ENDANGERED SKILLS IN THE FARMING SYSTEMS OF MUKUNDAPURAM TALUK, THRISSUR DISTRICT

By
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THESIS

Submitted in partial fulfilment of the
requirement for the degree of

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DECLARATION

I hereby declare that this thesis entitled "**Endangered skills in the farming systems of Mukundapuram Taluk, Thrissur 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, fellowship or other similar title, of any other University or Society.

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Certified that the thesis entitled "**Endangered skills in the farming systems of Mukundapuram Taluk, Thrissur District**" is a record of research work done independently by **Ms.Sulaja, O.R.,** under my guidance and supervision and that it has not previously formed the basis for the award of any degree, diploma, fellowship or associateship to her.

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We, the undersigned members of the Advisory Committee of **Ms.Sulaja, O.R.,** a candidate for the degree of **Master of Science in Agriculture** with major in **Agricultural Extension**, agree that the thesis entitled **"Endangered skills in the farming systems of Mukundapuram Taluk, Thrissur District"** may be submitted by Ms.Sulaja, O.R., in partial fulfilment of the requirement for the degree.

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Introduction

CHAPTER I
INTRODUCTION

"Every creature's mode of living is decided by how he obtains his food, if you change agriculture you change culture"

Aristotle

The culture of any society at a time is the sum total of the acquired and passed on learned behaviour by its past generations and the modified products of these behaviours. These form integral part of any socio cultural system and its basic wisdom and treasure on which the society is moulded over time. Farming through the history of mankind had undergone this process of evolution everywhere. In their attempt to 'manage' the environment for their food, fibre and shelter needs, our forefathers have acquired and mastered innumerable bits of knowledge, skills and arts. Such local wisdom has got immense value and influence on the existence and continuance of farming which was again much dependent on the nature and organics.

But, in the present era, farmers have become addict in the inorganic inputs like chemical fertilizers, pesticides, weedicides and other plant protection chemicals. The revolutionary advances in crop production technology had resulted in the introduction of many high yielding varieties and hybrids. The green revolution package promoted in our country had unfortunately resulted in a situation leading to unsustainability since the recommended technology was wholly dependent on abundant use of non-renewable energy. It has eventually made the traditional self-reliant farmers discard their numerous locally adapted varieties and indigenously developed technologies. The ultimate result which we find today is the long term drastic decline in production.

However, of late, the value of indigenous knowledge is being gradually recognised and appreciated. Researchers have started focusing on the relevance of indigenous knowledge as a resource that provides a basis for sustainable and environmentally sound approach to agriculture and natural resource management.

Traditional farmers inherit a rich collection of indigenous knowledge, which are passed on through generations by word and practice. The proverbs, folk songs and value system are, in many cases, pieces of perfect knowledge about the right time for sowing, harvesting etc., which reduces the threat from natural calamities, pests and diseases. Their indigenous skills are not less than a modern engineer's inventions.

The locally developed knowledge in today's parlance is called indigenous knowledge, derived from interactions between people and their environment, which is characteristic of all cultures. In comparison with most modern techniques, they are more effective, locally available, relatively cheap, less destructive to local environments, and in keeping with the norms of peasant communities, as observed by Kakonge (1995).

The use of plant protection chemicals and fertilizers in excess quantities have led to environmental pollution beyond the tolerance limits. The resistance developed by pests had resulted in the use of plant protection chemicals in still higher dosages. The residues of plant protection chemicals in food materials, water etc. which we consume had resulted in health hazards which have opened up our eyes at last to think of reduced use of the same. It is now widely recognized that the only solution to this problem is going back to indigenous techniques which solely depended on organic manures, natural pesticides and amazing skill items for better production. The value of indigenous knowledge has been repeatedly stressed by many of the authors such as Warren (1989) and Mathias (1995).

No doubt, the indigenous technical systems have to be identified, preserved and utilized for the betterment of human kind. Many field studies and surveys have pointed out the dearth of skilled labour in undertaking many of the traditionally practised farming activities. Weeding out of wild rice in paddy fields is a classical example of this. Only women of older age have the skill to correctly identify the wild rice and weed out the same. Similar is the case of 'Kazhchakula cultivation', which was exclusively done by a group of farmers in a locality. The danger of extinction faced by many such skills necessitate and call for an immediate attempt at systematic documentation of indigenous and endangered skills in the farming systems.

In Kerala, integrated farming system popularly known as 'homestead farming' is the most predominant type of farming which includes different combinations of major crops, poultry, fishery and animal husbandry. As the farmers were practising this type of farming since very long time, they have developed and appropriated many skills for the system. With the advent of the modern agriculture and other related changes, many of these skills are considered irrelevant and hence neglected. In this context, documentation of endangered skills in the farming systems assume much relevance.

Documentation of these identified skills alone won't serve purpose of their preservation. Like in the case of endangered biological species, here also there is the essentiality of *in situ* and *ex situ* preservation efforts. The rural youth should acquire those valid skills from 'skill masters' of the locality. They have to pass on the knowledge treasure of the past to the future generations. But to what extent the present farm youth are participating in farming? How many of them have any interest in agriculture and have anxiety or realization of the need of sustaining agriculture for future? Due to the ever widening gap between the youth and farming aren't they missing this treasure of generations wisdom in farming. These are real questions which disturb and alarm the conscience of those who have, real concerns

for agriculture and humankind? Lambert (1991) had rightly exclaimed 'Does rural youth still exist?' It is observed that the attraction of gulf money, increasing urbanisation, cultural alienation for social and physical reasons, economic factors like occupational diversification, professional orientation etc. are taking the farm youth more and more far away from the soil and its surroundings. This alarming trend may lead to unpredictable situations may be like sole dependence on other states or nations or falling into the clutches of multinational firms for our food requirements.

The hypothesis of the present study is based on the above illustrated context - (1) the non participation of farm youth in farming results in non acquisition of the farmers' wisdom i.e., indigenous farm skills by the farm youth, (2) many of the indigenous skills are getting endangered/extinct in the farming systems.

The indigenous skills have to be acquired and perpetuated through coming generations. The acquisition of a skill needs actual participation and practise of the skill. IK can be passed through word of mouth, but learning a skill needs sincere attempts. There should be planned efforts to motivate and train the young generation, and to sustain their interest in farming. Definite steps are to be designed which can identify skill masters of indigenous technology to train and perpetuate at least the endangered skills for future. The skill masters also can serve as the resource persons for participatory technology development in farming systems research.

Identification, validation and reappropriation of relevant indigenous farm technologies should form the starting point for the applied research. That type of efforts can form the base for sustainable and ecofriendly agricultural development. From historical point of view also the documentation of indigenous farm wisdom is of immense value.

Keeping all these in view, the present research study was initiated with the following specific objectives.

1. To identify endangered farm skills in the farming systems
2. To identify the factors associated with the endangered conditions of the farm skills
3. To measure the extent of acquisition of skills by young farmers and labourers in the farming systems
4. To measure the extent of participation of young farmers and labourers in the actual farm operations
5. To correlate the behavioural characteristics of young farmers and labourers with the extent of acquisition of skills and participation in farming activities
6. To analyse the constraints in relation to participation of young farmers and labourers in farming

Scope of the study

The present scenario of farming perceived as unhealthy and unsustainable by many due to monoculture, genetic erosion and environmental pollution caused by modern farming techniques have developed contempt among the farmers. This situation has resulted in more and more farmers shifting towards 'organic farming', which include eco-friendly technologies to sustain agriculture. The study assumes much importance as it attempts to document indigenous and endangered skills followed by traditional farmers and for better management, for increasing production in the farming systems and for pest and disease control. This could be considered as the first attempt to study indigenous 'skills', which needs serious and sincere efforts as indigenous skills face the danger of extinction. A detailed analysis and documentation of skills are needed to preserve the precious skills and to use

them as reference materials for future use. It is hoped that they can also serve as useful feedback sources to the researchers for evaluation of these technologies and modification if required to yield in a suitable blending to develop economically viable and ecologically sound agricultural practices. The study has also attempted to measure the extent of participation of farm youth in farming and to analyse the influence of various behavioural characteristics of the farm youth on participation and acquisition of skills. These findings might give useful information to the agricultural researchers and development planners to channelise the potentials of farm youth to undertake farming profitably by acquiring adequate knowledge and skill about indigenous techniques.

Limitations of the study

The present research forms a part of the Master's degree programme which is a single student investigation and hence, has the inherent limitations of time, money and other resources. Being a post graduate research work, the study could be confined only to one taluk viz. Mukundapuram Taluk of Thrissur District. Since the indigenous skills are highly location specific and vary from one region to another, the findings of this study may not be amenable to generalisation for the entire State. Moreover, the identified indigenous skills were solely based on the opinions and experiences of farmers and hence in depth analysis may be needed to check the degree of efficiency with the visible outcome which could not be carried out.

Though sincere effort was taken in collecting all the available practices prevailing/prevailed in the area, they may not by any means be exhaustive.

Presentation of the thesis

The thesis is divided into six chapters including the present one. The present chapter already covered the scope, objective and limitations of the study.

The second chapter deals with review of literature relevant for the study.

The details of the study area, selection of respondents, operationalisation and measurement of variables, tools of data collection and statistical techniques used are covered in the third chapter.

The fourth chapter deals with the results of the study. The discussion of the results are presented in fifth chapter.

The sixth and final chapter presents the summary and implications of the study. The reference, appendices and abstract of the thesis are given at the end.

Theoretical Orientation

CHAPTER II

THEORETICAL ORIENTATION

2.1 Indigenous knowledge - meaning, concept and definition

Since the commencement of farming in the history of mankind, the farmers are in continuous trials with plants, animals, tools and implements to improve the outcome. The informations thus gathered and accumulated were transmitted orally from one generation to another.

Haskell *et al.* (1981) has defined indigenous knowledge as system finely tuned and adapted both biologically and socially to counter the process of what are often harsh and inimical environments and often represents hundreds or thousands of years of adaptive evolution in which the vagaries of climate, the availability of

land and water, the basic needs of people and their animals for food, shelter and health have been amalgamated in a system which has allowed society to exist and develop in the face of tremendous odds.

Farmers' practical knowledge about the local ecosystem is reflected in their farming techniques and in their skill in using the natural resources to gain their livelihood. They may reveal ideas, which contains 'seeds' of adaptive value (Alcorn, 1984 and Hunn, 1985).

Indigenous knowledge is highly localized and restricted. Local environmental factors and cultural conditions govern the evolution of indigenous knowledge. These vary between countries, regions and even farm to farm (Carter, 1988).

Teri and Mohammed (1988) have suggested that peasant production practices results from a long term process of adjustment to the environment.

Wang (1988) has defined indigenous knowledge as the sum total of knowledge and practices which are based on people's accumulated experience in dealing with situations and problems in various aspects of life and such knowledge and practices are special of a particular culture.

Local beliefs and vernacular terms also have meanings and can be helpful in describing ideas (Sharland, 1989).

Warren (1989) has opined that IK is unique to a given culture or society. This knowledge is the formation base for a society. Indigenous knowledge is dynamic, it changes through indigenous creativity and innovativeness as well as through contact with other knowledge systems. He had pointed out the dynamic equilibrium of the 'indigenous knowledge' with the environment, influenced by

innovations emerging from within the system as well as those adopted from other indigenous systems.

The knowledge generated through generations in today's parlance is called `local knowledge', `traditional knowledge' or simply, `indigenous knowledge' (Chittiraichelvan and Raman, 1991). This indigenous knowledge which is unique to a given culture is abbreviated as IK.

IK was mainly inherited through the socio-cultural system, and was maintained and developed through the oral traditions folk tales, proverbs etc. (Verma and Dhukia, 1991) and through indigenous beliefs, attitudes, customs rituals, etc. The system of farming presented this way was based on wisdom, and solid logics of the then farmers which gains support from scientific studies too.

Reijntjes (1992) has stated that the knowledge of a farming population living in a specific area is derived from the local people's past experience, both that are handed from previous generations and that of the present generation.

Thurston (1992) have viewed indigenous knowledge or traditional farming as a part of the culture evolved through generations. Thurston has identified traditional farming as based on agriculture that has been practised for many generations and the term `traditional' as associated with primitive agricultural systems or pre-industrial peasant agriculture.

Balasubramaniam *et al.* (1994) opined that farmer initiated technology does not occur by accident, but there is a farmer based method of research, similar to scientific method. It is concrete and relies strongly on intuition, historical experiences and directly perceivable evidence.

Talwar and Singh (1994) have stated that agricultural practices that are evolved locally and inherited over a long period of time are referred to as indigenous practices.

Much of the traditional agricultural practices have very little of modern technology per se, but they epitomise the scientific technological wisdom of generations after generations, and as such they have been naturalized and environmentalized whereas, most of the know-how based on modern science and technology are sophisticated, if not complicated (Vasu, 1994). Simplicity is the very essence of IK.

Preetha (1997) has operationally defined indigenous practices as resource-saving, site-specific, farmer-devised technologies experimented and adapted by themselves which is simple to practise, flexible in use and sustainable in effect.

Thus the terms indigenous and traditional knowledge are used synonymously to indicate farmer's practical knowledge about their local production system, their farming techniques and their skills to manage with the natural resources to gain the basic needs with sustainability and this is a dynamic and ever changing accumulation of collective experiences of generations. They are highly localised and restricted. Local environmental factors and natural conditions govern their evolution.

2.2 Components of indigenous knowledge

Local beliefs and vernacular terms are pieces of indigenous knowledge (Sharland, 1989).

According to Chittiraichelvan and Raman (1991) indigenous knowledge was passed on from generation to generation by word of mouth. It includes various social and religious taboos, beliefs and customs, communication patterns, music, ecology, vegetation, climate and so on

Indigenous knowledge is perpetuated through indigenous beliefs, attitudes, customs, rituals etc. Verma and Dhukia (1991) opined that indigenous knowledge is maintained through oral traditions, folk tales, proverbs etc.

2.3 Importance of indigenous knowledge

Chitambar (1961) opined that study of indigenous knowledge is important in planning and implementing new programmes.

Traditional practices become the points of departure that will lead to the development of appropriate and acceptable practices (Boserup, 1965).

According to Wilken (1974), traditional farming system have excellent records in resource management and conservation and these are to be appropriately utilised in the context of resources getting scarce. He also pointed out that since modern agriculture has developed primarily in the temperate regions, the adoption of those practices may have undesirable impacts in the tropical countries.

Andrew (1978) pointed on the raise in the level of agricultural technology in Japan through indigenous research.

Knight (1980) called for systematic documentation of traditional knowledge into an 'information bank' from which all concerned can draw enlightment.

As traditional technologies have undergone selective process over centuries of empirical testing and they are very likely optimal solutions to the particular conditions, constraints, materials and needs to which they are developed. Traditional tools and techniques should be studied systematically and efforts be made for their efficiency and productivity (Srivastava, 1980).

Haskell *et al.* (1981) found that the traditional peasant system of agriculture are not left overs from the past, but are, on the contrary systems finely timed and adapted both biologically and socially. They are the products of adaptive evolution through ages.

Roling (1989) stated that farmers are not passive consumers, but active problem solvers who infact have developed most of the technology they use.

Amanor (1990) rated farmers as researchers who adopt and adapt technologies to specific circumstances, and farmer experimentation is more able to accommodate changing circumstances and diversity and farmers' own analysis of farming systems offers important insights, different from that of scientists.

Localized practices are significant inputs in the less developed countries (Anabella *et al.*, 1991).

Nitsch (1991) pointed out that farm management requires a combination of experience, intuition and practical know-how that can only be learned in the context in which it is applied and the traditional agricultural systems are to be considered for their productivity, sustainability, stability and equitability.

The study conducted by Rajaram *et al.* (1991) revealed that majority of the small-scale farmers in developing countries use indigenous tillage systems. These are low-cost, locally adapted technologies that reflect considerable

knowledge of sustainable agriculture. It is concluded that, for sustainable food production, indigenous tillage practices in developing countries should continue to be used.

Ozien (1992) demonstrated the relevance of indigenous approaches to agricultural development in Subsaharan Africa, sharing the productive, employment generating, pragmatic and adaptable nature.

Sandoval (1992) felt that there is a pressing need for the systematic documentation or memory banking of local farmers' indigenous practices. While germplasm encodes genetic information evolved through time, the minds of local farmers are repositories of cultural information coded, and time tested.

Thurston (1992) observed that most of our present practices and cultivars are evolved from ancient techniques and plant materials. Projects lacking sufficient understanding of traditional agriculture systems become irrelevant to the context, fail and cause ecological problems. Since traditional systems are in danger of being lost as agriculture modernizes, they should be studied and conserved, before they disappear. Traditional farming resemble natural ecosystems and their diversity give a high degree of stability, resilience and efficiency.

Walt and De (1993) opined that technologies used for increased production are unsustainable and environmentally damaging. Reconstruction of a more sustainable and socially just agriculture has led to the belief that greater attention must be given to local knowledge systems, involving more environmentally friendly technologies, empowering people like farmers and creating technologies that will have more socioeconomic implications.

Floquet and Mongbo (1994) reported that farming systems research could benefit from the integration of farmers' innovations and the local knowledge that generated them.

Local knowledge has ensured both the persistence and development of farming and also the maintenance of diversity (McGregor, 1994).

Indigenous knowledge could be used to fulfil socio-economic needs and conservation of biodiversity (Rajasekharan and Warren, 1994).

Salas (1994) pointed out the main reason for the failure of conventional development approaches as the neglect of the local knowledge system and practices.

Ghotge and Ramdas (1995) identified the most important reasons for conservation of indigenous breeds of livestock as preservation of valuable genetic material and maintaining biodiversity. They remind that it is crucial that development workers need to study local production processes and goals before designing and implementing livestock development programmes.

Kurien (1995) observed that the basis of traditional innovative activity in fisheries is the intimate knowledge that has been passed on from parent to child ie. from master to apprentice; it forms practical knowledge which got conditioned into dynamic cultural practices.

MANAGE (1995) identified that farm testing with farmers' participation led to design of technology compatible with farmers' needs leading to farmer back to farmer approach. Indigenous knowledge plays an important role in participatory approaches to sustainable development and is the key to farmer participation in

technology development. Understanding what farmers know can provide crop researchers with better insights into agriculture and agro-ecosystems.

Mathias (1995) called for the

- recording and documentation of indigenous knowledge through field studies, literature studies, and workshop,
- validation of indigenous knowledge by tapping the assessment of local people field testing, lab tests, onstation research etc.,
- testing field methodologies, for recording and using indigenous knowledge, and
- make information available through documents, audio-visuals, artifacts, etc. networking clearing houses, databases, print mass media demonstration plots, exhibits, museums etc.

Agarwal and Narain (1997) stated that many of the traditional agricultural practices are now dead, but memories of most of them continue among farmers and villagers even today and constitute their body of knowledge.

Preetha (1997) observed that knowledge in indigenous practices and extent of adoption as only medium among majority of rice farmers in Kerala which implied that most of the old farming traditions are being gradually lost by the farmers.

To summarise, indigenous knowledge is unique to a given culture or society. It is derived from spontaneous farmer experimentation, or past farming experience or adaptations made in line with the local resources, needs and conditions. Indigenous knowledge form the base for a society and any intervention for development in any society should be based on this 'local wisdom'. It is highly

localised, dynamic and it changes through creativity and innovativeness as well as contact through with other systems. This knowledge provides a basis for identifying ecologically sustainable options of research use which are finely tuned both biologically and socially. Abstraction and conceptualisation of indigenous knowledge and its integration with modern farming techniques can evolve efficient resource management system.

2.4 Identification and documentation of indigenous farm skills - endangered, extinct and popular farm skills

Hoare (1980) described the role of the extension officer as a synthesiser of the farmers' technical knowledge and findings of laboratory research, which is gaining evidence. According to him, the extension officer has also to play the role of identifying and communicating knowledge relating to indigenous practices to institutional workers in the laboratories.

Knight (1980) called for the systematic documentation of traditional farmers' knowledge into an 'information bank' from which agronomists, extension workers and other farmers can draw enlightenment and insight.

A survey by Quintana and Arzadon (1989) on the use of plant materials for pest control in selected areas in the Philippines revealed the existence of indigenous and traditional methods of controlling pests that have evolved in these areas. The botanical pesticides were directed mainly against rice pest.

According to Chittirachelvan and Raman (1991) documentation of indigenous beliefs assumes greater importance to understand the scientific rationale to accelerate increased awareness among youth and pride among farmers.

One hundred and fifteen traditional beliefs covering various agricultural activities in rice farming was identified by Balasubramaniam (1992) from Palladam block of Coimbatore district in Tamil Nadu.

Reijntjes *et al.* (1992) stated that specialised indigenous knowledge is often kept secret or known only to select few. In any case peasants do not document their knowledge so that it can be made available to strangers. Their knowledge may be implicit within their practices, actions and reactions, rather than a conscious resource.

A study in three villages of the Union Territory of Pondichery, in India, revealed that indigenous knowledge systems can provide a frame of reference for strengthening agricultural extension programmes (Rajasekaran *et al.*, 1993).

Traditional knowledge and systems of land use have proved far more environmentally appropriate, resilient and complex than initially supposed by outsiders (Colchester and Ghai, 1994). Hence the need to document traditional knowledge.

DeWalt (1994) argues that there is a need to search for more effective and creative interactions between indigenous knowledge and scientific knowledge systems. He concluded that scientists, social scientists and people with local knowledge can better work together to improve agricultural and natural resource management systems.

Babu (1995) identified 25 indigenous practices adopted by homestead farmers of central zone of Kerala.

Nine indigenous soil and water conservation practices followed by the IRDT and Government beneficiaries were identified by Nandini *et al.* (1995).

Hess (1997) suggested that when indigenous knowledge systems and participatory rural appraisal approaches are placed in the context of communicative action theory they will gain theoretical, political and practical significance and should improve the cross-cultural cooperation for development.

2.5 Indigenous practices identified

A review of the practices identified by the researchers is presented.

Author	Year	Practices identified
Palti	1981	Cultural practices for plant disease management
Chakravarthy	1982	Use of indigenous plough, rat traps and field burrow construction
KAU	1989	Seed treatment practices, crop rotation practices, seed storage practices, application of common salt in coconut basin
Bharara	1991	Use of crop residues, leaves, manures, mulching, erosion control, mixed cropping etc.
Gnanadeepa	1991	Pest control with neem cake
Kanagasabhapathi	1991	Plant protection measures - use of ash, red earth, neem cake, cow's urine etc.
Sanghi	1991	Risk management practices of farmers
Thurston	1992	Resistance of landraces for disease management
Rajasekharan & Whiteford	1993	Rice-crab production practices in South India

Contd.

Author	Year	Practices identified
Vivekanandan	1993	Alternatives to chemical pesticides
Damodaran	1994	Reported the special type of cultivation for Kazhchakula in Thrissur
Oba	1994	Management practices of range management in Kenya
Babu	1995	Use of cow's urine, common salt, fumigation of field, painting of coconut barks with milk of lime etc.
Bavinck	1995	Motorization of 'Kattumarams' for fishing
De and Rao	1995	Ethnoveterinary practices with locally available herbs in West Bengal
Gotge and Ramadas	1995	Traditional occupations evolved around livestock rearing practices
Gracy	1995a	Sardine oil extraction as a cottage industry
Gracy	1995b	Filtration as a sustainable aquaculture method of Kerala
Hassanein and Kloppenburg	1995	Reported local knowledge of networks of graziers
Hemamalini *et al.*	1995	Major areas of women occupation in fisheries as prawn peeling, fish curing, drying and marketing net making, fishing in the canals and clam shell collection
Kumar	1995	Farmer co-operative activities in reservoir fisheries management
Kurien	1995	Technological innovativeness of artisanal fisherman in their craft and gear

Contd.

Author	Year	Practices identified
Lokesh and Shenoy	1995	Fisher women's traditional roles
Prakash and Tejaswini	1995	Practice of carrying seed varieties with bride
Prasad	1995	Termite mounds, and pheratophytes (well plants) as indicators of ground water and rainfall
Raja and Vijayalakshmi	1995	Traditional varieties being preserved by the farmers
Rajan	1995	Use of fish attracting lanternsing or 'light fishing'
Rajaratnam	1995	Indigenous practice of water purification with plant seeds
Remadevi	1995	"Thappu" a traditional skill among fisher women and use of "Vattuvala" to catch fish
Thirunavukkarasu	1995	River spring canal irrigation systems from dry river beds in Tamil Nadu
Thomas	1995	Practices of flooded weed management, duckling penning and cowdung slurry application in paddy field
Toyang *et al.*	1995	Ethnoveterinary medicinal practices
Tripathi *et al.*	1995	Indigenous treatments for digestive disorders in bovines
Venkatasubramaniam and Fulzele	1995	Livestock sharing practices in Tamil Nadu
Birmingham	1996	Local knowledge of soils among farmers

Contd.

Author	Year	Practices identified
Karthikeyan and Chandrakandan	1996	Indigenous Technical Knowledge of Nilgiri tribes viz. Todas, Kurumbas, Irulas, Mullu-kurumbas, Paniyans and Kotas were identified. Totally 66 ITK practices were identified.
Kuhnlein and Receveur	1996	Traditional food systems and changes
Manju	1996	Indigenous practices among coconut farmers of Thrissur District - detection of functional eye of coconut, selection of seedlings, planting methods rat control measures etc. of Thrissur District.
Smith *et al.*	1996	Use and conservation of woody vegetation, ethnobotany, live fences and cultural artifacts
Agarwal and Narain	1997	Traditional practices of water harvesting and water management
Manju	1997	Identified 47 indigenous practices of vegetable growers, mainly pest control measures and use of fine sand on leaves, tobacco decoction, seed storage, raising seedlings in leaf cones etc.
Preetha	1997	Identified 80 practices of rice farmers of Thrissur District,like `Kundakootal' of seedlings and swing basket, counterpoise bucket lift, `chakram' and `ara', `petti' and `para' etc. for water management, `Kundamuram', `Chazhikettu', fish oil etc. for pest control and different types of rat traps.
Bandyopadhyay and Saha	1998	Seed selection and seed storage practices in Andaman and Nicobar islands
Ning	1998	Indigenous yak breeding practices among nomads of Western Sichuan, China

2.6 Extent of participation of farm youth in farming

Dilic (1969) studied the general attitude of youth towards rural way of life and concluded that contrary to traditional view youth have considerable subjective achievement of agricultural profession.

