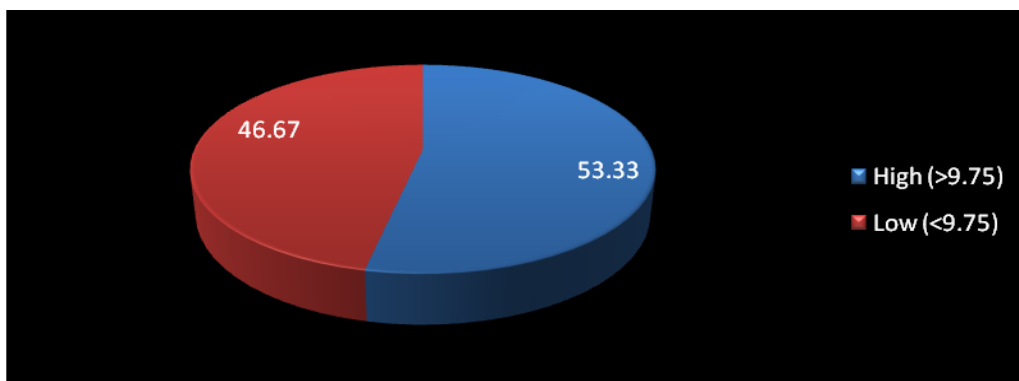
Fig.34. Distribution of tribal animal husbandry farmers based on market support.
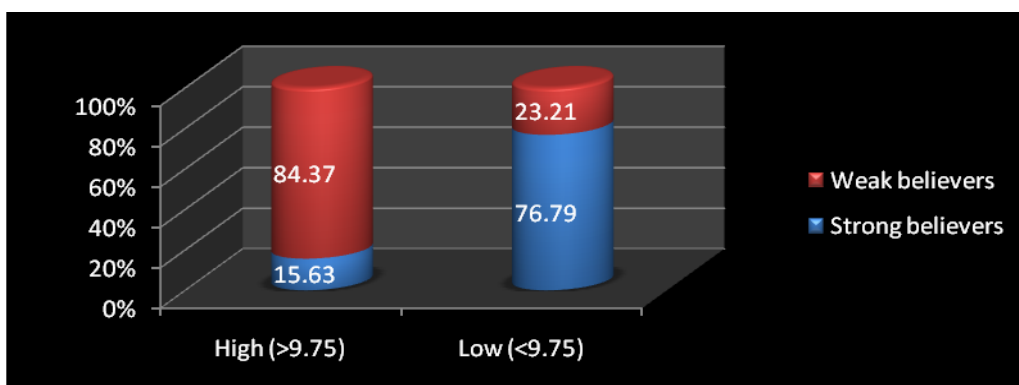
Fig. 35. Distribution of believers in indigenous animal husbandry practices based on market support.
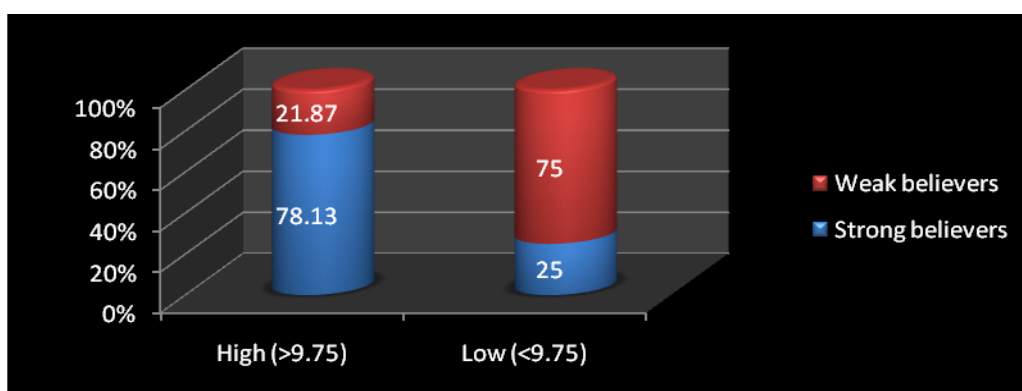
Fig. 36. Distribution of believers in modern animal husbandry practices based on market support.
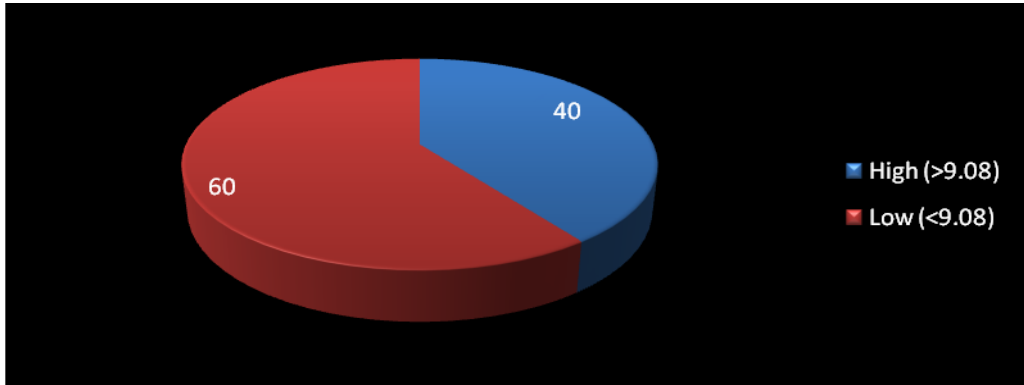
Fig. 37. Distribution of tribal animal husbandry farmers based on policy support.
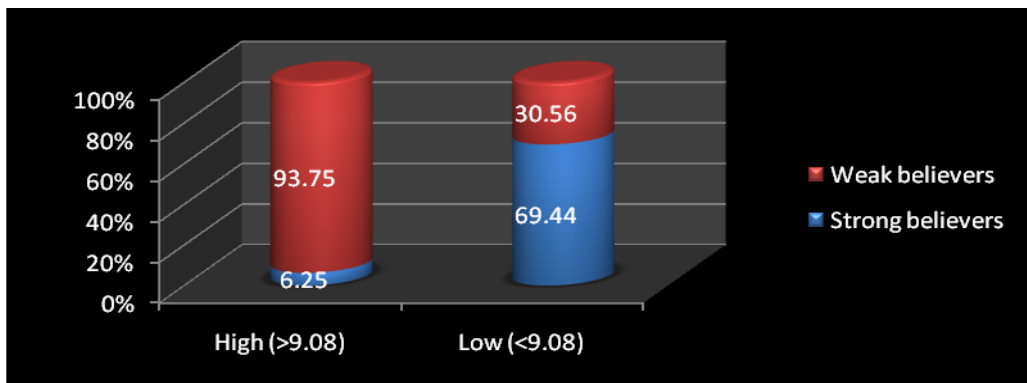
Fig.38. Distribution of believers in indigenous animal husbandry practices based on policy support.
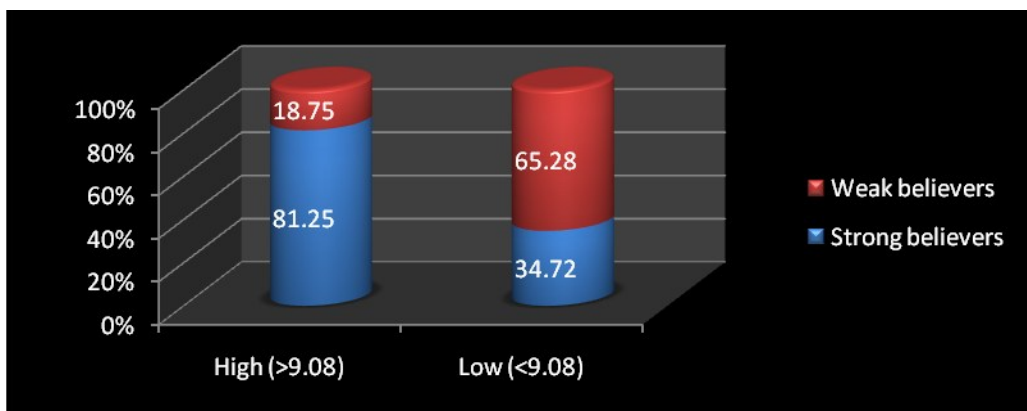
Fig. 39. Distribution of believers in modern animal husbandry practices based on policy support.
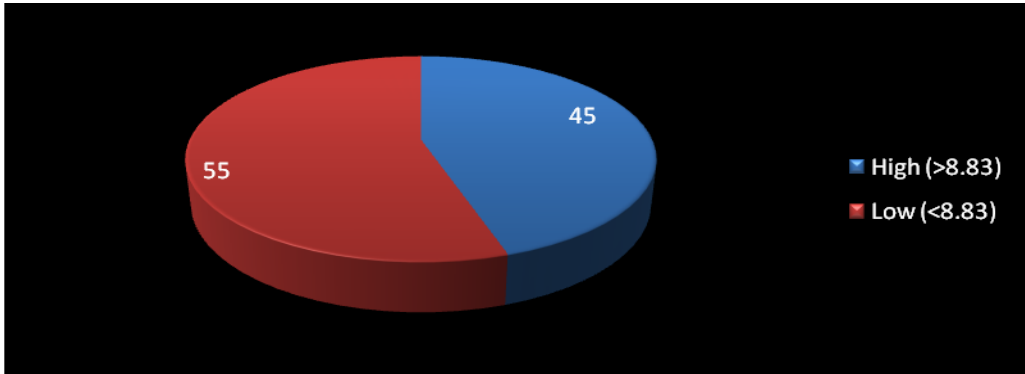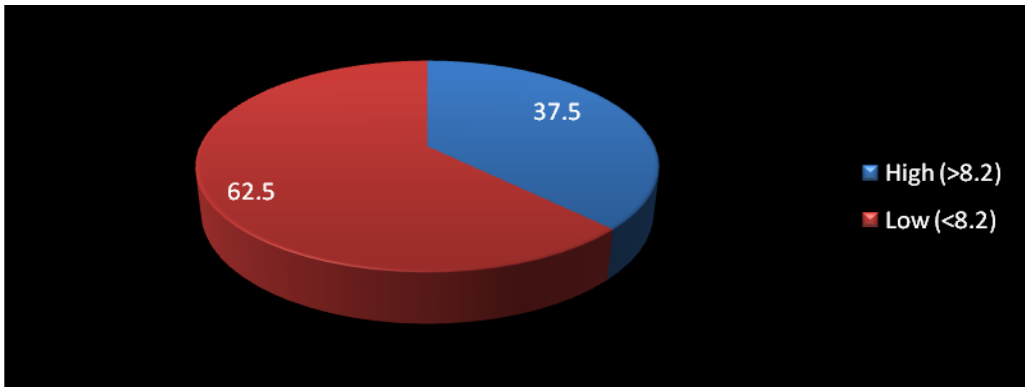
Fig. 40. Distribution of tribal animal husbandry farmers based on organizational support.
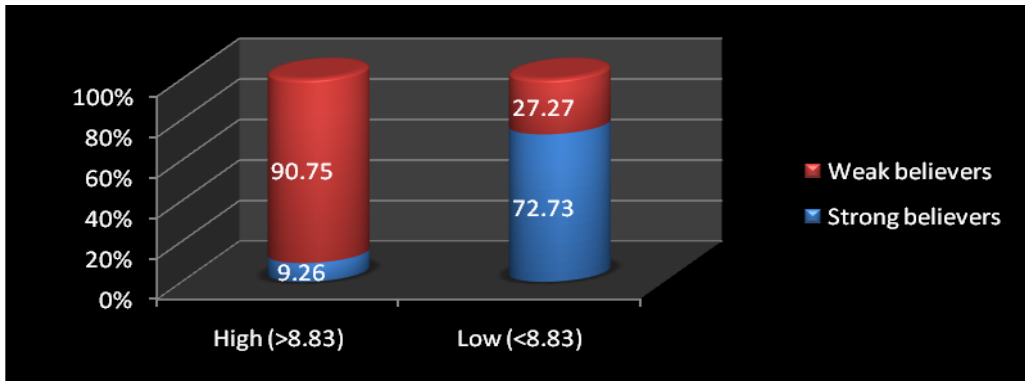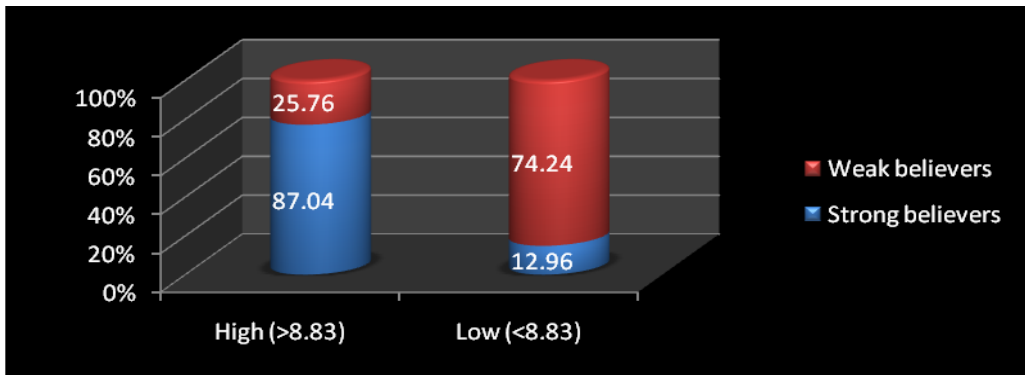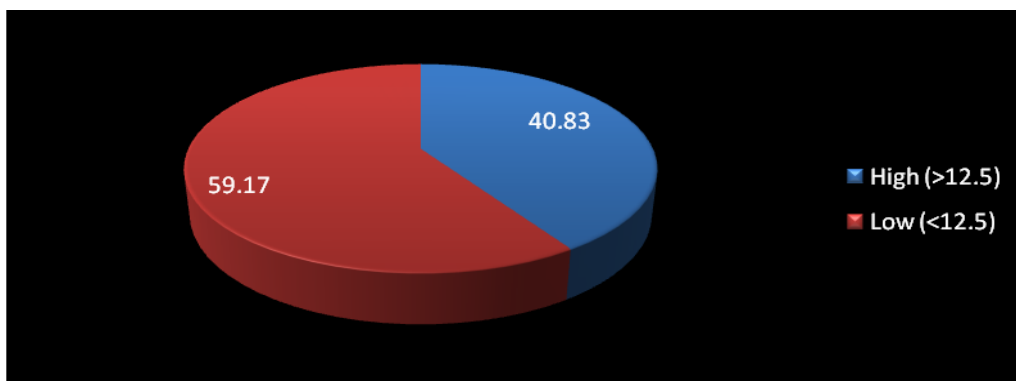

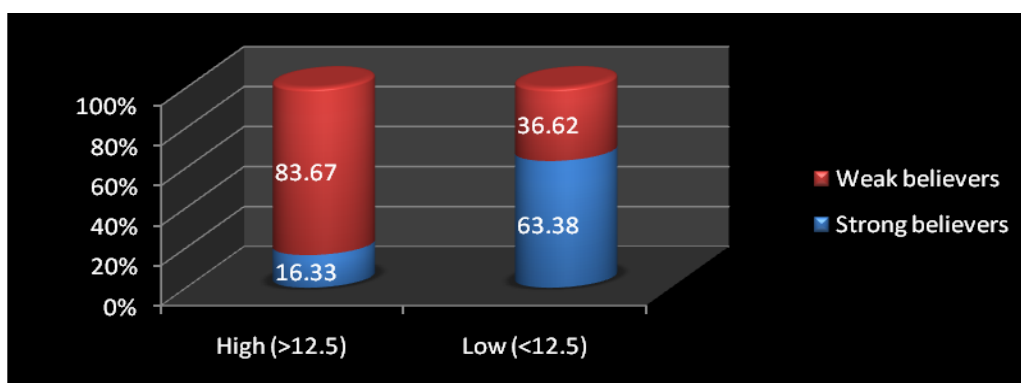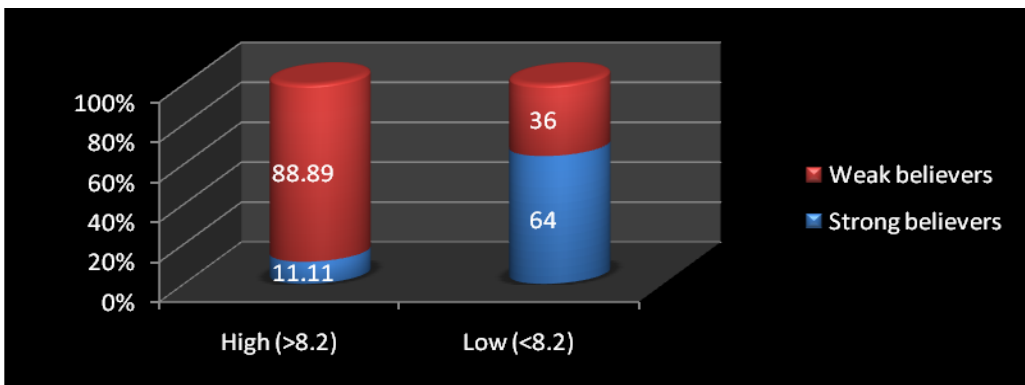
Fig. 41. Distribution of believers in indigenous animal husbandry practices based on organizational support.
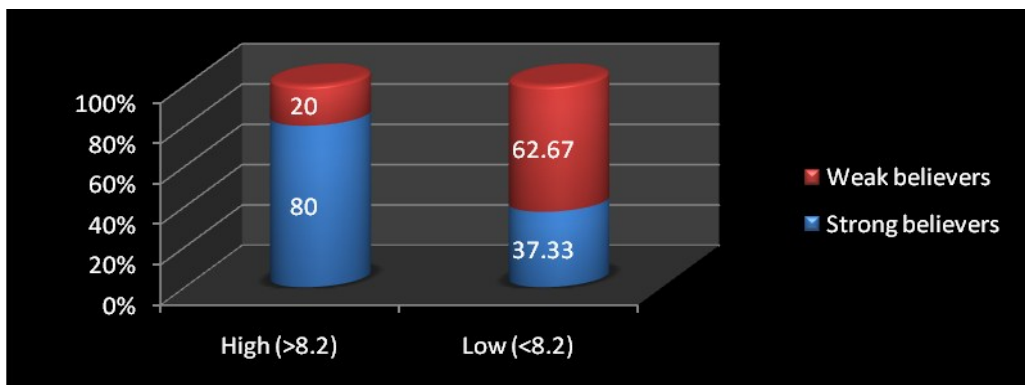
Fig. 42. Distribution of believers in modern animal husbandry practices based on organizational support.

