INDIGENOUS PRACTICES OF VEGETABLE CULTIVATION IN THRISSUR DISTRICT

BY

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THESIS

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DECLARATION

I hereby declare that this thesis entitled **Indigenous Practices of Vegetable Cultivation in 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, associateship, fellowship or other similar title, of any other University or Society

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Dedicated to my loving parents

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CHAPTER I

INTRODUCTION

"Nowhere would one find better instances of keeping land scrupulously clean from weeds of ingenuity in device of water- raising appliances of knowledge of soils and their capabilities as well as the exact time to sow and to reap as one would in Indian agriculture and this is not at its best alone but at its ordinary level It is wonderful too how much is known of rotation the system of mixed crops and of fallowing Certain it is that I at least have never seen a more perfect picture of careful cultivation combined with hard labour preservance and fertility of resource than I have seen at anywhere "

- Voelcker (1893)

Traditional practices existed in India and outside stress a reverence for Nature as the source of our very life They imply, perl aps without formal statement, that all living creatures have an equal right to life Vedic literature also shows that farming was advanced at that time, with a farmer possessing a fair knowledge of soil fertility, selection and treatment of seeds seasons of sowing and harvesting rotation manuring and the like

With the introduction of revolutionary advances in crop production technology many high yielding varieties and hybrids in several crops have found their way into our agriculture The use of chemical fertilizers together with improved seeds and plant protection has been able to achieve a commendable increase in food production

Changes in agricultural practices and maximising output with the use of the Green Revolution Package promoted in our country has, however resulted in a revolution leading to unsustainability since this technology was wholly dependent on abundant use of low priced non renewable energy After three decades of its existence the effect of the technology is tapering off over large areas The International Rice Research Institute has stated that since 1985 growth in rice yields has virtually ceased, in spite of new improved varieties being introduced There is also the realisation that agricultural development is not purely agricultural in character and much

less purely technological but a complex matrix of several factors not strictly forming part of agriculture play a vital role in the process of development

The negative accomplishment of the green revolution is that its success made traditional self-reliant farmers discard their numerous locally adapted varieties and indigenously developed technologies resulting in long term drastic decline in production More painful is the realisation that this has created in the depletion of non-renewable resources and the pollution produced is excessive

A growing body of evidence indicates that one of the main reasons why conventional development approaches have failed is that they have tended to ignore the local knowledge systems and practices (Warren 1991 Morin Labatut and Akhtar 1992, Salas 1994) This in otherwords means that if production and productivity is to be sustained indigenous know-how and traditional practices are to be revived and modernized

Traditionally a number of practices have been evolved by farmers to address the farm problems Such farmer-made technology reduced interference to a minimum by keeping the systems complex, as natural systems are Farmers obtained all their inputs from their own farm land or from neighbouring commons This 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 This technology may be simple but they have been tried and tested for centuries 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 indigenous knowledge systems depended wholly on the careful and efficient use of available renewable resources and were self-sufficient, with external inputs reduced as much as possible And farmers researched and solved their own problems with the cultural backing of the community

There is now an increased awareness among development practitioners extension workers and R&D agencies regarding the

importance of indigenous knowledge for a sustainable development The value of indigenous knowledge has been repeatedly stressed by many of the authors such as Warren (1992) and Mathias(1994) A significant aspect that could be cited here is that the use of mere indigenous knowledge is incapable of addressing all the issues related to sustainable development Sustainable development may well be better served by a system which incorporates both indigenous and scientific knowledge systems (Icamina, 1993) The sustainable management of natural resources can only be achieved by developing a science based on the priorities of local people and creating a technological base that includes both traditional and modern approaches to problem solving (Morin-Labatut and Akhtar 1992)

Incorporating indigenous and scientific knowledge means integrating information collected from farmers with scientific information and technology This in turn means that there is undoubtedly a need to initiate systematic efforts for collecting mdigenous knowledge from different locations of the state so that ecologically compatible and socially acceptable technologies can be formulated in the future run

Vegetable farming in Kerala is characterized by many features Cultivation of vegetables is an important component in the homestead system of cultivation in Kerala There is not even a single farmer who doesn t cultivate a bit of land with vegetables Moreover, due to the variations in agro-chmatic as well as topographic characteristics within the state itself wide variations can be observed with regard to the type of vegetables and even the production technologies develop d locally for raising them Since these practices are highly location specific, efforts for collecting and arranging them in a systematic way will be useful for the production of locally adapted technologies

In view of the foregoing observations, the present investigation was undertaken to focus on the various indigenous practices existing among farmers engaged in an important enterprise like vegetable farming, with a set of distinct objectives

Objectives of the study

The specific objectives of the study were

1 To identify the various indigenous practices followed by the farmers in vegetable cultivation

2 To measure the extent of adoption of these practices by the vegetable farmers

3 To measure the knowledge and evaluative perception of these practices by farmers and subject matter specialists

4 To assess the influence of personal, socio-economic and psychological characteristic of the farmers on their knowledge and extent of adoption of indigenous practices