Andrews (1973) in his study on college students found that self concept is a significant factor in an individual's choice of a vocation, preparation of a career and participation in the field of work.

Devadas (1975) reported that in modern agriculture, women shared a number of farm operations with men. Activities such as seed selection, storage, sowing behind the plough, dibbling and planting, weeding, collection and storage of manure were mainly carried out by women.

Lekshminarayan (1978) stated that the agricultural students had high involvement in feeding and watering cattle, followed by doing gardening in the house, and carrying agricultural information from teacher to their parents whereas non-agricultural students had high involvement in feeding and watering cattle followed by bringing essential commodities of daily use from the shop and doing gardening in the house.

Shanmugham (1979) reported that education of new school going rural youths was positively and significantly related to their involvement in agriculture.

Govind (1984) observed that a large number of women were engaged in farm operations like seed treatment, sowing, manuring, intercultivation, harvest and post harvest technology that are traditionally done by women. Involvement of farm women in all livestock activities was more compared to their involvement in crop husbandry practices.

He also observed that the rural girls involved in agricultural activities namely sowing, irrigation, plant protection, watching standing crop in fields, supervision of labourers in the fields and account keeping in the evening hours. The activities in which girls involved during morning and evening were in inter cultivation, plant protection and harvesting. Most of the livestock activities performed were cleaning of cattle shed, milk processing, cowdung cake making and collecting egg.

The Ministry of Human Resource Development (1985), considers youth group in India as persons in the age group 15 to 35 years. Youth forms nearly one-third of the total population of India. Rural youth constitute over two-and-half times of the size of urban youth.

According to the Ministry of Human Resource Development (1985) youth is a very special time with special challenges and is a period during which the body personality, intellect and social attitudes are developing erratically, usually independent of one another and frequently explosively. It is a time of life that is full of potential and problems.

Swaminathan (1985) reported that women had traditionally been seed selector and preservers whether they are literate or illiterate. They had the ability to spot healthy plant whose seed they carefully preserve for sowing in the next year.

Singh *et al.* (1987) indicated that most (32%) of rural girls involved and interested in kitchen gardening because of the availability of a suitable piece of land and water for irrigation.

According to Dubey (1988) women break the clods of earth, prepare the land, carry manure, sow seeds, transplant, pull out weeds, attend to hoeing, harvest crops, thresh and bind the grains and stock the hay.

According to Mangat and Roy (1988) the rural school going girls participated in all the farm and household activities.

The predominant activities of farm women involved manure spreading, seed treatment, culture treatment, transplanting, weeding and hoeing, top dressing, watering harvesting, winnowing and storage as observed by Reddy and Prasad (1988).

Govind *et al.* (1990) reported that agricultural activities in which the school going girls participated mostly in the evening hours were sowing (30%), account keeping and giving wages (15%), irrigation (5%), plant protection (5%), watching standing crops in fields (17.50%) and supervision of labourers in fields (30%). In the other three activities namely inter cultivation (20%), harvesting (22.50%) and post harvest technology (17.50%) girls participated both in morning and evening hours. Higher participation in sowing is due to the reason that, the task was generally done by the women and the young girls would have accompanied their mothers in performing the particular job.

They further reported that the participation of rural school going girls in livestock production both during morning and evening include feeding the cattle (50%), sale of milk (30%) and feeding birds (10%). Only one activity namely fodder collection was performed in the evening hours by 17.5 per cent of girls. In general, it was found that the girls participated a larger extent in dairying when compared to poultry keeping.

Helen *et al.* (1990) studied the participation of small farm women in diversified dry farming activities and found that dairy farming seems to be the best component in dry farming. About half of them were on feeding cattle, maintaining the cattle shed, milking and processing of milk by way of self doing. Poultry in the second choice under dry farming condition wherein more than two third of the farm

women were involved in feeding, maintaining the cages and marketing by self doing. It is therefore imperative to note that farm women under dry farming condition need to be provided poultry technology. Farm women assisted in feeding the goat and planting farm forestry seedlings in their farms.

Pradeepkumar (1993) reported that majority of the educated unemployed youth had medium to high level of participation in agriculture and allied fields.

A study in the Bangalore rural and Kolar districts of Karnataka by Shivalingaiah and Veerabhadraiah (1996) among 200 rural youth showed that the percentages of rural youth who participated to a low, medium and high extent respectively in dairy management practices were as follows: male from small dairy farms, 18, 32 and 50; male from large dairy farms 23, 24 and 53. The male youth from small dairy farms and the female youth from both small and large dairy farms tended to participate in all dairy related activities, whereas engagement of hired labour on large farms meant that male youth from large dairy farms participated mainly in management practices.

A study conducted on the present status and problems of rice cultivation in Kerala by TOKAU (1998) revealed that about 70 per cent of farm youth below age group of 40 years, were very much reluctant to engage in farming activities which need hard work. They prefer white collar jobs even if the wages are less than that of farm labourers, the main reason identified being the higher social status attached with non-farm jobs.

2.7 Acquisition of skills by young farmers and young labourers

Faniran and Areola (1976) reported that in the field of crop production and the management of the soil, the knowledge and experience of local farmers are

unrivalled and no other native system of food production is found as competent as farmers' knowledge.

Jayakrishnan (1984) observed that paddy growers had medium level of knowledge of low cost technology.

Studies conducted by Juma (1987) and Rochelean (1987) in East Africa showed that women usually possess remarkable knowledge about the qualities and uses of indigenous tree species and that many of those insights are unknown to men. Dankelman and Davidson (1988) and Shiva (1988) too reported the higher knowledge level of women.

Ray (1991) stated that knowledge has three components, which are awareness knowledge, how-to-knowledge and principles-knowledge.

According to Balasubramaniam (1992) 84 per cent of small farmers and big farmers were aware of cattle penning practices to improve soil fertility. Further, he reported that 100 per cent awareness was observed, in using cowdung cake as burrow fumigant, displaying crows carcass for scaring birds and beating empty drums to ward off birds.

Vera *et al.* (1993) reported that training was identified as an important means of increasing the efficiency of small farms, and of giving the young people wider employment opportunities.

The study conducted by Shehrawat and Sharma (1994) revealed in a study on youth that majority of the youths were interested in obtaining training in crop production, dairy farming, poultry farming, cottage and small scale industries, and tractor operation and maintenance.

Simpson (1994) identified that a number of social factors contribute to the differentiation in individual knowledge, by defining the range of personal experiences, access to resources, and opportunities for observation in the acquisition of knowledge and the exchange of information and materials. Of these social factors, which include kinship, age, ethnicity, religious affiliation and wealth, gender is one of the most influential. He concluded that any intervention or development effort aimed at engaging the local knowledge systems must give particular attention to 'whose knowledge' is being included. Just as with popular participation, the inclusion or exclusion of different sets of knowledge will determine to a large part who ultimately benefits.

2.8 Relationship of selected personal, socio-economic and socio-psychological characteristics of farm youth with participation and acquisition of indigenous farm skills

Economic motivation, education and income of the farmers had direct effect on the extent of adoption of indigenous practices (Chakravarthy, 1982).

A study conducted by Feder and Slade (1985) revealed that in areas where Training and Visit system was introduced, 47 per cent of the farmers preferred fellow farmers as the primary source of information, 19 per cent preferred to village extension workers, 16 per cent the contact farmers and 10 per cent agricultural radio programmes. In an area whereas T & V system was not introduced, the preferences for sources of information were: 82 per cent fellow farmers, 28 per cent demonstrations or field days, 9 per cent agricultural radio programmes and 2 per cent the village extension worker.

Bharara (1991) reported that a significant proportion of population kept off from traditional farming systems. The major constraints of non-adoption were identified as personal, socio-cultural and economic factors.

Gnanadeepa (1991) reported that age, fatalism scientism, farming experience and socio cultural linkage have positive association with traditional belief among farmers in Tamil Nadu.

Pradeepkumar (1993) observed that farm size, farming experience, extension agency contact, mass media exposure and attitude towards self-employment in agriculture and allied fields had positive and significant relationship with extent of participation of educated unemployed youth, in agriculture and allied fields. Majority of the educated unemployed youth had preferred vegetable production and plant nursery management as their self-employment avenues. Extent of participation in agriculture and allied fields had significant association with preference for self-employment in agriculture. Preference for self-employment in agriculture and allied fields had significant association with training need.

Ferrer (1996) pointed out that peasants over sixty years recognised trees to have important contributions to the nature and ecology while younger peasants had very limited view on the properties of trees.

Educational level of coconut farmers had positive association with their indigenous knowledge (Manju, 1996).

Manju (1997) found that farming experience, farming tradition and innovation proneness were positively related to indigenous knowledge. Occupation, farming experience and farming tradition were positively related to adoption of indigenous practices in the case of vegetable farming.

Preetha (1997) reported that main occupation, farming experience, availability of family labour, personal localite exposure, and risk preference, had positive association with indigenous knowledge of rice farmers. Rice farmers

perceived the indigenous practices as sustainable, flexible, efficient, profitable, simple and with input availability.

2.9 Factors and constraints affecting the use of indigenous practices

Kilvin (1971) pointed out that traditional beliefs contribute to mental isolation and may operate as a strong obstacle to adoption and is likely to remain long term problem until they are overcome.

Wilken (1974) found that many traditional practices are labour intensive.

Das (1984) reported that irrational attitude and beliefs discourage the spirit of enquiry and experimental and scientific outlook among the farmers hindering technological improvement and dynamism in all activities.

Dunkel (1985) opined that because farming techniques were often family secrets and extension system was undeveloped and hence such techniques frequently do not become widely accepted in a country or even in a similar region of the country. He warned that only through national survey conducted by interested persons such techniques surface and became disseminated.

In a study utilizing indigenous agricultural knowledge in planning of agricultural research projects, Shaffer (1989) listed out five constraints. They were lack of professional respect between agricultural and ethno-scientists, the way each scientific area collected data, difference in research public action demands, lack of time, lack of talent among agricultural scientists to gather indigenous knowledge.

Anantharaman (1991) stated that farmers have their own reasons for practices followed. It was noticed that they are not bound by economic or social factors but largely by scientific reasoning.

Increase in population, shortage of land holdings, decrease in crop productivity etc. are identified by Bharara (1991) as some of the major constraints in adoption of IK.

Reijntjes *et al.* (1992) explained various limits to indigenous knowledge, as follows:

(i) IK is not uniformly spread throughout a community and individual aptitudes for strong traditional knowledge and generating new knowledge differ. Each individual possess only a part of the communities IK.

(ii) In any case, farmers do not document their knowledge so that it can be made available to strangers. Their knowledge may be implicit with their practices, actions and reactions rather than a conscious resource.

(iii) Farmers' knowledge is limited to what they can sense directly, usually through observation, and what they can comprehend with their own concepts. It may, therefore, be difficult for them to relate to processes which are new or affect them only very gradually or indirectly. Eg. Population growth, deteriorating natural resources, external markets etc.

(iv) Foreign technology, education, religions and values, marginisation of farmers' knowledge and ways of spreading it.

(v) In situations where land is limited and the population continues to grow, the traditional ways of farming may no longer be tenable.

Alders *et al.* (1994) found that increased market orientation and changing consumption patterns create disrespect of traditional authorities and indigenous knowledge.

Kurien (1995) explained various limits to indigenous knowledge as follows.

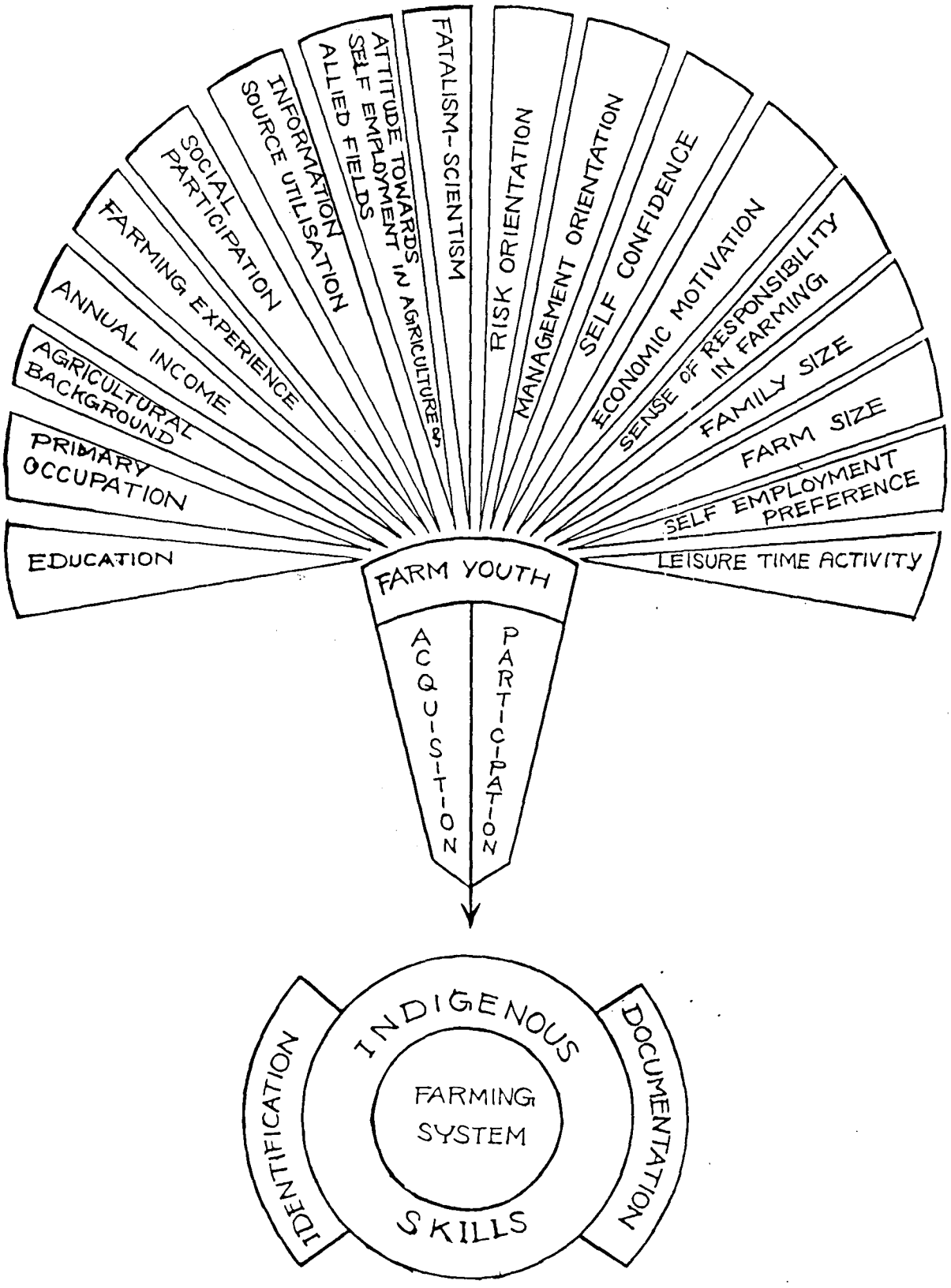
- Ethic of survival is one of the motivating facts for traditional innovative activity.
- Traditional innovations are skill intensive and presuppose certain degree of experience and fund of knowledge.
- In innovations there are emphasis on diversity, materials used are local, and they are environmentally benign.
- Almost all technologies within the community of genuine users.

Sagar (1995) opined that traditional wisdom is based on the beliefs, norms and the culture of the society to which they belong. Traditional wisdom are documented in the mind of people only and they are believed to be unscientific and unreliable.

Indigenous seeds, indigenous knowledge and culture they embody are under threat from technological change, monoculture paradigm, economic changes and monopoly control of agribusiness (Shiva, 1995).

Altein (1996) reported that economic change, capital and market penetration etc. lead to ecological breakdown which in turn destroy the productivity and sustainability of traditional knowledge.

2.10 Conceptual frame work for the study



The study could be depicted in a simplified way using the present model.

The top portion of the model consisted of all the behavioural characteristics of farm youth which were treated as independent variables, which were considered to exert influence on the dependent variables. Farm youth's participation in farming and acquisition of indigenous skills form the middle portion of the model. These are the dependent variables of the study.

The bottom portion of the model shows the indigenous skills in the farming system which have to be carefully identified and properly documented for the sustainability of the farming systems.

Methodology

CHAPTER III
METHODOLOGY

This chapter deals with the procedures adopted in the identification and documentation of endangered skills in the farming systems, selection of sample population and in analysis and interpretation of the collected data which are furnished under the following sub-heads.

3.1 Locale of the study

The study was conducted in Mukundapuram Taluk, which forms one of the agriculturally progressive taluks of the Thrissur District in Kerala. Previous researches made to explore indigenous technologies in the district also had indicated fairly high concentration of traditional farmers in the area (Preetha, 1997).

3.2 Description of the area

Mukundapuram Taluk consists of five blocks and 27 panchayats. The major farming systems in the taluk are rice-based, coconut-based, banana-based and integrated system.

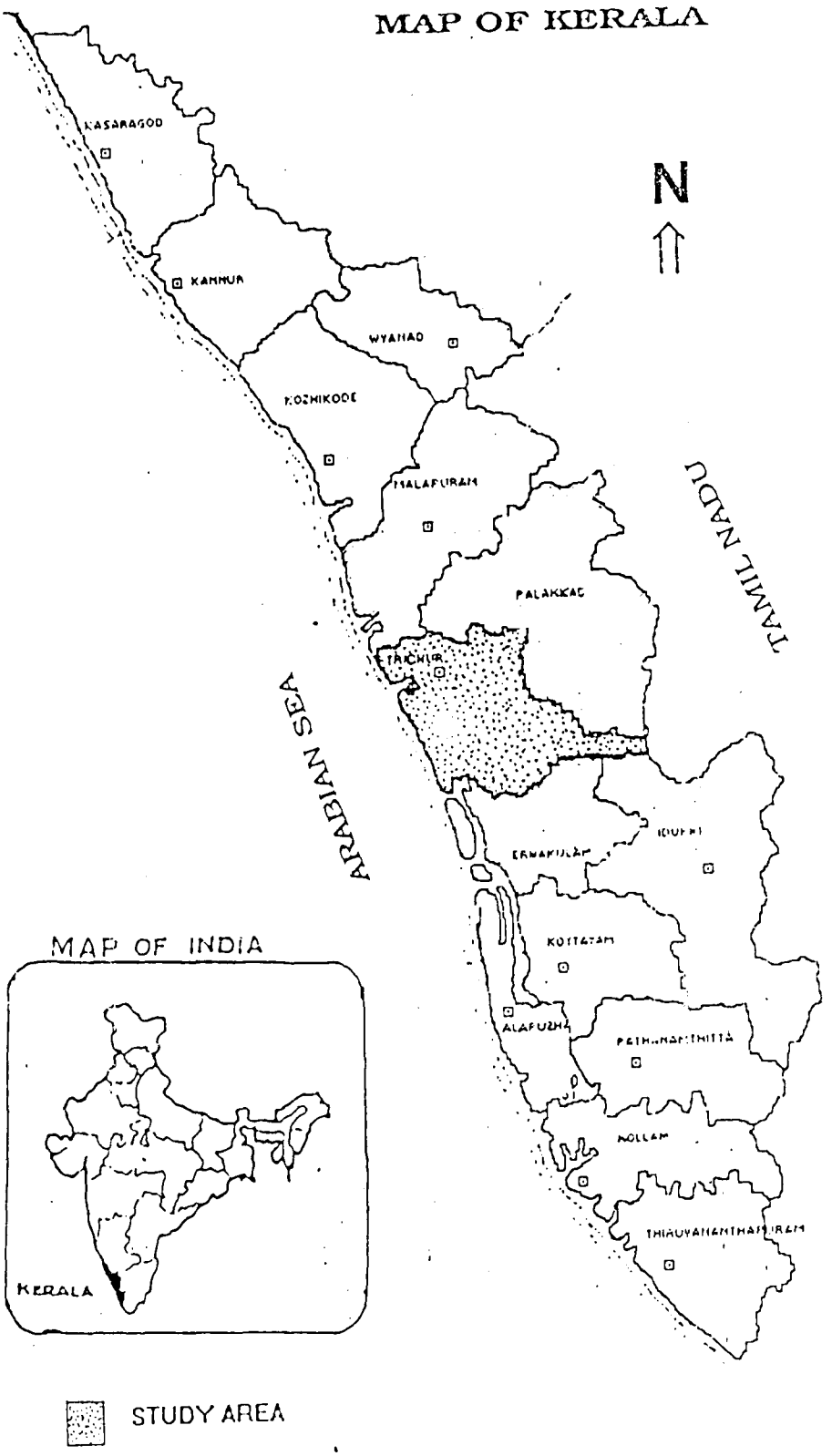


Fig. 2. Map of Kerala showing the area of study

Table 1. Name of the Blocks and Panchayats of the study area

Name of the Blocks	Name of the panchayats
1. Kodakara	1. Alagappanagar 2. Kodakara 3. Mattathur 4. Nenmanikkara 5. Pudukkad 6. Thrikkur* 7. Varandarappilly
2. Irinjalakuda	8. Karalam 9. Kattoor 10. Muriyad 11. Parappukkara* 12. Purathissery
3. Vellangallur	13. Padiyur 14. Poomangalam 15. Puthenchira 16. Vellangallur* 17. Velookkara
4. Mala	18. Aloor 19. Annamanada* 20. Kuzhoor 21. Mala
5. Chalakudy	22. Kadukutty 23. Kodassery* 24. Koratty 25. Meloor 26. Pariyaram 27. Athirappilly

*Panchayats selected for the study

Five panchayats were randomly selected, one each from every block for detailed study.

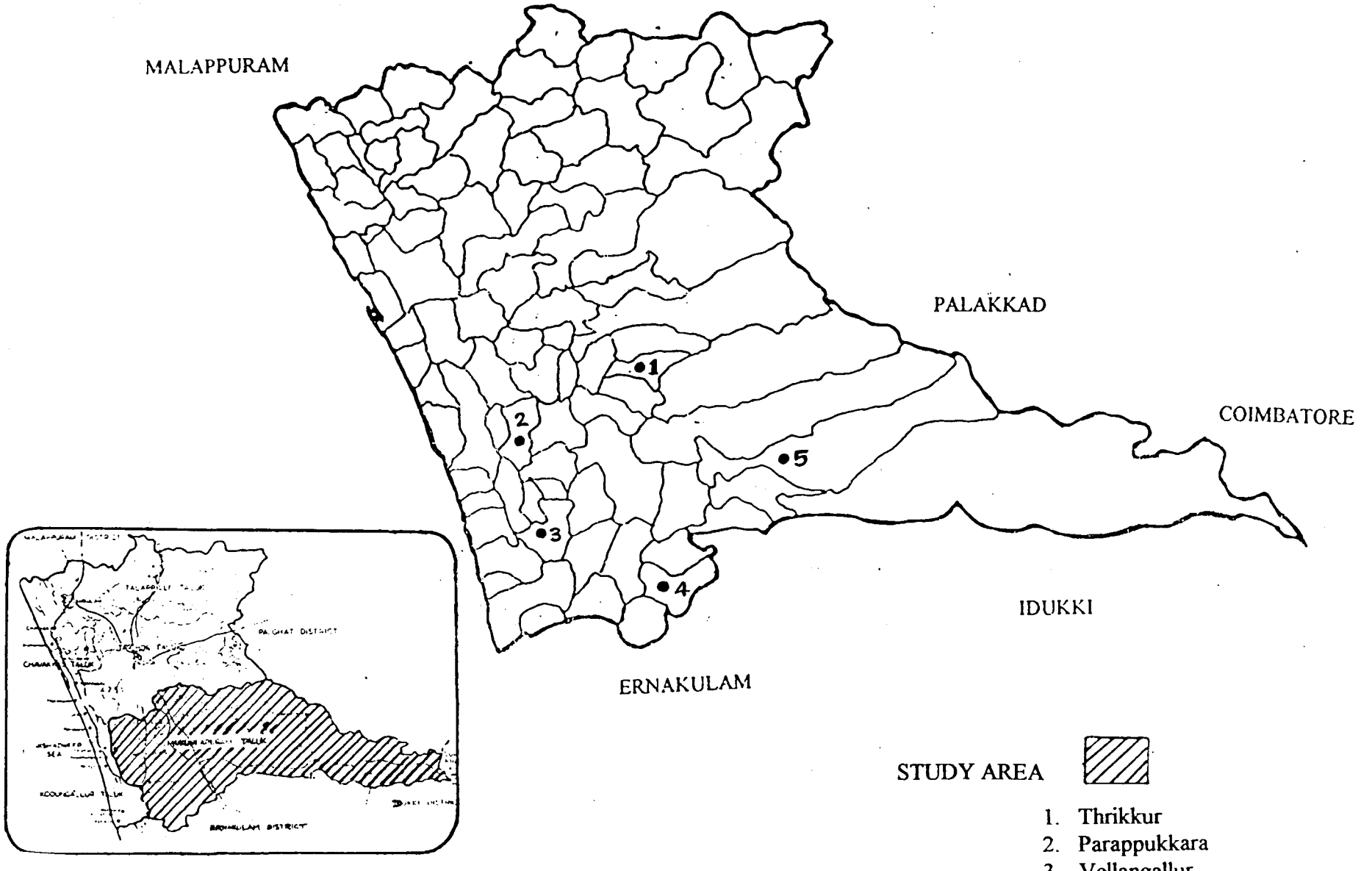


Fig. 3. Map of Thrissur District showing the panchayats selected for the study

3.3 First phase of the study

3.3.1 Selection of sample population

In the first phase of the study investigation and identification of indigenous practices was carried out which was exploratory in nature. With the help of development officials of each panchayat, snow ball technique was employed for locating knowledgeable respondents (traditional farmers and key informants) who can provide data on indigenous skills of the farming systems. It was also assumed that farmers with long experience in farming would be better repositories of indigenous knowledge. A semi structured interview schedule was developed and utilized for collecting data on indigenous skill from the identified farmers and key informants (Appendix I).