The findings of this section are as follows

1) In general, majority of the respondents perceived marketing support to be high.

2) Strong believers of indigenous animal husbandry practices were more among those who perceived low marketing support.

3) Both degree of belief and extent of adoption of indigenous animal husbandry practices were negatively and significantly correlated with marketing support.

4) Strong believers of modern animal husbandry practices were more among those who perceived high marketing support.

5) Both degree of belief and extent of adoption of modern animal husbandry practices were positively and significantly correlated with marketing support.

6) In general, majority of the respondents perceived policy support to be high

7) Strong believers of indigenous animal husbandry practices were more among those who perceived low policy support.

8) Both degree of belief and extent of adoption of indigenous animal husbandry practices were negatively and significantly correlated with policy support.

9) Strong believers of modern animal husbandry practices were more among the respondents with high policy support.

10) Both degree of belief and extent of adoption of modern animal husbandry practices were positively and significantly correlated with policy support.

11) In general, majority of the respondents perceived organizational support to be low.

12) Strong believers of indigenous animal husbandry practices were more among the respondents with low policy support.

13) Both degree of belief and extent of adoption of indigenous animal husbandry practices were negatively and significantly correlated with organizational support.

14) Strong believers of modern animal husbandry practices were more among the respondents with high policy support.

15) Both degree of belief and extent of adoption of modern animal husbandry practices were positively and significantly correlated with organizational support.

4.2   RELATIONSHIP   BETWEEN   INDEPENDENT   AND   DEPENDENT VARIABLES

4.2.1 Relationship Between Independent Variables and Degree of Belief in Selected Indigenous Animal Husbandry Practices.

Table 18. Multiple regression of independent variables with degree of belief in selected indigenous animal husbandry practices.

Sl. No.	Independent variables	Correlation coefficient	Regression coefficient	Standard error	t - value
1	Age	0. 508**	3.061*	1.448	2.114
2	Education/ Literacy	-0.073	2.931	2.251	1.302
3	Experience in animal husbandry practices	0.501**	-2.930	1.478	1.983
4	Herd size	0.024	0.191	0.215	0.887
5	Man nature orientation	-0.662**	-2.340	1.717	1.363
6	Value orientation	-0.614**	-1.716*	0.676	2.540
7	Scientific orientation	-0.415**	0.299	0.736	0.407
8	Media exposure	-0.658**	-0.592	0.884	0.670
9	Extension agency contact	-0.580**	-0.900**	0.206	4.374
10	Market support	-0.587**	-0.696	0.970	0.717
11	Policy support	-0.563**	-1.954	1.106	1.767
12	Organizational support	-0.435**	-0.593	0.974	0.609

* denotes significant at 5 per cent level.

** denotes significant at 1 per cent level.

F= 17.797**   Intercept = 181.863 R^2=66.6%

Data in table 18   indicated that out of the twelve independent variables studied, the variables, age and years of experience were positively and significantly correlated with degree of belief in selected indigenous animal husbandry practices. Man-nature orientation, value orientation, scientific orientation, media exposure, extension agency contact, market support, policy support and organizational support were negatively and significantly correlated with the degree of belief in selected indigenous animal husbandry practices. In order to assess the relative contributions of each of the independent variables, the data were subjected to multiple regression analysis. It could be observed that the variables, value orientation and extension agency contact were negatively and significant in explaining variation in degree of belief in selected indigenous animal husbandry practices. Age was positive and significant in explaining variation in degree of belief in selected indigenous animal husbandry practices. The multiple regression equation fitted to the data was $Y = 181.863 + 3.061 X_1 + 2.931 X_2 - 2.930 X_3 + 0.191 X_4 - 2.34 X_5 - 1.716 X_6 + 0.299 X_7 - 0.592 X_8 - 0.900 X_9 - 0.696 X_{10} - 1.954 X_{11} - 0.593 X_{12}$. The co-efficient of determination was found to be 66.6 per cent. This indicated that 66.6 per cent of total variability in the degree of belief in selected indigenous animal husbandry practices among tribal animal husbandry farmers could be attributed to the 12 independent variables studied.

4.2.2 Relationship Between Independent Variables and Extent of Adoption in Selected Indigenous Animal Husbandry Practices.

Table 19. Multiple regression of independent variables with extent of adoption of selected indigenous animal husbandry practices.

Sl. No.	Independent variables	Correlation coefficient	Regression coefficient	Standard error	t - value
1	Age	0.594**	0.904	0.773	1.170
2	Education/ Literacy	-0.087	2.111	1.202	1.756
3	Experience in animal husbandry practices	0.591**	-0.628	0.789	0.796
4	Herd size	0.028	0.008871	0.115	0.077
5	Man nature orientation	-0.639**	-1.157	0.916	1.263
6	Value orientation	-0.553**	-0.392	0.361	1.087
7	Scientific orientation	-0.415**	0.163	0.393	0.416
8	Media exposure	-0.648**	-0.244	0.472	0.516
9	Extension agency contact	-0.532**	-0.318**	0.110	2.893
10	Market support	-0.587**	-0.679	0.518	1.312
11	Policy support	-0.555**	-0.698	0.590	1.182
12	Organizational support	-0.440**	-0.393	0.520	0.756

* denotes significant at 5 per cent level.

** denotes significant at 1 per cent level.

F= 15.448**   Intercept = 58.508 R^2=63.4%

Data in table 19 indicated that out of the twelve independent variables studied, the variables age and years of experience were positively and significantly correlated with extent of adoption of selected indigenous animal husbandry practices, whereas man-nature orientation, value orientation, scientific orientation, media exposure, extension agency contact, market support, policy support and organizational support were negatively and significantly correlated with the extent of adoption of selected indigenous animal husbandry practices. In order to assess the relative contribution of each of the independent variables, the data were subjected to multiple regression analysis. It could be observed that the variable, extension agency contact was negatively significant in explaining extent of adoption of selected indigenous animal husbandry practices. The multiple regression equation fitted to the data was $Y = 58.508 + 0.904\ X_1 + 2.111\ X_2 - 0.628\ X_3 - 0.008871\ X_4 - 1.157\ X_5 - 0.392\ X_6 + 0.163\ X_7 - 0.244\ X_8 - 0.318\ X_9 - 0.679\ X_{10} - 0.698\ X_{11} - 0.393\ X_{12}.$ The co-efficient of determination was found to be 63.4 per cent. This indicated that 63.4 per cent of total variability in the extent of adoption in selected indigenous animal husbandry practices of tribal animal husbandry farmers could be attributed to the independent variables studied.

4.2.3 Relationship Between Independent Variables and Degree of Belief in Selected Modern Animal Husbandry Practices.

Table 20. Multiple regression of independent variables with degree of belief in selected modern animal husbandry practices.

Sl. No.	Independent variables	Correlation coefficient	Regression coefficient	Standard error	t - value
1	Age	-0.571**	1.303	1.078	1.209
2	Education/ Literacy	0.160	-1.230	1.676	0.734
3	Experience in animal husbandry practices	-0.575**	-1.549	1.100	1.408
4	Herd size	-0.064	-0.196	0.160	1.225
5	Man nature orientation	0.690**	2.479	1.278	1.940
6	Value orientation	0.695**	2.108**	0.503	4.190
7	Scientific orientation	0.456**	-0.774	0.548	1.414
8	Media exposure	0.675**	0.593	0.658	0.901
9	Extension agency contact	0.531**	0.426**	0.153	2.781
10	Market support	0.546**	1.474*	0.722	2.041
11	Policy support	0.446**	-0.990	0.823	1.202
12	Organizational support	0.390**	0.614	0.725	0.847

* denotes significant at 5 per cent level.

** denotes significant at 1 per cent level.

F= 18.647**   Intercept = 78.823 R^2=67.7%

Data in table 20 indicated that out of the twelve independent variables studied, the variables, man nature orientation, value orientation, scientific orientation, media exposure, extension agency contact, market support, policy support and organizational support were positively and significantly correlated with degree of belief in selected modern animal husbandry practices. The variables, age and experience in animal husbandry were negatively and significantly correlated with the degree of belief in selected modern animal husbandry practices. In order to assess the relative contribution of each of the independent variables, the data was subjected to multiple regression analysis. It could be observed that the variables, value orientation, extension agency contact and market support were positively significant in explaining degree of belief in selected modern animal husbandry practices. The multiple regression equation fitted to the data was $Y = 78.823 + 1.303 X_1 - 1.230 X_2 - 1.549 X_3 - 0.196 X_4 + 2.479 X_5 + 2.108 X_6 - 0.774 X_7 + 0.593 X_8 + 0.426 X_9 + 1.474 X_{10} - 0.990 X_{11} + 0.614 X_{12}$. The co-efficient of determination was found to be 67.7%. This indicated that 67.7 per cent of total variability in the degree of belief in selected modern animal husbandry practices of tribal animal husbandry farmers could be attributed to the twelve independent variables studied.

4.2.4 Relationship Between Independent Variables and Extent of Adoption in Selected Modern Animal Husbandry Practices.

Table 21. Multiple regression of independent variables with extent of adoption of selected modern animal husbandry practices.

Sl. No.	Independent variables	Correlation coefficient	Regression coefficient	Standard error	t - value
1	Age	-0.499**	-0.396	0.952	0.416
2	Education/ Literacy	0.121	-1.524	1.480	1.030
3	Experience in animal husbandry practices	-0.496**	0.283	0.971	0.292
4	Herd size	-0.045	-0.205	0.141	1.451
5	Man nature orientation	0.569**	0.759	1.129	0.673
6	Value orientation	0.620**	1.325**	0.444	2.984
7	Scientific orientation	0.435**	0.000815	0.484	0.002
8	Media exposure	0.586**	0.645	0.581	1.111
9	Extension agency contact	0.502**	0.401**	0.135	2.964
10	Market support	0.426**	0.701	0.638	1.100
11	Policy support	0.314**	-1.245	0.727	1.713
12	Organizational support	0.337**	0.922	0.640	1.440

* denotes significant at 5 per cent level.

** denotes significant at 1 per cent level.

F= 10.127**   Intercept = 25.350 R^2=53.2%

Data in table 21 indicated that out of the twelve independent variable studied, the variables, man-nature orientation, value orientation, scientific orientation, media exposure, extension agency contact, market support, policy support and organizational support were positively and significantly correlated with extent of adoption of selected modern animal husbandry practices. The variables, age and years of experience were negatively and significantly correlated with the extent of adoption of selected modern animal husbandry practices. In order to assess the relative contribution of each of the independent variables the data were subjected to multiple regression analysis. It could be observed that the variables, value orientation and extension agency contact were positively significant in explaining extent of adoption of selected modern animal husbandry practices. The multiple regression equation fitted to the data was $Y = 25.350 - 0.499\ X_1 + 0.121\ X_2 - 0.496\ X_3 - 0.045\ X_4 + 0.569\ X_5 + 0.620\ X_6 + 0.435\ X_7 + 0.586\ X_8 + 0.502\ X_9 + 0.426\ X_{10} + 0.314\ X_{11} + 0.337\ X_{12}$. The co-efficient of determination was found to be 53.2 per cent. This indicated that 53.2 per cent of total variability in the extent of adoption in selected modern animal husbandry practices of tribal animal husbandry farmers could be attributed to the independent variables studied.

The findings of this section are as follows

1) The variables, value orientation and extension agency contact were negatively significant in explaining variation in degree of belief in selected indigenous animal husbandry practices.

2) The variable, age was positively significant in explaining variation in degree of belief in selected indigenous animal husbandry practices.

3) The variables, extension agency contact was negatively significant in explaining variation in adoption of selected indigenous animal husbandry practices.

4) The variables, value orientation, extension agency contact and market support were positively significant in explaining variation in degree of belief in selected modern animal husbandry practices.

5) The variables, value orientation and extension agency contact were positively significant in explaining variation in extent of adoption of selected modern animal husbandry practices.

4.3 Z-TEST OF DEPENDENT VARIABLES

4.3.1 Significance of Difference in the Degree of Belief in Selected Animal Husbandry Practices Between Deep and Peripheral Areas.

Table 22. Significance of difference in the degree of belief in selected animal husbandry practices between deep and peripheral areas.

Sl.no.	Degree of belief	Deep area (n=60)	Peripheral area (n=60)	Z test
1.	Indigenous animal husbandry practices.	Mean=189.70	Mean=155.80	12.929**
2	Modern animal husbandry practices	Mean=145.02	Mean=166.23	8.894**

** denotes significant at 1 per cent level.

The data in Table 22 indicated that the degree of belief in selected indigenous and modern animal husbandry practices differed significantly between the deep and peripheral areas with Z-values, of 12.929 and 8.894 respectively.

4.3.2 Significance of Difference in the Extent of Adoption of Animal Husbandry Practices Between Deep and Peripheral Areas.

Table 23. Significance of difference in the extent of adoption in selected animal husbandry practices between deep and peripheral areas.

Sl. no.	Extent of adoption	Deep area (n=60)	Peripheral area (n=60)	Z test
1.	Indigenous animal husbandry practices.	Mean=61.95	Mean=46.86	9.768**
2	Modern animal husbandry practices	Mean=42.84	Mean=54.87	6.095**

** denotes significant at 1 per cent level.

The data in Table 23 indicated that the extent of adoption of selected indigenous and modern animal husbandry practices differed significantly between the deep and peripheral areas with Z-values of 9.768 and 6.095 respectively.

The findings of this section are as follows

1) The degree of belief in indigenous and modern animal husbandry practices differed significantly between the deep and peripheral areas.

2) The extent of adoption of indigenous and modern animal husbandry practices differed significantly between the deep and peripheral areas

4.4. STRENGTH AND RATIONALILTY OF BEILEFS IN INDIGENOUS ANIMAL HUSBANDRY PRACTICES

4.4.1 Selection

Table 24.   Strength and rationality of beliefs in indigenous animal husbandry practices – Selection.

n=120

Sl. No	Statements	Mean score	Strength of belief	Scientists mean score	Ration- ality	Adopters	
						f	%
1.	Cattle having hair whirls behind the pin bone should not be selected	4.28	S	2.67	IR	100	83.33
2	Cattle having white or other colour mark on the forehead is preferred.	3.65	S	3.00	IR	76	63.33
3	A black cow is the best to keep.	3.08	W	2.67	IR	58	48.33
4	Cattle having colour patches are auspicious.	2.85	W	1.67	IR	43	35.83
5	White zebu bullock is good for carting	2.54	W	4.33	R	42	35.0

Scientist's mean = 3.25, farmer's mean = 3.28

Data in table 24 revealed that out of the five beliefs pertaining to selection, two were strongly held irrational beliefs. These beliefs in the order of their strength were, cattle having hair whirls behind the pin bone should not be selected (4.28) and cattle having white or other colour mark on the forehead should be preferred (3.65). Out of the above two beliefs, adopters were more for the belief that cattle having hair whirls behind the pin bone should not be selected

(83.33%). Adopters were the least for the belief of preferring cattle having white or other colour mark on the forehead (63.33%). Two were weakly held irrational beliefs. These beliefs in the order of their strength were black coloured cows were good to keep (3.08) and cattle with colour patches were auspicious (2.85). Out of the above beliefs, adopters were more for the belief of selecting black coloured cows (48.33%). Adopters were least for the belief of selecting cattle with colour patches (35.83%). The only weakly held rational belief preferred white zebu bullock for carting (2.54) which was adopted by 35 per cent of the respondents.

4.4.2 Feeding

Table 25.   Strength and rationality of beliefs in indigenous animal husbandry practices – Feeding.

n=120

Sl. No	Statements	Mean score	Strength of belief	Scientists mean score	Ration-ality	Adopters	
						f	%
1	Grazing of the cattle is preferred	3.97	S	4.67	R	120	100.0
2	Feeding cotton seed cake is good.	2.55	W	3.67	R	49	40.83
3	Feeding pig fat and egg to goats is good	2.11	W	2.00	IR	35	29.17

 Scientist's mean = 3.25, farmer's mean = 3.2

Data in Table 25 revealed that among the three beliefs pertaining to feeding, the weakly held irrational belief was feeding pig fat and eggs to goat (2.11) and which was adopted by 29.17 per cent of the respondents.

The weakly held rational belief was feeding cotton seed cake (2.55) which was adopted by 40.83 per cent of the respondents. The strongly held rational belief was the practice of grazing (3.97) which was adopted by cent per cent of the respondents.

4.4.3 Breeding

Table 26. Strength and rationality of beliefs in indigenous animal husbandry practices – Breeding.   n=120

Sl. No.	Statements	Mean score	Strength of belief	Scientists mean score	Ration-ality	Adopters	
						f	%
1	Natural service is preferable.	3.50	S	1.33	IR	80	66.67

Scientist mean = 3.248   , farmers mean = 3.280

Data in table 26 revealed that the belief of preferring natural service (3.50) was a strongly held irrational belief and was adopted by 66.67 per cent of respondents.

4.4.4 Housing

Table 27.   Strength and rationality of beliefs in indigenous animal husbandry practices – Housing.

n=120

Sl. No	Statements	Mean score	Strength of belief	Scientists mean score	Ration-ality	Adopters	
						f	%
1	Housing of cattle is not needed.	3.88	S	1.33	IR	70	58.33
2	Kids should be placed in 'Kodappu' while does are sent for grazing	3.33	S	2.33	IR	77	64.17

Scientist's mean = 3.248   , farmer's mean = 3.28

Data in table 27 revealed that both the beliefs studied, pertaining to housing were strongly held irrational beliefs. These beliefs in their order of strength were, housing of cattle was not needed (3.88) and kids should be placed in 'Kodappu' while doe were sent for grazing (3.33). Out of these beliefs, adopters were comparatively more for the belief based practice of keeping kids in 'kodappu' while does were sent for grazing (64.17%).