Scope of the study

The study, which intended to identify the indigenous practices in vegetables, was the first of its kind in Kerala In the present agricultural scenario the study assumes much importance as it documented the various indigenous practices among vegetable farmers It is hoped that this can serve as a useful feedback to the researchers for evaluation of these technologies and for modifications if required to yield in a suitable blending to help an economically viable and ecologically sound agricultural development Moreover the study has attempted to analyse the influence of various personal socio-economic and psychological factors on the knowledge and extent of adoption of these technologies by farmers The findings of the study might give useful information to the agricultural researchers and extensionists to recognize the complexities of socially and politically differentiated knowledge generation transmission and adaptation and to explore methodologies that take this into account The identification of constraints felt by farmers for the use of this technology will help to reorient the extension strategies in suggesting any modification of their farming styles

Limitations of the study

Since the indigenous practices are highly location specific and vary from one region to another, the findings of this study can not be generalized for the entire state More over, the identified indigenous practices were solely based on the opinions and experience of farmers and hence in-depth analysis which checks the degree of efficiency with the visible outcome could not be carried out The study was conducted as a part of a post graduate research work and hence it had the inherent limitations of time and resources

In spite of these limitations no effort was spared to make the study as objective and systematic as possible

Presentation of the study

This report of the study is presented in five chapters The first chapter deals with the introduction covering the presentation of the problem objectives scope and limitations of the study The review of related literature in the light of the present investigation and the conceptual framework are given in the second chapter The third chapter contains the methodology adopted for the study The results and discussions are presented in the fourth chapter The fifth chapter summarises the study followed by references appendices and the abstract of the thesis

THEORETICAL ORIENTATION

CHAPTER-II

THEORETICAL ORIENTATION

An attempt is made in this chapter to develop a theoretical frame work based on the past research studies related to indigenous agricultural knowledge

The importance of indigenous knowledge system became the focus of attention in the process of participatory technology development only in the recent years Hence only a few research studies on this new emerging field were available for the development of this theoretical frame work More over this study is the first of its kind in Kerala However, an attempt was made to review the available literature related directly or indirectly to the topic and presented in this chapter under the following headings

2 1 Concept of indigenous knowledge

2 2 Definition of indigenous knowledge

2 3 Importance of indigenous knowledge

2 4 Studies on indigenous knowledge

2 5 Knowledge about indigenous practices and its relationship with selected characteristics of respondents

2 6 Extent of adoption of indigenous practices and its relationship with selected characteristics of respondents

2 7 Evaluative perception of indigenous practices

2 8 Constraints in using indigenous practices

2 9 Conceptual frame work for the study

2 1 Concept of indigenous knowledge

Throughout the history of agriculture, farmers were experimenting with various natural resources to improve the results in their fields and to optimize the input use The accumulation of the results of such farmer-made experiments, generally denoted as indigenous knowledge traditional knowledge, local knowledge community knowledge rural people's knowledge etc are being used to indicate this concept

The term indigenous knowledge denotes a type of knowledge that has evolved within the community and has been passed on from one generation to another

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)

According to Verma and Dhukia (1991) indigenous knowledge was mainly inherited through the socio-cultural system and was minimised and developed through the oral traditions, folk tales proverbs It is proved that the system of farming presented this way was based on wisdom and solid logic which now finds support from scientific studies too

Indigenous know how has two connotations One is concerned with the traditional technologies and the other is with respect to the modern technologies either developed indigenously or imported and adapted to indigenous conditions (Vasu 1994)

2 2 Definition of indigenous knowledge.

Indigenous knowledge is defined as a 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 the 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 (Haskell *et al* 1981)

Wang (1988) defined indigenous knowledge as the sum total of knowledge and practices which are based on peoples accumulated experience in dealing with situation and problems in various aspects of life and such knowledge and practices are special to a particular culture

Indigenous knowledge is unique to a given culture of society This knowledge is the information base for a society Indigenous knowledge is dynamic it changes through indigenous creativity and innovativeness as well as through contact with other knowledge systems (Warren, 1989)

2 3 Importance of indigenous knowledge

According to Chitambar (1961) it was important in planning and implementing new programs for the extension worker, to understand the economics of certain traditional practices followed by the villagers

Rudramoorthy (1964) pointed out that a judicious combination of folk knowledge and scientific knowledge will help to speed up the adoption of improved practices by the farmers

Rogers and Shoemaker (1971) stated that imminent change occurs when members of a social system with little or no external influence create and develop a new idea which then spreads within the system

Brokensha (1989) in his study critically examined he advantages and associated problems of trying to incorporate local management systems in attaining sustainability in rural households and implementing such development from below