3.3.2 Identification and documentation of indigenous skills

Operational definitions of the concepts:

(1) Indigenous practices

Indigenous practices are operationally defined as resource saving, site specific, farmer-devised technologies, experimented and adapted by the farmers themselves which are simple to practise, flexible in use and sustainable in effect (Preetha, 1997).

(2) Farm skills

Farm skills are defined as those farm practices, which necessitate learning of co-ordinated series of actions and mastery of those actions for their proficient utilization in farming.

(3) Endangered indigenous farm skills

Endangered indigenous farm skills are those farm skills, which are in danger of becoming extinct due to non-use.

(4) Extinct indigenous farm skills

Indigenous farm skills are those skills which are no longer practised or used in farming presently, but were in vogue in yester years.

(5) Popular indigenous farm skills

Popular indigenous farm skills are those skills, which are still used extensively by the farmers.

(6) Farming system

The entire complex of development, management and allocation of resources as well as decisions and activities, which within an operational farm unit or combination of units, results in agricultural production, processing and marketing of the products (KAU, 1989).

The farm skills identified were categorised into endangered, extinct and popular skills through participatory discussions with the help of a team of multidisciplinary scientists, farmers and development officials (Appendix-II). The factors and constraints responsible for present endangered/extinct or popular state of the skills were also identified during the discussion.

3.4 Second phase of the study

3.4.1 Selection of panchayats and sample population

Five panchayats were selected by using the technique of simple random sampling (SRS) from the list of available 27 panchayats of the taluk (Table 1). The lists of young farmers and young labourers in each of the selected panchayats were prepared utilising the help of key informants and development officials to form the population of farm youth for the study. From the prepared lists, 10 young farmers

and 10 young labourers were identified at random from the different farming systems from each panchayat following proportionate allocation.

From the identified farm youth relevant data were collected through a structured interview schedule prepared for the purpose, which was pretested and standardised.

3.4.2 Selection of variables for the study

Based on the objectives of the second phase, review of relevant literature, discussion with experts and personal interview with farmers of first phase, the following variables were purposefully selected for the indepth study in phase II.

A. Dependent variables

(i) Extent of participation of farm youth i.e., young farmers and young farm labourers in various agricultural operations.

(ii) Acquisition of indigenous farm skills by the farm youth.

B. Independent variables

X_1 - Education

X_2 - Employment status/occupation

X_3 - Agricultural background of the family

X_4 - Family structure and educational level of the family

X_5 - Annual family income

X_6 - Farming experience

X_7 - Farm size

X_8 - Social participation

X_9 - Information source utilisation

X_{10} - Attitude towards self employment in agriculture and allied fields

X_{11} - Leisure time activity

X_{12} - Fatalism and scientism

X_{13} - Risk orientation

X_{14} - Management orientation

X_{15} - Self confidence

X_{16} - Economic motivation

X_{17} - Self-employment preference

X_{18} - Sense of responsibility in farming

3.4.3 Construction of interview schedule

Structured interview schedule was prepared as the tool of data collection in the second phase of the study. The interview schedule consisted of three sections. The first section dealt with independent variables, whereas the second section measured the nature and extent of acquisition of indigenous skills in farming, the dependent variable. The third section measured the participation of farm youth (dependent variable) in various agricultural operations (Appendix III).

3.4.4 Operationalisation and measurement of variables

3.4.4.1 Operationalisation and measurement of dependent variables

The dependent variables in the present study were the extent of participation of farm youth i.e., young farmers and young farm labourers in various agricultural operations, and acquisition of indigenous skills by them.

Definition of youth

Rural youth: The Ministry of Human Resource Development (1985), consider 'youth group in India as persons in the age group 15 to 35 years'.

Young farmer: Is operationally defined as a person in the age group between 18 to 35 years who has agriculture as primary or secondary occupation and own some land by him or his family.

Young farm labourer: Is operationally defined as a person in the age group between 18 to 35 years who earn his living as a labourer in agriculture and related activities.

Farm youth: The aggregate of the two categories of young farmers and young labourers was termed as farm youth.

3.4.4.1.1 Extent of participation of young farmers and labourers in various agricultural operations

Participation in agricultural operations was operationalised as the involvement of farm youth in performing the various agricultural operations. Extent of participation in the study refers to the degree (level) of involvement of farm youth as family labour or waged labour or supervisor in various agricultural operations.

Extent of participation was measured on a scale of three point continuum on the physical participation (as family labour and waged labour), supervision or non- participation of farm youth. Scores of 2, 1 and 0 were assigned to each response respectively.

Potential physical participation is the number of farm activities in which farm youth can supervise and physically involve.

The various field operations of major crops like rice, coconut, banana and practices of animal husbandry, fishery and poultry were considered for measuring the degree of participation of farm youth. A total of 67 operations were listed out of which 23 were for rice, 12 for coconut, 11 for banana, 10 for animal

husbandry practices, seven for fishery activities and six for poultry practices (AppendixIIIb).

The scoring procedure adopted was as follows, for example

Practices

1. Preparation of nursery, ploughing, levelling etc.
2. Broadcasting of seeds in the nursery
3. Nursery raising

The extent of participation of each individual practice was calculated by giving the score as follows:

	Score
Physical participation as family labour or waged labour	2
Supervision	1
No participation	0

The index of participation of farm youth in farming was calculated as given below:

Index of participation in farming,

$$IPF = \frac{\text{Total score for actual participation}}{\text{Score for potential participation}}$$

which is obtained as,

$$IPF = \frac{\text{Total score for actual physical participation}}{\text{Score for potential physical participation}} + \frac{\text{Total score for actual supervision}}{\text{Score for potential supervision}}$$

The range of index was 0 to 2.

3.4.4.1.2 Acquisition of indigenous farm skills by young farmers and labourers

Acquisition of indigenous farm skills was operationalised as the act of acquiring knowledge and expertise of indigenous farm skills. Acquisition of skills in the study refers to the awareness knowledge and procedural knowledge of the indigenous skills practiced over time by the farming community of which they are a part.

Fifty indigenous knowledge items were included to measure the extent of indigenous skill acquisition (ISA) among farm youth in farming (Appendix IIc). Awareness knowledge and procedural knowledge were measured based on correct or wrong response by the farm youth and scores of 1 and 0 were assigned to each response respectively.

The indigenous skill acquisition index of farm youth are calculated as given below:

Indigenous Skill Acquisition Index,

$$ISAI = \frac{\text{Total score for actual awareness knowledge + Total score for actual procedural knowledge of indigenous skills}}{\text{Score for potential awareness knowledge + procedural knowledge of indigenous skills}}$$

Where in the score of potential knowledge varied for each panchayat based on the number of indigenous skills identified locally.

The range of ISA index was from 0 to 1

3.4.4.2 Operationalisation and measurement of independent variables

1. Education

Education was operationalised as the number of years of formal education attained by an individual respondent.

The procedure adopted by Damodaran (1994) and modified by Manju (1997) was used.

Category of response	Score
Illiterate	0
Functional literate	1
Primary school level	2
Middle school level	3
High school level	4
Pre-degree of equivalent	5
Degree and above	6

2. Employment status/occupation

The professional status of agriculture for a farmer respondent was measured by this variable, which was operationalised as to whether agriculture was the respondents primary occupation or not.

The scoring procedure used by Preetha (1997) was adopted. The type of vocation and scoring procedure is as follows:

Agriculture as main occupation	1
Agriculture as secondary occupation	0

3. Agricultural background of the family

The exposure or the closeness of the respondent with agriculture was measured by this variable. It referred to whether the young farmer belongs to

traditional agricultural family or farming was only recently started. Similarly whether the young labourers belong to traditional agricultural labour family or is a recent start.

The scoring procedure followed for the responses obtained is given below:

Category	Score
Traditional agricultural family or Traditional agricultural labourers	1
Farming recently started or Recent agricultural labourers	0

4. Family structure and educational level of the family

The number of family members, their sex, age and educational level were measured by this variable.

5. Annual income

Annual income was operationalised as the total earnings of the respondents and the members of the family in a year from both farm and non-farm sources. This variable was measured by asking the respondent to indicate the total annual income of his family from farm and non-farm sources.

The categorisation and scoring procedure followed by Anithakumari (1989) was adopted. The categorisation was as follows:

Sl.No.	Income (Rs.)	Score
1	Below 5,000	1
2	5,000-10,000	2
3	10,000-15,000	3
4	More than 15,000	4

6. Farming experience

Farming experience was defined as the number of years the respondent had experience in farming.

The scoring procedure used by Nandakumar (1980) and Santhamani (1990) was adopted.

Category	Classification	Score
Low	Upto 5 years	1
Medium	5-10 years	2
High	Above 10 years	3

7. Farm size

Farm size was operationally defined as the area of land including homestead possessed by the respondent or available at the disposal of his family.

The respondents were categorized into marginal, small and big based on classification norms of Government of India.

Category	Land area
Marginal	Below 1 ha
Small	Between 1-2 ha
Semi medium	Between 2-4 ha
Medium	Between 4-10 ha
Large	More than 10 ha

8. Social participation

Social participation was operationalised as the degree of involvement of the respondents in social organisations as a member or as an office bearer and his involvement in its activities.

Thamban (1990) in measuring social participation had taken into consideration both membership and holding a position in the organization and the frequency of attending meetings of the organization. The scoring procedure followed was

1) Membership in organization	Score
No membership	0
Membership in one organization	1
Office bearer in one organization	2

2) Frequency of attending meetings	Score
Not attended	0
Occasionally	1
Regularly	2

The summation of the scores obtained by the individual for (1) and (2) indicated the social participation score.

9. Information source utilisation

Information source utilization was operationally defined in terms of frequency of obtaining information from different sources. The different source of information for obtaining agricultural technology were listed and grouped into three categories viz. mass media sources, personal cosmopolite sources and personal localite sources.

The procedure developed by Manju (1997) was used to measure information source utilisation. The scale consisted of different mass media sources, personal cosmopolite sources and personal localite sources. The responses were collected on a three point continuum and the scoring pattern was as follows:

Frequency of utilisation

Scoring pattern	Scores
Whenever needed	2
At times needed	1
Never	0

The score obtained for each source were cumulated to obtain total score of a respondent on this variable.

10. Attitude towards self employment in agriculture and allied fields

This is operationally defined as the positive or negative affects and feelings towards self employment held by farm youth, in agriculture and allied fields. The scale developed by Pradeepkumar (1993) was used to measure the attitude of the respondents. The scale consisted of 10 statements of which 3 are negative statements. The respondents were asked to state their agreement or disagreement. The score for the response of each statement in terms of agree and disagree were 1 and 0 respectively and just the reverse in case of negative statements. The respondents were categorised as follows:

Category	Score
Low	0-2
Medium	3-5
High	6-8

11. Leisure time activity

Leisure time activity was operationally defined as the activity of an individual during his/her spare time.

Nataraju and Vijayaraghavan (1991) measured leisure time activities of farm youth by giving a list of activities, and finding the percentage of respondents preferring each activity and enlisting them in the order of preference.

The above procedure was followed for the present study with slight modification. Along with the items originally used farming also was additionally included.

The activities selected were

1. Farming
2. Non farming
   - (i) Hobbies (reading books, T.V. viewing, cinema, playing cards, listening radio)
   - (ii) Reading newspaper
   - (iii) Interacting with parent and elders
   - (iv) Discussing with friends and idling
   - (v) Sports/games

The respondents were asked to rank each activity in the order of preference.

12. Fatalism and scientism

This was operationalised as the belief held by a farmer that human situations and acts are predetermined by some supernatural power and can never be little influenced by individual volition or by acts of any one else. Scientism is a belief held by a farmer that human situation and acts are the results of natural and/or social forces, which can be understood and changed by volition or human effort. The scale developed by Sinha (1963) and used by Preetha (1997) was adopted for this study.

The scale consisted of 3 statements and the respondents were asked to state their agreement on 3 point continuum. The scores for the responses of each statement in terms of agree, undecided, disagree were 3, 2 and 1 respectively.

13. Risk orientation

Risk orientation was operationalised as the degree to which the respondent is oriented towards the risk and uncertainty and the extent to which courage is showing to face problems of risk.

The scale developed by Supe (1969) was adopted for this study.

The scale consisted of six statements of which two were negative. The respondents were rated on a five point continuum with scores 4, 3, 2, 1 and 0 for their responses, strongly agree, agree, undecided, disagree and strongly agree respectively. The scores obtained on each statement were cumulated to obtain the total score. Thus the maximum score that could be obtained for a respondent was 24 and the minimum zero.

14. Management orientation

It refers to the degree to which a farmer respondent is oriented towards scientific management comprising of planning, production and marketing of his farm enterprises (Ramanathan, 1995). This was measured by the management orientation scale of Samantha (1977) which has 18 statements, six each under planning, production and marketing. A score of '1' for agreement and '0' for disagreement was given for positive statements and the scoring was reversed for negative statements. By adding the scores allotted to each statement, the management orientation score of the respondent was computed.

15. Self confidence

This refers to the belief of a respondent in his own abilities, initiative and zeal to achieve his goal or aim (Seema, 1997). This variable was measured by the scale developed by Basavanna (1974) with slight modification.

The scale consisted of 8 statements with 4 positive and 4 negative statements. The responses were obtained on a five point continuum namely strongly agree, agree, undecided, disagree and strongly disagree with weightage 5, 4, 3, 2 and 1 respectively for positive statements, procedure was reversed for negative statements.

16. Economic motivation

Economic motivation refers to the extent to which an individual is oriented towards achievement of the maximum economic ends such as maximisation of farm profits (Manju, 1996).

This was measured using Supe's (1969) scale with modification in the scoring pattern (Manju, 1996). Instead of a five point continuum of response, as developed by Supe, a dichotomy of agree or disagree response pattern was used in this study. The scale consisted of six statements. A score of 1 was assigned for agree response and '0' for disagree response in the case of positive statements. The scoring procedure was reversed in the case of negative statements.

17. Self-employment preference

Preference of an individual for self employment in agriculture and allied fields is the liking of the individual on one self employment avenue in agriculture and allied fields over others based on its qualities, which are perceived to be benefited to the individual (Pradeepkumar, 1993).

The scale consisted of nine self employment avenues. The respondents were asked to select the most preferred self employment avenue from among them.

1) Farming
2) Plastic industries
3) DTP
4) Telephone booth
5) Electronics
6) Handicrafts
7) Workshop
8) Tailoring unit
9) Farm based enterprises

18 Sense of responsibility in farming

A sense of responsibility makes an individual to do a work in better way (Padmanabhan, 1981). This variable was operationalised as the feeling of the respondents to undertake farming sincerely to increase agricultural production.

This variable was measured using a scale which consisted of six statements of which three were positive statements and three were negative statements. The respondents were asked to state their agreement or disagreement. The score for the response of each statement in terms of agree and disagree were '1' and '0' respectively.

3.4.5 Statistical analysis

The following statistical techniques were used in the analysis of data.

Formation of frequency table

The sample was classified into four different classes with respect to the dependent variables by using the method developed by Delinius and Hodges. The

method consists in creating equal intervals on the frequency distribution of the dependent variable (Delinius and Gurney, 1951).

Correlation analysis

Correlation coefficient is a measure of the association between two or more variables. Correlation co-efficient was worked out to measure the degree of association of participation and acquisition with the different independent variables.

Categorisation of independent variables

The respondents were grouped into two categories with reference to the means of the independent variables. After grouping the frequencies of young farmers and labourers falling under each category, their percentage values were worked out.

Multiple linear regression analysis

Multiple linear regression analysis was attempted to know the nature and extent of the functional relationship between dependent and independent variables. Coefficient of determination was worked out to assess the adequacy of the fitted model. Statistical significance of the regression coefficients was analysed by using the Student's t test.

Step down regression analysis

Step down regression analysis was carried out

(i) To identify the subset of independent variables contributing mostly towards variability in the extent of participation and extent of acquisition.

(ii) To assess the relative contribution of each of the major contributing variables towards the dependent variables.

Path coefficient analysis

Path coefficient analysis or path analysis originally developed by Wright (1921) was used to know the nature of the influence of each of the independent variable on the dependent variable. This indicates the direct or indirect effects each of the behavioural characteristics on the dependent variable.

Results

CHAPTER IV

RESULT

The results of the study are presented under the following heads.

4.1 Identification and documentation of indigenous skills

4.2 Factors associated with the endangered conditions of farm skills

4.3 Distribution of farm youth with respect to their behavioural characteristics

4.4 Distribution of farm youth based on their Indigenous Skill Acquisition Index (ISAI) in farming

4.5 Distribution of farm youth with respect to their Index of Participation in Farming (IPF)

4.6 Relationship between behavioural characteristics and participation of farm youth in farming

4.7 Direct and indirect effects of the behavioural characteristics of farm youth on their participation in farming

4.8 Relationship between behavioural characteristics and acquisition of indigenous skill in farming

4.9 Direct and indirect effects of the behavioural characteristics of farm youth on their acquisition of indigenous skill in farming

4.10 Empirical models of the study

4.11 Constraints perceived by farm youth in relation to their participation in farming

4.1 Identification and documentation of indigenous skills

The indigenous skills identified are presented in Table 2.

Table 2. Indigenous skills identified

Sl. No.	Practice / Skill	Present state of the skill	Factors affecting endangered/extinct state
	Rice		
1.	For rice crop, the field is prepared by ploughing 7-8 times using country plough. There will be atleast 4-5 days gap in between these ploughings (Plate 1)	Endangered	1.Replacement by better technology (Tiller and tractor). 2. Lack of human and animal resources for doing ploughing repeatedly. 3. No sufficient time gap in between different crop seasons. 4. High labour charge.
2.	Field bunds are prepared well by plastering of bunds every year. The water level of the field was regulated by opening or closing a portion of bund as and when required	Still practised	
3.	To germinate paddy seeds, seeds are put in a sack and soaked in water overnight. The next morning it is drained, again it is made wet. The seeds will be germinated by 3 days with alternate wetting and thawing	Still practised	
4.	To control leaf eating caterpillars in paddy nursery:		
	i) Fixing twigs of 'Oduku' tree in paddy fields. Oduku-*Cleistanthus coleinus* is a shrub belonging to the family Euphorbiaceae (Plate 2)	Extinct	1. Lack of knowledge 2. Resource related factor (non-availability of raw material) 3. Replacement by modern technology
	ii) Manuring with cashew leaves: The leaves of cashew are incorporated during ploughing	Endangered	Replacement by modern technology
5.	For quick germination of old paddy seeds, seeds are soaked in warm water, drained, then it is exposed to cold temperature at night	Endangered	Lack of knowledge.

Contd.

Plate 1. Country plough

Plate 2. 'Oduku'

Table 2. Continued

Sl. No.	Practice / Skill	Present state of the skill	Factors affecting endangered/extinct state
6.	'Kundakoottal' - Kundakoottal is a seedling treatment usually done with traditional rice varieties, in 'virippu' and 'mundakan' season. The seedling bundles are arranged one above the other in a circle forming pyramid shaped seedling hill. The bundles are placed with their roots facing outside. It is left so for two days before transplanting. The heat generated in the hill control the pest and diseases	Endangered	1. Technical factors - the time gap required between plucking and transplanting 2. Lack of knowledge and skill on the part of the farmers and labourers 3. Modern technology of pest control 4. Dearth of labourers
7.	To control leaf roller in rice: i) Pulling kerosinated rope over the crop: A rope dipped in kerosene is pulled across the plot from either sides. This is performed by two persons. After pulling, the field is drained to remove the caterpillars which have fallen down	Endangered	1. Technical factors (replacement by modern technology) 2. Dearth of labour and and skill
	ii) Swinging thorny twig over the crop and drain the field	Endangered	1. Technical factors (replacement by modern technology) 2. Dearth of labour and skill
	iii) Collecting larva in `Kundamuram` `Kundamuram` is a mechanical device used to collect leaf roller caterpillars. It is triangular in shape with greater depth which when moved over the crop in a particular position, collects the caterpillars. The collected ones are later disposed by the farmers (Plate 3.)	Endangered	1. Technical factors (replacement by modern technology) 2. Lack of knowledge 3. Dearth of labour
8.	To kill crabs in paddy field: The mouth of the burrow is closed with colocasia leaf and lime is put in it. While the crab comes out, it pierces the leaf and and its body is covered with lime. Then the crab gets killed.	Endangered	1. Replacement by modern technology 2. Lack of knowledge

Contd.

Plate 3. Use of 'kundamuram'

Plate 4. 'Kumbham'

Table 2. Continued

Sl. No.	Practice / Skill	Present state of the skill	Factors affecting endangered/extinct state
9.	Identification of wild rice(*Oryza rufipogon*): Reddish tinge in the leaves of wild rice. The number of tillers will be more and the base of the plant will be more succulent than rice The grain is with a very elongated own.	Endangered	1. Human factors - lack of skilled hands. 2. Modern technology of chemical control.
10.	To control rodents:		
	i) Use of 'Kumbham'(Plate 4) 'Kumbam' is a death trap designed against *Bandicota bengalensis*. It is made of cheap available materials like bamboo pipe, umbrella cribs or twine, banana fibre etc. It is placed along the side of the rat burrow. When the rate enters and cuts the rope, it's killed by getting the rope tightened around its neck.	Endanged	1. Human factors - lack of skilled hands 2. Lack of knowledge 3. Replacement by modern technology
	ii) 'Adichil' (Plate 5) This is also a death trap intended to kill *Bandicota indica*. It is made of locally available materials like bamboo strips, coconut petioles, wooden log etc. 'Adichil' is placed in rat's runways. Trapping is done using bait attractants. A heavy log is suspended by means of a liver mechanism and triggered over a metal strip. As the metal strip near the bait is disturbed, the log falls down thus breaking the back of rodents.	Endangered	1. Human factors - lack of skilled hands 2. Lack of knowledge 3. Replacement by modern technology
	iii) Saw toothed scissor trap (Plate 6) This is a break back type of death trap. It is made of metal and is permanent. Baiting is the principle of trapping. While the rodent approaches the bait the saw toothed portion fall to pierce the rodent.	Endangered	1. Human factors - lack of skilled hands 2. Lack of knowledge 3. Replacement by modern technology

Contd.

Plate 5. 'Adichil'

Plate 6. Saw toothed scissor trap

Table 2. Continued

Sl. No.	Practice / Skill	Present state of the skill	Factors affecting endangered/extinct state
iv)	Earthern pot trap (Plate 7) It is made using local materials like wooden plank, earthern pot, nails and a coconut button. An earthern pot is kept upside down on the wooden plank by means of nails. When the rodent takes the bait attached to the nail, the pot falls and the rodent is trapped inside.	Endangered	1. Lack of skilled hands 2. Lack of knowledge 3. Replacement by modern technology
v)	Burrying mud pots at ground level, where field bunds meet from four sides. The pot is half filled with starch solution and/or groundnut oil cake mixture. Once the rodent folks, it cannot climb up and it is drowned.	Endangered	1. Technical factors (replacement by modern technology) 2. Lack of knowledge 3. Lack of labour
vi)	Box trap (Plate 8) A wooden box having three sides closed and a door, is used. The door is kept open. Baiting is the principle of trapping. While the rat approaches the bait, the door is automatically closed to trap the rat.	Still practiced	
11.	To control rice bug – *Leptocorisa acuta*		
i)	Staking pieces of 'Chazichakka' or 'Eenthachakka' in fields. 'Chazichakka' is a rotten smelling fruit. It is believed to repel leptocorisa.	Endangered	1. Technical factors (replacement by modern technology) 2. Lack of knowledge
ii)	Placing yam (*Amorphophallus campanulatus*) flower in field bunds. The bad odour imparted by yam flower is believed to repel rice bug.	Endangered	1. Technical factors - (replacement by modern technology) 2. Lack of knowledge
iii)	Fixing twigs of strichnine (*Strychnos nux-vomica*) and oduku in rows, in paddy field to repel rice bug	Endangered	1. Technical factors (replacement by modern technology) 2. Lack of knowledge 3. Scarcity of the plants

Contd.