4.4.5 Other management practices

Table 28. Strength and rationality of beliefs in indigenous animal husbandry practices – Other management practices

n=120

Sl. No	Statements	Mean score	Strength of belief	Scientists mean score	Ration-ality	Adopters f	%
1	Knuckling method of milking is preferred.	3.88	S	2.00	IR	81	67.50
2	Calf should be with dam during an entire lactation period.	3.47	S	2.33	IR	86	71.67
3	Traditional method of castration by crushing the testis.	3.23	W	2.67	IR	68	56.67

Scientist's mean = 3.248   , farmer's mean = 3.280

Data in Table 28 revealed that out of the three beliefs pertaining to management practices, two were strongly held irrational beliefs. These beliefs in the order of their strength were, preference for the knuckling method of milking (3.88) and keeping the calf with it's dam for an entire lactation period (3.47). Out of these strongly held irrational beliefs, adopters were more for keeping the calf with its dam for an entire lactation period (71.67%). Adopters were the least for preferring knuckling method of milking (67.50%). The only weakly held

irrational belief was the traditional method of castration (3.23) which was adopted by 56.67 per cent of respondents.

4.4.6 Disease and Treatment

Table 29. Strength and rationality of beliefs in indigenous animal husbandry practices – Disease and treatment.

n=120

Sl. No	Statements	Mean score	Strength of belief	Scientists mean score	Ration-ality	Adopters	
						f	%
1	Inhalation by burning salted fish / snake skin is good for cough in goat.	4.32	S	3.63	R	89	74.17
2	Snake bite victims may be subjected to customary rituals	4.20	S	2.0	IR	85	70.83
3	To immobilize and heal fracture splints of bamboo are good.	4.16	S	4.50	R	84	70.0
4	For foot lesions of FMD salted fishes are ground and made into a paste and are applied to the foot lesions.	3.99	S	3.0	IR	81	67.50
5	Turmeric powder (*Curcuma longa*) and ragi flour (*Eleusine coracana)* together are good for horn evulsion	3.95	S	3.75	R	93	77.50
6	Bark of 'Velamaram' (*Acacia leucophloea*) is good for healing wounds.	3.87	S	3.13	IR	81	67.50
7	Decocts made of pepper *(Piper nigrum)* / ginger (*Zingiber officinale*)/ garlic (*Allium sativum*)/ thulasi (*Ocimum tenuiflorum*) are good for fever in cattle.	3.86	S	4.63	R	72	60.0
8	'Velipparuthy' (*Pergularia daemia*) leaves are given to cattle if the animal is recumbent.	3.85	S	3.75	R	69	57.50

Scientist mean = 3.248 , farmers mean = 3.280
S denotes strong belief , W – Weak belief
R – Rational belief and IR – Irrational belief

Table 29 continued.

Sl. No	Statements	Mean score	Strength of belief	Scientists mean score	Ration-ality	Adopters f	%
9	To immobilize and heal fracture a bandage with the bark of 'Velamaram' (*Acacia leucophloea*) is good.	3.80	S	3.0	IR	86	71.67
10	'Thottavady' (*Mimosa pudica)* ,onion (*Allium cepa*) and 'thulasi' (*Ocimum tenuiflorum*) together are good for cough in cattle and goats	3.60	S	4.38	R	77	64.17
11	To heal dislocation, the affected joint is massaged with oil and bandaged with cloth applying heated mud	3.53	S	3.88	R	69	57.50
12	For oral ulcers of foot and mouth disease plantain fruit and fat of wild pig are mixed well and applied.	3.45	S	4.25	R	70	58.33
13	Flower and leaves of 'thumba' (*Leucas aspera*) can be used to deworm cattle.	3.43	S	4.50	R	68	56.67
14	'Appakovai' (*Coccinia grandis)* leaf and stem with turmeric powder (*Curcuma longa*) can cure mastitis.	3.40	S	3.50	R	64	53.33
15	Naphthalene, tobacco leaves and lime together can expel maggots form wounds.	3.37	S	4.63	R	54	45.0
16	'Neem' leaves (*Azadirachta indica*) and areca nut (*Areca catechu*) together are good for deworming cattle	3.33	S	4.50	R	68	56.67
17	'Kottachedi / kattavanakku' (*Jatropha curcas*) can heal wounds.	3.33	S	4.0	R	62	51.67

Scientist mean = 3.248 , farmers mean = 3.280

S denotes strong belief , W – Weak belief

R – Rational belief and IR – Irrational belief

Table 29 continued.

Sl. No	Statements	Mean score	Strength of belief	Scientists mean score	Ration-ality	Adopters	
						f	%
18	Essence of 'Malaveepu' leaves (*Melia dubia)* in water is good for indigestion.	3.18	W	3.13	IR	63	52.50
19	Koduvely' leaves (*Plumbago zeylanica*) and stem are good for healing wounds.	3.13	W	4.38	R	53	44.17
20	Water boiled with 'Avanakku' (*Ricinus communis*) is good for skin infection for goats.	3.13	W	4.25	R	75	62.50
21	For snake bite 'Kilimookku' tuber (*Corallocarpus epigaeus*), Onion (*Allium cepa*) and 'Keezharnelly' (*Phyllanthus debilis*) are ground well and given orally.	3.08	W	3.50	R	54	45.0
22	Feeding bamboo leaves (*Bambusa bambos*) is good for retension of placenta.	3.07	W	4.50	R	53	44.17
23	External application of tobacco dust (snuff) mixed with kerosene for ecto parasitic infestation.	3.00	W	4.50	R	52	43.33
24	'Changalamparanda' (*Cissus quadrangularis*) is good for anorexia in cattle.	2.93	W	3.63	R	52	43.33
25	For retension of placenta "Appakovai" plant (*Coccinia grandis)* is tied around the horns and fed.	2.90	W	2.88	IR	45	37.50
26	For healing fracture crushed bark of 'Chadachi' (*Grewia tiliaefolia*) is applied and immobilized with bamboo splints.	2.70	W	4.50	R	51	42.50

Scientist mean = 3.248   , farmers mean = 3.280

S denotes strong belief   , W – Weak belief,

R – Rational belief and IR – Irrational belief

Table 29 continued.

Sl. No	Statements	Mean score	Strength of belief	Scientists mean score	Ration-ality	Adopters	
						f	%
27	A paste made of leaves thippali (*Piper longum*) and bark of 'Arasu maram' (*Ficus religiosa*) is good for fever.	2.63	W	4.38	R	51	42.50
28	For foot lesions, cattle are made to stand in mud.	2.58	W	3.38	IR	43	35.83
29	Aathy' leaves *(Bauhinia racemosa)* along with tobacco is chewed well and spit on to the affected eye to cure corneal opacity.	2.55	W	3.25	R	54	45.0
30	'Ummam' leaves (*Datura strammonium*) and fruit can expel maggots.	2.52	W	4.13	R	36	30.0
31	Leaf and stem of 'Kuppameny' (*Acalypha indica*) can cure constipation in cattle.	2.45	W	3.6	R	43	35.83
32	Bark of 'Eeeth' (*Cycas circinalis*) and 'Athi' (*Ficus racemosa*) are good for diarrhea in cattle .	2.41	W	3.38	R	37	30.83
33	"Kara Maram" leaves (*Randia dumetorum*) and stem are good for horn evulsion.	2.26	W	3.6	R	34	28.33
34	For snake bite bark of 'Ungu' (*Pongamia pinnata*) is ground well and is given orally	1.93	W	4.0	IR	27	22.50

Scientist mean = 3.248 , farmers mean = 3.280 S denotes strong belief

W – Weak belief   R – Rational belief and   IR – Irrational belief

Data in table 29 revealed that out of the thirty four beliefs pertaining to diseases and their treatment, four were strongly held irrational beliefs. These beliefs in the order of their strength were, performing customary rituals for animal victims of snake bite (4.20), application of a well ground paste of salted fishes over the lesions of F.M.D (3.99), application of the bark of 'Velamaram' (*Acacia leucophloea*) over the wound for healing (3.87) and application of the bark of 'Velamaram' (*Acacia leucophloea*) as bandage in case of fracture (3.80). Out of the above four strongly held irrational beliefs, adopters were more for the application of bark of 'Velamaram' (*Pergularia daemia)* as bandage in the case of fracture ((71.67%)). Adopters were the least for the belief of application of well ground paste made out of salted fishes over the lesions of FMD (67.5%) and application of the bark of 'Velamaram' (*Acacia leucophloea*) over the wound for healing (67.5%). Four were weakly held irrational beliefs. These beliefs in the order of their strength were, drenching the essence of 'Malaveppu' (*Melia dubia)* leaves kept in water for treating indigestion in ruminants (3.18), feeding and tying of 'Appakovai' (*Coccinia grandis)* plant around the horn for retention of placenta in cattle (2.90), making the cattle to stand in mud as a treatment for foot lesions (2.63) and feeding well ground bark of 'Ungu' (*Pongamia pinnata)* for snake bite (1.93). Out of the above two beliefs, adopters were more for the belief of drenching the essence of 'Malaveppu' (*Melia dubia)* leaves kept in water for treating indigestion in ruminants (52.50%). Adopters were least for the belief of feeding well ground bark of 'Ungu' (*Pongamia pinnata*) for snake bite (22.50%).

Out of the thirty four beliefs pertaining to diseases and their treatment, thirteen were strongly held rational beliefs. These beliefs in the order of their strength were, providing inhalation by burning salted fish as treatment for cough

in goats (4.32), using bamboo splints to immobilize in the case of fracture (4.16), application of turmeric powder (*Curcuma longa*) and 'ragi' (*Eleusine coracana*) flour for treating horn evulsion (3.95), drenching a decoction made out of pepper (*Piper nigrum*), ginger (*Zingiber officinale*), garlic (*Allium sativum*) and 'thulasi' (*Ocimum tenuiflorum*) for fever in cattle (3.86), feeding leaves of 'Velipparuthy' (*Pergularia daemia*) to recumbent animals (3.85), giving a paste of 'thottavady' (*Mimosa pudica*), onion (*Allium cepa*) and 'thulasi' (*Ocimum tenuiflorum*) for cough in cattle and goats (3.60), massaging with oil and then bandaging with heated mud over the dislocated joint (3.53), applying plantain fruit and fat of wild pig on the oral ulcers of FMD (4.25), giving the flowers and leaves of 'Thumba' (*Leucas aspera*) for deworming cattle (3.43), a paste of well ground leaves and stem of 'Appakovai' (*Coccinia grandis*) plant and turmeric powder (*Curcuma longa*) on the udder for mastitis (3.40), using naphthalene, tobacco leaves and lime together for expelling maggots from wounds (3.37), feeding 'neem' (*Azadirachta indica*) leaves and areca nut *(Areca catechu*) together for deworming cattle (3.33) and application of 'Kottachedi' or 'kattavanakku' (*Jatropha curcas*) leaves for wound healing (3.33). Out of the above beliefs, adopters were more for the belief of applying of turmeric powder (*Curcuma longa*) and 'ragi' (*Eleusine coracana*) flour for treating horn evulsion (77.50%). Adopters were least for the belief of using naphthalene, tobacco leaves and lime together for expelling maggots from wounds (45.0%).

Out of the thirty four beliefs pertaining to diseases and their treatment, thirteen were weakly held rational beliefs. These beliefs in the order of their strength were, application of a paste made of leaves and stem of 'Koduvely' (*Plumbago zeylanica*) for wound healing (3.13), applying water in which leaves

of 'Avanakku' (*Ricinus communis)* plant are boiled, as a cure for skin infection in goats (3.13), administering a ground preparation made out of 'Kilimooku' (*Corallocarpus epigaeus*) tuber, onion (*Allium cepa*) and 'Keezharnelly' (*Phyllanthus debilis*) for snake bite (3.08), feeding bamboo leaves (*Bambusa bambos)* for retention of placenta (3.07), applying kerosene to the wounds to which tobacco powder (snuff) is mixed, to expel maggots (3.00), administering well ground 'Changalamparanda' (*Cissus quadrangularis*) orally to cattle for anorexia(2.93), applying the crushed bark of 'Chadachi' (*Grewia tiliaefolia)* plant over fracture as bandage (2.70), administering a paste made of 'Thippali' (*Piper longum)* and bark of 'Arasu maram' (*Ficus religiosa)* to relieve fever (2.63), spitting on to the eye after chewing 'Aathy' (*Bauhinia racemosa*) leaves and tobacco together for curing corneal opacity (2.55), applying a paste made of leaves and fruit of 'Ummam' (*Datura strammonium*) to maggot (2.52) ,feeding the leaves and stem of 'Kuppameny' (*Acalypha indica)* to cure constipation in cattle (2.45), giving bark of 'Eeethi' (*Cycas circinalis)* and 'Athi' (*Ficus racemosa*) for treating diarrhea in cattle (2.41) and applying paste made out of ground leaves and stem of 'Karamaram' (*Randia dumetorum)* for treating for horn evulsion (2.41). Out of the thirteen beliefs, adopters were more for the belief of applying water in which leaves of 'Avanakku' (*Ricinus communis)* plant are boiled, to cure skin infection in goats (62.5%). Adopters were least for the belief of applying a paste made out of ground leaves and stem of 'Karamaram' (*Randia dumetorum*) for treating horn evulsion (28.33%).

4.4.7. Other Customary Practices

Table 30.   Strength and rationality of beliefs in indigenous animal husbandry practices – Other customary practices.

n=120

Sl. No	Statements	Mean score	Strength of belief	Scientists mean score	Ration-ality	Adopters	
						f	%
1.	Cow and buffalo meat should not be consumed.	4.28	S	1.33	IR	110	91.67
2	Colostrum should be poured into a stream or anthill	4.10	S	2.33	IR	89	74.17
3	Placenta should be hung on a tree that has white sap.	4.01	S	1.33	IR	88	73.33
4	First egg of hen should be marked with charcoal and left in an anthill	3.83	S	1.67	IR	91	75.83
5	A hen that crows during dusk should be culled	3.48	S	1.00	IR	57	47.50

Scientist mean = 3.248   , farmers mean = 3.280

S denotes strong belief,   R – Rational belief and IR – Irrational belief

Data in Table 30 revealed that all the five beliefs studied pertaining to other customary practices were strongly held irrational beliefs. These beliefs, in the order of their strength were, cow and buffalo meat should not be consumed (4.28), colostrum should be poured into a stream or upon an anthill (4.10), the first egg of hen should be marked with charcoal and left in an anthill (3.83) and a hen that crows during dusk should be culled (3.48). Out of these five strongly held irrational beliefs, adopters were more for the abhorrence of cow and buffalo meat (91.67%). Adopters were least for the belief of culling the hen that crows during dusk (47.50%).

The findings of this section are as follows

1) In the case of indigenous animal husbandry practices, the strongest belief regarding selection of animals was cattle having hair whirls behind the pin bone should not be selected and the weakest was preferring white zebu bullock for carting.

2) In the case of indigenous animal husbandry practices, adopters were the most for the belief based practice on cattle having hair whirls behind the pin bone should not be selected, whereas adopters were the least for preferring white zebu bullock for carting.

3) In the case of indigenous animal husbandry practices, the strongest belief regarding feeding was preferring grazing of the cattle and the weakest was the belief based practice of feeding pig fat and egg to goats.

4) In the case of indigenous animal husbandry practices, adopters were the most for the belief of preferring grazing of the cattle whereas, adopters were the least of the belief based practice of feeding pig fat and eggs to goats.

5) In the case of indigenous animal husbandry practices, the belief of preferring natural service was a strongly held belief and was adopted by two third of the respondents.

6) In the case of indigenous animal husbandry practices, the stronger belief regarding housing of animals was housing of cattle was not needed and the weaker was the belief based practice of keeping kids in 'kodappu' while does were sent for grazing.

7) In the case of indigenous animal husbandry practices, regarding housing, adopters were comparatively more for the belief based practice of keeping kids in 'kodappu' while does were sent for grazing.

8) In the case of indigenous animal husbandry practices, the strongest belief regarding management practices was preferring knuckling method of milking and the weakest was the practice of traditional method of castration.

9) In the case of indigenous animal husbandry practices, adopters were the most for the practice of knuckling method of milking whereas, adopters were the least for the practice of traditional method of castration.

10) In the case of indigenous animal husbandry practices, the strongest belief regarding treatment practices was providing inhalation by burning salted fish as treatment of cough in goat and the weakest was feeding well ground bark of 'Ungu' (*Pongamia pinnata*) for snake bite.

11) In the case of indigenous animal husbandry practices, adopters were the most for the application of turmeric powder (*Curcuma longa*) and 'ragi' (*Eleusine coracana*) flour for treating horn evulsion whereas, adopters were the least for feeding well ground bark of 'Ungu' (*Pongamia pinnata*) for snake bite.

12) In the case of indigenous animal husbandry practices, the strongest belief regarding other customary practices was the abhorrence of cow and buffalo meat and the weakest was for the belief of culling the hen that crows during dusk

13) In the case of indigenous animal husbandry practices, adopters were the most for the practice of abhorrence of cow and buffalo meat whereas, adopters were the least for the belief of culling the hen that crows during dusk.

4.5 STRENGTH OF BELIEF IN MODERN ANIMAL HUSBANDRY PRACTICES

4.5.1 Selection

Table 31. Strength of belief in modern animal husbandry practices – Selection.

n=120

Sl. No.	Statements	Mean score	Strength of belief	Adopters	
				f	%
1.	Number of lactations.	4.07	S	76	63.33
2	Without physical deformities.	3.95	S	79	65.83
3	Large sized udder.	3.83	S	72	60.00
4	Squarely placed teats.	3.38	S	70	58.33
5	Good temperament.	3.32	S	75	62.50
6	Smooth shiny skin	2.91	W	58	48.33
7	Prominent milk vein	1.68	W	16	13.33

Farmer's mean = 3.05 , S denotes Strong beliefs and W – Weak belief

Data in Table 31 revealed that out of the seven beliefs pertaining to selection of cattle, five were strongly held. These beliefs pertained to certain criteria for selecting dairy animals and they, in the order of strength were, number of lactations (4.07), free of physical deformities (3.95), large sized udder (3.83), squarely placed teats (3.38) and good temperament (3.32). Out of the above beliefs, adopters were more for selecting animals without any physical deformities (65.83%). However, adopters were least for selecting animals with squarely placed teats (58.33%). Two beliefs were weak. These beliefs in the order

of their strength were, selecting animals with smooth shiny skin (2.91) and selecting animals with prominent milk vein (1.68).The adopters for the above two beliefs were 48.33 per cent and 13.33 per cent respectively.