Cashman (1989) emphasised the values and practicability of incorporating indigenous knowledge components in agricultural research to augment sustainable development that benefits all the rural people equally

Ploeg (1989) contended that farmers understanding of agricultural processes as a complex of personal metaphorical and contextual knowledge

which become almost impenetrable when subjected to scientific scrutiny then reaching a common understanding may be extremely difficult This draws attention to intimate linkages between cosmological beliefs and processes of agricultural experimentation and innovation

Chittiraichelvan and Raman (1991) stated that a number of traditional agricultural system which basically rely on indigenous knowledge are considered for productivity sustainability stability and equitability Documentation of all the traditional beliefs assumes greater importance to understand the scientific rationale, to accelerate technological change to enable better understanding of technology development and to increase awareness among youth and pride among farmers

Nitsch (1991) opined that the management of a farm requires the ability to handle a multitude of biological technical economical and social factors in a changing and largely unpredictable environment He explained that such coordination skills were not so much based on the formal rationality employed by scientists as an adaptive rationality where adaptive rationality was seen as a continuous interaction among visions experiences and experimentation These coordination and adaptive rationality were made up of tacit knowledge knowledge that could not be reduced to facts and rules and thus cannot be formalised It was a combination of experience intuition and practical know how that can only be learned in the context in which it is applied

Berkes and Folke (1994) argued that in order to ensure a more socially and ecologically sound approach to development, it was necessary to understand respect and utilize the local knowledge systems

According to Marsden (1994) the development of more effective managerial systems required increasing amounts of general, informal indigenous information, a strong partnership between specialist consultants and generalist practitioners and a commitment to new forms of organization that allowed many voices to be heard

Rajasekharan and Warren(1994) opined that indigenous knowledge could be used to fulfill socio economic needs and conservation of biodiversity at the same time

Salas (1994) opined that one of the main reasons why conventional development approaches had failed was that they had tended to ignore the local knowledge systems and practices

2 4 Studies on indigenous knowledge

Farrington and Martin (1987) observed that in problem identification scientists usually gave emphasis on the answers of the farmers to their own questions which might be relevant to a given crop or technology

Gupta (1987) opined that in order to derive scientific value out of the indigenous practices crucial observation was essential They had to be put into proper scientific testing thereby the very frontiers of science could be extended

Lightfoot (1987) insisted three activities to be included in the indigenous knowledge study methods They were (a) detecting indigenous methods/research topics (b) identifying participants in the activity, and (c) monitoring the process

After conducting an exhaustive investigation on strength and weakness of indigenous technical knowledge in Honduras, Bentley (1989) disclosed that the traditional peasant farmers in Honduras knew more about certain aspects of the local agro eco system

Netting *et al* (1989) studied the pattern of food crop production for the market using indigenous low energy technology This study examined the advantages of indigenous knowledge with a minimum state control and its limitations

Gupta(1990) listed the reasons for documentation of indigenous knowledge as to understand scientific rationale to accelerate technological change to enable better understanding of technology development, development of newer concept to increase awareness among the young generation to develop appreciation for the traditional system and receive and restore pride among the farmers themselves

After conducting a case study on traditional practices in dry land agriculture in Tamil Nadu Kanagasabhapathi (1991) identified many indigenous practices of high use particularly in plant protection He has also tried to collect the possible scientific explanation and made some valuable suggestions for further development of these practices

Bharara (1991) has identified certain traditional practices viz using crop residues leaves manures and mulch growing legumes and fodder crops to control erosion mixed cropping of cereals with legumes etc

Reddy *et al* (1991) conducted an attempt to collect the information regarding the rationale and wisdom behind traditional ramfed agricultural practices followed by experienced farmers of Andhra Pradesh It was also suggested that the practices thus identified were to be tested by all concerned with agriculture development

Sanghi (1991) documented a number of traditional farm management practices evolved by farmers in order to face the harmful effects of natural calamities after conducting a comprehensive study about the traditional farming practices for risk management in rainfed agriculture

Balasubramaniam (1992) enlisted a number of indigenous practices on dry land agriculture and opined that many of the ndigenous practices were low cost, easy to practice and environment friendly He also reported that the indigenous practices were labour saving and some of them improved quality and shelf life of the produce

Gupta and Patel (1992 a and b) reported that indigenous practices were cost effective and easy to practice

Sandoval (1992) documented indigenous technologies and belief systems in the cultivation of sweet potato in Bukidnon

While documenting some of the traditional practices in major farming systems in Kerala, Kishorekumar (1993) highlighted that indigenous knowledge systems always took care of the local ecosystem and resources leading to sustainability in agriculture He further pointed out that a careful

attention was required to have suitable blending of the indigenous knowledge with modern recommendations

In a paper on alternatives to pesticides and farmer's wisdom Vivekanandan (1993) listed down various indigenous methods which gave effective control in pest attack and observed that they were very useful in avoiding residual toxicity with high degree of efficiency in pest control