Plate 7. Earthern pot trap

Plate 8. Box trap

Table 2. Continued

Sl. No.	Practice / Skill	Present state of the skill	Factors affecting endangered/extinct state
12.	Irrigation devices		
	i) Swing baskets (Plate 9) Swing basket is an ancient water lift. It consists of a basket or shovel like scoop to which four ropes are attached. It is operated by two persons in both sides.	Endangered	1. Technical factors (replacement by modern technology) 2. Lack of skilled hands
	ii) Counterpoise bucket life (Plate 10) Counterpoise bucket life consists of a long wooden pole which is pivoted as a liver or on a post. A weight is fixed to the shorter end of the pole which serves as a counterpoise for the bucket suspended to the long arm of the liver.	Endangered	1. Technical factors (replacement by modern technology) 2. Lack skilled hands
	iii) Self emptying type rope and bucket life It is suitable for operation with a pair of bullocks. It consists of a metal or leather bucket and a rope which passes over a pulley (Plate 11).	Endangered	1. Technical factors (replacement by modern technology) 2. Lack skilled hands
	iv) 'Chakram': (Plate 12) 'Chakram' consists of small paddle mounted radially on an horizontal shaft. It is manually operated. The paddle when rotated pushes the water to field surface. However, this device consumed large amount of time and labour to dewater even small blocks of land.	Endangered	1. Technical factors (replacement by modern technology) 2. Lack of skilled hands
	v) 'Vethi' or 'Vethu' (Plate 13) It is usually used to remove water from paddy nursery. It consists of a handle and a body with 3 sides closed. It is fitted on three poles tied together at top portion and a rope connecting the handle. Water is removed while swinging the 'Vethu'	Still practised	

Contd.

Plate 9. Swing basket

Plate10. Counterpoise bucket lift

Plate 11. Self emptying type rope and bucket lift

Plate12. 'Chakram'

Table 2. Continued

Sl. No.	Practice / Skill	Present state of the skill	Factors affecting endangered/extinct state
vi)	'Petti' and 'Para'(Plate 14) Large scale drainage pumping is by petti and para. It is an axial flow propeller pump. It is still the only type of pump widely used for dewatering koles, puncha etc. which is capable of giving a high discharge at a low head operating conditions.	Still practised	
13.	To scare birds.		
i)	Bursting crackers: Farmers burst crackers in order to scare birds. This is done at nursery stage after sowing and at the grain maturing stage.	Still practised	
ii)	Fixing human effigies (or) scare crows Farmers fix human effigy or display carcass of crow in order to scare birds at sowing and ripening stage. It is tied to long poles and are placed in the fields. Both serve as visual frighteners. Human effigies give the presence of farmers in the field and scare the birds while display of dead interspecific models warn the birds against a possible danger.	Still practised	
iii)	Use of plastic covers Farmers tie polythene covers to long poles and place them in the centre of field. When wind is blown, the polythene sheet slips and flutters and the sound that is produced wards off birds.	Still practised	
iv)	Use of audio and video tapes Old and discarded audio and/or video tapes are used as bird scarers in two ways. 1. Reels of audio tapes are tied to stake and placed at the centre of field. Humming noise caused by the fluttering tapes scare the birds.	Getting popular	

Contd.

Plate 14a. 'Petti' and `Para'

Plate14b. Water outlet from `Petti'

Table 2. Continued

Sl. No.	Practice / Skill	Present state of the skill	Factors affecting endangered/extinct state
	2. Video tapes are tied on two poles along the full length of the bund. This is done just a foot above the crop level. During sunshine the reflection caused by the tape scares away the birds from the field	Getting popular	
14.	Winnowing - After threshing, rice grains are separated from chaffy grains by dropping grains from a height against wind. Weightless chaffy grains fly and fall away at a distance thus getting separated from good grains (Plate 15). The remaining chaffy grains are removed by winnowing the grains with 'muram', by skilled hands.	Still practised	
15.	Dried paddy straw stored for long duration till the next season by making a structure called 'thuru'. Dried straw are placed one above other around a tree or pole, in a circle forming pyramid shaped straw hill called 'thuru'. While placing straw, it is firmly pressed under feet by skilled persons. At the top a plastic cover or coconut leaves are tied so that straw would not get wet even if it rains (Plate 16).	Still practised	
16.	Rice grains are parboiled in copper vessels. Grains are cooked for 1 to 2 hours until the husk splits. Then it is dried under sun to an optimum dryness, to mill it.	Still practised	
17.	Best paddy grains are selected and stored as seeds for next season. These seeds are dried to an optimum level. When the seeds are broken across, a white spot is seen at the centre. This is the shrunken embryo. According to farmers, this is the indication of complete drying.	Still practised	

Contd.

Plate 13. 'Vethu'

Plate15. Winnowing

Table 2. Continued

Sl. No.	Practice / Skill	Present state of the skill	Factors affecting endangered/extinct state
	Coconut		
1.	Production of good seedling - This consists of many interrelated knowledge and skills: a) Selection of mother palms for seednut collection: Palms above 30 years are selected. Collect mature nuts. Lowering of bunches by means of ropes may be done when the palms are tall. Nuts with large functional eyes are selected. Nuts are planted horizontally with the widest segment of the pot at the top; and sown in sand. Seedlings with more collar girth are selected for planting in main field. Seedlings which have 'narola' are selected. Seedlings are transplanted at 'Kathikkoombu' stage.	Still practised	
	b) Another practice is keeping mature nuts in well. When nuts germinated they are taken out and transplanted.	Endangered	Replacement by convenient technology.
2.	To control rodent attack in coconut: 'Kumbham' is used (See 10(i) under rice).	Endangered	1. Dearth of skilled hands 2. Lack of knowledge 3. Replacement by modern technology
3.	To control rhinoceros attack in coconut crown: Petiole axils are to be filled with sand.	Still practised	
4.	Control of beetle: Mixture of toddy and jaggerry, is kept in carthern pots and placed in coconut garden. Pests get attracted by this sweet and fermented solution, collected bettles in pots are killed later.	Still practised	

Contd.

Table 2. Continued

Sl. No.	Practice / Skill	Present state of the skill	Factors affecting endangered/extinct state
	Vegetables		
1.	To control crop destruction by rabbits in vegetables: Keep mixture of grated coconut and salt powder in field during night. Rabbits get attracted to coconut meat which they eat. They lose their balance, which make it easier for the farmers to catch them.	Endangered	Lack of knowledge
2.	Storage of seeds		
	a) Storing of cowpea seeds: Cowpea seeds are dried for 15 days then it is mixed with pepper powder and is stored in vessels with tight lids. It can be stored upto 6 months.	Endangered	1. Lack of knowledge 2. Available from other sources
	b) The seeds of cucurbits are stored after drying it for 2-3 days and putting it in a vessel with tight lid. It can be stored upto 6 months.	Still practised	
	c) Cucurbit seeds are stored by placing the seeds inside fresh cattle manure balls and drying it as such. These cattle manure balls are stored and it is crushed to take out the seeds when needed. This is an effective measure in controlling storage pests.	Endangered	1. Lack of knowledge 2. Replacement of modern technology 3. Available from other sources
3.	Harvested cucumber is stored for long time by hanging as tied with dried banana leaf sheath, from the roof.	Endangered	1. Lack of knowledge 2. Available from other sources
	Banana		
1.	Planting materials of banana rhizomes are prepared by removing the roots and dipping them in wood ash slurry. Then they are dried and stored in a place which has no direct contact with soil.	Still practised	

Contd.

Table 2. Continued

Sl. No.	Practice / Skill	Present state of the skill	Factors affecting endangered/extinct state
2.	Control of pseudostem borer in banana: Leaves of strychnine and neem are used as green leaf manures. They are believed to repel caterpillars.	Endangered	Resource related factor (unavailability of raw material)
3.	Ripening banana bunches are protected from birds by covering the bunches with dry banana leaves. In the same way polythene sheets are also used	Still practised	
4.	For inducing uniform and early ripening of banana bunches: Bunch is covered with paddy straw and kept in containers. Daily smoking is given during morning and evening and the lid of container is kept tightly closed. This helps in early ripening of banana.	Still practised	
	Fisheries		
1.	For inland fishing, 'Kuruthi' is used. 'Kuruthi' is a fishing device made of bamboo and midribs of coconut leaflet. Bamboo is cut into slender, long sticks and tied in special manner. This involves the special skill on the part of the person who makes it. Kuruthi is placed at water outlets to collect fish (Plate 17).	Endangered	1. Human factors (dearth of skilled hands) 2. Lack of knowledge
2.	'Choonda' is another fishing gear. A long pole is the main part of choonda. A curved pin is tied to a thin plastic wire and it is connected to the pole. Small frog, earth worm or cooked tapioca is used as bait. While the fish swallows the bait the pin pierces its throat and it get entrapped.	Still used	
3.	'Koruvala', 'Veeshuvala' etc. are used to catch fish in more numbers	Still used	

Contd.

Plate 16. 'Thuru'

Plate 17. 'Kuruthi'

Table 2. Continued

Sl. No.	Practice / Skill	Present state of the skill	Factors affecting endangered/extinct state
4.	'Ottal' is another device used to catch fish. It's a cylindrical structure made of bamboo splits. It is placed around the suspected fish quickly and hand is inserted through the opening on top to catch the entrapped fish.	Still used	
5.	The seeds of 'neervalam' (*Croton tiglium*) is ground to paste and is mixed in pond water. As it is a poison the fishes die and rise up (Plate 18).	Still popular	
6.	The leaves and seeds of 'Oduku' *Cleistanthus coleinus* is ground and mixed with kerosene in 1:1 ratio. This is mixed in pond water to poison fishes.	Endangered	1. Resource related factors (scarcity) 2. Lack of knowledge
	Livestock		
1.	To cure cough of cattle - the cattle is fed a live spider kept inside straw ball.	Endangered	1. Replacement by modern technology 2. Lack of knowledge
2.	To control the blood sucking pests of cattle - the cattle is bathed by rubbing it with the steam, leaves and flowers of the plant 'adaykamaniyan'.	Endangered	1. Resource related factors (non-availability of the plant) 2. Lack of knowledge 3. Replacement by modern technology
3.	To increase milk production of cow:		
	i) Rice is parboiled and coconut meat is mixed to it. This is given to cow delivery after 2-3 days to increase milk production	Still practised	
	ii) Coconut spadix is powdered and given to cow	Still practised	
	iii) Lime water is mixed with rice gruel solution and given	Still practised	

Contd.

Table 2. Continued

Sl. No.	Practice / Skill	Present state of the skill	Factors affecting endangered/extinct state
4.	Against worm problems in calves		
	i) Turmeric extract is given	Endangered	Replacement by modern technology
	ii) Extract of the young leaves of guava is given		
	iii) Giving strong black tea to the calf		
5.	To control foot and mouth disease in cattle - applying teak oil on the foot after cleaning it with warm water boiled with tamarind leaves and arrow root rhizome Teak oil is extracted by cutting very old teak wood pieces to thin slices. It is put in an earthern pot and 2-3 pieces are kept across the mouth of the pot to keep it while the pot is turned upside down to fix it on another pot which fits its size. The second pot is burried in soil at ground level. Heat is generated on the pot by means of firewood and teak oil oozes to the bottom pot. This teak oil is used to apply on cattle's foot (Fig. 4).	Extinct	1. Resource related factor 2. Lack of knowledge 3. Replacement by modern technology
6.	To cure wounds of cattle: Charcoal produced by kitchen smoke is mixed with neem oil and applied to the wound	Endangered	Replacement by modern technology
7.	To cure dysentery of cattle - roasted ajowan, pepper and dried ginger are ground to paste and given to cattle	Endangered	Replacement by modern technology
8.	For quick delivery of after birth:		
	i) The unopened younger leaf of the banana variety 'Poovan' is given	Still practised	
	ii) The leaves of 'thondi' - *Sterculia urens* is given	Still practised	
9.	To cure swelling in the udder of milch cattle: Cold water is sprinkled	Still practised	

Contd.

Fig.4.TEAK OIL EXTRACTION

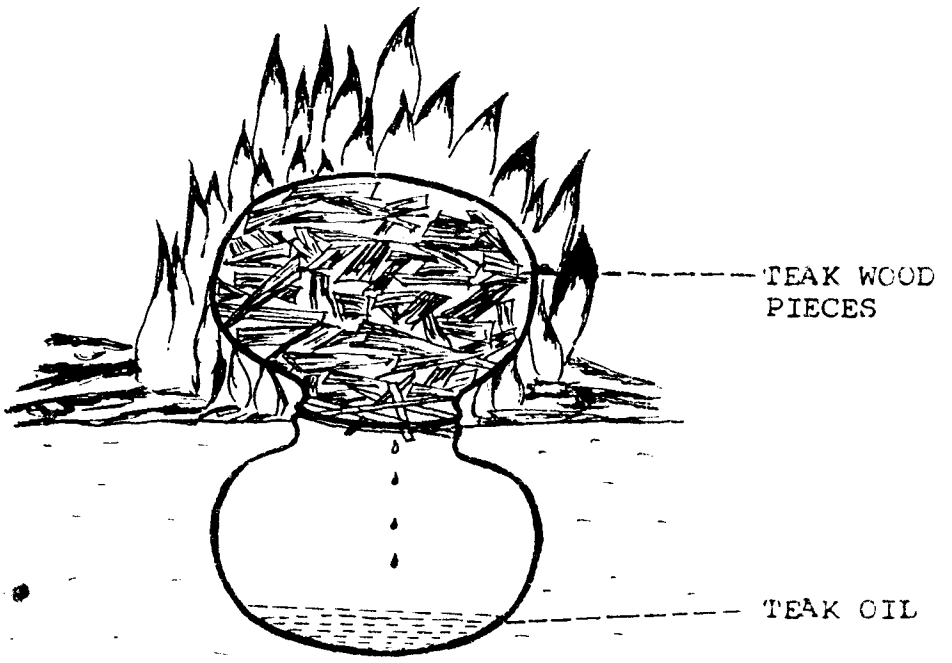


Plate 18. 'Neervalam'

Plate19. 'Karizhu' tree

Table 2.Continued

Sl. No.	Practice / Skill	Present state of the skill	Factors affecting endangered/extinct state
10.	To cure gas troubles of cattle:		
	i) Roasted ajowan powder is mixed with toddy and given to cattle	Still practised	
	ii) Red chilli is boiled in water and given to cattle (Mulaku Kashayam)	Still practised	
	iii) Neem leaves, turmeric and salt are ground to paste and given to cattle	Still practised	
11.	To cure the tumor in bullocks' mouth: The leaf petiole of banana is heated and is placed on the tumor ('Thavala Kachuka'). This is believed to cure tumor.	Endangered	1. Replacement by modern technology 2. Lack of knowledge
12.	To cure oedema in the udder of milch cattle: The leaves of Clerodendron is ground to paste and applied on the udder. This is done three times a day.	Endangered	1. Replacement by modern technology 2. Lack of knowledge
13.	To cure the fracture on cattle's leg (Plate 19): The bark of 'Karizhu' tree is taken and crushed well. The fibres are removed and it is tied around the broken portion after placing two bamboo sticks on either sides. This can cure the fracture.	Endangered	1. Replacement by modern technology 2. Lack of knowledge

4.2 Factors associated with the endangered conditions of farm skills.

The factors identified are presented

1. Human factors

- dearth of skilled hands
- lack of interest among farmers to acquire indigenous skills

- ignorance of people about the existence of the skills
- farmers not aware about the advantages of indigenous skills/lack of confidence
- occupational diversification

2. Technical factors
   - inefficiency of indigenous skills
   - replacement by modern technologies
   - Difficulties faced in using indigenous skills
   - Easiness of the new technologies
   - Convenience of new technologies

3. Resource related factors
   - non-availability of raw materials required in utilizing the skill
   - small farm size, hence not much interest in farming
   - costly practice

4. Social system factors
   - conformity to the norms of social system to use modern techniques
   - fragmentation of joint families, so no manpower to practice indigenous skills
   - labour scarcity as labourers are shifting to non-agricultural jobs

4.3 Distribution of farm youth with respect to their behavioural characteristics

An attempt was made to know the distribution of respondents based on their behavioural characteristics and the results are presented in Table 3.

A perusal of Table 3 reveals that majority of the respondents (69%) were in low category with respect to their education level. Majority (55%) of the farm youth had agriculture as primary occupation and they had farming tradition (88%). About half (52%) of farm youth were in high group with respect to annual income. About 62 per cent of the farm youth had positive attitude towards self employment in agriculture and allied fields. Majority of farm youth were in high category with respect to fatalism-scientism (57%), management orientation (57%), self confidence (52%) and sense of responsibility in farming (56%). About 55 per cent of farm youth belonged to large families of size more than five members.

Among them, a majority (84%) was found in low category with respect to their farm size, social participation (68%), farming experience (65%), information source utilisation (62%), economic motivation (60%) and risk orientation (51%).

About 29 per cent of farm youth preferred farm based enterprises as self employment avenue while 27 per cent of them regarded farming as preferrable self employment avenue. Others preferred avenues like plastic industries, DTP, telephone booth, electronics, handicrafts, workshop, tailoring unit etc.

The analysis of leisure time activities revealed that cent per cent of farm youth engaged in non-farming during their leisure time. About 45 per cent of farm youth engaged in hobbies, while 35 per cent spent time for reading newspaper. The rest of the farm youth spent time on interacting with parents and elders, chitchatting with friends, idling, sports, games etc.

Table 3. Profile of farm youth

(n = 10

Sl.No.	Characteristic	Category	Range	Frequency	Percentage
1	Education	Low	Below 4.11	69	69
		High	4.11 and above	31	31
2	Primary occupation	Non-agriculture		45	45
		Agriculture		55	55
3	Agricultural background	Recent		12	12
		Traditional		88	88
4	Annual income	Low	Below 2.65	48	48
		High	2.65 and above	52	52
5	Farming experience	Low	Below 2.09	65	65
		High	2.09 and above	35	35
6	Farm size	Low	Below 3.17	84	84
		High	3.17 and above	16	16
7	Social participation	Low	Below 2.16	68	68
		High	2.16 and above	32	32
8	Information source utilisation	Low	Below 15.19	62	62
		High	15.19 and above	38	38
9	Attitude towards self employment in agriculture and allied fields	Low	Below 4.93	38	38
		High	4.93 and above	62	62
10	Fatalism-scientism	Low	Below 6.66	43	43
		High	6.66 and above	57	57
11	Risk orientation	Low	Below 14.98	51	51
		High	14.98 and above	49	49
12	Management orientation	Low	Below 12.43	43	43
		High	12.43 and above	57	57
13	Self confidence	Low	Below 30.28	48	48
		High	30.28 and above	52	52

Contd

Table 3. Continued

Sl.No.	Characteristic	Category	Range	Frequency	Percentage
14	Economic motivation	Low	Below 4.18	60	60
		High	4.18 and above	40	40
15	Sense of responsibility in farming	Low	Below 3.80	44	44
		High	3.80 and above	56	56
16	Family size	Low	Below 5	45	45
		High	5 and above	55	55
	Employed person		< 1	60	60
			> 1	40	40
	Unemployed		< 3	94	94
			> 3	6	6
17	Self employment preference	Farm based enterprises		29	29
		Farming		27	27
		Others		44	44
18	Leisure-time activity	Farming		0	0
		Non-farming		100	100
		(i) Hobbies (reading books, T.V. viewing, cinema, playing cards, listening radio)		45	45
		(ii) Reading newspaper		35	35
		(iii) Interacting with parents and elders		2	2
		(iv) Discussing with friends and idling		14	14
		(v) Sports/games		4	44

4.4 Distribution of farm youth based on their Indigenous Skill Acquisition Index (ISAI) in farming

The distribution of farm youth with respect to their ISA scores obtained through Delinious - Hodges stratification procedure is presented in Table 4 and Fig.5

Table 4. Distribution of farm youth with respect to their ISAI

(n=100)

Sl.No.	Category	Class interval	Frequency	Percentage
1	Very low	Below 0.40	26	26.00
2	Low	0.40 to 0.61	28	28.00
3	Moderately high	0.61 to 0.84	23	23.00
4	High	Above 0.84	23	23.00

The table highlights that majority (54%) of farm youth were in the range of very low to low ISAI which details that 26 per cent and 28 per cent had only very low and low, ISAI respectively with regard to the indigenous skills of their local area of which they form a part.

As the sample for the respondents of farm youth were drawn from young farmers and young labourers, it was necessary to conduct categorical analysis of the two to understand the specific situation.

Table 5. Distribution of young farmers with respect to their ISAI

(n = 50)

Sl.No.	Category	Class interval	Frequency	Percentage
1	Very low	Below 0.36	12	24
2	Low	0.36 to 0.70	15	30
3	Moderately high	0.70 to 0.87	10	20
4	High	Above 0.87	13	26

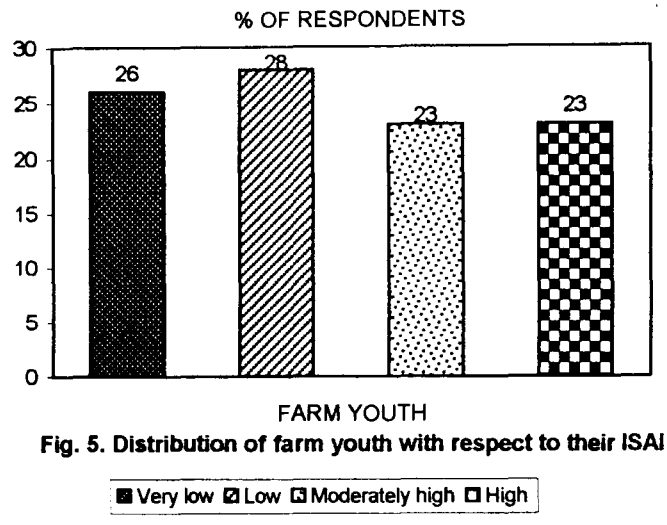


Fig. 5. Distribution of farm youth with respect to their ISAI

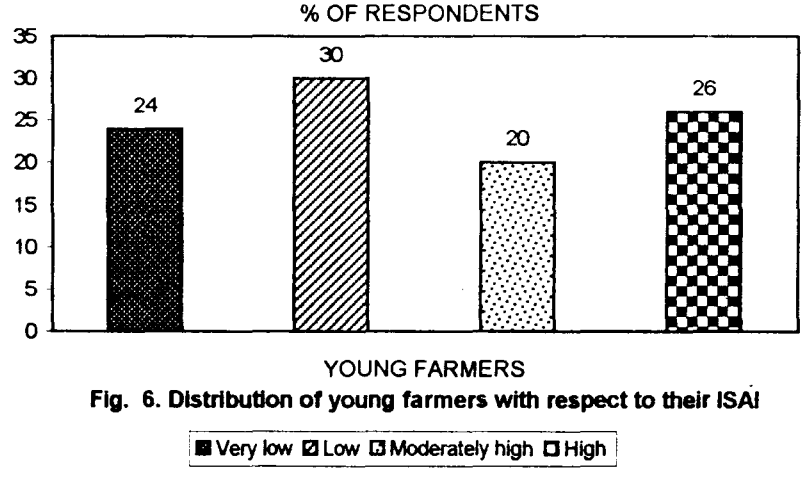


Fig. 6. Distribution of young farmers with respect to their ISAI

Table 5 and Fig.6 depicts the distribution of young farmers with respect to their ISAI. A perusal of the table indicates that majority of the young farmers had low (30%) and very low (24%) ISAI.

Table 6. Distribution of young labourers with respect to their ISAI

(n = 50)

Sl.No.	Category	Class interval	Frequency	Percentage
1	Very low	Below 0.45	18	36
2	Low	0.45 to 0.60	11	22
3	Moderately high	0.60 to 0.83	12	24
4	High	Above 0.83	9	18

ISAI of young labourers is shown in Table 6 and Fig. 7 which also indicates the same trend among young labourers with respect to their ISAI, as in the case of young farmers.

4.5 Distribution of farm youth with respect to their index of participation in farming (IPF)

The distribution of farm youth with respect to their index of participation in farming (IPF) is depicted in Table 7 and Fig.8

Table 7. Distribution of farm youth with respect to their IPF

(n = 100)

Sl.No.	Category	Class interval	Frequency	Percentage
1	Very low	Below 0.52	28	28.00
2	Low	0.52 to 1.00	16	16.00
3	Moderately high	1.00 to 1.16	24	24.00
4	High	Above 1.16	32	32.00

It can be noticed from the table that almost half of the respondents had low to very low participation in farming (i.e. 16% and 28% respectively).

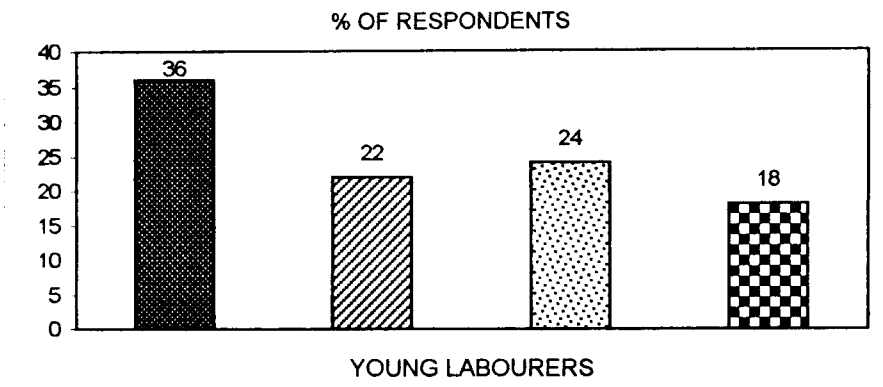


Fig. 7. Distribution of young labourers with respect to their ISAI

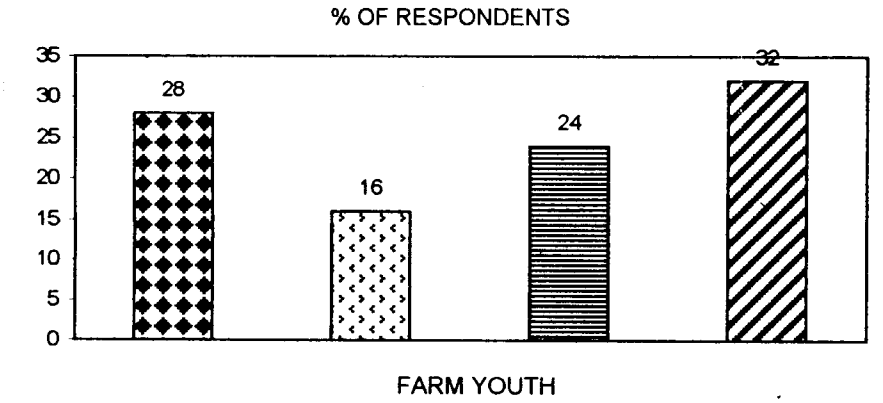


Fig. 8. Distribution of farm youth with respect to their IPF

This observation was further analysed through the category wise analysis of young farmers and young labourers.