4.5.2 Feeding

Table 32. Strength of belief in modern animal husbandry practices – Feeding

Farmer's mean = 3.05 , S denotes Strong beliefs and W – Weak belief

n=120

Sl. No.	Statements	Mean score	Strength of belief	Adopters	
				f	%
1	Extra feeding to pregnant animals	3.62	S	79	65.83
2	Extra feeding to milch animals	3.56	S	76	63.33
3	Compound feed / oil cake for dairy cattle.	3.23	S	50	41.67
4	Fodder cultivation	3.21	S	30	25.00

Data in Table 32 revealed that all the four beliefs pertaining to feeding were strong. These beliefs were certain requirements regarding feeding of animals and they, in the order of strength were, extra feeding of pregnant animals (3.62), extra feeding of milch animals (3.56), feeding concentrate to dairy cattle (3.23) and cultivating fodder (3.21). Out of the above beliefs, adopters were more for extra feeding of milch animals (63.33%). Adopters were least for fodder cultivation (25.0%).

4.5.3 Breeding

Table 33 Strength of belief in modern animal husbandry practices – Breeding

n=120

Sl. No.	Statements	Mean score	Strength of belief	Adopters	
				f	%
1	A.I. should be the method for impregnation	3.33	S	56	46.67
2	Inter- calving period should ideally be 12 – 15 months.	3.18	S	52	43.33
3	Age at first calving should be less than 3 years.	3.13	S	46	38.33
4	Post partum insemination within 3 months.	2.98	W	46	38.33
5	Pregnancy should be confirmed by per-rectal examination.	2.64	W	51	42.50

Farmer's mean = 3.05 S denotes Strong beliefs and W – Weak belief

Data in Table 33 revealed that out of the five beliefs pertaining to breeding, three were strong. These beliefs were certain criteria regarding breeding of animals and they, in the order of strength, were A.I. should be the method of impregnation (3.33), the ideal inter-calving period should be 12-15 months (3.18) and age at first calving should be below 3 years (3.13). Out of the above beliefs, adopters were more for A.I. (46.67%). However, those adopting the criteria that age at first calving should be below 3 years were the least (38.33%). Two beliefs were weak. These beliefs in the order of their strength were, post partum insemination should be done

within 3 months (2.98) and pregnancy should be confirmed by per-rectal examination (2.64). Out of the above beliefs, adopters were more for the belief or practice of confirming pregnancy by per-rectal examination (42.5%). Adopters were least for the belief or practice of inseminating within 3 months of parturition (38.33%).

4.5.4 Housing

Table 34. Strength of belief in modern animal husbandry practices – Housing.

n=120

Sl. No.	Statements	Mean score	Strength of belief	Adopters	
				f	%
1	Goat pen should be built in a dry place devoid of dampness.	3.75	S	84	70.00
2	Daily Cleaning (cattle).	3.60	S	75	62.50
3	A good roof should be provided.	3.55	S	66	55.00
4	Daily cleaning of shed and premises.	3.41	S	64	53.33
5	Goat pen should be an elevated one.	3.37	S	67	55.83
6	A hard, dry and clean floor.	3.18	S	57	47.50
7	Goats should be housed separately	3.00	W	60	50.00
8	A good sidewall.	2.78	W	46	38.33
9	Proper drainage for urine.	2.77	W	55	45.83
10	Shed must be constructed based on wind direction.	2.55	W	50	41.67
11	Periodic cleaning of poultry pen	1.88	W	26	21.67

Farmer's mean = 3.05 ,S denotes Strong beliefs and W – Weak belief

Data in Table 34 revealed that out of the eleven beliefs pertaining to housing, six were strong. These beliefs were certain criteria regarding housing of animals and they, in the order of strength were, building the goat pen in a damp free dry area (3.75), daily washing of cattle (3.60), providing good roof for the cattle shed (3.55), daily cleaning of shed and premises (3.41), goat pen should be one elevated from the ground (3.37) and providing a hard, dry and clean floor (3.18). Out of the above six strongly held beliefs, adopters were more for the belief or practice of building the goat pen in a damp free dry area (70.0%).

Adopters were least for the belief or practice of providing hard, dry and clean floor for the cattle shed (47.5%). Five beliefs were weak. These beliefs in the order of their strength were, providing separate house for goats (3.00), providing good sidewalls for cattle shed (2.78), proper drainage facilities in the cattle shed (2.77), constructing the cattle shed based on wind direction (2.55) and cleaning poultry pen periodically (1.88). Out of the above beliefs, adopters were more for the belief or practice of housing the goat separately (50.0%). However, adopters were least for the belief or practice of cleaning the poultry pen periodically (21.67%).

4.5.5. Management practices

Table 35.   Strength of belief in modern animal husbandry practices – Other management practices.

n=120

Sl. No.	Statements	Mean score	Strength of belief	Adopters	
				f	%
1	Frequent suckling of calves for the first 10 days.	3.65	S	78	65.00
2	F M D vaccination	3.18	S	51	42.50
3	Periodical grooming (goat).	3.01	W	56	46.67
4	Drying up prior to parturition	2.97	W	64	53.33
5	Udder should be cleaned prior to milking	2.78	W	52	43.33
6	Castration by a qualified person	2.73	W	52	43.33
7	Full hand milking.	2.38	W	39	32.50
8	Calf should be weaned within 3 days of calving..	2.23	W	28	23.33
9	R D vaccination	2.14	W	28	23.33
10	Supplementary feeding to backyard chicken.	2.06	W	30	25.00

Farmer's mean = 3.05 , S denotes Strong beliefs and W – Weak belief

Data in Table 35 revealed that, out of the ten beliefs pertaining to management practices, two were strong. These beliefs were certain criteria regarding management practices and they, in the order of strength were, allowing the calf for frequent suckling for the first 10 days (3.65) and vaccination against FMD (3.18). Out of the above beliefs, adopters were more for the belief or practice of allowing the calf for frequent suckling for the first 10 days (65.0%) and least for vaccination against F. M. D (42.5%). Eight beliefs were weak. These beliefs in the order of their strength were, periodical grooming of goats (3.01), practice of drying of udder prior to parturition (2.97), cleaning of udder prior to milking (2.78), castrating bulls by a qualified person (2.73), full hand milking (2.38), weaning the calf within 3 days of calving (2.23), vaccination against RD in poultry (2.14) and supplementary feeding of backyard poultry (2.06). Out of the above eight weak beliefs, adopters were more for the belief or practice of drying up prior to parturition (53.3%). However, adopters were least for the belief or practice of vaccination against R. D. (23.33%) and weaning calf within 3 days of calving (23.33%).

4.5.6. Disease and treatment

Table 36. Strength of belief in modern animal husbandry practices – Diseases and treatment.   n=120

Sl. No.	Statements	Mean score	Strength of belief	Adopters	
				f	%
1	Bite of rabid animals.	3.48	S	54	45.00
2	Digestive disorder	3.38	S	55	45.83
3	Endo- parasitic infections (Deworming).	3.30	S	66	55.00
4	Medication for infectious diseases.	3.29	S	70	58.33
5	Mastitis	3.28	S	68	56.67
6	Modern practices:- Fever	3.20	S	54	45.00
7	Bloat.	3.12	S	60	50.00
8	Retention of placenta	3.05	W	52	43.33
9	Ecto – parasitic infections	2.99	W	55	45.83
10	Snake bite condition.	2.92	W	53	44.17
11	Fracture.	2.77	W	42	35.00
12	Respiratory disorder	2.75	W	44	36.67
13	Horn /Hoof evulsions	2.53	W	37	30.83
14	External wound	2.46	W	35	29.17

Farmer's mean = 3.05, S denotes Strong beliefs and W – Weak belief

Data in Table 36 pertained to the strength of beliefs on modern veterinary practices. Out of the fourteen beliefs identified and studied, seven were strong. They in the order of strength were, treating for the bite of rabid animals (3.48),

treating for digestive disorders (3.38), deworming for endo-parasitic infestation (3.30), medication for infectious diseases (3.29), treatment of mastitis (3.28), treatment of fever (3.20) and medication for bloat (3.12). Out of the above seven strongly held beliefs; adopters were more for treatment of infectious diseases (58.33%). However, adopters were the least for treating fever (45.0%). Seven beliefs were weak. These beliefs in the order of their strength were, treating for expulsion of placenta (3.05), ecto-parasitic infestation (2.99), snake bite (2.92), fracture (2.77), respiratory disorder (2.75), horn / hoof evulsion (2.53) and external wound (2.46). Out of the above beliefs, adopters were more for the belief or practice of treating ecto-parasitic infestation (45.83%). However, adopters were the least for treating external wounds (29.17%).

The findings of this section are as follows

1) In the case of modern animal husbandry practices, the strongest belief regarding selection of animals was looking into the number of lactation and the weakest was looking for prominent milk vein.

2) In the case of modern animal husbandry practices, adopters were the most for selecting those animals free of physical deformities whereas, adopters were the least for selecting those animals with prominent milk vein.

3) In the case of modern animal husbandry practices, the strongest belief regarding feeding was giving extra feed during pregnancy and the weakest was the practice of cultivating fodder.

4) In the case of modern animal husbandry practices, adopters were the most for the practice of extra feeding to pregnant animals whereas, adopters were the least for the practice of cultivating fodder.

5) In the case of modern animal husbandry practices, the strongest belief regarding breeding was A. I. should be the method for impregnation and the weakest was confirmation of pregnancy by per-rectal examination.

6) In the case of modern animal husbandry practices, adopters were the most for A.I. whereas, adopters were the least for the practice of confirming pregnancy by per-rectal examination.

7) In the case of modern animal husbandry practices, the strongest belief regarding housing was building goat pen in a damp free dry area and the weakest was cleaning poultry pen periodically.

8) In the case of modern animal husbandry practices, adopters were the most for building goat pen in a damp free dry area whereas adopters were the least for cleaning poultry pen periodically.

9) In the case of modern animal husbandry practices, the strongest belief regarding management practices was allowing the calf frequent suckling for the first 10 days and the weakest was weaning within 3 days of calving and supplementary feeding to backyard chicken.

10) In the case of modern animal husbandry practices, adopters were the most for allowing the calf to suckle frequently the first 10 days whereas, adopters were the least for weaning the calf within 3 days of calving and vaccination against R. D.

11) In the case of modern animal husbandry practices, strongest belief regarding diseases and treatment was treatment for bite of rabid animals whereas, the weakest was the treatment of external wound.

12) In the case of modern animal husbandry practices, adopters were the most for the treatment of infectious diseases whereas, adopters were the least for treating wounds.

4.6. LEVEL OF ADOPTION OF INDIGENOUS AND MODERN ANIMAL HUSBANDRY PRACTICES

4.6.1. Level of Adoption of Indigenous Animal Husbandry Practices- Irrational

Table 37. Level of adoption of irrational indigenous animal husbandry practices

Sl.no.	Level of adoption	Belief based practices
1	High (>92.9)	**Selection** Cattle having hair whirls behind the pin bone should not be selected **Other customary practices** Cow and buffalo meat should not be consumed.
2	Medium (50.44-92.9)	**Selection** Cattle having white or other colour mark on the forehead is preferred. A black cow is the best to keep **Breeding** Natural service is preferable. **Housing** Housing to cattle is not needed. Kids should be placed in 'Kodappu' while does are sent for grazing. **Management practices** Knuckling method of milking is preferred Traditional method of castration by crushing the testis. Calf should be with dam during an entire lactation period. **Diseases and their practices** Snake bite victims may be subjected to customary rituals. For foot lesions of FMD small fishes are ground and made into a paste and are applied to the foot lesions. Bark of 'Velamaram' (*Acacia leucophloea*) is good for healing wounds.

Table 37 continued.

Sl.no.	Level of adoption	Belief based practices
	Medium (50.44-92.9)	To immobilize and heal fracture a bandage with the bark of 'Velamaram' (*Acacia leucophloea*) is good. Essence of 'Malaveepu' leaves (*Melia dubia)* in water is good for indigestion. **Other customary practices** First egg of hen should be marked with charcoal and left in an ant hill. A hen that crows during dusk should be culled. Colostrum should be poured into a stream or ant hill.
3	Low (<50.44)	**Selection** Cattle having colour patches are auspicious. **Feeding** Feeding pig fat and egg to goats is good **Diseases and their treatment** For retension of placenta "Appakovai" plant (*Coccinia grandis)* is tied around the horns and fed. For foot lesions, cattle are made to stand in mud. For snake bite bark of 'Ungu' (*Pongamia pinnata*) is ground well and is given orally

Data in Table 37 revealed that out of the twenty four irrational beliefs studied on indigenous animal husbandry practices, two beliefs had high level of adoption, seventeen had medium level of adoption and five had low level of adoption.

The two highly adopted beliefs were, cattle having hair whirls behind the pin bone should not be selected and the abhorrence of cow and buffalo meat.

The seventeen practices that had medium level of adoption were, selecting cattle having white or other colour mark on the forehead, black cows were the best to keep, natural service, housing of cattle was not needed, kids should be placed in 'kodappu' while does are sent for grazing, knuckling method of milking, traditional method of castration, keeping calf with dam for an entire lactation period, customary rituals for snake bite victims, applying paste made of ground salted small fishes over the foot lesions of FMD, applying a bark of 'velamaram' (*Acacia leucophloea)* for wound healing, bandaging with the bark of 'velamaram' (*Acacia leucophloea*) to immobilize and heal fracture, giving essence of 'malaveepu' leaves (*Melia dubia*) for treating indigestion, marking first egg of hen with charcoal and leaving it in an anthill, culling hen that crows during dusk, colostrum should be poured into a stream or anthill and hanging placenta in tree.

The five practices that had low level of adoption were, selecting of cattle having colour patches were auspicious, feeding pig fat and eggs to goats, tying and feeding of leaves of 'appakovai' (*Coccinia grandis)* plant around the horns as treatment for retention of placenta, making cattle to stand in mud as a treatment for foot lesions and feeding well ground bark of 'ungu' (*Pongamia pinnata*) for snake bite.

4.6.2. Level of Adoption of Indigenous Animal Husbandry Practices- Rational

Table 38. Level of adoption of rational indigenous animal husbandry practices

Sl. no.	Level of adoption	Belief based practices
1	High (>80.87)	**Feeding** Grazing the cattle is preferred **Disease and their treatment** Inhalation by burning salted fish / snake skin is good for cough in goat. To immobilize and heal fracture, splints of bamboo are good. Turmeric powder (*Curcuma longa*) and ragi flour (*Eleusine coracana)* together are good for horn evulsion
2	Medium (42.92-80.87)	**Feeding** Feeding cotton seed cake is good **Disease and their treatment** Decocts made of pepper (*Piper nigrum*) / ginger (*Zingiber officinale*)/ garlic (*Allium sativum*)/ thulasi (*Ocimum tenuiflorum*) are good for fever in cattle. 'Velipparuthy' (*Pergularia doemia*) leaves are given to cattle if the animal is recumbent. 'Thottavady' (*Mimosa pudica)* ,onion (*Allium cepa*) and 'thulasi'(*Ocimum tenuiflorum*) together are good for cough in cattle and goats.

Table 38 continued

Sl.no.	Level of adoption	Belief based practices
	Medium (42.92-80.87)	To heal dislocation, the affected joint is massaged with oil and bandaged with cloth applying heated mud. For oral ulcers of foot and mouth disease plantain fruit and fat of wild pig are mixed well and applied. Flower and leaves of 'thumba' (*Leucas aspera*) can be used to deworming cattle. Appakovai' (*Coccinia grandis)* leaf and stem with turmeric powder (*Curcuma longa*) can cure mastitis. Naphthalene, tobacco leaves and lime together can expel maggots form wounds. 'Neem' leaves (*Azadirachta indica*) and arec nut (Areca catechu) together are good for deworming cattle Kottachedi / kattavanakku' (*Jatropha curcas*) can heal wounds. Koduvely' leaves (*Plumbago zeylanica*) and stem are good for healing wounds. Water boiled with 'Avanakku' (*Ricinus communis*) is good for skin infection for goats. For snake bite 'Kilimookku' tuber (*Corallocorpus epiggaeus)*, Onion (*Allium cepa*) and 'Keezharnelly' (*Phyllanthus deblis*) are ground well and given orally. Feeding bamboo leaves (*Bambusa bambos*) is good for retension of placenta. External application of tobacco dust (snuff) mixed with kerosene for ecto parasitic infestation. Changalamparanda' (*Cissus quadrangularis*) is good for anorexia in cattle.

Table 38 continued.

Sl.no.	Level of adoption	Belief based practices
	Medium (42.92-80.87)	For healing fracture crushed bark of 'Chadachi' (*Grewia tiliifolia*) is applied and immobilized with bamboo splints. A paste made of leaves thippali (*Piper longum*) and bark of 'Arasu maram' (*Ficus religiosa*) is good for fever. Aathy' leaves *(Bauhinia racemosa)* along with tobacco is chewed well and spit on to the affected eye to cure corneal opacity. Leaf and stem of 'Kuppameny' (*Acalypha indica*) can cure constipation in cattle.
3	Low (<42.92)	**Selection** White zebu bullock is good for carting. **Disease and their treatment** Ummam' leaves (*Datura strammonium*) and fruit can expel maggots. Bark of 'Eeeth' (*Cycas circinalis*) and 'Athi' (*Ficus racemosa*) are good for diarrhea in cattle . **"Kara Maram"** leaves (*Randia dumetorum*) and stem are good for horn evulsion.