Rajasekhran and Warren (1994) studied the diversity of the indigenous agroforestry systems practised by the people of the Kolli Hills Tamil Nadu identified the factors which force local people to engage in activities that erode those systems and formulated policy interventions designed to make effective use of indigenous knowledge to meet the socio-economic needs and conserve biodiversity

Babu (1995) enlisted some indigenous practices followed by homestead farmers on various crops like coconut, rice banana and vegetables

2 5 Knowledge about indigenous practices and its relationship with selected characteristics of respondents

Studies directly analyzing the relationship between knowledge about indigenous practices and personal and socio-economic characters of respondents were not available and hence some studies reflecting indirect implications are reviewed here

According to Selvanayagam (1986) personal-localite exposure mass media exposure extension contact, cosmopolitness and innovativeness had positive but non significant relationship with the degree of traditional belief On the other hand experience in dryland farming and economic motivation had negative and nonsignificant relationship

The study conducted by Gnanadeepa (1991) pointed out that farming experience had positive and significant relationship with the degree of traditional belief

McGregor (1991) observed that individuals having low education level always posessed a positive out look on locally developed practices

Bebbington (1992) in his study discussed the nature of indigenous knowledge According to him, rural people's knowledge was not only technical but also included the range of aspirations, values and preferences that rural people have He added that this knowledge was constructed through the socio-economic and cultural histories of the regions within which people live

Alders *et al* (1994) opined that increased market orientation and changing consumption patterns created a disrespect of traditional authorities and indigenous knowledge

Matose and Mukamuri (1994) observed that as the poorer members of the community showed a greater concern for the environment while the rich had a contrast view in this aspect This was presumably because they had other sources of income not dependent on natural resources

Richards (1994) observed that farmers rejected or modified standard extension recommendations because they had detailed knowledge of the way in which crops and soil or crops and pests interact, under a verity of local climatic conditions This kind of knowledge arised where local people undertook their own experimentation or where they were able to draw inferences from experience and natural experiments

Salas (1994) opined that the scientific cultivation monopolizes genetic resources ignores the ecological diversity, privileges the low land concentrates of mechanization and high inputs and minimises the role of social and cultural knowledge systems

Stroosnijder (1994) found that the production technology that farmers use was constantly developing under influence of exposure to outside knowledge

F A O (1995) discussed the multiple sources of information to which farmers communicate to shape and enrich their knowledge base The paper

also pointed out that the evolution of the peasants farming practices is influenced as much by changes in the environment and the market place as it is by the information and knowledge that flows into a farming society

Altieri (1996) found that economic change fueled by capital and market penetration were leading to an ecological breakdown that was starting to destroy the productivity and sustainability of traditional knowledge

2 6 Extent of adoption of indigenous practices and its relationship with selected characteristics of respondents

Ziaul and Mahboob (1974) pointed out that there was strong negative relationship between fatalism of the farmers and their adoption of fertilizers

Chakravarthy (1982) identified that only two variables i e extension contact and economic motivation had positive and significant correlation with the extent of adoption of indigenous practices in the case of small farmers while the other variables such as age education, caste, nature of family, income, social participation adoption leadership scientific orienta tion, overall modernity and cosmopoliteness had no association with the extent of adoption by this small farmers He also observed that, as far as characteristics of medium and big farmers were concerned no association existed with the extent of adoption The variables such as economic motivation education and income had high direct effect on adoption level for all the three categories ie small medium and big farmers

Figueroa and Bolliger (1985) identified the positive effect of formal education on productivity in rural areas precisely because it helped to develop skills of abstraction and numeracy required to handle markets

Byerlee (1987) has similarly argued that formal education and human capital formation were essential if the momentum of the Green Revolution in Asia was to be maintained

Rist (1993) stated that the conservation and reproduction of the agrarian system were strongly cond ioned by the community regulations

concerning land use and socio economic relations He added that respect for nation reflected in the cultural and ethical dimensions of the community and the limited need for integration in the market economy, had prevented the community from falling into the trap of modern agricultural development

More and more scientists now accept that farmer's indigenous technical knowledge plays an important role in deciding about agricultural innovations When farmers assess new activities they do not consider only technical criteria Their economic decisions are also determined by their social and cultural context

The study conducted by Vel (1995) in Sumba - Indonesia's most isolated poor islands observed that oldest generation of men had the power to decide on land and other resource allocation labour use and livestock Social status also played a role m this hierarchy with the noble lords at the top and the slaves at the bottom The different exchange circuits with the urban officials also influenced his decisions regarding adoption of agricultural innovations

Boahene (1995) found that individual farmer's socio-eonomic situation and farming conditions exerted much influence on the farmer s final decision towards adoption of agricultural innovations

The study conducted by Canchaya (1996) on influence of credit on Potato production in the Azul Vally, Peru found that the peasant production was sustained by the use of their own resources by the maintenance of various agro-ecological systems But with introduction of credit, farmer s own productive knowledge tends to collapse and also it b ought the slow and inevitable degradation of their agro-ecological resources

2 7 Evaluative perception of indigenous practices.