Table 8. Distribution of young farmers with respect to their IPF

(n = 50)

Sl.No.	Category	Class interval	Frequency	Percentage
1	Very low	Below 0.65	14	28
2	Low	0.65 to 1.07	6	12
3	Moderately high	1.07 to 1.21	17	34
4	High	Above 1.21	13	26

Table 8 and Fig. 9 depicts the distribution of young farmers with respect to their IPF. A perusal of table highlights the higher percentages of young farmers found to be participating in farming activities.

An attempt was made to trace out the nature of participation of young farmers in farming.

Table 9. Distribution of young farmers with respect to their physical participation in farming

(n = 50)

Sl.No.	Category	Class interval	Frequency	Percentage
1	Very low	Below 0.39	13	26
2	Low	0.39 to 0.67	15	30
3	Moderately high	0.67 to 0.80	10	20
4	High	Above 0.80	12	24

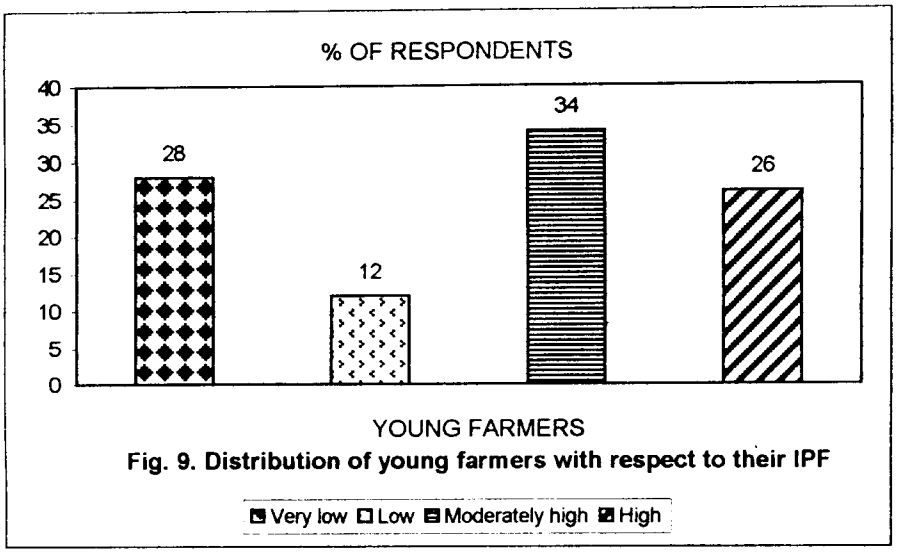


Fig. 9. Distribution of young farmers with respect to their IPF

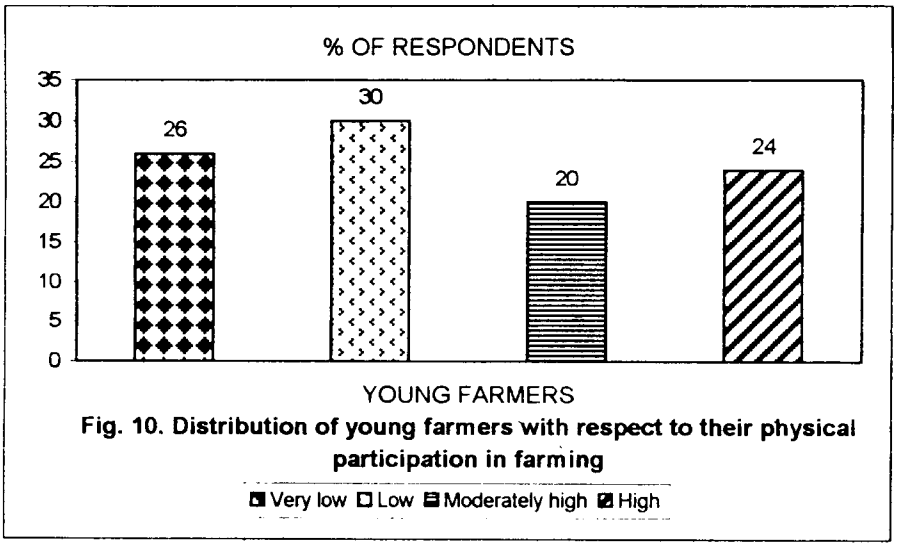


Fig. 10. Distribution of young farmers with respect to their physical participation in farming

Table 10. Distribution of young farmers with respect to their supervision in farming

Sl.No.	Category	Class interval	Frequency	Percentage
1	Very low	Below 0.40	10	20
2	Low	0.40 to 0.62	11	22
3	Moderately high	0.62 to 0.79	13	26
4	High	Above 0.79	16	32

Table 9 and 10 showed the nature of participation of young farmers. Majority of the young farmers (Table 9) had very low to low physical participation in farming while a large percentage of them was moderately high to high in supervision (Table 10).

Table 11. Distribution of young labourers with respect to their IPF

Sl.No.	Category	Class interval	Frequency	Percentage
1	Very low	Below 0.44	13	26.00
2	Low	0.44 to 0.83	13	26.00
3	Moderately high	0.83 to 1.11	12	24.00
4	High	Above 1.11	12	24.00

IPF of young labourers is shown in Table 11 and Fig12.The respondents of the young labourers had an almost even distribution in very low, low, moderately high and high categories with regard to their IPF.

The nature of participation of young labourers was also further analysed.

Table 12. Distribution of young labourers with respect to their physical participation in farming

(n=50)

Sl.No.	Category	Class interval	Frequency	Percentage
1	Very low	Below 0.35	8	16
2	Low	0.35 to 0.61	7	14
3	Moderately high	0.61 to 0.84	16	32
4	High	Above 0.84	9	38

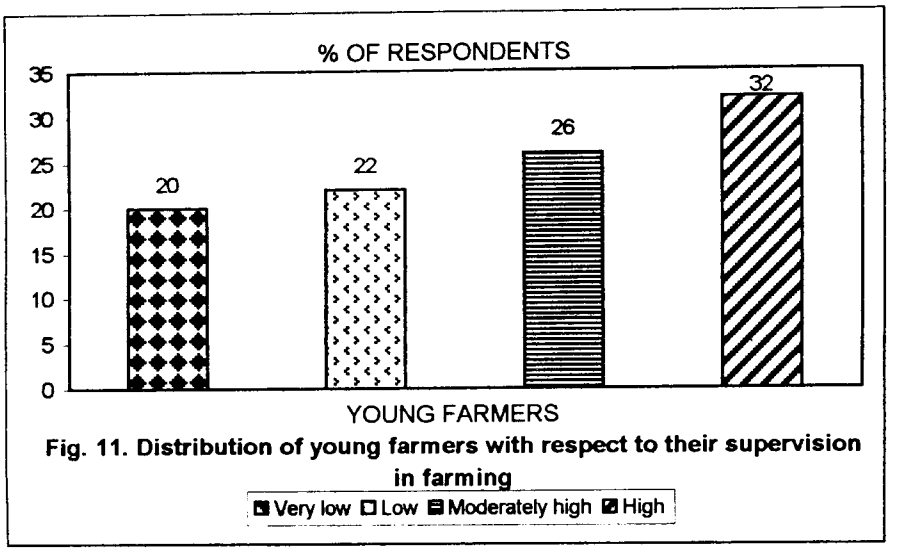


Fig. 11. Distribution of young farmers with respect to their supervision in farming

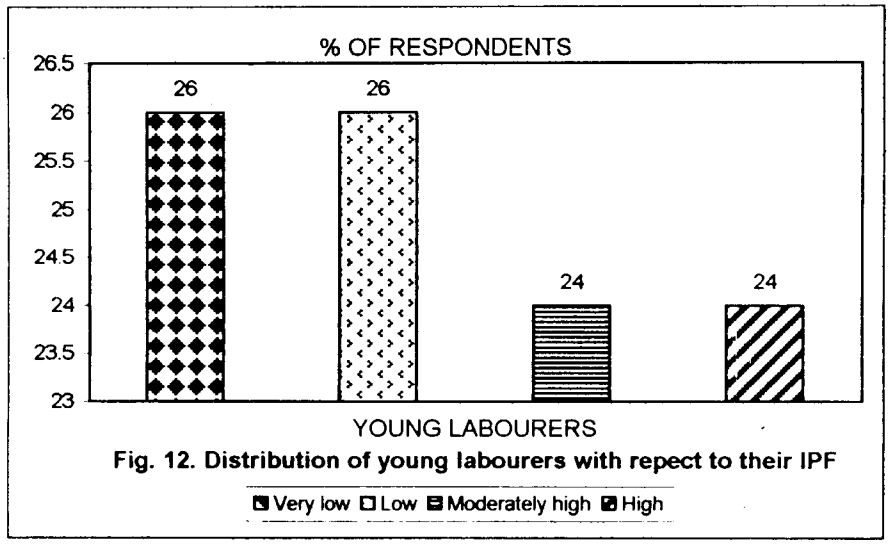


Fig. 12. Distribution of young labourers with repect to their IPF

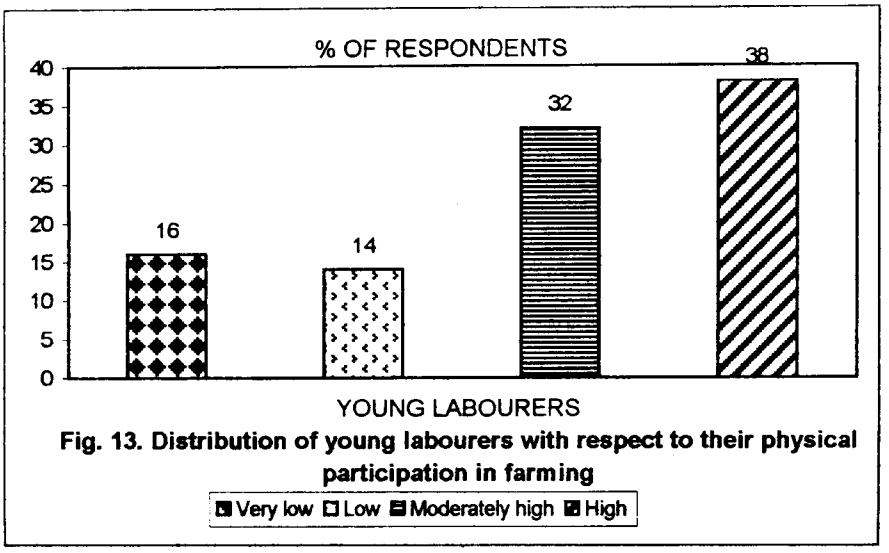


Fig. 13. Distribution of young labourers with respect to their physical participation in farming

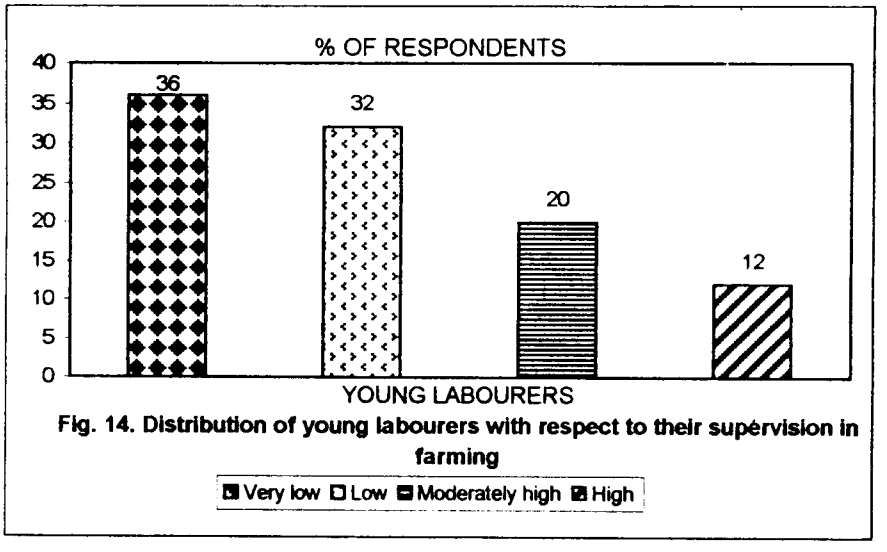


Fig. 14. Distribution of young labourers with respect to their supervision in farming

Table 13. Distribution of young farmers with respect to their supervision in farming
(n = 50)

Sl.No.	Category	Class interval	Frequency	Percentage
1	Very low	Below 0.44	18	36
2	Low	0.44 to 0.72	17	32
3	Moderately high	0.72 to 0.83	9	20
4	High	Above 0.83	6	12

Table 12 and 13 showed the nature of participation of young labourers in farming. Majority of the young labourers had moderately high to high physical participation (70%) while a meagre per cent had moderately high to high supervision (32%). Majority of them fall under very low to low supervision category (68%).

4.6 Relationship between behavioural characteristics and participation of farm youth in farming

The relation between participation of farm youth in farming activities and their behavioural characteristics were analysed through simple correlation.

a) Correlation between participation of farm youth in farming and their behavioural characteristics

Out of seventeen independent variables included, eleven had positive and significant relationship with the participation of farm youth in farming. They were primary occupation (x_2), farming experience (x_5), social participation (x_7), information source utilisation (x_8), attitude towards self employment in agriculture and allied fields (x_9), risk orientation (x_{11}), management orientation (x_{12}), self confidence (x_{13}), economic motivation (x_{14}), sense of responsibility in farming (x_{15}) and acquisition of indigenous skill (x_{17}). Rest of the variables namely education (x_1), agricultural background (x_3), annual income (x_4), farm size (x_6), fatalism-

scientism (x_{10}) and family size (x_{16}) were found to be not exerting any significant influence on participation in farming.

Table 14. Simple linear correlation coefficients of the behavioural characteristics of farm youth with the extent of participation in farming activities

(n = 100)

Variable symbols	Description of the variable	Correlation coefficient
x_1	education	-0.025^{NS}
x_2	primary occupation	0.235*
x_3	agricultural background	-0.112^{NS}
x_4	annual income	0.008^{NS}
x_5	farming experience	0.246*
x_6	farm size	0.041^{NS}
x_7	social participation	0.337**
x_8	information source utilisation	0.354**
x_9	attitude towards self employment in agriculture and allied fields	0.488**
x_{10}	fatalism-scientism	0.085^{NS}
x_{11}	risk orientation	0.310**
x_{12}	management orientation	0.318**
x_{13}	self confidence	0.200*
x_{14}	economic motivation	0.253**
x_{15}	sense of responsibility in farming	0.335**
x_{16}	family size	0.038^{NS}
x_{17}	acquisition of indigenous skill	0.210*

* Significant at 5% level
** Significant at 1% level
NS Non significant

b) Multiple Linear Regression Analysis (MLR)

It could be seen that the F ratio (3.44) was significant, indicating that all the independent variables together have contributed significantly towards the variation in the extent of participation of farm youth in farming. Co-efficient of determination was found to be 0.416 which indicates that 41.6 per cent of the

Table 15. Results of Multiple Linear Regression Analysis of the extent of participation of farm youth in farming activities

(n = 100)

Variable symbol	Description of variable	Regression coefficient	't' value
x_1	education	0.048	2.111*
x_2	primary occupation	0.099	1.803
x_3	agricultural background	0.126	1.343
x_4	annual income	0.043	1.667
x_5	farming experience	0.062	1.709
x_6	farm size	0.032	1.128
x_7	social participation	0.021	2.045*
x_8	information source utilisation	0.011	2.151*
x_9	attitude towards self employment in agriculture and allied fields	0.024	2.925**
x_{10}	fatalism-scientism	0.026	1.690
x_{11}	risk orientation	0.015	2.587**
x_{12}	management orientation	0.019	2.957**
x_{13}	self confidence	0.008	1.995*
x_{14}	economic motivation	0.036	1.532
x_{15}	sense of responsibility in farming	0.034	2.444*
x_{16}	family size	0.029	1.142
x_{17}	acquisition of indigenous skill	0.008	2.120*

* Significant at 5% level

** Significant at 1% level

Intercept = 0.68

R^2 = 0.4159

F = 3.44**

Table 16. Results of step down regression analysis of the extent of participation of farm youth in farming activities with their behavioural characteristics

(n = 100)

Step No.	Variable for regression	R^2	Multiple correlation coefficient R	F value
1	x_1, x_2, x_3, x_4, x_5, x_5, x_7, x_8, x_9, x_{10}, x_{11}, x_{12}, x_{13}, x_{14}, x_{15}, x_{16}, x_{17}	0.4159	0.6449	3.44
2	x_6	0.4159	0.6449	3.69
3	x_{15}	0.4159	0.6449	3.99
4	x_4	0.4158	0.6448	4.32**
5	x_8	0.4152	0.6444	4.70**
6	x_1	0.4144	0.6437	5.13**
7	x_{17}	0.4126	0.6424	5.62**
8	x_5	0.4093	0.6398	6.17**
9	x_{16}	0.4058	0.6370	6.83**
10	x_{10}	0.3999	0.6324	7.58**
11	x_{12}	0.3924	0.6264	8.49**
Remaining variables				
x_3, x_9, x_{14}, x_{13}, x_{11}, x_7				

** Significant at 1% level

Table 17. Results of path analysis of behavioural characteristics with participation of farm youth in farming

Variable No.	Characters	Direct effect		Total Indirect effect		Maximum indirect effect	
		Effect	Rank	Effect	Rank	Effect	Variable
x_1	education	-0.0434	XII	0.0262	XIII	0.0680	x_{12}
x_2	primary occupation	0.1041	V	0.1312	X	0.1879	x_9
x_3	agricultural background	-0.2830	XVII	0.1716	VIII	0.1172	x_9
x_4	annual income	0.0096	VIII	0.0014	XIV	0.0563	x_{12}
x_5	farming experience	0.0579	VI	0.1884	VI	0.2039	x_9
x_6	farm size	0.0058	IX	0.0351	XII	0.0403	x_3
x_7	social participation	0.1275	IV	0.2105	V	0.0385	x_2
x_8	information source utilisation	0.0361	VII	0.3197	III	0.2287	x_9
x_9	attitude towards self employment in agriculture and allied fields	0.4839	I	0.0004	XV	0.0776	x_{12}
x_{10}	fatalism-scientism	-0.0878	XIV	0.1720	VII	0.1000	x_{12}
x_{11}	risk orientation	-0.1607	XVI	0.4710	I	0.2568	x_9
x_{12}	management orientation	0.1697	III	0.1493	IX	0.2214	x_9
x_{13}	self confidence	-0.1125	XV	0.3127	IV	0.1587	x_9
x_{14}	economic motivation	0.2749	II	-0.0220	XVII	0.0548	x_{12}
x_{15}	sense of responsibility in farming	0.0010	X	0.3452	II	0.3387	x_9
x_{16}	family size	-0.0383	XI	-0.0759	XI	0.0768	x_9
x_{17}	acquisition of indigenous skill	-0.0696	XIII	0.0120	XVI	0.0279	x_{11}

Residue = 0.4840

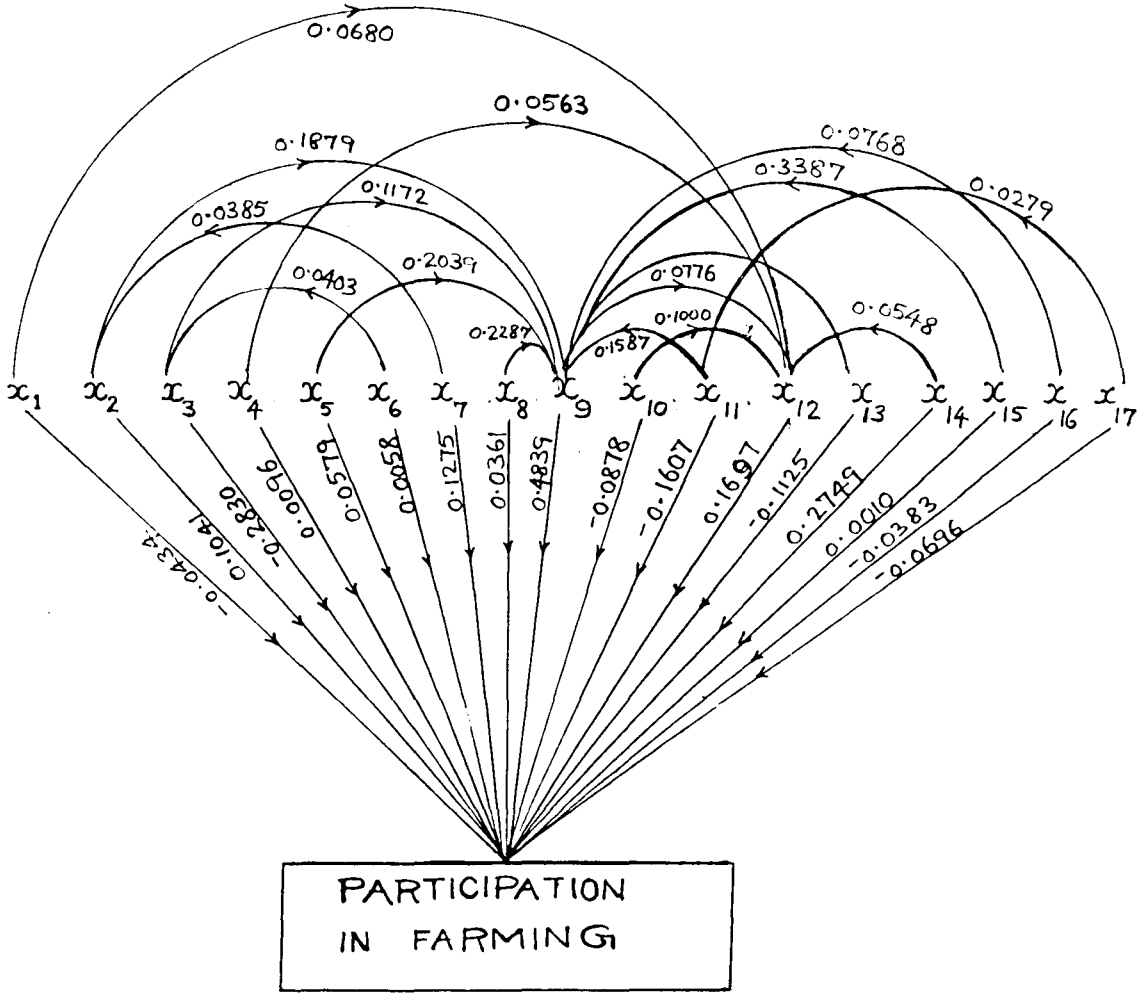


Fig. 15. Path diagram showing the direct and indirect effect of behavioural characteristics on participation of farm youth in farming

However, it would be desirable to assess the amount of contribution that a particular independent variable has directly and indirectly towards the dependent variable, with a view to select the major contributors of the linear relationship. Path coefficient analysis was done to find

a) direct influence of each independent variable on the extent of participation in farming, and
b) indirect effect of each variable on the extent of participation in farming through other variables.

Path analysis showed that among the independent variables maximum indirect effect was shown by attitude towards self employment in agriculture and allied fields (x_9). This was followed by management orientation (x_{12}) and risk orientation (x_{11}).

Thus the study revealed that attitude towards self employment in agriculture and allied fields is the most important variable contributing to the level of participation in farming.

The components like education, agricultural background, fatalism-scientism, risk orientation, self confidence, family size and indigenous skill acquisition had negative direct effect on participation in farming.

4.8 Relationship between behavioural characteristics and acquisition of indigenous skill in farming

a) Simple correlation of farm youth's acquisition of indigenous skills and their behavioural characteristics

The Table 18 reveals that, out of seventeen independent variables included in the study only three behavioural characteristics, primary occupation (x_2) and attitude towards self employment in agriculture and allied fields (x_9) and

Table 18. Simple linear correlation coefficients of the behavioural characteristics of farm youth with the extent of acquisition of indigenous skill in farming

(n = 100)

Variable symbol	Description of the variable	Correlation coefficient
x_1	education	-0.147^{NS}
x_2	primary occupation	0.251*
x_3	agricultural background	-0.132^{NS}
x_4	annual income	0.041^{NS}
x_5	farming experience	-0.025^{NS}
x_6	farm size	0.095^{NS}
x_7	social participation	0.143^{NS}
x_8	information source utilisation	0.058^{NS}
x_9	attitude towards self employment in agriculture and allied fields	0.239*
x_{10}	fatalism-scientism	0.022^{NS}
x_{11}	risk orientation	0.059^{NS}
x_{12}	management orientation	0.093^{NS}
x_{13}	self confidence	-0.110^{NS}
x_{14}	economic motivation	-0.002^{NS}
x_{15}	sense of responsibility in farming	0.020^{NS}
x_{16}	family size	0.018^{NS}
x_{18}	participation in farming	0.210*

* Significant at 5% level

NS Non significant

participation in farming (x_{18}) of the farm youth showed positive, significant relationship with the extent of acquisition of indigenous skill of farm youth in farming. Rest of the variables were found to be not exerting any significant influence on acquisition of indigenous skill by farm youth.

b) Multiple Linear Regression Analysis (MLR)

The MLR analysis data relating to the extent of acquisition of indigenous skill of farm youth gave a non-significant F ratio (1.87). The co-efficient of determination (0.2798) was also not high indicating that the regression model was not successful in explaining the relationship. It could be inferred that out of 17 variables only three variables viz. primary occupation (x_2), attitude towards self employment in agriculture and allied fields (x_9) and participation in farming (x_{18}) showed positive and significant relationship. On obtaining a non-significant F ratio (1.87) and low value of R (0.2798) in MLR, in normal case one need not further proceed with analysis. This attempt being specifically aimed to explore the orientation, disposition, interest and the underlying factors of indigenous knowledge acquisition by the farm youth, which is considered crucial for the future of agriculture, further analyses such as step down regression and path analyses were carried out.

c) Step down regression analysis of behavioural characteristics of farm youth on acquisition of indigenous skill in farming

To obtain the best subset of predictors, step down regression analysis was done. Various steps of the analysis are presented in Table 20. This ended up with the selection of five variables namely primary occupation (x_2), attitude towards self employment in agriculture and allied fields (x_9), self confidence (x_{13}), sense of responsibility in farming (x_{15}) and farming experience (x_5). It was noted that the regression model with these five predictors explained 19.7 per cent of the total variation in dependent variable, whereas the full model with 17 variables yielded only 27.95 per cent. Hence these five variables can be considered as relevant variables which indicate to certain extent the trend of farm youth and their knowledge in indigenous skills.