Data in Table 38 revealed that out of the twenty nine rational belief studied on indigenous animal husbandry practices, four beliefs had high level of adoption, twenty one had medium level of adoption and four had low level of adoption.

The four highly adopted beliefs were, grazing the cattle, providing inhalation by burning salted fish as treatment for cough in goats, applying bamboo splints for immobilizing and healing fracture, applying turmeric powder (*Curcuma longa*) and 'ragi' flour (*Eleusine corcona*) for horn evulsion.

The twenty one practices that had medium level of adoption were, feeding cotton seed cake, drenching a decoction made out of the pepper (*Piper nigrum*), ginger (*Zingiber officinale*), garlic (*Allium sativum*) and 'thulasi' *(Ocimum teniflorum)* for fever in cattle, feeding 'velipparuthy' (*Pergularia doemia*) to recumbent animals, giving a paste of 'thottavady' (*Mimosa pudica*), onion (*Allium cepa*) and 'thulasi' (*Ocimum tenuiflorum*) for cough in cattle and goats, massaging with oil and then bandaging with heated mud over the dislocated joint, applying plantain fruit and fat of wild pig on the oral ulcers of FMD, giving the flowers and leaves of 'thumba' (*Leucas aspera)* for deworming cattle, applying a paste of well ground leaves and stem of 'appakovai' (*Coccinia grandis*) plant and turmeric powder (*Curcuma longa*) on the udder for mastitis, using naphthalene, tobacco leaves and lime together for expelling maggots from wounds, feeding 'neem' (*Azadirachta indica*) leaves and arecnut (*Areca catechu*) together for deworming cattle, applying 'kottachedi' or 'kattavanakku' (*Jatropha curcus*) leaves for wound healing, applying paste made of leaves and stem of 'koduvely' (*Plumbago zeylanica*) for wound healing, applying water in which leaves of 'avanakku' (*Ricinus communis*) plant are boiled as a cure for skin infection in goats, administrating a ground preparation made out of 'kilimooku' (*Corallocorpus epiggaeus)* tuber, onion (*Allium cepa*) and 'keezharnelly' (*Phyllanthus deblis*) for snake bite, feeding bamboo leaves (*Bambusa bambos*) for retention of placenta, applying to wounds kerosene to which tobacco powder

(snuff) is mixed, to expel maggots, administrating well ground 'changalamparanda' (*Cissus quadrangularis*) orally to cattle for anorexia, applying the crushed bark of 'chadachi' (*Grewia tiliifolia*) plant over fracture as bandage, administering a paste made of 'thippali' (*Piper longum*) and bark of 'Arasu maram' (*Ficus religiosa*) to relieve fever, spitting on to the eye after chewing 'aathy' (*Bauhinia racemosa*) leaves and tobacco together for curing corneal opacity and feeding leaves and stem of 'Kuppameny' (*Acalypha indica)* to cure constipation in cattle.

The four practices that had low level of adoption were, selecting white zebu bullock for carting, applying a paste made of leaves and fruit of 'ummam' (*Datura strammonium*) to expel maggot from maggot wounds, giving bark of 'eethi' (*Cycas circinalis*) and 'athi' (*Ficus racemosa*) for treating diarrhea in cattle and applying a paste made out of ground leaves and stem of 'karamaram' (*Randia dumetorum*) for treating horn evulsion

4.6.3. Level of Adoption of Modern Animal Husbandry Practices

Table 39. Level of adoption of modern animal husbandry practices.

Sl. no.	Level of adoption	Belief based practices
1	High (>70.77)	**Selection**- Number of lactations, Without physical deformities, Large sized udder, Good temperament. **Feeding-** Extra feeding to pregnant animals, Extra feeding to milch animals. **Housing-** Goat pen should be built in a dry place devoid of dampness. Daily Cleaning (cattle). **Management practices**- Frequent suckling of calves for the first 10 days.
2	Medium (39.23-70.77)	**Selection** - Squarely placed teats, Smooth shiny skin. **Feeding-** Compound feed / oil cake for dairy cattle. **Breeding-** A. I. should be the method for impregnation, Inter-calving period ideally be 12 – 15 months, Age at first calving should be less than 3 months, Post partum insemination within 3 months, Pregnancy should be confirmed by per-rectal examination. **Housing-** A good roof should be provided, Daily cleaning of shed and premises, Goat pen should be an elevated one, A hard, dry and clean floor, Periodical grooming (goat), Goats should be housed separately, Proper drainage for urine., Shed must be constructed based on wind direction.

Table 39 continued.

Sl. no.	Level of adoption	Belief based practices
	Medium (39.23-70.77)	**Diseases and their treatments**- Bite of rabid animals, Digestive disorder, Endo- parasitic infections (Deworming), Medication for infectious diseases, Mastitis, Fever, Bloat, Retention of placenta, Ecto – parasitic infections, Snake bite condition.
3	Low (<39.23)	**Selection**- Prominent milk vein. **Breeding**- Calf should be weaned within 3 days of calving. **Feeding** - Fodder cultivation. **Housing**- A good sidewall, Periodic cleaning of poultry pen. **Diseases and their treatment**- Fracture, Respiratory disorder, Horn /Hoof evulsions, External wound. **Management practices**- Full hand milking, R D vaccination, Supplementary feeding to backyard chicken.

Data in table 39 revealed that out of the fifty one beliefs studied on modern animal husbandry practices, nine beliefs had high level of adoption, thirty had medium level of adoption and twelve had low level of adoption.

The nine highly adopted beliefs were, selecting dairy cattle based on the number of lactation, selecting those animals free of physical deformities, selecting cattle with large size udder, selecting animals with good temperament, extra feeding of pregnant animals, extra feeding of milch animals, housing the goat in a damp free dry area, daily cleaning of cattle and permitting the calves to suckle frequently for the first ten days.

The thirty practices that had medium level of adoption were, selecting dairy animals with squarely placed teats, selecting animals with smooth shiny skin, feeding concentrate or compound feed, A. I., inter-calving period should ideally be 12-15 months, age at first calving should be less than three months, post-partum insemination should be within three months, pregnancy should be confirmed by per-rectal examination, good roof for cattle shed, daily cleaning of shed and premises, elevated goat pen, a hard dry and clean floor, periodic grooming of goat, goats should be housed separately, proper drainage for urine, constructing cattle shed based on wind direction, vaccinating against F. M. D, drying up prior to parturition, udder should be cleaned prior to milking, castration by a qualified person, treating dog bite, treating digestive disorders, deworming, treating infectious diseases, treating mastitis, treating fever, treating bloat, treating retention of placenta, treating ecto-parasitic infestation and treating snake bites.

The twelve practices that had low level of adoption were, selecting animals with prominent milk vein, weaning of calves within three days, cultivating fodder, providing good sidewall, periodic cleaning of poultry pen, treating fracture, treating respiratory disorder, horn or hoof evulsion, treating wound, full hand milking, vaccinating against R. D. supplementary feeding to backyard chicken.

The findings of this section are as follows

1) Most adopted irrational indigenous animal husbandry practices were cattle having hair whirls behind the pin bone should not be selected and the abhorrence of cow and buffalo meat.

2) Least adopted rational indigenous animal husbandry practices were, selecting white zebu bullock for carting, applying a paste made of leaves and fruit of 'ummam' (*Datura strammonium*) to expel maggot from maggot wounds, giving bark of 'eethi' (*Cycas circinalis*) and 'aathi' (*Ficus racemosa*) for treating diarrhea in cattle and applying a paste made out of ground leaves and stem of 'karamaram' (*Randia dumetorum*) for treating horn evulsion.

3) Least adopted modern animal husbandry practices were, selecting dairy animals based on prominent milk vein, weaning of calves, fodder cultivation, providing sidewall to cattle shed, periodic cleaning of poultry pen, full hand milking, supplementary feeding to backyard chicken, treating fracture, respiratory disorder, horn or hoof evulsion, wounds and vaccination against R. D.

4.7. EXTENT OF ADOPTION OF INDIGENOUS AND MODERN ANIMAL HUSBANDRY PRACTICES

4.7.1. Extent of Adoption of Irrational Indigenous Animal Husbandry Practices

Table 40. Extent of adoption of irrational indigenous animal husbandry practices.

n=120

Sl. No.	Categories	Number of respondents	Percentage
1.	High Adopters (>66.6)	32	26.67
2.	Medium Adopters (33.3 to 66.6)	82	68.33
3.	Low Adopters (<33.3)	6	5.00
	Total	120	100.00

Data in the table 40 regarding extent of adoption of irrational indigenous animal husbandry practices revealed that majority of the respondents (68.33%) belonged to medium adopter category, whereas per cent of high and low adopter categories were 26.67 and 5.0 respectively.

4.7.2. Extent of Adoption of Rational Indigenous Animal Husbandry Practices

Table 41. Extent of adoption of rational indigenous animal husbandry practices.

n=120

Sl. No.	Categories	Number of respondents	Percentage
1.	High Adopters (>66.6)	13	10.83
2.	Medium Adopters (33.3 to 66.6)	102	85.00
3.	Low Adopters (<33.3)	5	4.17
	Total	120	100.00

Data in the Table 41 regarding extent of adoption of rational indigenous animal husbandry practices revealed that majority of the respondents (85.0%) belonged to medium adopter category, whereas per cent of high and low adopters category were 10.83 and 4.17 respectively.

4.7.3. Extent of Adoption of Modern Animal Husbandry Practices

Table 42. Extent of adoption of modern animal husbandry practices.

n=120

Sl. No.	Categories	Number of respondents	Percentage
1.	High Adopters (>66.6)	8	6.67
2.	Medium Adopters (33.3 to 66.6)	97	80.83
3.	Low Adopters (<33.3)	15	12.50
	Total	120	100.00

Data in the Table 42 regarding extent of adoption of modern animal husbandry practices revealed that majority of the respondents (80.83%) belonged to medium adoption category, whereas per cent of high and low adopter categories were 6.67 and 12.5 respectively.
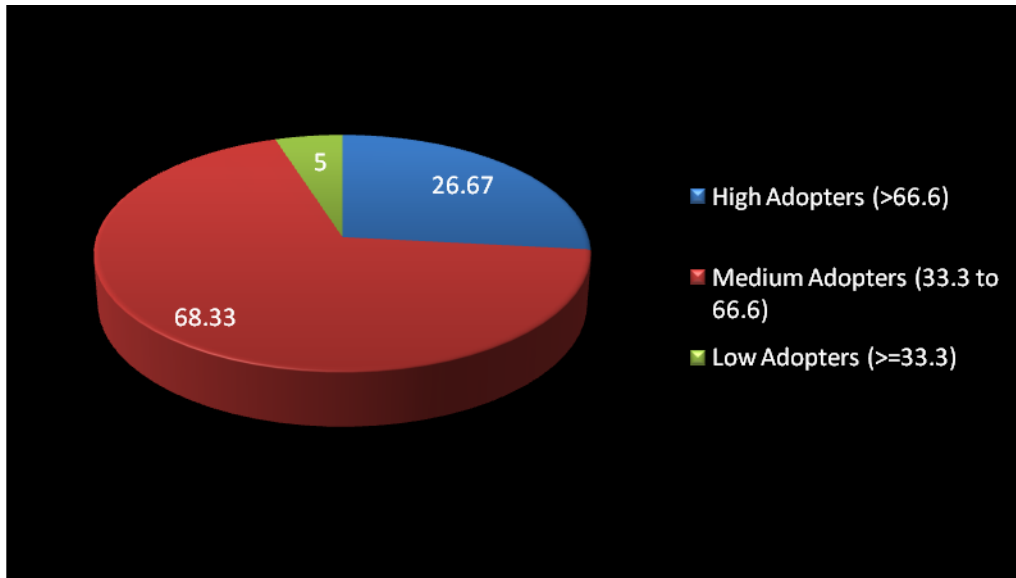
Fig. 43. Distribution of adopters in irrational indigenous animal husbandry practices.
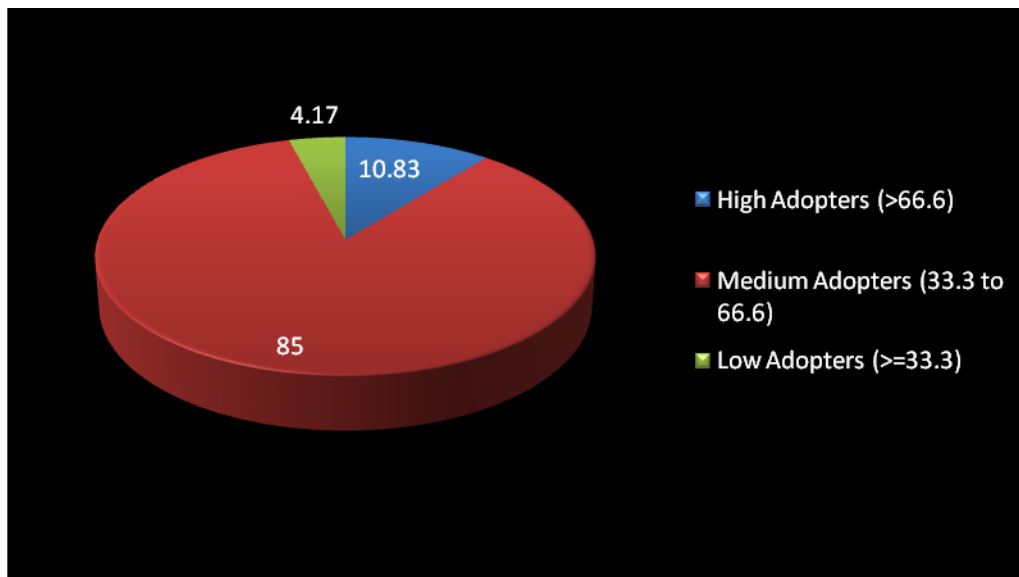
Fig. 44. Distribution of adopters in rational indigenous animal husbandry practices.
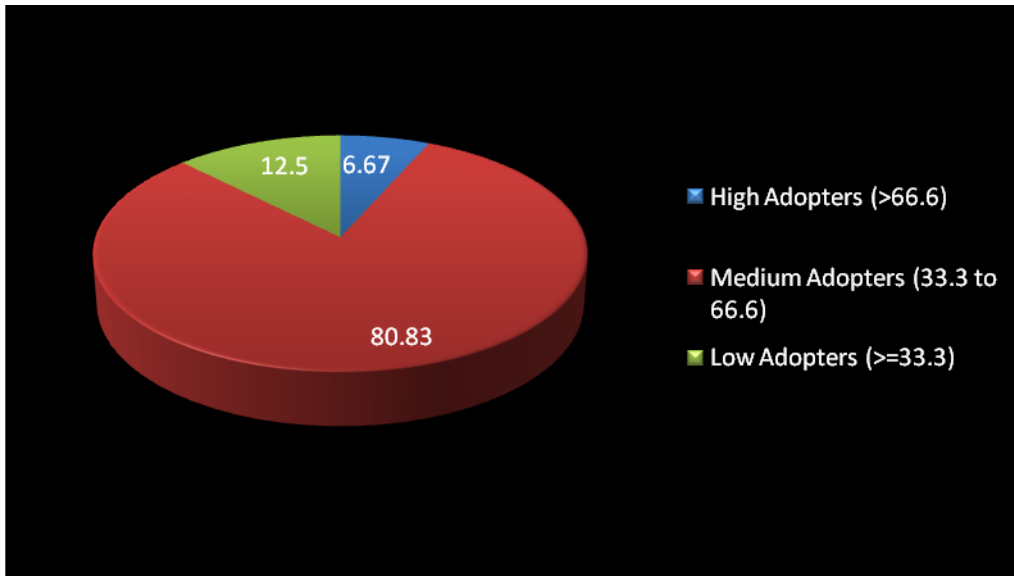
Fig.45. Distribution of adopters in modern animal husbandry practices.

The findings of this section are as follows

1) In the case of adoption of irrational indigenous animal husbandry practices more than one fourth of the respondents belonged to high adopter category.

2) In the case of extent of adoption of rational indigenous animal husbandry practices majority of the respondents belonged to medium adopter category.

3) In the case of adoption of modern animal husbandry practices majority (80.83%) of respondents studied belonged to medium adopter category.