Chakravarthy (1982) studied the variation in the perception of attributes of various indigenous practices by small medium and big farmers He observed that the perception of attributes simplicity profitability compatability and flexibility of indigenous practices was high for small farmers than the other two categories The medium farmers perception

regarding the attributes immediacy of return, input availability, cultural compatability, low perceived risk, and observability were more compared to the other two groups Big farmers did not perceive high of indigenous farm practices in respect of any of the attributes

In general, the indigenous practices were perceived to be more culturally compatible safe, simple, flexible and physically compatible There was no significant difference between small and medium farmers and medium and big farmers regarding the perception of indigenous farm practices, but there was significant difference between small and big farmers

Oba (1994), in a case study of range management conducted in Northern Kenya, found that the pastoralists perception of ecological patchiness was much more fairly differentiated than scientific classification The author showed how pastoralists applied their knowledge to make deliberated opportunistic use of natural resources

In a study conducted on ethnoveterinary medicine practices of Cameroon, Toyang *et al* (1995) found that livestock owners have used traditional animal health practices for a long time and are convinced of their efficacy The advantages which they ascribe to local medicines include availability, lower cost, efficacy, one treatment for various ailments and the fact that they rely on local knowledge and manpower and are based on materials and equipment which are locally available

In an attempt to study the ties between the agroforestory and local knowledge, Ferrer (1996) revealed that those peasants over sixty recognised the trees to have important usages Some recalled how the foliage of the trees had provided warmth and shelter for the animals and protected the pasture from the winder frosts In contrast, younger peasants had a much more limited view of the properties of trees They were sources of fire-wood and fencing, but their relationship to the environment was little understood because they had developed no social practices in relation to them

2 8 Constraints in using indigenous practices.

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 become 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

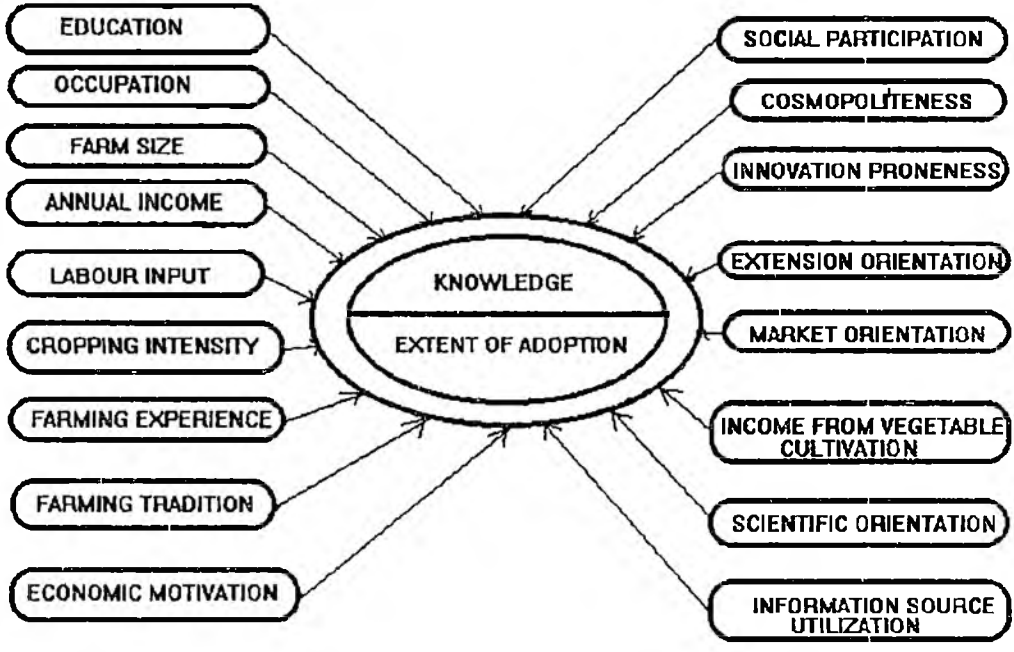
Pottier (1994) noted that extension worker's challenge was problematic for two reasons there seems to be no need to access house hold level farming experiments, people are doing it in such a way that varieties and technical knowledge do cross agroecological frontiers '

2 9 Conceptual framework for the study

Farming populations are essentially heterogeneous in terms of the strategies adopted for solving problems Varying ecological, demographic economic and social cultural conditions combined to generate differential patterns of farm enterprises leading to differential farm management styles cropping patterns and production levels In line with this essential variations can be observed in transformation and use of knowledge systems by farming communities