Table 19. Results of Multiple Linear Regression Analysis of the extent acquisition of indigenous skills of farm youth in farming activities

(n = 100)

Variable symbol	Description of the variable	Regression coefficient	't' value
x_1	education	-0.041	1.375
x_2	primary occupation	0.116	1.896
x_3	agricultural background	0.023	0.280
x_4	annual income	0.032	1.181
x_5	farming experience	-0.087	2.274*
x_6	farm size	-0.025	1.247
x_7	social participation	0.011	0.770
x_8	information source utilisation	-0.003	0.497
x_9	attitude towards self employment in agriculture and allied fields	-0.045	2.825**
x_{10}	fatalism-scientism	-0.003	0.206
x_{11}	risk orientation	-0.006	0.664
x_{12}	management orientation	0.191	1.654
x_{13}	self confidence	-0.011	2.091*
x_{14}	economic motivation	-0.013	0.564
x_{15}	sense of responsibility in farming	-0.037	1.754
x_{16}	family size	0.004	0.213
x_{18}	participation in farming	-0.023	-0.343

* Significant at 5% level

** Significant at 1% level

Intercept = 0.91

R^2 = 0.2798

F = 1.87

Table 20. Results of step down regression analysis of acquisition of indigenous skill of farm youth and their behavioural characteristics

(n = 100)

Step No.	Variable for regression	R^2	Multiple correlation coefficient R	F value
1	x_1, x_2, x_3, x_4, x_5, x_5, x_7, x_8, x_9, x_{10}, x_{11}, x_{12}, x_{13}, x_{14}, x_{15}, x_{16}, x_{18}	0.2796	0.5287	2.00
2	x_{10}	0.2795	0.5286	2.01
3	x_{17}	0.2791	0.5283	2.71
4	x_3	0.2785	0.5770	2.34
5	x_{16}	0.2768	0.5261	2.53
6	x_{14}	0.2749	0.5430	2.75
7	x_8	0.2732	0.5227	3.01*
8	x_7	0.2702	0.5790	3.30*
9	x_{11}	0.2683	0.5180	3.67*
10	x_6	0.2549	0.5048	3.89*
11	x_4	0.2384	0.4882	4.11*
12	x_1	0.2237	0.4730	4.47*
13	x_{12}	0.1972	0.4400	4.62*
Remaining variables x_5, x_2, x_9, x_{13}, x_{15}				

* Significant at 5% level

Table 21. Results of path analysis of behavioural characteristics of farm youth with acquisition of indigenous skills in farming

Variable No.	Characters	Direct effect		Total Indirect effect		Maximum indirect effect	
		Effect	Rank	Effect	Rank	Effect	Variable
x_1	education	-0.1873	XIV	0.0405	IX	0.0996	x_{12}
x_2	primary occupation	0.2377	III	0.0128	XI	0.1854	x_9
x_3	agricultural background	0.0319	IX	0.0996	VII	0.1156	x_9
x_4	annual income	0.1427	IV	-0.1014	XV	0.0891	x_{12}
x_5	farming experience	-0.2767	XV	0.2518	II	0.2011	x_9
x_6	farm size	0.1241	V	-0.0290	XIII	0.0209	x_1
x_7	social participation	0.1038	VI	0.0384	X	0.0275	x_1
x_8	information source utilisation	-0.0683	XII	0.1269	VI	0.2256	x_9
x_9	attitude towards self employment in agriculture and allied fields	0.4775	I	-0.2392	XVII	0.1228	x_{12}
x_{10}	fatalism-scientism	-0.0252	X	0.0474	VIII	0.1583	x_{12}
x_{11}	risk orientation	-0.0954	XIII	0.1548	V	0.2534	x_9
x_{12}	management orientation	0.2685	II	-0.1753	XVI	0.2184	x_9
x_{13}	self confidence	-0.2769	XVII	0.1672	III	0.1648	x_{12}
x_{14}	economic motivation	0.0680	VII	-0.0702	XIV	0.0868	x_{12}
x_{15}	sense of responsibility in farming	-0.2551	XVI	0.2748	I	0.3342	x_9
x_{16}	family size	0.0213	VIII	-0.0038	XII	0.0758	x_9
x_{18}	participation in farming	-0.0419	XI	0.1646	IV	0.2329	x_9

Residue = 0.6910

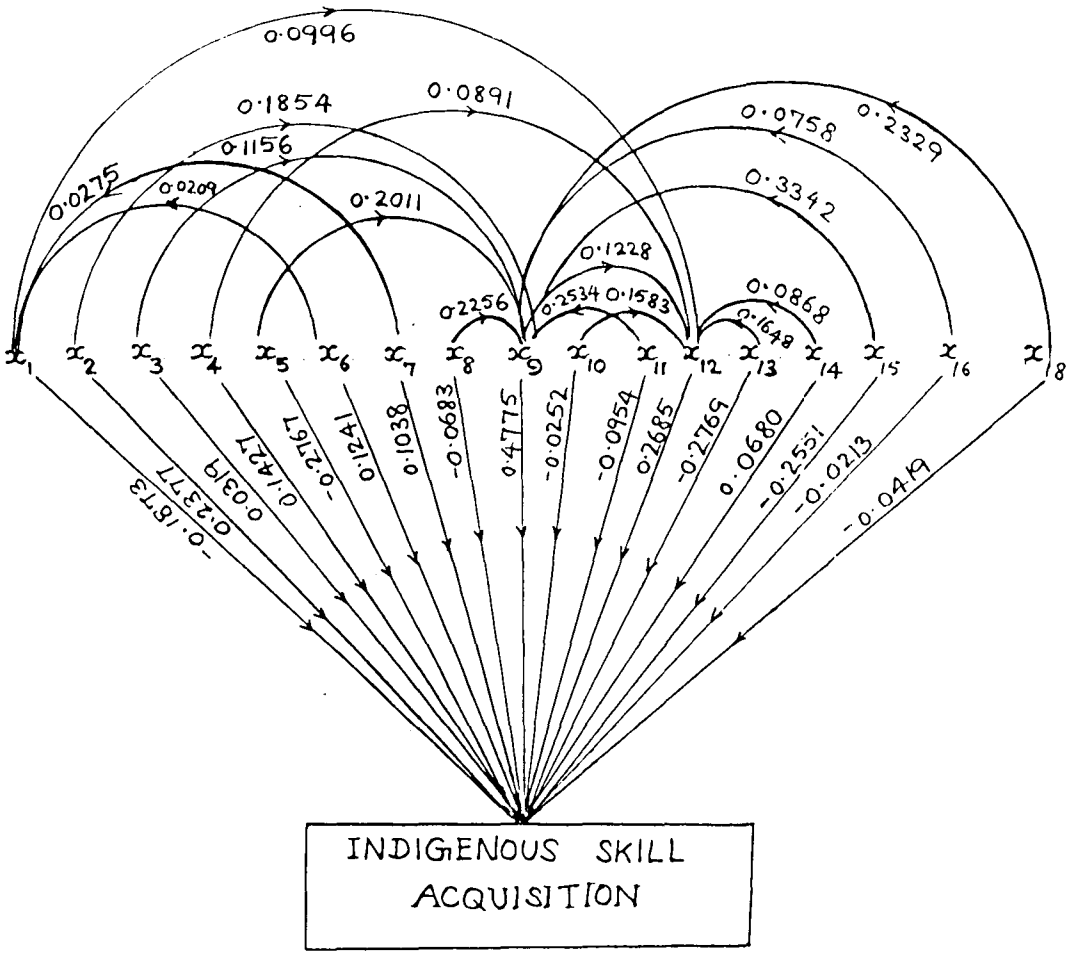


Fig. 16. Path diagram showing the direct and indirect effect of behavioural characteristics on acquisition of indigenous skill in farming

4.9 Direct and indirect effects of the behavioural characteristics of farm youth on their acquisition of indigenous skill in farming

The Table 21 and Fig.16 brings into focus that the highest direct effect was recorded by attitude towards self employment in agriculture and allied fields (x_9), followed by management orientation (x_{12}), primary occupation (x_2), annual income (x_4) and farm size (x_6) in that order.

The components like education, farming experience, information source utilisation, fatalism-scientism, risk orientation, sense of responsibility in farming and participation in farming had negative direct effect on acquisition of indigenous skill in farming.

4.10 Empirical models of the study

The Fig.17 diagrammatically represents the results on the extent of participation of farm youth in farming.

The extent of participation of farm youth in farming is depicted by the middle square. The participation in farming is influenced by various behavioural characteristics of farm youth. These are represented by the rectangles on either side of the square.

Results on the extent of acquisition of indigenous skill of farm youth in farming is presented in Fig.18

Here, the middle square represents the extent of acquisition of indigenous skill in farming. The behavioural characteristics of farm youth are indicated in the rectangles on both sides of it.

4.11 Constraints percieved by farm youth in relation to theirparticipation in farming.

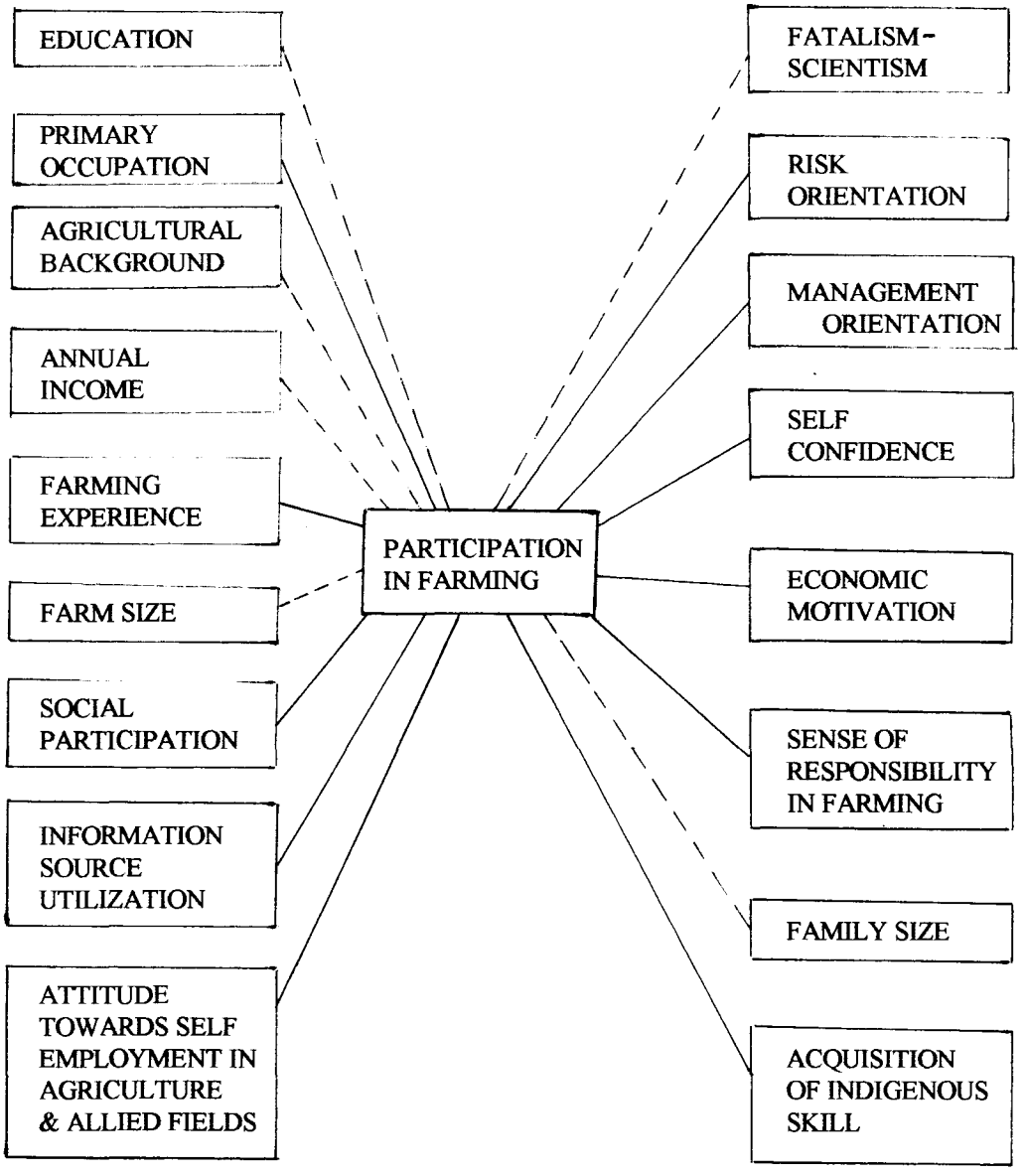


Fig. 17. Empirical model of the study showing the relationship between behavioural characteristics of farm youth and their participation in farming

— SIGNIFICANT RELATIONSHIP
---- NON-SIGNIFICANT RELATION

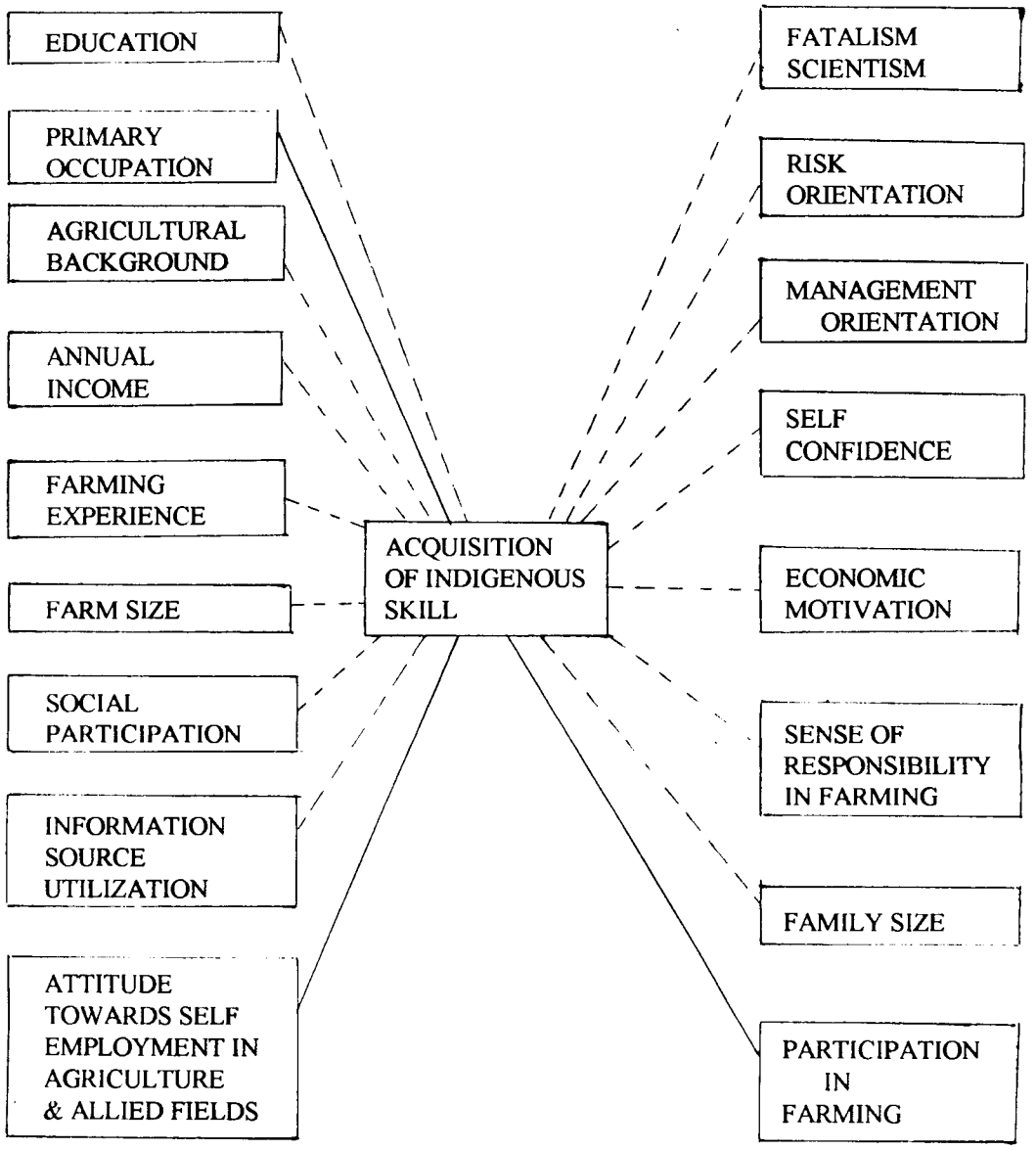


Fig. 18. Empirical model of the study showing the relationship between behavioural characteristics and acquisition of indigenous skill in farming

—— SIGNIFICANT RELATIONSHIP
---- NON-SIGNIFICANT RELATION

Table 22. Constraints perceived by farm youth in relation to their participation in farming

Constraints	Frequency	Percentage	Rank
1. Low profit from agriculture	86	86	III
2. Drudgery of labour in the field	91	91	II
3. Agriculture too labour intensive	84	84	V
4. Risk and uncertainty involved in agriculture	100	100	I
5. Low price for crop produces	78	78	VI
6. Attraction towards white collar jobs	59	59	XI
7. Agriculture cannot provide constant source of income	62	62	X
8. Agriculture not providing permanent labour for agricultural labourer	72	72	VIII
9. High wages of labourers	54	54	XII
10. Labour scarcity	49	49	XIII
11. High initial investment for agriculture	64	64	IX
12. High incidence of pests and diseases	75	75	VII
13. Inadequate financial support	85	85	IV

Discussion

CHAPTER V

DISCUSSION

5.1 Identification and documentation of indigenous skills

5.2 Factors associated with the endangered conditions of farm skills

5.3 Distribution of farm youth based on Indigenous Skill Acquisition Index (ISAI) in farming

5.4 Distribution of farm youth with respect to their Index of Participation in Farming (IPF)

5.5 Relationship between behavioural characteristics of farm youth and their participation in farming

5.6 Relationship between behavioural characteristics of farm youth and acquisition of indigenous skills in farming

5.7 Constraints perceived by farm youth in relation to their participation in farming

5.1 Identification and documentation of indigenous skills

Seventy three indigenous farm skills of the study area were identified. Thirty eight skills were observed to be endangered and 33 skills as popular. Two extinct skills located were use of 'Oduku' tree - *Cleistanthus coleinus* to control leaf eating caterpillars in paddy, and using teak oil to control foot and mouth disease in cattle. The two extinct skills identified, form very much the biopesticidal farm practices. The factors identified as causes for the present extinct state of using 'oduku' plant are lack of knowledge among farmers, non-availability of the plant and availability of other technologies. Field validation studies on its plant protection value is to be carried out and the attention of scientists in the concerned area is requested here. In the context of integrated pest management approach this deserves much promotion if proven valid. Similarly the skill of teak oil extraction also demand attention on the part of the concerned scientists. The process documentation of the skilful steps involved in the extraction is also a necessity.

The rapid population growth and fall of joint families have led to fragmentation of holdings. Majority of big land holdings is put to non-agricultural purposes and the land available for farming even has reduced drastically. Acres of land in the early homesteads were rich reservoirs of medicinal plants and many other useful plant and tree species. The plants thus available in plenty in the past were used for pest and disease control in crop and animal husbandry. Vijayalakshmi and Sundar (1994) had documented many such practices useful to mankind, which were very popular in the past. The two skills which are not used by the farmers in present day farming are to be documented. If studies are carried out on their 'what to', 'how to' and 'why to' aspects or dimensions, they may be of use to mankind in refined ways. Similar attention is essential in many of the endangered skills like manuring of paddy field by cashew leaves, use of plants like 'neervalam', 'karizhu', strichnine etc. also.

It can be noticed that in almost all indigenous skills materials locally available were utilized to make traps for insect pests, non-insect pests etc., by skilled hands. These technologies were though simple, amazing in its operation, are ecofriendly. Most of our indigenous skills which were developed and perfected through years are gradually being lost. This tragic situation is indicated by the endangered state of the 38 skills such as repeated ploughing of paddy field by country plough, manuring paddy by cashew leaves, practice for quick germination of old paddy seeds, 'Kundakoottal' of paddy seedlings, control of leaf roller in rice by various methods, control of crabs, identification of wild rice, rodent control techniques, control of rice bug, irrigation devices, germinating coconut seedlings, control of rabbits, storage of vegetable seeds, control of pseudostem borer in banana, inland fishing device 'Kuruthi', pest and disease control of cattle and fracture curing in cattle etc..

Dearth of skilled labour, lack of knowledge on the part of the farmers and replacement by more convenient modern technologies (which may be inorganic in nature) are the three major factors which have evolved the present state of

'endangerment' for these skills. Eventhough more efficient technologies have come to the scene, availability of skilled hands and awareness of the existence of such skills which are ecofriendly can motivate the farmers for their utilization. The 'organic farming' which is becoming a popular trend is an indication of this shift in mind among farmers. The dearth of skilled hands observed emphasises the need for mastery of these skills, on the part of the farm youth.

Attempts have been made earlier to identify indigenous traditional knowledge practices in realization of the danger of erosion of these practices. Karthikeyan and Chandrakandan (1996) identified 66 indigenous agricultural practices which were found to be prevalent in the six tribal communities of Nilgiri hills.

Manju (1996) identified indigenous practices of coconut farming while Preetha (1997) collected about 80 indigenous practices followed by rice farmers of Thrissur district. About 47 indigenous practices of vegetable farming in Thrissur were also documented by Manju (1997). On a comparitive perusal of the three studies conducted earlier on indigenous knowledge of specific areas in Thrissur District, the following conclusions can be made. Preetha (1997) also had reported the use of 'oduku' tree against paddy pests, 'kundakoottal' of paddy seedlings, collecting larva in 'kundamuram', use of 'kumbham', 'adichil', saw toothed scissor trap, earthern pot trap, 'eanthachakka' against rice bug, swing basket, counterpoise bucket lift, self emptying type rope and bucket lift, 'chakram', 'petti' and 'para', fixing scare crows in the field, use of plastic covers, use of audio and video tapes to scare birds in paddy fields. Manju (1996) had reported that coconut seedlings having 'narola' are selected for planting and seedlings are transplanted at 'kathikkoombu' stage. None of the indigenous practices observed by Manju (1997) in the case of vegetable practices were identified in present study. So also the practice 'kazhchakula' cultivation; an indigenous practice of banana cultivation in Thrissur District was not identified in the study area i.e., Mukundapuram Taluk of the District.

All other skills listed out such as ploughing paddy field with country plough, maintaining field bunds, germination method of paddy seedlings, use of cashew leaves as manure, quick germination of old paddy seeds, leaf roller control in rice, controlling crabs, identification of wild rice, burying mud pots half filled with starch solution to control rodents, box trap, placing yam flower to repel rice bug, use of 'vethu', bursting crackers, winnowing, making 'thuru', parboiling of rice, storing paddy seeds, germinating coconut seedlings, control of rhinoceros beetle, control of rabbits, storage of cowpea and cucurbit seeds, storage of cucumber, preparing banana rhizomes for planting, control of pseudostem borer, protecting ripening banana bunches, use of 'kuruthi', 'choonda', 'koruvala', 'veeshuvala', 'ottal', 'neervalam', treating cough of cattle, control pests of cattle, increasing milk production of cow, treating worm problems in calves, controlling foot and mouth disease of cattle, curing of wounds, dysentry, treatment for quick delivery of after birth, treatment for udder swelling, curing gas troubles in cattle, curing tumor in bullock's mouth and fracture curing of cattle are identified as the indigenous skills of the farming systems of Mukundapuram Taluk of Thrissur District. The second phase of the study was carried out to analyse how far these, identified indigenous farm skills, are acquired by the farm youth of the locality, the results of which are discussed elsewhere in the same chapter.

As already mentioned it is also to be taken into account that eventhough farmers may report many indigenous practises and skills, all of them may not be credible and cannot be counted at their face value. There is a high necessity of field testing the validity and scientific rationality behind many of the identified practices and knowledge. Those skills found to be valid and efficient should be popularised through training and also may be utilized for applied research. Farm youth should be given training for acquisition of these skills for their continued use in farming.

5.2 Factors associated with the endangered conditions of farm skills

During the identification of indigenous skills and collection of data from the respondents, different factors for the present condition of the skills perceived by the respondents were analysed (section 4.2).