Fig. 46 Empirical model of the study

| Dependent variables | Independent variables | Dependent variables |

Indicates positive correlation between the independent and dependent variables
Indicates negative correlation between the independent and dependent variables
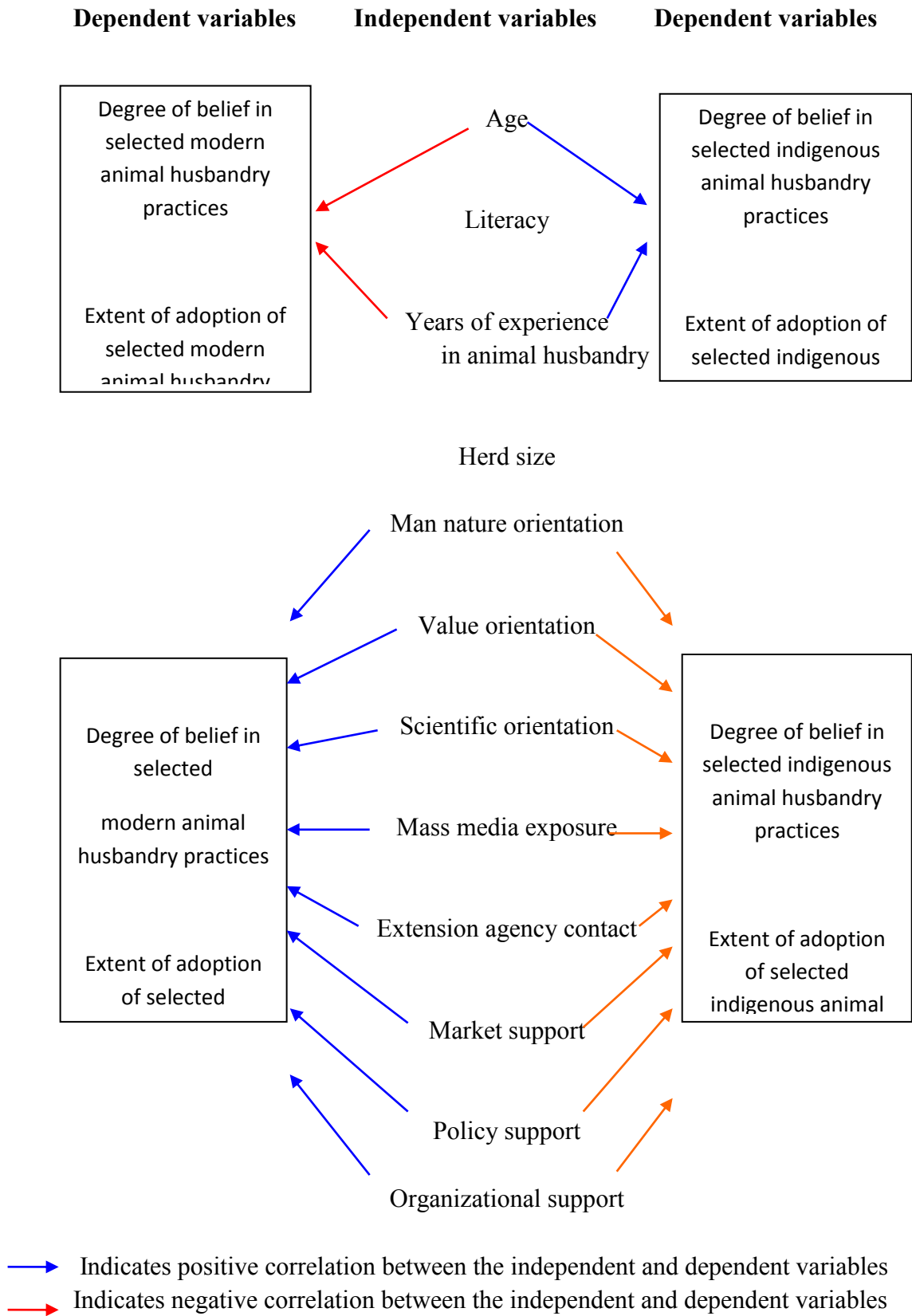
Plate no. 1. Piper longum   *Plate no. 2. Azadirachta indica*

Plate no. 3. Ficus religiosa   *Plate no. 4. Pergularia daemia*

Plate no. 5. Acalypha indica

Plate no. 6. Cycas circinalis

Plate no. 7. Ficus racemosa

Plate no. 8. Melia dubia

Plate no. 9. Mimosa pudica

Plate no. 10. Acacia leucophloea

Plate no. 11. Randia dumetorum

Plate no.12. Coccinia grandis

Plate no. 13. Bauhinia racemosa

Plate no. 14. Jatropha curcas

Plate no. 15. Pongamia pinnata

Plate no. 16. Grewia tiliaefolia

Plate no. 17. Cissus quadrangularis

Plate no. 18. Ricinus communis

Plate no. 19. Corallocarpus epigaeus

Plate no. 20. Phyllanthus debilis

Plate no. 21. Wooden castration rode

Plate no.22. Tribal specialist who does the castration of bulls.

Plate no. 23. Casting the animal for castration.

Plate no.24. Castrating the bull

Plate no.25. The practice of keeping the kids in 'Kodappu' while does are sent for grazing.

Plate no. 26. The practice of disposing the placenta by hanging it on trees.

Plate no. 27. Livestock market (Santhai) conducted on every Saturday at Kottathara.

Discussion

5. DISCUSSION

Discussion of the results is presented under the following heads

5.1 Relationship between independent variables and indigenous animal

husbandry practices

5.2 Relationship between independent variables and modern animal husbandry

Practices

5.3 Relationship between independent and dependent variables

5.4 Indigenous animal husbandry practices

5.5 Modern animal husbandry practices

5.6 Level of adoption of animal husbandry practices

5.7 Extent of adoption of animal husbandry practices

5.1 RELATIONSHIP BETWEEN INDEPENDENT VARIABLES AND INDIGENOUS ANIMAL HUSBANDRY PRACTICES

5.1.1 Socio-personal Variables

It was found that strong believers of indigenous animal husbandry practices were more in the old age group and degree of belief in indigenous animal husbandry practices was significantly and positively correlated with age. This finding agreed with the finding of Kalaivany (1992), Ganadeepa (1991) and Sunil (2001) but was contrary to the findings of Selvanayagam (1986).Further, the extent of adoption of indigenous animal husbandry practices was positively and significantly correlated with age which was in agreement with the findings of Somasundaram (1995) and Sunil (2001).The positive and significant correlation between age and degree of belief as well as extent of adoption of indigenous animal husbandry practices could be due to the fact that older generation had more faith in indigenous animal husbandry practices as compared to the younger generation.

Strong believers of indigenous animal husbandry practices were mostly illiterate and both degree of belief and extent of adoption of indigenous animal husbandry practices were found to be negatively and non significantly correlated with literacy. This negative correlation indicated that illiterates had a more favourable attitude towards indigenous animal husbandry practices and eventually they were the majority among strong believers of indigenous animal husbandry practices.

In the past the livelihood of tribal people depended solely upon cultivation, animal husbandry and sale of forest produce. But today, the situation seems to have changed since this study brought to light the fact that their major occupation is non-agriculture job. This observation agreed with that of Velluva (2004). Strong believers of indigenous animal husbandry practices were more among the non-agricultural category. This is in spite of the fact that non-agricultural category included petty businessmen / traders, non- agricultural labourers and government servants.

Strong believers of indigenous animal husbandry practices were more among the highly experienced group in animal husbandry whereas, weak believers were more among the lowly experienced group. Moreover, degree of belief of indigenous animal husbandry practices was significantly and positively correlated with years of experience in animal husbandry. This agreed with the findings of Ganadeepa (1991), Kalaivany (1992) and Sunil (2001) but was contrary to the finding of Selvanayagan (1986).

The extent of adoption of indigenous animal husbandry practices was positively and highly significantly correlated with experience. This agreed with the findings of Somasundaram (1995) and Sunil (2001). The highly significant correlation could be because more experienced dairy farmers had comparatively more faith in indigenous animal husbandry practices.

Weak believers of indigenous animal husbandry practices were more among both large and small herd size category. The degree of belief in indigenous animal husbandry practices were positively and non-significantly correlated with the herd size. This observation agreed with that of Sunil (2001). The extent of adoption of indigenous animal husbandry practices was also positively and non-significantly correlated with herd size. This observation disagreed with the finding of Sunil (2001) and Somasundaram (1995). The positive correlation indicated that those with large herd size had more faith in the degree of belief and extent of adoption of indigenous animal husbandry practices.

5.1.2 Psychological Variables

Strong believers of indigenous animal husbandry practices were more among those with low man-nature orientation. That apart, both degree of belief and extent of adoption of indigenous animal husbandry practices were significantly and negatively correlated with man-nature orientation. This was similar to the finding of Sunil (2001). The above relationship meant that more the livestock farmer was subjugated to nature more faith he had in the degree of belief and extent of adoption of indigenous animal husbandry practices.

Strong believers of indigenous animal husbandry practices were more among those with low value orientation. This may be due to the fact that tribal societies are fatalistic, conservative and usually have low aspiration towards livestock rearing. This low profile of the tribal society may be the reason for having more strong believers of indigenous animal husbandry practices among the low value orientation group. Hence, both degree of belief and extent of adoption of indigenous animal husbandry practices were negatively and significantly correlated with value orientation.

Strong believers of indigenous animal husbandry practices were more among those having low scientific orientation. It was also observed that both the

degree of belief and extent of adoption of indigenous animal husbandry practices were negatively and significantly correlated with scientific orientation. This meant that more the scientific orientation the lesser the degree of belief and their adoption. Though these findings agreed with the findings of Kalaivany (1992) and Sunil (2001), yet these were contrary to the findings of Selvanayagam (1986) and Ganadeepa (1991). Scientifically oriented individuals will have low degree of belief in indigenous animal husbandry practices as well as extent of adoption.

5.1.3 Communication

Strong believers of indigenous animal husbandry practices were more among the respondents with low mass media exposure and the degree of belief in indigenous animal husbandry practices were negatively and significantly correlated with mass media exposure. This finding agreed with that of Ganadeepa (1991), Kalaivany (1992) and Sunil (2001), but was contrary to the findings of Selvanayagam (1986). Further, the extent of adoption was negatively and significantly correlated with mass media exposure, which was contrary to the findings of Somasundaram (1995). It can be said that more an individual got exposed to mass media lesser was his degree of belief and extent of adoption of indigenous animal husbandry practices.

Strong believers of indigenous animal husbandry practices were more among the respondents with low level of extension agency contact. Further, the degree of belief in indigenous animal husbandry practices was negatively and non-significantly correlated with extension agency contact. This observation agreeed with that of Ganadeepa (1991), Kalaivany (1992) and Sunil (2001) but was contrary to the finding of Selvanayagam (1986). The extent of adoption of indigenous animal husbandry practices showed a negative and significant correlation with extension agency contact, which agreed with the findings of Somasundararm (1995) and Sunil (2001). It is implicit in the finding that more

the extension agency contact lesser the degree of belief and extent of adoption of indigenous animal husbandry practices.

5.1.4 Extension Support

Strong believers of indigenous animal husbandry practices were more among those who perceived low market support. Further, degree of belief and extent of adoption of indigenous animal husbandry practices were negatively and significantly correlated with market support. This may be due to the fact that those respondents having lesser access to cattle market, storage/ collection facilities, price information, transportation facilities and liaisoning facilities tended to have more faith in indigenous animal husbandry practices. Market extension is very much needed to improve production and especially to alleviate poverty in tribal areas.

Strong believers of indigenous animal husbandry practices were among those who perceived low policy support. Both degree of belief and extent of adoption of indigenous animal husbandry practices were negatively and significantly correlated with policy support. This may be due to the fact that those respondents having lesser access to veterinary centers, milk societies, loan, insurance and feed subsidies for livestock and also access to buy veterinary medicines had more faith and adoption of indigenous animal husbandry practices and tend to mostly rely on it.

Strong believers of indigenous animal husbandry practices were more among the respondents with low organizational support. Both degree of belief and extent of adoption of indigenous animal husbandry practices were negatively and significantly correlated with organizational support. This may be due to the fact that those respondents having lesser acquaintance with bank, co-operatives, farmers associations, A. H. A. D. S and other N. G. O's like A. S. S. O. tend to

have more faith in indigenous animal husbandry practices and more extent of adoption.

5.2 RELATIONSHIP BETWEEN INDEPENDENT VARIABLES AND MODERN ANIMAL HUSBANDRY PRACTICES

5.2.1 Socio-personal Variables

Among the strong believers, there were more middle and young age group respondents. Moreover both degree of belief and extent of adoption of modern animal husbandry practices were significant and negatively correlated with age. This finding was in agreement with the finding of Rahman (2007), but was contrary to the findings of Tripathi and Gautam (2003).The above negative and significant relation between age and degree of belief as well as extent of adoption of modern animal husbandry practices could be due to the fact that comparatively younger generation had more faith in modern animal husbandry practices.

Strong believers of modern animal husbandry practices were more among literates. Moreover the degree of belief and extent of adoption of modern animal husbandry practices were positively and non significantly correlated with literacy. Chandra *et al.* (2005) studied adoption behaviour among the tribal goat keepers of Terai belt in West Bengal and revealed that adoption of improved practices in goat keeping was positively and significantly correlated with education. A positive correlation between literacy and degree of belief as well as extent of adoption of modern animal husbandry practices indicated that an improvement in literacy rate would certainly improve the degree of belief and extent of adoption of modern animal husbandry practices.

Strong believers of modern animal husbandry practices were more among the agricultural category than the non-agriculture category. This might be due to the fact that the farmers who are mainly involved in animal rearing than the latter

are mostly settled in and around major watershed, or beside major rivers and mostly in places where they had good access to veterinary aid, transportation, media exposure and extension agency contact. Moreover, the agricultural category included the agriculture farmers, livestock farmers and the agricultural labourers who are mainly involved in livestock rearing and who own the bulk of livestock reared in the area. So much so they have got strong belief in modern animal husbandry practices.

Strong believers of modern animal husbandry practices were found to be more among the lowly experienced group. Moreover, degree of belief in modern animal husbandry practices was significantly and negatively correlated with years of experience in animal husbandry. Extent of adoption of modern animal husbandry practices was also significantly and negatively correlated with years of experience in animal husbandry. However, Rahman (2007) reported a positive and significant correlation between years of farming experience and adoption of improved technologies among pig farmers of Aizawl district of Mizoram. The negative correlation could be because less experienced young dairy farmers had comparatively more faith in modern animal husbandry practices. Further, age of the farmers was also found to be negatively correlated with degree of belief and extent of adoption of modern animal husbandry practices.

Strong believers of modern animal husbandry practices were more among both large and small herd size category. The degree of belief of modern animal husbandry practices was negatively and non-significantly correlated with herd size. Further, extent of adoption of modern animal husbandry practices was negatively and non-significantly correlated with herd size. This finding agreed with that of Tyagi and Sohal (1984) but was contrary to the findings of Rahman (2007) and Karthikeyan *et al.* (1996). The negative correlation indicated that those with a small herd size had more faith belief in modern animal husbandry practices.

5.2.2 Psychological Variables

Strong believers of modern animal husbandry practices were more among those with high man-nature orientation. Further, both degree of belief and extent of adoption of modern animal husbandry practices were significantly and positively correlated with man-nature orientation. This was suggestive of the fact that more the livestock farmers acquire mastery over nature more faith they had in the belief and adoption of modern animal husbandry practices.

Strong believers of modern animal husbandry practices were more among those with high value orientation. Moreover, both degree of belief and extent of adoption of modern animal husbandry practices were positively and significantly correlated with value orientation. This finding was one similar to that of Sushama *et al.* (1981) who revealed that both level of aspiration and value orientation had maximum and direct effect on the adoption of modern living practices by the tribes. Sharma and Nair (1974) too reported that, level of aspiration was positively and significantly correlated with adoption of improved practices by rice cultivators.

Strong believers of modern animal husbandry practices were more among those having high scientific orientation. It was also observed that both degree of belief and extent of adoption of modern animal husbandry practices were positively and significantly correlated with scientific orientation. This meant that more the scientific orientation the more the degree of belief and their adoption. This finding agreed with the findings of Sundarambal and Annamalai (1995) and Rahman (2007) who studied sugarcane cultivators and pig farmers respectively.

5.2.3 Communication

Strong believers of modern animal husbandry practices were more among the respondents with high mass media exposure. Degree of belief as well as

extent of adoption of modern animal husbandry practices were positively and significantly correlated with mass media exposure. This finding was one similar to that of Chandra *et al* (2005) and Tripathi and Gautham (2003), but was contrary to the findings of Tyagi and Sohal (1984).It can be said that more an individual got exposed to mass media the more was his degree of belief and extent of adoption of modern animal husbandry practices. Chandra *et al.* (2005) also revealed that adoption of improved practices by tribal goat keepers was positively and significantly correlated with communication sources and the study also identified that communication sources as a key element that directly or indirectly promoted the adoption of improved practices in goat keeping by the tribal goat keepers.

Strong believers of modern animal husbandry practices were more among the respondents with high level of extension agency contact. Degree of belief in modern animal husbandry practices as well as extent of adoption of modern animal husbandry practices were positively and significantly correlated with extension agency contact. This finding agreed with that of Rahman (2007), Sundarambal and Annamalai (1995), Karthikeyan *et al*. (1996) and Sharma and Nair (1974). It is evident, therefore, that more the extension agency contact more the degree of belief and extent of adoption of modern animal husbandry practices.

5.2.4 Extension Support

Strong believers of modern animal husbandry practices were more among those who perceived high market support. Degree of belief and extent of adoption of modern animal husbandry practices were positively and significantly correlated with market support. Sharma and Nair (1974) studied the adoption of high yielding varieties of paddy among the farmers of four blocks of Palakkad and Quilon districts in Kerala and reported that market perception was positively and significantly correlated with adoption of improved practices.

Strong believers of modern animal husbandry practices were more among the respondents with high policy support. Both degree of belief and extent of adoption of modern animal husbandry practices were positively and significantly correlated with policy support. This may be due to the fact that those respondents having good access to veterinary centers, milk co-operatives, loans, insurance for livestock, feed and also access to buy veterinary medicine tend to have more faith in modern animal husbandry practices. This finding agreed with that of Sundarambal and Annamalai (1995) and Sharma and Nair (1974) who reported that credit orientation was positively and significantly correlated with adoption of improved practices.

Strong believers of modern animal husbandry practices were more among the respondents with high organizational support. Both degree of belief and extent of adoption of modern animal husbandry practices were positively and significantly correlated with organizational support. This may be due to the fact that those respondents having more acquaintance with bank, co-operatives, farmers associations, A. H. A. D. S and other N. G. O's like A. S. S. O. tend to have more faith in modern animal husbandry practices as well as their adoption. This finding agreed with that of Sundarambal and Annamalai (1995) and Sharma and Nair (1974) who reported that credit orientation was positively and significantly correlated with adoption of improved farming practices.

5.3 RELATIONSHIP BETWEEN INDEPENDENT AND DEPENDENT VARIABLES

Multiple regression analysis between degree of belief of indigenous animal husbandry practices and independent variables showed that age was positively significant whereas, value orientation and extension agency contact were negatively significant in explaining variation in the degree of belief in indigenous animal husbandry practices. This explains that age; localize, conservative, fatalistic, low aspiration nature and lack of extension agency

contact, were the reasons for having faith in indigenous animal husbandry practices among tribal livestock farmers. The co-efficient of determination was found to be 66.6 per cent, which indicated that 66.6 per cent of total variability in the degree of belief in selected indigenous animal husbandry practices could be attributed to the twelve independent variables, studied.

Regression analysis also showed that extension agency contact was negatively significant in explaining variation in the adoption of selected indigenous animal husbandry practices. The co-efficient of determination was found to be 63.4 per cent. This indicated that 63.4 per cent of total variability in the extent of adoption of selected indigenous animal husbandry practices among tribal animal husbandry farmers could be attributed to the twelve independent variables studied.