In every region, the localised farming communities possesses a storehouse of knowledge generated and refined to its experimentation and carried over from generation to generation This is explained as the rural people s knowledge or indigenous wisdom in agriculture Rural people s

FIG 1 CONCEPTUAL FRAMEWORK OF THE STUDY



Significant relationship

knowledge is socially constructed and continuously negotiated and tested in varying settings

IK is also characterised as highly specific and context bound with knowledge emerging simply from localised practical experience The progression and adaptation of indigenous technologies often depend on the demographic and situational characteristics

With revolutionary changes in farming that have taken place in the recent past, the sophisticated and high input agricultural technologies started competing with the popular and generally low input indigenous agricultural wisdom Consequently a general tendency of shift from the traditional practices to the so called modern wisdom could be observed particularly in the intensive strategic areas By in large this was influenced by the socio cultural and economic factors predominant in those communities Among the methodological issues of development planning in the recent past, participatory technology development has emerged as the most viable option particularly in rural development This is more true when the values of indigenous knowledge system gathered over generations is made to have a suitable blend in appropriate terms with the recent technologies for intensive agriculture It is nothing but a social contextuation of the available knowledge systems For effective use of this strategy a good comprehension of the demographic background in terms of the personal social psychological and economic characteristics of the clientele could be absolutely necessary and is a pre requisite Hence any attempt on these lines warrants a thorough deep insight in to the prevailing socio cultural system of the farming community It can also be assumed that the extent of use of technical know how whether it is indigenous or introduced would be highly affected by such system variables

In this conceptual framework, the present study was formulated with the following general hypotheses

I The extent of adoption of indigenous practices is low among the respondents

2 The knowledge level with regard to indigenous practices is low among the respondents

3 The socio economic and psychological characteristics have significant influence on the dependent variables

METHODOLOGY

CHAPTER III

METHODOLOGY

The methodology employed in this study is presented under the following main headings

3 1 Locale of the study

3 2 Selection of sample

3 3 Methods used for data collection

3 4 Operationalisation and measurement of variables

3 5 Evaluative perception about selected indigenous practices of vegetables

3 6 Constraints in the adoption of indigenous practices

3 7 Statistical methods employed

3 1 Locale of the study

The study was conducted in Thrissur district of Kerala State which is traditionally a vegetable cultivation area with considerable area under vegetables There are 17 blocks in Thrissur district Out of these 17 blocks 3 blocks having maximum area under vegetable cultivation were selected namely Chalakkudy Puzhakkal and Wadakkancherry as evident from Appendix I From each of these three blocks one panchayat having the maximum area under vegetables was selected The study was confined to these three panchayats namely Meloor (Chalakkudy) Killannoor(Puzhakkal) and Thekkumkara (Wadakkancherry) (Fig)

3 2 Selection of sample

The list of vegetable growers was prepared with the help of the staff of the concerned Krishibhavan From these lists a proportionate random sample of 120 vegetable farmers who were engaged in the cultivation of