The human factors include dearth of skilled hands which adversely affect the practise and spread of indigenous skills. Even if farmers are interested to use and or acquire these skills, it becomes impossible due to extinct condition of many practises. Use of *Cleistanthus coleinus* in paddy fields, applying teak oil against foot and mouth disease of cattle etc. are examples of such farm skills which face this extinct state.

The lack of interest on the part of the farmers to acquire these skills enhanced the danger of extinction. Another factor which led to the extinction of many practises is the ignorance of people about the existence of such skills which deprive them of the benefits and advantages of indigenous techniques. Moreover, the wrong or improper use of indigenous skills makes them inefficient, thus the potentials are not being fully tapped. Some of the indigenous skills are less efficient than moderr technologies and the relative advantage of the modern technologies have led to the abandoning of such skills, such as use of water lifting devices, rodent traps etc. It is quite natural that as science and technology has much progressed and efficient technologies have evolved, farmers adopt better ones with more efficiency replacing old indigenous skills. The difficulty in using indigenous skills and the easiness and convenience of new technologies attract the farmers as in the case of tractor, tiller, sprayers etc.

Even if some farmers continued to stick on to the indigenous skills, they are facing the non-availability of raw materials required in utilizing the skill. For eg., use of 'oduku' leaves against the pests in paddy. Now most of the farmers are with small holdings, wherein they are not ready to go for labour intensive and cumbersome procedures, for example use of teak oil against foot and mouth disease of cattle Social system also have played its part in endangering farm skills. As all

other farmers in the locality shift to modern technologies, those farmers who wish to follow the indigenous practices also cannot continue and they are forced to give up their indigenous techniques.

The emerged set up of the nuclear families against the joint family system existed here are not providing much scope and adequate manpower for the adoption of many practices, for eg. repeated ploughing for land preparation of paddy fields and mechanical control of paddy pests. Severe labour scarcity is also a major impediment coming in this way.

5.3 Distribution of farm youth based on Indigenous Skill Acquisition Index (ISAI) in farming

A perusal through the Tables 3, 4 and 5 will be quite revealing of the time dark picture slowly engulfing our farm scene. A very high percentage of farm youth - both young farmers and labour youth have quite low knowledge in indigenous farm practices. The low indices of the majority of both categories with respect to their acquisition of indigenous skills should prick the conscience of anyone who is concerned about the future of farming. The importance of the transfer of farmer wisdom through generations cannot be exaggerated.

The knowlege of farming is actually the 'treasure' passed on by the first 'farmers' of the earth, which are appropriated by the farmers of each period and scientifically advanced through modern agriculture. This finding has established the research hypothesis of the present study that the knowledge of indigenous farm practices/skills among the farm youth is quite low. Based on this proven hypothesis, the second hypothesis of the study ie. the low acquisition of indigenous skills among farm youth is related to their low participation in farming was explained. The second hypothesis is also established quite clearly by the Tables 6, 7, 8 and 9.

The high level of education and the present social norms influence farm youth negatively to keep off from farming. TOT programme by the extension agency, media and other voluntary organisation attempts to popularise modern techniques only. Hence farm youth are not getting a chance to acquire indigenous

skills. This may be the possible reason for very low to low ISAI of farm youth. Moreover, there is no ready package available for indigenous farming practices.

The high knowledge in indigenous practices by 23 per cent of the farmers can be substantiated as the realization of farmers need to incorporate the under utilized resources of farmers experimentation and indigenous technical knowledge into the farming systems.

Preetha (1997) reported that majority of the farmers had low to medium knowledge of about indigenous practices.

Dirven (1995) reported that living conditions in the farming sector in rural areas have improved very little and agricultural producers' self-images have worsened; both of these factors prompt young people to leave the sector.

The studies of Manju (1996) and Manju (1997) also have indicated the low level of knowledge of indigenous farm practices among the farmers and of subject matter specialists.

5.4 Distribution of farm youth with respect to their Index of Participation in Farming (IPF)

The Table 6 highlights the alarming state of our farm youth i.e., almost half of the farm youth had very low to low IPF.

The present day farm youth are more attracted towards non farming occupations. They do not show interest in farming as an occupation and are not participating in farm activities even as leisure activities (Table 3). The diversified opportunities of occupation available, gradually draws the farm youth to other scenes. Due to this increasing tendency of farm youth of the farming community, farms are mostly being left as such or left to the responsibility of aged parents or the women of the household. The peculiar social stigma attached to the physical

participation of women in farming worsen the farm situation i.e., due to the socio-economic status and cultural factors female labour of the small households is not available in the rural labour market (Geethakutty *et al.*, 1996). Not only to the farmer youth, but with the labour youth also this tragic observation is a trend indicator (Table 10, 11, 12). The labour youth prefer works which are more non-dirty, stylish, untiring, non-strencious and time bound. All these are deterring the farm youth, both the farmer youth and labour youth from the scene of farming in our state.

Aziz (1988) revealed in his study on adoption of drought management practices by farmers in Palakkad that non-availability of labour is one of the important reasons for non-adoption of the various practices.

The most important factors which dissuaded the rural youth from taking up farming as an occupation were found to be attraction towards white collar jobs, uncertainty about the success of field crops, low price of crop produce, assured income in service, low profit in farming as compared with other businesses, crops not insured, agriculture too labour intensive and loans inadequate (Shehrawat and Sharma, 1994).

The further analysis of the participation of farm youth has revealed that (Table 8 and 9) compared to physical participation, the young farmers had a higher participation in farming in the way of supervision. This has the support of an earlier study by Shivalingaiah and Veerabhadraiah (1996), which pointed out that male youth from large dairy farms participated mainly in management aspects, and they hired labour for other manual work.

The observed low participation of farm youth in farming and their low knowledge acquisition of indigenous farming skills are to be read together. This is further emphasized by the significant correlation obtained between IPF and ISAI.

It is observed from the table that there is highly positive and significant association between the participation of farm youth in farming activities and their level of knowledge/skill in indigenous farm practices. It is quite natural that for a generation, who is getting far away from the farm, will lose the local wisdoms of old generations. Acquaintance and practice only can make individuals knowledgeable and skilled in any profession. This trend is quite alarming and invite the attention of all concerned with agricultural development. It is reported by TOKAU (1998) that non participation of farmer youth and non-availability of labour for paddy cultivation has led to the tragic situation of paddy lands in Kerala.

Mohandas (1994) reported non-availability of labour during the peak agricultural seasons and their increased costs as the most important constraints in rice cultivation. Thousands of acres of the paddy lands in Kerala is now converted to garden lands and are utilized for non agricultural purposes. The trend indicates that gradually Kerala will become a state which may depend entirely on its neighbouring states for its staple food the 'rice'.

There should be suitable and effective strategies and programmes which can persuade farm youth for increased participation in farming. There should be strategic changes in the state's agricultural policies for extension and research. Policies which can promote the increased participation of farm youth - both male and female should be brought out. Policies and programmes which can create women empowerment in terms of technology and resources can bring about visible impact in farm scene. Together with this there should be efforts to sensitise the farm researchers to come out with technologies which are gender friendly, non-tiring and less strenous. Such technologies can attract and sustain the farm youth to the scene.

Simultaneously there should be efforts to document the indigenous farm skills not only for historical importance, but for the agenda of applied research.

Knight (1980) had called for the systematic documentation of traditional farmers knowledge into an 'information bank' from which agronomists, extension workers and other farmers can draw enlightment and insight.

Gupta (1990) listed the necessity for documentation of indigenous knowledge as to understand scientific rationale to accelerate technological change, to enable better understanding of technology development and development of new concepts, to increase awareness among the younger generation and develop appreciation for the traditional systems and to revive and restore pride among the farmers themselves.

5.5 Relationship between behavioural characteristics of farm youth and their participation in farm youth in farming

A perusal through the Tables 13 to 16 will reveal that six behavioural characteristics of farm youth as the best predictors of their participation in farming namely; self confidence (x_{13}), risk orientation (x_{11}), social participation (x_7), agricultural background (x_3), attitude towards self employment in agriculture and allied fields (x_9) and economic motivation (x_{14}).

Self confidence

The variable self confidence and farm participation of farm youth exhibited a positive and significant correlation. The observed relation and importance is quite understandable as the self confidence perceived oneself is direct indication of his or her competence and adequacy. Such individuals think positively about themselves. A sense of personal efficacy and positive self image are indicative characteristics of farm entrepreneurs (Vinayagam, 1998). Pareek and Rao (1978) also have pointed out personal efficacy as the general sense of adequacy in a person and persons who have high personal efficacy as more likely to be entrepreneurs. The above observed relation highlights the need of HRD efforts for

improving self confidence of farm youth through planned efforts of youth development programmes which can be through formal, non-formal and informal means. This is quite relevant in the context of the present decentralised planning in the state.

Risk orientation

The significance gained by the relation between risk orientation and farm participation of the farm youth needs not much explanation.

An individual engaged in farming is no doubt at the mercy of different uncertainities of climatic factors, market fluctuations, pest occurrences and non-availability of critical inputs. Risk is an unavoidable factor of farm business. The term 'risk' refers to an outcome, which leads to losses or deviations on realizations from expectations (Heady *et al.*, 1957). An individual with high risk orientation will be ready to face challenges whenever they occur in his/her effort for a better chance of success. Individual who tries only will win even at the risk of loss. The importance of risk orientation in farm participation and farm business was also reported by Viju (1985), Rajendran (1992), Damodaran (1994) and Vinayagam (1998). The postulate of Tisdele (1968) very well substantiate this observed tendency to minimise risk and maximise profits in varying circumstances of an enterprise.

Social participation

The results of the analysis indicate that individuals with increased social participation will have an increased participation in farming. An individual with increased orientation and exposure of his environment will be with real perceptions of the society and its needs and limitations. Such a citizen is exposed to have social commitment and social responsibility, his/her farm participation being one of its direct reflection (Table 13). This association can be explained from other end also.

The youth who participate in one of the major activities namely farming, should have up-to-date knowledge of the environment. Such relationship between farming and social participation had been reported earlier by Preetha (1997).

Agricultural background

The agricultural background and farming experience of the farm youth is found to be with significant relation. This observation is also quite natural as farming serves as the foremost training ground for individual. Hereditary influence also plays an important role in relation to family background of any profession.

Studies by Chacko (1990), Aswathi (1992), Banerjee and Talukdar (1997) have indicated the importance of family background and occupational performance of children.

Attitude towards self employment in agriculture and allied fields

The significant attitude towards self employment in agriculture and allied fields emerged as one of the best variables to predict the extent of farm participation of farm youth is quite noteworthy in present days context. The fact that prevailing rigid type of education system of the country which is creating job seekers instead of job creators is big problem of the production scene. The high level literacy of the state is acting as a boon and curse of the state's development at the same time. The tendency on the part of the educated youth to waste time in search of employment and considering self employment as the last resort is the curse of the youth. The variable self reliance and self confidence were also found to be indirectly correlated with this variable (Porchezhian, 1991; Sreekumar, 1985). Pradeepkumar (1993) also observed significant association between attitude towards self employment and extent of participation of educated unemployed youth in agriculture.

This particular trait is really to be inculcated among the youth which calls for planned HRD efforts of entrepreneurship development. This was pointed out by Vinayagam (1998) in the case of agribusiness operators of Kerala.

Economic motivation

The observed importance of economic motivation of a farm youth in his/her farm participation is quite revealing. Economic motivation directs individual engaged in an enterprise towards profit augmentation and helps to make more profit out of the enterprise.

Vinayagam (1998) also has pointed out that economic motivation as one of the important motives which moulds the entrepreneurial behaviour of individuals. When the ultimate aim of starting any enterprise is viewed from the part of view of economic gain the observed result is quite logical.

Direct and indirect effect of behavioural characteristics on farm participation

The path analysis revealing the direct and indirect effect of behavioural characteristics on farm participation of farm youth has further emphasized the role of attitude towards self employment in agriculture and allied fields, economic motivation, management orientation and social participation of the farm youth. The contribution of these variables' indirect effects through the variable of management orientation reveals a quite logical basis. Management by definition is 'getting things done' - and efficient management is considered as critical factor for any occupation. The prosperity and success of any system mainly depend on the managerial role played by its operators. Management orientation can shape the entrepreneurs into better farm business operators which in turn may help them in better planning, maximising production and efficient marketing of the farm produce which are crucial for economic profit. It is quite relevant to quote the report of Vinayagam (1998) here.

5.6 Relationship between behavioural characteristics of farm youth and acquisition of indigenous skills in farming

Five behavioural characteristics of farm youth namely primary occupation (x_2), attitude toward self employment in agriculture and allied fields (x_9), self confidence (x_{13}), sense of responsibility in farming (x_{15}) and farming experience (x_5) have been selected as the best predictor set of the dependent variable i.e. acquisition of indigenous skill in farming by the farm youth. The further analysis carried out to trace the path of these variable's direct and indirect effect towards their acquisition of indigenous skills in farming has revealed their interwoven nature. Attitude towards self employment in agriculture and allied fields has emerged as the variable with maximum direct effect while the variable of sense of responsibility in farming as with maximum indirect effect. The observed interwoven nature of the farm youth's attitude towards self employment in agriculture and allied fields, sense of responsibility in farming and management orientation is a quite eye opening finding.

The above emerged three traits are actually the crux of any entrepreneur's basic traits. In the present day's context farming is gaining more and more business perspective and those who involved in farming should naturally have these entrepreneurial traits. This inturn demands strategies and programmes of formal and informal nature to inculcate these traits in the present youth and future citizens. Our educational system also needs timely reorientation with vocational courses and learning contents entrepreneurship, civic sense and social commitment. Training opportunities which can transfer the skills of indigenous farm skills to the farm youth are to be arranged for its popularisation. Efforts in this direction only can save the treasure - "farming culture" gained through generations.

5.7 Constraints perceived by farm youth in relation to their participation in farming

A perusal through the Table 22 reveals that cent per cent of farm youth perceive risk and uncertainty involved in agriculture as the most important problem in their participation in farming and considering farming as their livelihood. Strategies to establish regulated markets, remunerative price systems, crop insurance schemes etc. are some key answers to this problem.

Low profit from agriculture compared to other businesses also dissuade farm youth from the farming sector. But some farmers are very successful and earn high profits. Their decision in the selection of crops, and their managerial abilities are factors of their success. This emphasise the importance of starting the entrepreneurship development programmes targeting the farm youth.

Drudgery of manual labour involved in the farming practices is one major discouraging factor which dissuade the farm youth from agriculture. Appropriation of technologies and mechanization can solve this problem to a great extent. Research has to be directed to evolve farm machines which are of low cost and convenience. This will motivate individual farmers to participate in farming. Moreover, farming has to be given the status of an industry to attract youth, to this occupation.

Inadequate financial support and credit facilities, that too with cumbersome formalities from government agencies was raised as a major problem of farming by the farm youth. It is a fact that the farming sector gets only a meagre percentage of credit facilities compared to industrial and business sectors.

High incidence of pests and diseases for crops was considered as an important discouraging factor by the farm youth. Similar findings have been reported by Manju (1997). Because of heavy crop loss caused by pests and diseases,

some farmers even give up farming. The gall fly attack in rice and mite attack in coconut were two recent incidents of severe loss in the farming sector of Kerala. In the opinion of farmers, whatever measures suggested are not cost effective. Evolution and popularization of resistant varieties and effective pest control measures are also needed to boost the confidence of farmers.

As agriculture is seasonal, it cannot provide labour throughout the year. So people cannot depend on farming for constant source of employment. Attraction towards white collar jobs and the 'false prestige' attached, also adversely affect the participation of the farm youth in farming.

An overview of these results necessitates the development of a strategy to attract youth to farming sector. The policy markers and planners should consider these problems as the threats to the farming sector and should come out with imaginative and creative strategies and programmes which can attract and sustain farm youth in agriculture. Scheme also should be started to make farming profitable and attractive. Otherwise not only the farming skills will become endangered in the state, but farming itself will become extinct in the near future. TOKAU (1998) has reported the endangered nature of rice farming in Kerala, in a study on the status of rice cultivation in the state. The unemployment faced by farm youth today indicates much scope which can be diverted to farming if properly developed and channelised.

Summary

CHAPTER VI
SUMMARY

As an integral part of any socio-cultural system, there exist large number of indigenous knowledge and practices which are gradually getting forgotten or unused. These are usually referred to as the rural people's knowledge or indigenous wisdom. These indigenous technical systems sustained through generations have to be naturally preserved and utilized for the betterment of humankind. Many field studies and surveys conducted have pointed out the dearth of skilled labour in undertaking many of the traditionally practised farming activities.

There are different means of transmission and popularisation for indigenous knowledge through one generation to another, such as folk lores, proverbs, folk songs, transfer of skill from skill masters to their apprentice in farming etc. In this study emphasis is given to the documentation and preservation of farm skills, which needs sincere efforts. The skill masters of rural area should be motivated to impart these to young hands, the pre-requisite being the interest and enthusiasm of farm youth. The alienation of youth from farming is an ever increasing threat to the preservation of the "culture" of agriculture. An attempt to measure their participation in farming, and their knowledge on indigenous farm knowledge would be quite useful in this context. Without such purposeful interventions, many of the indigenous skills which are facing endangered condition, in the present system will be extinct in the very near future.

Only countable studies have so far been conducted in the field of indigenous skills. The integrated farming system being prevalent in Kerala, this study on endangered skills in the farming systems is of topical importance.

The study was conducted with the following objectives.

i) To identify endangered farm skills in the farming systems

ii) To identify the factors associated with the endangered conditions of the farm skills.

ii) To measure the extent of acquisition of skills by young farmers and labourers in the farming systems.

iv) To measure the extent of participation of young farmers and labourers in the actual farm operations.

v) To correlate the behavioural characteristics of young farmers and labourers with the extent of acquisition of skills and participation in farming activities.

vi) To analyse the constraints in relation to participation of young farmers and labourers in farming.

The study was conducted in two phases - Phase I and Phase II. Phase I achieved the major objective of identification of indigenous skills, while Phase II accomplished the rest of the objectives.

Phase I was conducted in all the 27 panchayats of Mukundapuram Taluk. Through key informants and contacts of traditional farmers around, indigenous skills were collected with the help of an unstructured interview schedule.

To conduct the second phase, five panchayats were randomly selected one each from every block. Ten young farmers and ten young labourers were identified at random from the different farming systems from each panchayat following proportionate allocation; thus forming 100 respondents for the study. The required information was collected by personally interviewing them with a structured interview schedule. The major results of the study were as follows:

1. The study in the first phase identified 73 indigenous farm skills. Two skills were extinct, thirty eight skills were observed to be endangered and 33 skills as still popular. The indigenous skills of rice included repeated ploughing of paddy field with country plough, maintaining field bunds, germination method of paddy seedlings, use of cashew leaves as manure, 'kundakoottal' of paddy seedlings, pest control methods, rodent traps, irrigation devices and post harvest operations of paddy. In coconut cultivation, the indigenous skills identified were practices followed in production of good seedlings and pest control methods. Storage of vegetable seeds, preparation of banana rhizomes for planting, pest control methods and technique for inducing ripening of banana bunches were also identified. Inland fishing devices like 'kuruthi', 'choonda', 'ottal', use of 'neervalam' and 'oduku' were documented. In animal management, treatment for cough in cattle with spider and ajowan, pest control methods, practices for increasing milk production of cattle and fracture curing of cattle also were identified. The factors responsible for the present state of the skills were also documented.

2. The factors associated with the endangered conditions of farm skills were identified. The factors being human factors, technical factors, resource related factors and social system factors.

3. There was significant variation in the indigenous skill acquisition index (ISAI) of farm youth. Majority (54%) of farm youth were in the range of very low to low ISAI which details that 26 per cent and 28 per cent respectively.

4. A comparison between young farmers and young farm labourers revealed that majority of the young farmers had low (30%) and very low (24%) ISAI; young farm labourers also exhibited same trend of very low (36%) and low (22%) ISAIs.

5. Analysis of the index of participation in farming (IPF) revealed that almost half of the farm youth had low to very low participation in farming (i.e., 16% and 28% respectively). The physical participation of majority of young farmers were low to very low (30% and 26% respectively) while majority of them had high (32%) to moderately high (26%) supervision in farming.

6. IPF of majority of young labourers were low (26%) to very low (26%). A higher majority of them had high (38%) to moderately high (32%) physical participation, on the other hand low (32%) to very low (36%) supervision in farming.

7. The simple correlation analysis to study the influence of behavioural characteristics of farm youth on their participation in farming activities revealed that out of 17 variables, 11 showed positive and significant relation with participation in farming. MLR analysis explained that 41.6 per cent of the variation in the dependent variable was caused by the independent variables. The variables viz., education (x_1), social participation (x_7), information source utilisation (x_8), attitude towards self employment in agriculture and allied fields (x_9), risk orientation (x_{11}), management orientation (x_{12}), self confidence (x_{13}), sense of responsibility in farming (x_{15}) and acquisition of indigenous skill (x_{17}) showed significant multiple linear regression coefficients. The step down regression analysis pointed out that 39.24 per cent of the variation was explained by six variables namely self confidence (x_{13}), risk orientation (x_{11}), social participation (x_7), agricultural background (x_3), attitude towards self employment in agriculture and allied fields (x_9) and economic motivation (x_{14}).

The path analysis pointed out that the highest direct effect on participation in farming was recorded by attitude towards self employment in agriculture and allied fields (x_9), followed by economic motivation (x_{14}), management orientation (x_{12}) and social participation (x_7) in that order.

8. The simple correlation analysis to study the influence of behavioural characteristics of farm youth on acquisition of indigenous skills in farming recorded that out of 17 variables only three variables showed positive and significant relation with acquisition of indigenous skills in farming. The MLR analysis explained that 27.98 per cent of the variation in the dependent variable was caused by the independent variables. The variables viz. farming experience (x_5), attitude towards self employment in agriculture and allied fields (x_9) and self confidence (x_{13}) showed significant multiple linear regression coefficients. Step down regression analysis explained that only 19.7 per cent of the variation was explained by five variables namely primary occupation (x_2), attitude towards self employment in agriculture and allied fields (x_9), self confidence (x_{13}), sense of responsibility in farming (x_{15}) and farming experience (x_5).

   Path analysis showed that the highest direct effect was recorded by attitude towards self employment in agriculture and allied fields (x_9) followed by management orientation (x_{12}), primary occupation (x_2), annual income (x_4) and farm size (x_6) in that order.

9. Among the constraints perceived by farm youth in relation to their participation in farming, risk and uncertainty involved in agriculture was perceived as most important (100%) followed by drudgery of labour in the field (91%), low profit from agriculture (86%), inadequate financial support (85%), agriculture too labour intensive (84%), low price of crop produce (78%), high incidence of pests and diseases (75%) and agriculture not providing permanent labour for agricultural labourers (72%).

Some other constraints perceived by farm youth were high initial investment for agriculture (64%), agriculture cannot provide constant source of income (62%), high wages of labourers (54%) and labour scarcity (49%).

Implications of the study

Indigenous skills, their application followed by the farmers in the past, illustrates how old generation had learned to manipulate and derive advantages from their natural environment. Many of the social, economic and technical changes that have resulted in the present social structure act as barriers and restrict the use, dissemination and conservation of these specialised skills. So a systematic documentation of the indigenous skills is inevitable to conserve the old farming traditions and wisdom of the farmers from being extinct and lost for ever. Analysis of many of the indigenous skills can serve as the starting point of applied research for alternative technology generation and utilisation also.

The participation of farm youth in farming activities and their acquisition of indigenous skill are found to be low to very low among majority. This observation implies that most of the old farming traditions are being gradually lost through gap evolved in between the old farmers and present day farm youth. Farm youth are not showing interest in farming activities as they are attracted only to white collar jobs. The participation of farm youth in farming activities was more affected by their attitude towards self employment in agriculture and allied fields and management orientation. This points out that farming should be made a profitable attractive enterprise to the farm youth.

The acquisition of indigenous skills by farm youth in farming was more affected by attitude towards self employment in agriculture and allied fields and farming experience. Farming participation can provide them direct opportunity to acquire skills. This also indicate the need of conscious interventions wherein programmes or content of farm education to be built in the education system from early years. Similar efforts of training in indigenous knowledge and skills also can be thought of in the present context of local level planning.

The most important constraint perceived by farm youth in relation to their participation in farming was risk and uncertainty involved in agriculture. Drudgery of labour in the field, low profit from agriculture, inadequate financial support, labour intensive nature of agriculture, low price of crop produce and high incidence of pests and diseases were the other important constraints perceived by farm youth which keep them away from participating in farming.

Farming is gaining more and more business perspective and those who involved in farming should have entrepreneurial traits. This demands strategies and programmes of formal and informal nature to inculcate these traits in the present and future youth and for the promotion of applied and participatory research among the farm scientists.

Suggestions for future research

1. Field validation of the identified skills are to be conducted so as to improve its potentiality and accelerate their popularisation.

2. A multidisciplinary expert team must analyse the rationale and comprehend the identified skills to form a package of indigenous technologies.

3. Research efforts must be taken to produce the best mix of indigenous and modern technologies.

4. In the present study only a taluk of Thrissur District with a limited sample size was covered. An indepth survey covering the entire state would help to get a more holistic picture about the integration of various indigenous skills followed by farmers of different localities in the state.

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Appendices

APPENDIX-I

Semi-structured interview schedule for the identification of indigenous and endangered skills

1. Name of the Panchayat

   Ward No.

   House No.