Regression analysis of degree of belief of modern animal husbandry practices with independent variables showed that value orientation, extension agency contact and market support were positively significant in explaining variation. This explains that, cosmopolitan, scientific, liberal, high aspiration nature, access to extension agencies and good market support were the reasons for having faith in modern animal husbandry practices among tribal livestock farmers. The co-efficient of determination was found to be 67.7 per cent, which indicated that 67.7 per cent of total variability in the degree of belief in selected modern animal husbandry practices could be attributed to the twelve independent variables, studied.

Regression analysis also showed that value orientation and extension agency contact were positively significant in explaining variation in the extent of adoption of selected modern animal husbandry practices. The co-efficient of determination was found to be 53.2 per cent, which indicated that 53.2 per cent of total variability in the extent of adoption in selected modern animal husbandry practices could be attributed to the twelve independent variables, studied.

Both degree of belief and extent of adoption of indigenous animal husbandry practices differed significantly between the deep and peripheral areas. Similarly both degree of belief and extent of adoption of modern animal husbandry practices differed significantly between the deep and peripheral areas.

5.4 INDIGENOUS ANIMAL HUSBANDRY PRACTICES

It is worth mentioning that, regarding the indigenous beliefs on selection of cattle the strongly held beliefs were found to be irrational. Adopters were also more for these beliefs. Cattle having hair whirls behind the pin bone should not be selected and cattle having white or other colour mark on the forehead should be preferred were the strongly held irrational beliefs adopted by a majority. Tribals consider it inauspicious to keep those cattle having hair whirls behind pin bone and auspicious to keep cattle having white or other colour mark on the forehead.

In the case of feeding, the practice of grazing of cattle has been a strong belief which was found to be rational and adopted by cent per cent of the respondents. Grazing of cattle is a good practice however, it need to be restricted considering the fragile ecosystem of the study area. Singh and Sastry (2002) have also observed that all the tribal dairy farmers of West Kamaeng district of Arunachal Pradesh resorted to the practice of taking their animals for grazing and also not cultivating fodder. Avinashilingam *et al.* (2008) also observed that all the tribal respondents allowed grazing.

The belief that natural service is preferable to A.I. had been the method of breeding cattle. It was a strongly held belief which was found to be irrational and adopted by a majority. Natural service however, cannot be promoted as it is against the breeding policy, since it will not produce high yielding offspring. Sah and Chand (2001) also observed that among dairy farmers of Banka district in Bihar, majority got their animals served with local bulls available in the village.

A majority of the respondents adopted the practice of not providing a shed to house the cattle instead kept it in the open. It had been a strongly held belief that housing of cattle is not needed and which was found to be an irrational practice. Housing of cattle however is a must to protect them from adverse/harsh weather conditions. Avinashilingam *et al.* (2008) reported that 34.31 per cent of tribal households had no separate cattle shed.

Another indigenous belief based practice adopted by a majority was keeping the kids under a basket made out of bamboo which was locally called as 'kodappu' when their mothers were sent for grazing. This had been a very strong belief but found to be irrational. Though this practice may give protection to kids yet it restricts their movement very much for hours together by virtue of the limited space inside the basket.

Two strongly held irrational beliefs pertaining to management practices were, preferring the knuckling method of milking and keeping the calf with the dam for an entire lactation period. These practices were adopted by a majority of the respondents and need to be discouraged. Avinashilingam *et al*. (2008) reported that majority of tribal dairy farmers of Niligiri district of Tamil Nadu practiced knuckling (99.14%) as a method of milking followed by stripping (5.88%) and full hand milking (0.98%) in that order. Sah and Chand (2001) observed that among dairy farmers of Banka district in Bihar, majority (68.89%) followed the knuckling method of milking and only 13.33 per cent followed full hand method of milking which was considered scientific.

It is worth reporting that out of thirty four indigenous veterinary practices studied, thirteen were strongly held rational beliefs which were adopted by a majority. Rationality was however ascertained based on expert opinion rather than laboratory experiments. Anyhow, most of these are plant or plant product based remedies and hence cost effective and safe. It is notable that these plant or

plant products were the common ones such as 'neem' (*Azadirachta indica*), turmeric (*Curcuma longa*), 'thumba' (*Leucas aspera*), 'appakovai' (*Coccinia grandis*), plantain (*Musa spp.*), thulasi (*Ocimum tenuiflorum*), onion (*Allium cepa*), 'kilimookku' (*Corallocarpus epigaeus*   ), 'keezharnelly' (*Phyllanthus debilis*), bamboo leaves (*Bambusa bambos*), 'koduvely' (*Plumbago zeylanica*), 'malaveepu' (*Melia dubia*), 'kattavanakku' (*Jatropha curcas*), 'thottavady' (*Mimosa pudica*), ginger (*Zingiber officinale*), garlic (*Allium sativum*), 'velipparuthy' (*Pergularia daemia*) and tobacco.

Kokate and Tyagi (1991) reported the ethno-veterinary practices of applying tobacco dust mixed with kerosene as a treatment for ecto-parasitic infestation, applying turmeric powder for treating wounds and using bamboo splints to bandage the fracture prevalent among the tribal dairy farmers of Thane district in Maharashtra. Misra and Kumar (2004) revealed the ethno-veterinary practice of using turmeric powder (*Curcuma longa*) to heal wounds among Konda Reddi tribal groups of Andra Pradesh. Das and Tripathi (2009) reported the ethno-veterinary practices of using turmeric paste for treating sprain and feeding of 'ban mula' prevalent among the selected farmers of Sundarbans region in West Bengal.

It is worth mentioning that there were a number of strongly held irrational veterinary practices followed by many of the respondents for instance, performing customary rituals for animal victims of snake bite, application of well ground paste out of small salted fishes over the lesions of F.M.D, application of the bark of 'velamaram' (*Acacia leucophloea*) to the wounds for healing and application of the bark of 'velamaram' (*Acacia leucophloea*) as bandage in case of fracture.

Saha *et al.* (2006) reported the ethno-veterinary practice of treating F. M. D. with neem leaves, allowing the animals to walk in the mud to control F. M. D.

and treating open wound with lime, garlic and turmeric prevalent among the livestock owners of Rudranagar village in West Bengal.

Similarly all the customary practices followed by the respondents of the study were found to be irrational for instance, the belief based practices viz., abhorrence of cow and buffalo meat, colostrum should be poured into a stream or upon an ant hill, the first egg of hen should be marked with charcoal and left in an ant hill, and a hen that crows during dusk should be culled.

5.5 MODERN ANIMAL HUSBANDRY PRACTICES

Regarding modern animal husbandry practices, it is worth mentioning that, there were two weakly held beliefs regarding selection of dairy cows. They were, selection of dairy cow based on smooth shining skin and prominent milk vein. These beliefs were adopted by only a minority. However, it is appreciable that the respondents were aware of some other criteria which were very much significant in selecting dairy animals. These were some of the strongly held beliefs which were adopted by a majority viz., looking into number of lactation, physical deformities, size of udder, squarely placed teats and good temperament.

Even though all the beliefs regarding feeding were found to be strong, adoption was least for fodder cultivation. This was contrary to the findings of Sagar and Singh (2003) who observed that green fodder cultivation was adopted by a large majority of the Tharu tribes of Nainital district. However, it is appreciable that the respondents were aware of some other criteria which were very much significant in feeding dairy animals. These were some of the strongly held beliefs, which were adopted by a majority, viz., extra feeding to pregnant animals, extra feeding to milch animals and feeding compound feed to dairy cattle.

In the case of modern animal husbandry practices there were two weak beliefs regarding breeding of cattle. They were inseminating within three months of parturition and confirming pregnancy by per-rectal examination. The adopters of these practices were also a minority. Low level adoption of confirming pregnancy by per-rectal examination for cattle was also reported by Avinashilingam *et al.* (2008) and Kokate and Tyagi (1991) among the tribes of Nilgiri and Thane districts respectively. However, it is appreciable that the respondents were aware of some other criteria which were very much significant in breeding of animals. These were some of the strongly held beliefs which were adopted by a majority viz., A.I. should be the method of impregnation, ideal intercalving period should be 12-15 months and age at first calving should be below 3 years. This was contrary to the findings of Avinashilingam *et al.* (2008), who reported that only a few tribal households (9.15%) got their cow artificially inseminated.

Regarding modern animal husbandry practices, out of eleven beliefs on housing studied, five were weakly held ones. Adopters of these beliefs were also a minority. These beliefs were, providing separate house for goats, providing good side walls for cattle shed, constructing cattle shed based on wind direction and cleaning poultry pen periodically.

However it is notable that the respondents were aware of some other criteria which were very much significant in housing of animals. These were some of the strongly held beliefs which were adopted by a majority, that were building the goat pen in a damp free dry area, daily washing of cattle, providing good roof for the cattle shed, daily cleaning of shed and premises, goat pen should be one elevated from the ground and provided with a hard, dry and clean floor.

In the case of modern animal husbandry practices, out of the ten beliefs studied on management practices, eight were found to be weakly held ones. They

were, periodic grooming of goats, drying up of udder prior to parturition, cleaning of udder prior to milking, castrating bulls by a qualified person, full hand milking, weaning calf within three days of calving, vaccination against R.D. in poultry and supplementary feeding of backyard poultry. Avinashilingam *et al.* (2008), studied the existing dairy farming practices among tribal dairy farmers of Niligiri district of Tamil Nadu, and reported that a majority of the tribal households did not vaccinate their animals

There should be appropriate educational efforts to convince the tribal livestock and poultry keepers of the importance of these scientific practices and make them adopt the same. Nevertheless, the two strongly held beliefs adopted by many were, the practice of allowing the calf to suckle frequently for the first ten days and vaccinating against F.M.D. Sagar and Singh (2003) studied the extent of adoption of animal husbandry practices among the Tharu tribes of Nainital district and revealed that all the respondents allowed colostrum feeding to their calves. Kokate and Tyagi (1991) studied the dairy farming practices of tribal cattle owners of Thane district in Maharashtra and revealed that a majority of the tribals did not provide colostrum to the newborn calves. They had the misconception that colostrum induced diarrhea in calves.

Regarding modern animal husbandry practices, out of fourteen belief studied on disease and treatment, seven were found to be weakly held ones. They were, treating with modern medicine, retention of placenta, ecto-parasitic infestation, snake bite, fracture, respiratory disorders, horn/hoof evulsion and external wounds. This tendency could be because of the predominant ethno-veterinary practice in the area. At the same time, there were strongly held beliefs pertaining to modern veterinary practices and their adoption. These belief based modern practices were treating with modern medicines, digestive disorders, endo-parasitic infestation, dog bite, mastitis, fever and infectious diseases. Sagar and Singh (2003) studied the extent of adoption of animal husbandry practices among the Tharu tribes of Nainital district and revealed that less than a quarter of the

respondents studied adopted deworming for external parasites. Avinashilingam *et al.* (2008) studied the existing dairy farming practices among tribal dairy farmers of Niligiri district of Tamil Nadu and revealed that majority of the respondents (75.82%) did not get their calves dewormed.

5.6 LEVEL OF ADOPTION OF ANIMAL HUSBADNRY PRACTICES

It is worth stating that the level of adoption of the following practices pertaining to rational indigenous animal husbandry practices were low viz., selecting zebu bullock for carting, applying a paste made of leaves and fruit of 'ummam' (*Datura strammonium*) to expel maggots from maggot wounds, giving bark of 'eethi' (*Cycas circinalis*) and 'Aathi' (*Ficus recemosa*) for treating diarrhea in cattle and applying a paste made out of ground leaves and stem of 'karamaram' (*Randia dumetorm*) for treating horn evulsion. Nevertheless there were a number of rational indigenous practices having either medium or high level of adoption. These rational indigenous practices therefore need to be propagated further. In the case of herbal veterinary practices raising herbal or medicinal plant garden and extension interventions like demonstrations have to be taken up. That apart such indigenous treatment practices need to be integrated with modern veterinary practices. This will definitely reduce the cost of treatment and inconveniences, besides increasing the efficacy of treatment.

Similarly in the case of modern animal husbandry practices the least adopted practices, in general, were selecting dairy animals based on prominent milk vein, weaning of calves, fodder cultivation, providing sidewalls to cattle shed, periodic cleaning of poultry pen, full hand milking, supplementary feeding of backyard chicken, treating fractures, respiratory disorders, horn or hoof evulsion, wounds and vaccination against R.D. As reported elsewhere sustained extension effort utilizing appropriate media and methods are necessary to convince and make the tribals practice the same

5.7 EXTENT OF ADOPTION OF ANIMAL HUSBANDRY PRACTICES

It is notable that, in the case of both rational and irrational indigenous animal husbandry practices, the extent of adoption was medium to high. Therefore, this trend is not acceptable in the case of irrational indigenous animal husbandry practices even as acceptable in the case of rational animal husbandry practices. Unfortunately, in the case of modern animal husbandry practices the trend in the extent of adoption was medium to low. Therefore, as mentioned elsewhere the irrational indigenous animal husbandry practices among the tribal animal husbandry farmers should be discouraged while modern animal husbandry practices should be encouraged further. The extension agency contact need to be further improved as in the study itself it was found that extension agency contact is positively correlated with the extent of adoption of modern animal husbandry practices.

Summary

6. SUMMARY

The present study 'Adoption of indigenous and modern animal husbandry practices among the tribes of Attappady in Palakkad district' was undertaken with the objectives of inventorying indigenous and modern animal husbandry practices to study the degree of belief and extent of adoption of indigenous and modern animal husbandry practices, and to find out the determinants of adoption. Stratified random sampling procedure was adopted. One hundred and twenty tribal livestock farmers were selected from all the three panchayats viz., Agali, Pudur and Sholayoor of Attappady block. Pudur and Sholayoor panchayats are located on either side of Agali panchayat and are comparatively interior panchayats.

A pilot study was conducted to identify various indigenous animal husbandry practices, which were prevalent in the area. Personal observation, group interviews of tribal animal husbandry farmers, discussion with local healers, head clan ('Moopan') and such other key informants were consulted to document the beliefs and practices. A total of 53 beliefs/ practices were selected for the final study. In the case of beliefs regarding modern animal husbandry practices a total of 51 scientifically recommended animal husbandry practices were selected for the final study.

Ten hamlets each from peripheral and deep areas were purposively selected. Sixty livestock-keeping respondents each were selected from the hamlets of peripheral and deep areas following a stratified random sampling procedure.

It was found that age and years of experience in animal husbandry were positively and significantly correlated with degree of belief and extent of adoption of indigenous animal husbandry practices, whereas herd size and

literacy had no significant correlation with degree of belief and extent of adoption of indigenous animal husbandry practices. The variables, man-nature orientation, value orientation, scientific orientation, mass-media exposure, extension agency contact, market support, policy support and organizational support were negatively and significantly correlated with degree of belief and extent of adoption of indigenous animal husbandry practices.

Age and years of experience in animal husbandry were negatively and significantly correlated with degree of belief and extent of adoption of modern animal husbandry practices whereas, herd size and literacy had no significant correlation with degree of belief and extent of adoption of modern animal husbandry practices. The variables, man-nature orientation, value orientation, scientific orientation, mass-media exposure, extension agency contact, market support, policy support and organizational support were positively and significantly correlated with degree of belief and extent of adoption of modern animal husbandry practices.

The variables, age was positively significant in explaining variation in the degree of belief in indigenous animal husbandry practices whereas, value orientation and extension agency contact were negatively significant in explaining variation in the degree of belief in indigenous animal husbandry practices. Extension agency contact was negatively significant in explaining variation in extent of adoption of selected indigenous animal husbandry practices. The variables, value orientation, extension agency contact and market support were positively significant in explaining variation in the degree of belief in modern animal husbandry practices. The variables, value orientation and extension agency contact were positively significant in explaining variation in the extent of adoption of modern animal husbandry practices. Both degree of belief and extent of adoption of indigenous and modern animal husbandry practices differed significantly between the deep and peripheral areas.

It is worth mentioning that, regarding the indigenous beliefs on selection of cattle the strongly held beliefs were found to be irrational. Adopters were also more for these beliefs. In the case of feeding, the practice of grazing of cattle had been a strong belief which was found to be rational and adopted by cent per cent of the respondents. The belief that natural service is preferable to A.I. had been the method of breeding for cattle. It was a strongly held belief which was irrational and adopted by a majority. A majority of respondents adopted the practice of not providing a shed to house the cattle, instead kept it in the open. It had been a strongly held belief which was found to be irrational. Another indigenous belief based practice adopted by a majority was keeping the kids under a basket made out of bamboo which was locally called a 'kodappu' when their mother's were sent for grazing. This had been a very strong belief but was found to be irrational. Two strongly held irrational beliefs in the case of management practices were preferring the knuckling method of milking and keeping the calves with the dam for an entire lactation period. It is worth reporting that out of thirty four indigenous veterinary practices studied thirteen were strongly held rational practices which were adopted by a majority. Further, there were a number of irrational veterinary practices followed by many of the respondents.

It is worth mentioning that, there were two weakly held beliefs regarding selection of dairy cow. They were, selection of dairy cow based on smooth shining skin and prominent milk vein. These beliefs were adopted by only a minority. Even though all the beliefs regarding feeding were found to be strong, adoption was least for fodder cultivation. However, it is appreciable that the respondents were aware of some other criteria which were very much significant in feeding dairy animals. These were some of the strongly held beliefs, which were adopted by a majority, viz., extra feeding to pregnant animals, extra feeding to milch animals and feeding compound feed for dairy cattle. In the case of modern animal husbandry practices there were two weak beliefs regarding breeding of cattle. They were inseminating within three months of parturition and

confirming pregnancy by per-rectal examination. The adopters of these practices were also a minority.

Regarding modern animal husbandry practices, out of eleven beliefs on housing studied five were weakly held ones. Adopters of these beliefs were also a minority. These beliefs were, providing separate house for goats, providing good side walls for cattle shed, constructing cattle shed based on wind direction and cleaning poultry pen periodically.