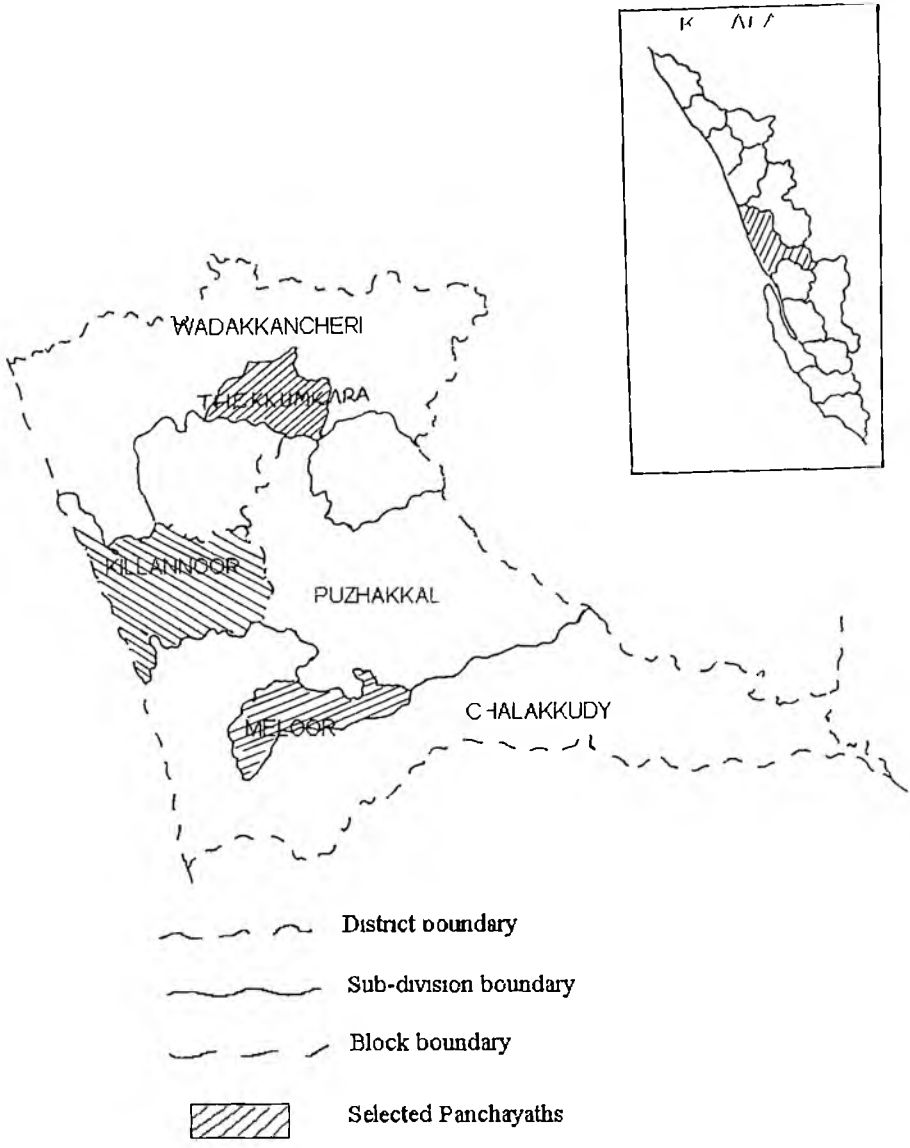


Fig 2 Map showing the locale of the study

three important vegetables of Thrissur district namely bitter gourd ash gourd and cowpea was selected for the study

Each of the blocks selected was treated as a stratum Allocation of sample size was done using proportional allocation with respect to stratum size as follows

Table 1 Distribution of farmer respondents in selected blocks

Name of the block	Area under vegetables (ha)	No of farmers selected
1 Wadakkancherry	261 60	42
2 Chalakkudy	240 00	38
3 Puzhakkal	250 00	40

In addition to this a sample of 40 subject matter specialists consisting 30 extension workers and the available scientists working on vegetables in Thrissur district was also selected

3 3 Methods used for data collection.

A pre tested structured interview schedule containing appropriate questions for obtaining the required data was prepared The interview schedule was discussed with a group of experts and necessary modifications were made to avoid ambiguity and redundance in the questions The data were collected through personal interview method by the researcher using the interview schedule (Appendix II) The researcher developed adequate rapport with the respondents before the interview

3 4 Operationalisation and measurement of variables

3 4 1 Operationalisation and measurement of the dependent variables

The dependent variables for the present study were

1 Knowledge of vegetable growers on indigenous practices in vegetable cultivation
2 Extent of adoption of indigenous practices in vegetable cultivation by vegetable growers
1 Knowledge of vegetable growers on indigenous practices in vegetable cultivation

In the present study knowledge of a respondent consists of three components i e awareness knowledge principles knowledge and knowledge of procedures about the different practices in vegetable cultivation

For each of the practice knowledge was measured in terms of above three knowledge components and was measured on a scoring pattern of dichotomous nature i e Yes or No with scores 1 and 0 respectively

For each crop the total knowledge score was calculated as

$$\text{Knowledge score of a particular crop} = \frac{\text{Sum of the scores of all the practices under the 3 knowled } \cdot \text{ components}}{\text{Maximum possible knowledge scores for that crop}}$$

From the knowledge score of all the 3 crops the knowledge score for a particular respondent was calculated as

$$\text{Knowledge score for a particular respondent} = \frac{\text{Total knowledge score}}{3}$$

$$\text{i e} \qquad \frac{K1 \quad K2 + K3}{3}$$

2 Extent of adoption of indigenous practices in vegetable cultivation by vegetable growers

During the first phase of the investigation the researcher made efforts to collect maximum information regarding the indigenous practices prevailing in the area in vegetable crops As many as 47 indigenous practices were identified in vegetable crops from the study areas The collected practices were then sorted out under the three important crops viz bitter gourd ash gourd and cowpea The practices under each of the crop then categorized into different sub areas according to Package of Practices Recommendations 1993 of Kerala Agricultural University Thus there were six sub areas in bitter gourd four sub areas in ash gourd and two sub areas in cowpea altogether forming 12 sub areas to be included in the adoption scale

Under each of the sub areas the differential number of practices were assigned weightages The weightages were assigned based on the judgments by experts according to the contribution and importance of each practice towards yield increase or reduction in yield in vegetables

A modification of the method developed by Singh and Singh (1974) was used in this study for measuring adoption quotient