2. Name of the farmer

   Address

3. Details of land/and animals owned
   (Area, wet land, garden land, major crops grown, cattle, poultry etc.)

4. Traditional practices followed in farming

Crops

a. Seed
b. Fertilizer and Manures
c. Water (irrigation, conservation, drainage etc.)
d. Plant protection
e. Intercultivation
f. Weeding
g. Soil conservation
i. Processing of produces
j. Storage (including byproducts)
k. Crop rotation
l. Any other relevant information

Animals

a. Breeds
b. Feeds and feeding
c. Precautions against ailments
d. Treatments on disease occurrence
e. Sanitation of cattle shed and surroundings
f. Milking

g. Ploughing (any such activity using the animal)
h. Breeding
i. Processing of products
k. Storage of feeds
l. Storage of produces
m. Implements used

Poultry

a. Breed
b. Feed and feeding
c. Housing
d. Precautions against ailments
e. Treatment on incidence of diseases
f. Hatching and brooding
g. Special management practices any
h. Processing of produce
i. Storage of the produce
j. Marketing of the produce

Fishing unit

a. Breeds
b. Pond/tank/field
c. Feeds and feeding
d. Other management practices
e. Methods of catching
f. Processing
g. Storage
h. Selling

5. Any traditional practice known, but not practised

6. Any other farmers/labourers who practice traditional practices in the panchayat

7. Any other relevant information

8. Factors responsible for the endangered state of farm skills

APPENDIX-IIa

Lists of traditional farmers who served as resource persons in the identification indigenous skills

Thrikkur Panchayat

1. P.C.Thomas
   Valanjanthuruthil
   Kalloor
2. Kochuraman
   Mulangadan
   Kalloor
3. Kandunni
   Thaikkadan
   Thrikkur
4. Raghavan
   Kaliparambil
   Thrikkur
5. Kochakkan
   Nellissery
   Kalloor
6. Macki
   Thayyil House
   Thrikkur
7. P.S.Ravunni
   Muttithadi
   Kalloor
8. Parameswaran Nair
   Punnachatharayil
   Kalloor
9. K.O.Mathai
   Kudamanakkaran
   Kalloor
10. T.G.Ramakrishnan
    Thandaparambil
    Kallai

Vellangallur Panchayat

1. T.V.Narayanan
   Therkayil
   Konathukunnu
2. Indusekharan, V.
   Director - VISTAS
   Konathukunnu
3. P.P.Padmanabhan
   Pachery
   Vellangallur
4. Sreedharan
   Thayyil
   Vellangallur
5. T.N.Sugathan
   Therkayil
   Konathukunnu
6. Narayanan Potti
   Ezhachery Mana
   Vellangallur
7. P.P.Radhakrishnan
   Pachery
   Vellangallur
8. P.C.Mohanan
   Parambikkadan
   Kottanellur
9. Vijayan
   Parambikkadan
   Kottanellur
10. Antony Lonappan
    Mechery
    Vellangallur

Annamanada Panchayat

1. Sarala
   Maprampilly Mana
   Annamanada
2. P.C.Madhavakuruppu
   Chakrapani Mundiram
   Annamanada
6. Chathunny
   Gopurathinkal
   Vynthala
7. Mathew Abraham
   Pereppadan
   Vynthala

3. K.K.Ramachandran
Kattukandathil
Annamanada

4. N.P.Varghese
Njaraleli
Annamanada

5. Madhavan
Edasseri
Annamanada

8. Varghese
Pereppadan
Vynthala

9. Rukmini
Parambikkadan
Annamanada

10. Lakshmi Amma
'Sreemandir'
Annamanada

Kodassery Panchayat

1. P.A.Devassikutty
Peedikkaparamban
Elinjipra

2. P.C.Paul
Peeikkaparamban
Elinjipra

3. P.A.Kunjappan
Pookoli
Elinjipra

4. K.R.Vidhyadharan
Koodaminathil House
Kmmalam (P.O.)

5. Chandran
Edamana House
Chettikkulam

6. T.K.Samuel
Thechethakudi
Chettikulam

7. K.Y. Chathan
Kakkanadan
Narayangadi

8. Pyli George
Karippayi
Mettippadam

9. M.C.Lonappan
Malppan
Chettikulam

10. M.P.Chacko
Malppan
Chettikulam

Parappukkara Panchayat

1. P.L.Ouseph
Panamkulam
Nedumbal
Thottippal (P.O)

2. T.R.Sankarankutty
Thrithani House
Keezhuthani
Thanissery

3. C.K.Raman Ezhuthachan
Chennelliparambil House
Karalam (P.O)

4. N.O.George
Nayankara House
Kattoor

5. V.Kalyanikuttyamma
Veliyankodu House
Keezhuthani
Thanissery

6. P.L.Kunjipalu
Panamkulam House
Nedumbal

7. P.L.Kochulonappan
Panamkulam House
Nedumbal

8. T.D.Varghese
Panamkulam House
Nedumbal

9. Sivaraman
Thonduparambil
Nooluvally
Chembuchira

10. Mohanan
Manukkadan
Chembuchira

APPENDIX-IIb

List of Scientists participated in farmers discussion

1. Dr.R.M.Prasad
   Associate Professor
   Communication Centre, Mannuthy

2. Dr.Ranjan S. Karippai
   Associate Professor & Head
   College of Horticulture, Vellanikkara

3. Dr.F.M.H.Khaleel
   Associate Professor
   College of Horticulture, Vellanikkara

4. Dr.P.S.Geethakutty
   Associate Professor
   College of Horticulture, Vellanikkara

5. Dr.Koshy Abraham
   Associate Professor
   College of Horticulture, Vellanikkara

6. Dr.Jim Thomas
   Associate Professor
   College of Horticulture, Vellanikkara

7. Dr.P.S.John
   Associate Professor
   College of Horticulture, Vellanikkara

8. Dr.Manomohan
   Associate Professor
   College of Vety. & Animal Sciences
   Mannuthy

9. Dr.Luckins C. Babu
   Dean
   College of Forestry, Vellanikkara

10. Smt.Lisamma Joseph
    Associate Professor
    College of Horticulture, Vellanikkara

11. Sri.Surendran
    Agricultural Officer
    Thrikkur Krishi Bhavan

12. Sri.Ramakrishnan
    Agricultural Assistant
    Thrikkur Krishi Bhavan

13. Sri.Shankaran, N.R.
    Agricultural Assistant
    Thrikkur Krishi Bhavan

14. Sri.Abraham
    Agricultural Officer
    Kodassery Krishi Bhavan

15. Sri.C.S.Shila
    Agricultural Officer
    Annamanada

16. Sri.T.V.Sugathan
    Agricultural Officer
    Vellangallur Krishi Bhavan

APPENDIX-IIIa

INTERVIEW SCHEDULE FOR THE COLLECTION OF DATA FROM FARM YOUTH

Name and address :

Category (farmer/labourer) :

Date :

1. Age :

2. Education : Illiterate/Functional literate/ Primary school level/Middle school level/High school level/Pre-degree or equivalent/Degree and above

3. Employment status/Occupation : Agriculture as primary occupation/ Agriculture as secondary occupation

4. Agricultural background of the family : Traditionally agricultural family/ Farming recently started
OR
Traditional agricultural labourers/ Recent agricultural labourers

5. Family structure and educational level of the family

Male	Female	Adult	Children	Education	Occupation

6. Annual income of the youth : Rs. /year

7. Annual family income : Rs. /year

8. Farming experience : ..... years

10. Social participation

i) Membership in organisation — No. of organisations

No membership
As member
As office bearer

ii) Frequency of attending meetings

Not attended
Occasionally
Regularly

11. Information source utilisation

How often do you use the information sources?

Sources	Whenever needed	At times needed	Never
1. Mass media sources			
T.V.			
Radio			
Film			
Newspaper			
Farm publications			
Agrl. Exhibition			
2. Personal cosmopolite sources			
Research Scientist			
Agrl. Officers			
Agrl. Assistants			
Others (specify)			
3. Personal localite sources			
Neighbours			
Friends			
Family members			
Relatives			

12. Attitude towards self-employment in agriculture and allied fields

	Attitude statements	Agree	Disagree
i)	Agriculture is a potential field for self-employment during the present period of acute unemployment		
ii)	Self-employment in agriculture is an independent profession as it offers freedom		
iii)	Self-employment in agriculture helps to become self-sufficient in life		
iv)	Self-employment in agriculture is desirable since one need not expect any sanction from any official		
v)	Since there is ample technologies are available in agriculture, one can make self-employment in agriculture easily		
vi)	For an unemployed youth agriculture is a sure profession facing the vagaries of life		
vii)	Agriculture is the basis for other industries, so selecting self-employment in agriculture is always worthy		
viii)	It is unwise to select self-employment in agriculture as it needs more physical and mental efforts		
ix)	There is no necessity for an educated unemployed youth to go for self-employment in agriculture as Govt. jobs are meant for him		
x)	Sound family background in agriculture is a necessity for selecting self-employment in it		

13. Leisure time activity (Rank each activity in the order of preference)

1. Farming
2. Non-farming
   - (i) Hobbies (reading books, T.V. viewing, cinema, playing cards, listening radio)
   - (ii) Reading newspaper
   - (iii) Interacting with parents and elders
   - (iv) Discussing with friends and idling
   - (v) Sports/games

14. Fatalism and scientism

Statements	Agree	Undecided	Disagree
a) Higher yields depends purely on nature's will			
b) Change to new farming pattern or practices often involve great risk and so put the farmer in loss			
c) Traditional ways of living and farming are age proven and therefore should not be disturbed			

15. Risk orientation

Statements	SA	A	UD	DA	SDA
i) A farmer should grow large number of crops to avoid greater risks involved in growing one or two crops					
ii) A farmer should take more of chance in making a big profit than to be content with a smaller but less risky profit					
iii) A farmer who is willing to take greater risk than the average farmer usually does better financially					

		SA	A	UD	DA	SDA
iv)	It is good for a farmer to take risk when he knows his chance of success is fairly high					
v)	It is better for a farmer not to try a farming method unless most others in the locality have used it with success					
vi)	Trying entirely a new method in farming by a farmer involves risk, but is worth it					

16. Management orientation

Statements		Agree	Disagree
Planning			
i)	Each year one should think fresh about the crops to be cultivated in each type of land		
ii)	It is not necessary to make prior decision about the variety of crops to be cultivated		
iii)	The amount of seed, fertilizers and plant protection chemicals needed for raising a crop should be assessed before cultivation		
iv)	It is not necessary to think ahead of the cost involved in raising a crop		
v)	One need not consult any agricultural experts for crop planning		
vi)	It is possible to increase the yield through farm production plan		
Production			
i)	Timely planting of crop ensures good yield		
ii)	One should use as much fertilizer as he likes		

	Statement	Agree	Disagree
iii)	Determining fertilizer dose by soil testing saves money		
iv)	For timely weed control, one should even us suitable herbicides		
v)	Seed rate should be given as recommended by specialists		
vi)	With low water rates one should use as much irrigation as possible		
Marketing			
i)	Market news is not so useful to a farmer		
ii)	Farmer can get good price by grading his produce		
iii)	Warehouse can help the farmer to get better price for his produce		
iv)	One should sell his produce to the nearest market irrespective of price		
v)	One should purchase his inputs from the shop where his relatives purchase		
vi)	One should grow those crops which have more market demand		

17. Self-confidence

Statements	Response pattern				
	SA	A	UD	DA	SDA
1. I feel no obstacle can stop me from achieving my final goal					
2. I am generally confident of my own ability					
3. I am bothered by inferiority feelings					
4. I do not have initiative					
5. I usually workout things for myself rather than get someone to show me					
6. I get discouraged easily					
7. Life is a strain for me in much of the time					
8. I find myself working about something or the other always					

18. Economic motivation

Statements	Agree	Disagree
1. A farmer should work towards large yield and economic yield		
2. The most successful farmer is one who makes the most profit		
3. The farmer should try any new farming idea, which may earn him more money		
4. A farmer should grow each crops to increase monitory profits in comparison to growing of food crops for home consumption		
5. It is difficult for the farmers' children to make good start unless he provides them with economic assistance		
6. A farmer must earn his living but the most important thing in life cannot be defined in economic terms		

19. Self-employment preference

Select the most preferred enterprise from the following

1. Farming
2. Plastic industries
3. DTP
4. Telephone booth
5. Electronics
6. Handicrafts
7. Workshop
8. Tailoring unit
9. Farm based enterprises

20. Sense of responsibility in farming

Statements	Agree	Disagree
1. Farmers should be committed to increase agricultural production		
2. Farmers should be provided with remunerative incentives to increase agricultural production		
3. Farmers should be allowed to grow crops or to put the land as fallow according to their convenience		
4. Farmers are responsible for giving food to the nation		
5. Since the required food items are available from neighbouring states, there is no need of farming in Kerala		
6. Any other occupation is better than farming from the point of view of profit		

APPENDIX -IIIb

PARTICIPATION OF YOUNG FARMERS AND YOUNG LABOURERS

Practises	Participation		Super-vision	No partici-pation
	Family labour	Waged labour		
I. LAND PREPRATION				
RICE				
1. Preparation of nursery, ploughing, levelling etc.				
2. Broadcasting of seeds in the nursery				
3. Nursery raising				
COCONUT				
1. Digging of pits for planting seedlings				
BANANA				
1. Digging pits for planting suckers				
II. CULTURAL OPERATIONS				
RICE				
1. Irrigation and drainage in the nursery				
2. Pulling the seedlings				
3. Preparation of main field (ploughing, making bunds, levelling)				
4. Transplanting of seedlings/ broadcasting				
5. Irrigation				

Practises	Participation		Super-vision	No partici-pation
	Family labour	Waged labour		
6. Weeding				
7. Fertilizer application				
8. Harvesting				
COCONUT				
1. Planting of seedlings				
2. Giving shade to seedlings				
3. Irrigating seedlings				
4. Cleaning the crown of palms				
5. Irrigating adult palms				
6. Fertilizer application				
7. Harvesting				
BANANA				
1. Planting of banana suckers				
2. Fertilizer application				
3. Irrigation				
4. Staking of plants (propping)				
5. Covering banana bunches				
6. Harvesting of bunches				

Practises	Participation		Super-vision	No partici-pation
	Family labour	Waged labour		
III. PLANT PROTECTION				
RICE				
1. Pest control (spraying, indigenous practices etc.)				
2. Disease control (spraying fungicides)				
COCONUT				
1. Pest control				
2. Disease control				
BANANA				
1. Pest control				
2. Disease control				
IV. POST HARVEST OPERATIONS				
RICE				
1. Threshing				
2. Winnowing				
3. Drying of seeds				
4. Drying of hay				
5. Parboiling				
6. Milling				

Practises	Participation		Super-vision	No partici-pation
	Family labour	Waged labour		
7. Powdering				
8. Winnowing				
9. Marketing				
10. Storing				
COCONUT				
1. Marketing as nuts				
2. Copra making				
BANANA				
1. Separating of suckers from mother plants				
2. Preparation of suckers for planting				
ANIMAL HUSBANDRY				
1. Cleaning the shed				
2. Milking				
3. Bathing cattle				
4. Grazing				
5. Milk marketing				
6. Cutting fodder				
7. Feeding				
8. Giving water at night				

Practises	Participation		Super-vision	No partici-pation
	Family labour	Waged labour		
9. Disease control/medical check up				
10. Milk processing				
FISHERY				
1. Collection of fingerlings				
2. Feeding				
3. Making suitable net or other equipments for fishing				
4. Any other manual work				
5. Fishing				
6. Selling of fish				
7. Processing of fish				
POULTRY				
1. Feeding of birds				
2. Rearing chicken				
3. Hatching of eggs				
4. Disease control				
5. Collection of eggs				
6. Storing/selling				

ACQUISITION OF SKILLS

SCHEDULE IIIC

നിങ്ങളുടെ നാട്ടിൽ താഴെ പറയുന്ന കൃഷി മുറകൾക്ക് ചില നാടൻ രീതികൾ നില വിലുണ്ട്. നിങ്ങൾക്ക് അവയെക്കുറിച്ച് എത്രമാത്രം അറിവുണ്ട്?	Awareness		How to do		Why to do so	
	Yes	No	Correct	In-correct	Correct	In-correct
1. തെങ്ങിൻതൈ ഉൽപ്പാദിപ്പിക്കുന്നതിന് എത്ര വർഷം പ്രായമായ തെങ്ങുകളിൽ നിന്നാണ് തേങ്ങ തെരഞ്ഞെടുക്കുന്നത്?						
2. കണ്ണ് വലുപ്പം — ഉള്ള തേങ്ങകളാണ് പാകുന്നത് (കൂടുതൽ/കുറവ്)						
3. കടവണ്ണം — ഉള്ള തെങ്ങിൻ തൈകളാണ് മാറ്റി നടുന്നത്. (കൂടുതൽ/കുറവ്)						
4. ഏത് പ്രായത്തിലാണ് തൈ മാറ്റി നടുന്നത്?						
5. തെങ്ങിൽ കുംഭം വയ്ക്കുന്നത് എന്തിനാണ്?						
6. കുംഭമുണ്ടാക്കാൻ ഉപയോഗിക്കുന്ന വസ്തുക്കൾ എന്തെല്ലാമാണ്?						
7. തെങ്ങിൻ തടിയിൽ പ്ലാസ്റ്റിക്ക് ഷീറ്റ്കൊണ്ട് പൊതിഞ്ഞുവയ്ക്കുന്നതെന്തിനാണ്?						
8. കള്ളിൽ കീടനാശിനി ചേർത്ത് വയ്ക്കുന്നത് തെങ്ങിൽ ഏത് കീടത്തിന്റെ ഉപദ്രവം കുറയ്ക്കാനാണ്?						
9. നെൽകൃഷിക്ക് നിലം എത്ര ചാൽ പൂട്ടിയിരിക്കണം?						
10. നെൽവയലിൽ വെള്ളത്തിന്റെ അളവ് നിയന്ത്രിക്കുന്നതെങ്ങനെ?						
11. വിത്ത് എങ്ങനെയാണ് മുളപ്പിക്കുന്നത്?						
12. ഞാറ് കുണ്ടകൂട്ടി സൂക്ഷിക്കുന്നതെന്തിനാണ്?						
13. ഓലചുരുട്ടിപ്പുഴുവിനെ നിയന്ത്രിക്കുന്നതെങ്ങനെ?						
14. വിത്ത് വിതയ്ക്കുന്നതെങ്ങനെ?						
15. വരമ്പ് വെട്ടിയൊരുക്കുന്നതെങ്ങനെയാണ്?						
16. നെല്ല് വിതയ്ക്കുമ്പോൾ പാടത്ത് പട്ട കുത്തി നിറുത്തുന്നതെന്തിനാണ്?						
17. നെല്ലിലെ ഓല അരിയുന്ന പുഴുവിനെ നിയന്ത്രിക്കുന്നതെങ്ങനെ?						

	നിങ്ങളുടെ നാട്ടിൽ താഴെ പറയുന്ന കൃഷി മുറകൾക്ക് ചില നാടൻ രീതികൾ നിലവിലുണ്ട്. നിങ്ങൾക്ക് അവയെക്കുറിച്ച് എത്രമാത്രം അറിവുണ്ട്?	Awareness		How to do		Why to do so	
		Yes	No	Correct	In-correct	Correct	In-correct
18.	ഞണ്ടിനെ പിടിക്കുന്നതെങ്ങനെ?						
19.	വരിനെല്ല് തിരിച്ചറിയുന്നതെങ്ങനെ?						
20.	അടിച്ചിൽ ഉപയോഗിക്കുന്നതെന്തിനാണ്?						
21.	അടിച്ചിൽ ഉണ്ടാക്കുന്നതെങ്ങനെ?						
22.	ചക്രം, വേത്ത് എന്നിവ എന്നതിനാണുപയോഗിക്കുന്നത്?						
23.	രാത്രി പാടവരമ്പത്ത് തീയിടുന്നതെന്തിനാണ്?						
24.	എങ്ങനെയാണ് വരമ്പിൽ കുടംവെച്ച് എലിയെപിടിക്കുന്നത്?						
25.	കാഞ്ഞിരത്തിന്റെയും ഒഡുവിന്റെയും കമ്പുകൾ പാടത്ത് കുത്തിനിറുത്തുന്നതെന്തിനാണ്?						
26.	നെൽവിത്ത് എങ്ങനെയാണ് സൂക്ഷിക്കുന്നത്?						
27.	നെല്ലും, പതിരും വേർതിരിച്ചെടുക്കുന്നതെങ്ങനെ?						
28.	തുലാതേക്ക്, കാളത്തേക്ക് എന്നിവയുടെ ഉപയോഗമെന്ത്?						
29.	കുടം കമഴ്ത്തിവെച്ച് എലിയെ പ്പിടിക്കുന്നതെങ്ങനെ?						
30.	വൈയ്ക്കോൽ എങ്ങനെയാണ് സൂക്ഷിക്കുന്നത്?						
31.	നെല്ല് പുഴുങ്ങുന്നതെങ്ങനെയാണ്?						
32.	കണ്ടം കത്രികവച്ച് എന്തിനെയാണ് പിടിക്കുന്നത്?						
33.	വാഴക്കന്ന് എങ്ങനെയാണ് സുക്ഷിക്കുന്നത്?						
34.	വാഴയിൽ കിളിശല്ല്യം നിയന്ത്രിക്കുന്നതെങ്ങനെ?						
35.	കന്നുകാലികളുടെ കുളമ്പുരോഗത്തിന് ഔഷധമെന്താണ്?						

നിങ്ങളുടെ നാട്ടിൽ താഴെ പറയുന്ന കൃഷി മുറകൾക്ക് ചില നാടൻ രീതികൾ നില വിലുണ്ട്. നിങ്ങൾക്ക് അവയെക്കുറിച്ച് എത്രമാത്രം അറിവുണ്ട്?	Awareness		How to do		Why to do so	
	Yes	No	Correct	In-correct	Correct	In-correct
36. തേക്കെണ്ണ വേർതിരിച്ചെടുക്കുന്നതെങ്ങനെ?						
37. പാടത്ത് കിളികളെ വിരട്ടിയോടിക്കാനുള്ള വിദ്യ?						
38. കാളയ്ക്ക് ലാടം തറയ്ക്കുന്നതെന്തിനാണ്?						
39. എള്ളെണ്ണ വേർതിരിച്ചെടുക്കുന്നതെങ്ങനെ?						
40. പാൽ കേടുകൂടാതെ സൂക്ഷിക്കുന്നതെങ്ങനെ?						
41. മോര് ഉണ്ടാക്കുന്നതെങ്ങനെ?						
42. വെണ്ണ വേർതിരിച്ചെടുക്കുന്നതെങ്ങനെ?						
43. എങ്ങനെയാണ് നെയ്യുണ്ടാക്കുന്നത്?						
44. മുട്ട കേടുകൂടാതെ സൂക്ഷിക്കുന്നതെങ്ങനെ?						
45. കോഴിയെ അടയിരുത്തി മുട്ട വിരിയിക്കുന്നതെങ്ങനെ?						
46. അടയിരിക്കുന്ന കോഴിയെ ഉണർത്തുന്നതെങ്ങനെ?						
47. കിഴങ്ങുകൾ കേടുകൂടാതെ സൂക്ഷിക്കുന്നതെങ്ങനെ?						
48. പയർ വിത്ത് കേടുകൂടാതെ സൂക്ഷിക്കുന്നതെങ്ങനെ?						
49. കന്നുകാലികളുടെ ദഹനക്കേട് മാറ്റുന്നതിനുള്ള ചികിത്സയെന്താണ്?						
50. ഉൾനാടൻ മീൻപിടുത്തത്തിന് ഉപയോഗിക്കുന്ന ഉപകരണങ്ങളെന്തെല്ലാം?						

ENDANGERED SKILLS IN THE FARMING SYSTEMS OF MUKUNDAPURAM TALUK, THRISSUR DISTRICT

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ABSTRACT OF THE THESIS

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ABSTRACT

A research study was conducted to identify and analyse the endangered skills in the farming systems of Mukundapuram Taluk, Thrissur District. The study also aimed at analysing the relationship of participation of farm youth in farming and their acquisition of indigenous skills with their behavioural characteristics. The factors associated with the endangered conditions of farm skills and the constraints in relation to the participation of farm youth in farming were analysed.

The study was conducted in two phases - phase I and phase II. The sample selected for the study was of 100 farm youth which consisted of 50 each of young farmers and young farm labourers. The phase I of the study covered all the 27 panchayats of Mukundapuram Taluk, and the phase II was conducted in five selected panchayats of the Taluk. The research endeavour identified 73 indigenous farm skills of which 38 skills were endangered, 33 still popular and two extinct skills. The factors associated with the endangered conditions of farm skills were identified.

The phase II revealed significant variation in the indigenous skill acquisition index (ISAI) of farmers. Majority (54%) of the farm youth were in the range of very low to low ISAI. Index of participation in farming (IPF) revealed that almost half of the farm youth had very low to low participation in farming. The physical participation of majority of young farmers were low to very low but they had high to moderately high participation as supervision, in farming. The young farm labourers had high to moderately high physical participation while they had low to very low supervision in farming.

Statistical analysis revealed that 39.24 per cent of the variation in the participation of farm youth in farming was influenced by six variables namely self confidence, risk orientation, social participation, agricultural background, attitude towards self employment in agriculture and allied fields and economic

motivation. About 19.7 per cent of variation in the acquisition of indigenous skill by farm youth was explained by five variables namely primary occupation, attitude towards self employment in agriculture and allied fields, self confidence, sense of responsibility in farming and farming experience.

Among the constraints perceived by farm youth in relation to their participation in farming, risk and uncertainty involved, drudgery of labour and low profit from agriculture were perceived as important. These imply that farming should be viewed as an enterprise and strategies and programmes should be devised to inculcate the entrepreneurial skills in the farm youth. Concerted efforts for evolving appropriate, small machines and promotion of farm mechanisation are also needed in this context. Identification, documentation and utilisation of the extinct/endangered farm skills can form the starting point of such efforts of applied research.