In the case of modern animal husbandry practices, out of the ten beliefs studied on management practices, eight were found to be weakly held ones. They were, periodic grooming of goats, drying up of udder prior to parturition, cleaning of udder prior to milking, castrating bulls by a qualified person, full hand milking, weaning calf within three days of calving, vaccination against R.D. in poultry and supplementary feeding of backyard poultry. There should be appropriate educational efforts to convince the tribal livestock and poultry keepers of the importance of these scientific practices and make them adopt the same.

Regarding modern animal husbandry practices, out of fourteen beliefs studied on diseases and treatment, seven were found to be weakly held ones. They were, treating with modern medicine retention of placenta, ecto-parasitic infestation, snake bite, fracture, respiratory disorders, horn/hoof evulsion and external wounds. This trend could be because of the predominant ethno-veterinary practice in the area.

It is worth stating that the level of adoption of the practices pertaining to rational indigenous animal husbandry practices were low viz., selecting zebu bullock for carting applying a paste made of leaves and fruit of 'ummam' (*Datura strammonium*) to expel maggots from maggot wounds, giving bark of 'eethi' (*Cycas circinalis*) and 'aathi' (*Ficus recemosa*) for treating diarrhea in

cattle and applying a paste made out of ground leaves and stem of 'karamaram' (*Randia dumetorm*) for treating horn evulsion. Nevertheless there were a number of rational indigenous practices having either medium or high level of adoption. These rational indigenous practices have to be propagated further.

Similarly in the case of modern animal husbandry practices the least adopted practices, in general, were selecting dairy animals based on prominent milk vein, weaning of calves, fodder cultivation, providing sidewalls to cattle shed, periodic cleaning of poultry pen, full hand milking, supplementary feeding of backyard chicken, treating fracture, respiratory disorder, horn or hoof evulsion, wounds and vaccination against R.D. As reported elsewhere sustained extension effort is a most utilizing appropriate media and methods to convince and make the tribals practice the same.

It is notable that, in the case of both rational and irrational indigenous animal husbandry practices, the extent of adoption was medium to high. Therefore, this trend is not acceptable in the case of irrational indigenous animal husbandry practices even as acceptable in the case of rational animal husbandry practices. Unfortunately, in the case of modern animal husbandry practices the trend in the extent of adoption was medium to low that should change for the better.

Suggestions

1) More studies must be conducted for documenting indigenous animal husbandry practices, as knowledge treasure for future research and references.

2) Experimental evaluation and validation of rational indigenous animal husbandry practices and ethno-veterinary practices.

3) Intensifying extension efforts to improve the belief in modern animal husbandry practices and their adoption.

4) An in depth study must be conducted to identify constraints in adoption of modern animal husbandry practices.

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Appendices

KERALA AGRICULTURAL UNIVERSITY
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DEPARTMENT OF VETERINARY AND ANIMAL HUSBANDRY EXTENSION

"ADOPTION OF INDIGENOUS AND MODERN ANIMAL HUSBANDRY PRACTICES AMONG THE TRIBES OF ATTAPADDY IN PALAKKAD DISTRICT"

INTERVIEW SCHEDULE
Dr. BIMAL.P.BASHIR
M.V.Sc. Scholar

Village   **House no:-**

I Hamlet/ Colony

1) **Name**   :-
2) **Age**   :-
3) **Literacy**   :-
 a) **Illiterate (cannot read and write) b) Literate (can read and write)**
4) **Experience in Animal husbandry   :-**
5) **Livestock owned   :-**

Cattle	Buffalo	Goat	Poultry	Others (specify)

6) **Occupation**   :-
a) **Cultivation**   b) **Animal farming**   c) **Agriculture labour**
 d) **Non Agriculture labour**   e) **Petty business/Trade**   f) **Government Servant**
f) **Minor Forest Product collection   g) Fishing**
7) **Caste :-   a) Irula   b) Muduga   c) Kurmba**

II Man- nature orientation:-

Please state your agreement /disagreement with each of the following statements

Sl. No.	Statement	Agree	Disagree
1)	Children should be taught not to expect too much out of life, so they won't be disappointed.		
2)	Children should learn early that there is not much you can do about the way things are going to turn out in life.		
3)	Success in life depends upon the will of God.		
4)	When a man is born, the success he is going to have is already on the cards, so he may as well accept it and not fight against it.		

II Value orientations

Sl .No.	Statements	Agree	Undecided	Disagree
1	To get more information about livestock farming we should have frequent contact with different sources of interests.			
2	Most of the information on livestock farming can be had at village itself rather than going outside the village.			
3	Adoption of improved A.H. technologies will certainly give high returns and better health.			
4	Prospects of livestock farming and our home life are predetermined and god is only the deciding factor.			
5	The farm men and women who manage their farm and home efficiently get higher yields and enjoy healthy family life whether God wishes or not.			
6	If one adopts improved farm and home practices more problems will be involved. So there are more chances of loss.			
7	I propose to better the record of milk yield of the previous year.			
8	I am satisfied with the record of milk yield/ Production of the previous year.			

III Scientific orientation:-

Sl No.	Statement	Agree	Undecided	Disagree
1	Improved dairy husbandry practices gives better results to a farmer than old methods.			
2	Even a farmer with lots of experience should use new methods of dairy husbandry.			
3	Though it takes time for a farmer to learn new methods in dairy husbandry it is worth the efforts.			
4	A good farmer experiments on with new ideas in dairy husbandry.			
5	Traditional methods of dairy husbandry have to be changed in order to raise the level of living of farmers.			
6	The way a dairy farmers forefather farmed is still, the best way to rear animals.			

IV Communication

Mass media exposure

Sl No.	Media	Regularly	occasionally	Never
1)	Reading news paper.			
2)	Listening to radio.			
3)	Listening to T.V.			
4)	Listening to farm broadcast on radio/TV.			
5)	Reading magazine/Bulletins or any other literature relating to dairy husbandry.			

Perception of Extension support system:

Sl No.	Personnel	No: of times contacted in the past calendar year in connection with dairying.
1	Village extension officer.	
2	Tribal extension officer.	
3	Dairy extension officer.	
4	Livestock inspector.	
5	Veterinary Surgeon.	
6	Project officer. (ITDP)	
7	Milk Co-op Society secretary.	
8	Promoter. (AHADS)	
9	Others.	

Sl. No.	Marketing Support:-	Sat.	Some what sat.	Not. Sat.
1	Availability of regulated cattle markets.			
2	Availability of storage/ collection facility.			
3	Availability of price information. (Livestock, egg, meat, milk, feed/oil cakes etc).			
4	Availability of transportation. (Livestock ,liv. Products, feed / fodder etc)			
5	Availability of liaisoning facility.			

Sl. No.	Policy support:-	Sat.	Some what sat.	Not. Sat.
1	Breeding of animals.(A I)			
2	Cattle Insurance.			
3	Cattle loan / subsidy.			
4	Price policy – Livestock products			
5	Inputs – feeds, medicine etc.			

Sl. No.	Organizational support:-	Sat.	Some what sat.	Not. Sat.
1	Bank			
2	Co-operatives.			
3	Farmers association			
4	NGO's			
5	AHADS			

Indigenous animal husbandry practices

Sl no	Criteria / Practice	Indicate agreement					I have tried this		I shall try next time	
		SA	A	UD	DA	SDA	Y	N	Y	N
1	**I. Selection** White bullock is good for carting.									
2	A black cow is the best to keep.									
3	Cattle having colour patches are auspicious.									
4	Cattle with hair whirls behind the pin bone should not be selected.									
5	Cattle having white or other colour mark on forehead is preferred.									
6	**I. Feeding** Grazing of the cattle is preferred.									
7	Feeding cotton seed cake is good.									
8	Feeding pig fat and egg to goats is good.									
9	**II.Housing** Housing to cattle is not needed.									
10	Kids should be placed in 'Kodappu' while does are sent for grazing.									
11	**III.Breeding** **Natural service is preferable.**									
12	**IV. Management practices** Calf should be with dam during an entire lactation period.									
13	Knuckling method of milking is preferred.									
14	Traditional method of castration by crushing the testis.									

SA=strongly agree,   A= agree,   UD= undecided,   DA= disagree,

SDA= strongly disagree   Y= yes and   N=no

Sl no	Criteria / Practice	Indicate agreement					I have tried this		I shall try next time	
		S A	A	U D	D A	SD A	Y	N	Y	N
15	**V.Disease and treatments** Flower and leaves of 'thumba' can be used to deworm cattle.									
16	Neem leaves and areca nut together are good for deworming cattle									
17	A paste made of leaves thippali and bark of 'Arasu maram' are good for fever.									
18	Decots made of pepper /ginger /garlic / thulasi are good for fever in cattle.									
19	Leaf and stem of 'Kuppameny' can cure constipation in cattle.									
20	Bark of 'Eeeth' and Athi are good for diarrhea in cattle .									
21	Essence of 'Malaveepu' leaves in water is good for indigestion.									
22	'Changalamparanda' is good for anorexia in cattle.									
23	'Velipparuthy' leaves are given to cattle if the animal is recumbent.									
24	Inhalation by burning salted fish / snake skin is good for cough in goat.									
25	'Thottavady', onion and 'thulasi' together are good for cough in cattle and goats.									
26	'Koduvely' leaf and stem are good for healing wounds.									
27	Bark of 'Velamaram' is good for healing wounds.									

SA=strongly agree,   A= agree,   UD= undecided,   DA= disagree,

SDA= strongly disagree   Y= yes and   N=no

Sl no	Criteria / Practice	Indicate agreement					I have tried this		I shall try next time	
		SA	A	UD	DA	SDA	Y	N	Y	N
28	Naphthalene, tobacco leaves and lime together can expel maggots form wounds.									
29	'Ummam' leaves and fruit can expel maggots.									
30	'Kottachedi / kattalavanakku' can heal wounds.									
31	"Kara Maram" leaves and stem are good for horn evulsion.									
32	Turmeric powder and ragi flour together are good for horn evulsion									
33	"Appakovai" leaf and stem with turmeric powder can cure mastitis.									
34	'Aathy' leaves along with tobacco is chewed well and spit on to the affected eye to cure corneal opacity.									
35	External application of tobacco dust(snuff) mixed with kerosene for ecto parasitic infestation.									
36	Water boiled with 'Avanakku' is good for skin infection for goats.									
37	To immobilize and heal fracture a bandage with the bark of 'Velamaram' is good.									
38	To immobilize and heal fracture splints of bamboo are good.									
39	To heal dislocation, the affected joint is massaged with oil and bandaged with cloth applying heated mud.									

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Sl no	Criteria / Practice	Indicate agreement					I have tried this		I shall try next time	
		SA	A	UD	DA	SDA	Y	N	Y	N
40	**For healing fracture crushed bark of 'Chadachi' is applied and immobilized with bamboo splints.**									
41	**Feeding bamboo leaves is good for retension of placenta.**									
42	**For retension of placenta "Appakovai" plant is tied around the horns and fed.**									
43	**For oral ulcers of foot and mouth disease plantain fruit and fat of wild pig are mixed well and applied.**									
44	**For foot lesions, cattle are made to stand in mud.**									
45	**For foot lesions of FMD salted fishes are ground and made into a paste and is applied to the foot lesions.**									
46	**For snake bite 'Kilimookku' tuber, Onion and 'Keezharnelly' are ground well and given orally.**									
47	**Snake bite victims may be subjected to customary rituals**									
48	**For snake bite bark of 'Ungu' is ground well and is given orally.**									
49	**VII. Other customary practices** Placenta should be hung on to a tree that has white sap.									
50	Colostrum should be poured into a river / ant hill.									
51	**Cow and buffalo meat should not be consumed.**									
52	**First egg of hen should be marked with charcoal and left in an ant hill.**									
53	**A cock that crows during dusk should be culled.**									

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Modern Animal husbandry Practices: -

Sl no	Criteria / Practice	Indicate agreement					I have tried this		I shall try next time	
		SA	A	UD	DA	SDA	Y	N	Y	N
1	*I. Selection:-* **Large sized udder.**									
2	**Prominent milk vein.**									
3	**Squarely placed teats.**									
4	**Smooth shiny skin.**									
5	**Good temperament.**									
6	**Without physical deformities.**									
7	**Number of lactation**									
8	**Feeding:-** **Compound feed / oil cake for dairy cattle.**									
9	**Fodder cultivation.**									
10	**Extra feeding to milch animal.**									
11	**Extra feeding to Pregnant animals.**									
12	**Breeding:-** A.I should be the method for impregnation.									
13	**Inter-calving period ideally be 12-15 months.**									

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Sl no	Criteria / Practice	Indicate agreement					I have tried this		I shall try next time	
		SA	A	UD	DA	SDA	Y	N	Y	N
14	**Pregnancy should be confirmed by per-rectal examination.**									
15	**Post partum insemination within 3 months.**									
16	**Age at first calving should be less than 3 years.**									
17	**Housing:-** **A good roof should be provided.**									
18	**A hard, dry and clean floor.**									
19	**A good sidewall.**									
20	**Proper drainage for urine.**									
21	**Daily cleaning of shed and premises.**									
22	**Shed must be constructed in north-south direction.**									
23	**Goats should be housed separately.**									
24	**Goat pen should be an elevated one.**									
25	**Goat pen should be built in a dry place devoid of dampness.**									
26	**Periodic cleaning of poultry pen.**									
27	**Daily washing (cattle).**									

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Sl no	Criteria / Practice	Indicate agreement					I have tried this		I shall try next time	
		SA	A	UD	DA	SDA	Y	N	Y	N
28	Management practices:- **Full hand milking.**									
29	**Periodical grooming (goat).**									
30	**Calf should be weaned within 3 days of calving.**									
31	**Frequent suckling of calves for the first 10 days.**									
32	**Udder should be cleaned prior to milking.**									
33	**Drying up of udder prior to parturition.**									
34	**Castration by a qualified person.**									
35	**Supplementary feeding to backyard chicken.**									
36	**F.M.D vaccination.**									
37	**R.D vaccination.**									

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Sl no	Criteria / Practice	Indicate agreement					I have tried this		I shall try next time	
		SA	A	UD	DA	SDA	Y	N	Y	N
38	Modern treatment for the following:- **Fever**									
39	**Digestive disorder**									
40	**Respiratory disorder**									
41	Bloat									
42	External wound									
43	Horn / Hoof evulsions									
44	Mastitis									
45	Ecto-parasite infections									
46	Endo-parasite infections (Deworming)									
47	Fracture									
48	Retention of placenta									
49	Medication for infectious disease									
50	Snake bite condition									
51	Bite of rabid animals									

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APPENDIX II

Sl. No.	Scientific name	local name
1	*Leucas aspera*	Thumba
2	*Areca catechu*	Arecanut, Pakku
3	*Azadirachta indica*	Veeppu, neem
4	*Ficus religiosa*	Arasu maram'
5	*Piper longum*	Thippali
6	*Piper nigrum*	kurumulagu
7	*Ocimum tenuiflorum*	Thulasi
8	*Allium sativum*	Veluthulli
9	*Pergularia daemia*	Velipparuthy
10	*Zingiber officinale*	Injji
11	*Acalypha indica*	Kuppameny
12	*Cycas circinalis*	Eeeth
13	*Ficus racemosa*	Atthi
14	*Melia dubia*	Malaveepu
15	*Mimosa pudica*	Thottavady
16	*Cissus quadrangularis*	Changalamparanda
17	*Plumbago zeylanica*	Koduvely

Sl. No.	Scientific name	local name
18	*Ricinus communis*	Avanakku
19	*Acacia leucophloea*	Velamaram
20	*Nicotiana tabacum*	Pukayila
21	*Datura strammonium*	Ummam
22	*Randia dumetorum*	Karamaram
23	*Coccinia grandis*	Appakovai
24	*Bauhinia racemosa*	Aathy
25	*Jatropha curcas*	Kottachedi/ Kaatavanakku
26	*Pongamia pinnata*	Ungu, Poongumaram
27	*Grewia tiliaefolia*	Chadachi
28	*Corallocarpus epigaeus*	Killimooku, Kizhangu, Kattukoval
29	*Phyllanthus debilis*	Keezharnelly
30	*Curcuma longa*	Manjal
31	*Eleusine coracana*	Ragi
32	*Allium cepa*	Ulli
34	*Bambusa bambos*	Mulla

ADOPTION OF INDIGENOUS AND MODERN ANIMAL HUSBANDRY PRACTICES AMONG THE TRIBES OF ATTAPADDY IN PALAKKAD DISTRICT

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Abstract of the thesis submitted in partial fulfillment of the
requirement for the degree of

Master of Veterinary Science

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ABSTRACT

Degree of belief and extent of adoption of selected indigenous and modern animal husbandry practices and the determinants of adoption were studied among the tribes of Attappady. Age and years of experience in animal husbandry were positively and significantly correlated with degree of belief in indigenous animal husbandry practices whereas, negatively and significantly correlated with degree of belief in modern animal husbandry practices. The psychological, communication and extent support variables studied were negatively and significantly correlated with degree of belief and extent of adoption of indigenous animal husbandry practices whereas, positively and significantly correlated with extent of adoption of modern animal husbandry practices. Significant differences between the deep and peripheral areas were observed in the case of both degree of belief and extent of adoption.

A total of fifty three indigenous animal husbandry practices, under the domains viz:- selection, feeding, breeding, housing, management practices, diseases and treatment and other customary practices were studied. Their strength and rationality were also determined. Similarly a total of fifty one modern animal husbandry practices, under the domains viz:- selection, feeding, breeding, housing, management practices and disease and treatment were studied. Strength of these practices were also determined. Further, level of adoption of rational and irrational indigenous animal husbandry practices besides that of modern animal husbandry practices were determined. Highly adopted irrational indigenous animal husbandry practices and lowly adopted modern animal husbandry practices were identified. Similarly the extent of adoption of rational and irrational indigenous animal husbandry practices besides that of modern animal husbandry practices were studied. It was noticeable that, in the case of both rational and irrational indigenous animal husbandry practices the extent of adoption was medium to high. In the case of modern animal husbandry practices the extent of adoption was medium to low.