The e/p of each practices was then worked out The W e/p for each practice was calculated The Adoption Quotient (A Q) for a particular crop was calculated as

$$A\,Q = \frac{\sum w\ e/p}{n} \times 100$$

Where w – Weightage

$$e/p = \frac{\text{Extent of area of the respondent where indigenous vegetable cultivation is practiced}}{\text{Total cultivable area of the respondent}}$$

n – Number of sub areas for a particular crop

For a particular respondent the A Q was worked out by taking the mean of all the 3 A Q s

$$\text{Thus A Q (for a respondent)} = \frac{AQ1 + AQ2 + AQ3}{3}$$

The cumulative A Q was thus calculated and the maximum score for any individual could not exceed 100 and the lowest was 0

3 4 2 Operationalisation and measurement of independent variables

1 Education

This indicated the level of formal education of the respondent, which was quantified using the procedure adopted by Ranjana [1994] with some modifications

Sl No	Category of response	Score
1	Illiterate	0
2	Functionally literate	1
3	primary school level	2
4	Middle school level	3
5	High school level	4
6	Pre degree or equivalent	5
7	Degree and above	6

2 Occupation

The professional status of agriculture for a farmer respondent was measured by this variable It referred to whether agriculture was the respondents primary occupation or not

The scoring procedure was as follows -

Agriculture as primary occupation 3

Agriculture as secondary occupation 1

3 Annual income

In this study annual income indicate the total annual earnings of the respondent from both farm and non farm sources in an year expressed in terms of Rupees

4 Income from vegetable cultivation

This variable was operationalised as the total annual earnings of the respondent obtained from the cultivation of bitter gourd ash gourd and cow pea, expressed in terms of Rupees

5 Farm size

Farm size was defined as the number of acres of land owned and cultivated by the respondent, under the cultivation of three important vegetables viz., bitter gourd ash gourd and cowpea, including land leased in or leased-out

6 Labour input

The extent of both hired and family labour used in the cultivation of vegetables calculated as man days per acre during the last vegetable season is considered as labour input

7 Cropping intensity

Cropping intensity in this study was defined as the number of crops raised in a unit area by the vegetable farmer in an year which was expressed in percentage

For measuring cropping intensity the procedure followed by Ranjana (1994) was used

The respondent was asked to indicate single cropped double cropped and triple cropped land cultivated by him and was asked to provide the above data for both garden and wet land

By summing up single cropped area twice the double cropped area and thrice the triple cropped area the total cropped area per year was obtained

The cropping intensity was then calculated as

$$\text{Cropping intensity} = \frac{\text{Gross cropped area}}{\text{Net cropped area}} \times 100$$

8 Innovation proneness

This indicates the behavior pattern of vegetable farmer who has the interest in and desire to seek change in farming techniques and to introduce such change into their operations when these are practicable and feasible

Moulik's (1965) self rating innovation proneness scale was used in this study to measure the variable The scale consisted of three sets of statements each set of statements with weights of 3 2 and 1 indicating high, medium and low degrees of innovation proneness

After obtaining the respondent's most least choice for each of the three sets of statements the scoring was done by summing up the ratios of the weights of the most like statements to the weight of least like statements As there were three sets of statements for the innovation proneness scale the sum of the ratios for the three sets was the respondent's self rating score for innovation proneness They were then classified as lo or high based on the mean value obtained

9 Farming experience

Farming experience was operationalised as the experience of the farmer in vegetable cultivation on a commercial basis which is expressed in terms of number of years

This variable was quantified by asking the respondent to indicate the number of years since he is practising commercial vegetable cultivation

10 Farming tradition

In this study farming tradition is defined as the number of years since the family of the respondent is involved in vegetable cultivation

For quantifying this variable the respondent was asked to indicate the number of years since his family is engaged in vegetable cultivation

11 Social participation

The variable in this study refers to the degree of involvement of the vegetable farmer in formal and informal social organizations

The scale used by Vipinkumar (1994) was followed in this study For measuring social participation two aspects were considered in the scale viz membership of the individual in the organizations as well as his frequency of participation in the activities

The scoring pattern was as follows

For official position a score of 2 and for mere membership, a score of 1 was given Scores of 2 1 and 0 were given for attending the activities of each organization regularly occasionally and never To obtain the final score of the respondent, the scores given as member or office bearer were multiplied with scores given for attendance in the activities and added up for all organizations Based on mean score obtained the respondents were then classified into low or high groups

12 Economic motivation

Economic motivation is defined as the drive for occupational excellence in terms of profit making and relative value placed on economic ends by a vegetable farmer This is an indication of the degree of willingness of a farmer for investment of his available potential resources in adopting farm innovations

The scale used by Vipinkumar (1994) was used here for measuring economic motivation A dichotomy of Yes or No response pattern was followed in this study as done by Prasad (1983) The scale consisted of 6 statements of which the first five statements were positive while the last one was negative A score of 1 was assigned for the Yes response and 0 for No response in the case of positive statements The scoring procedure was reversed in the case of negative statement The scores obtained on each

statement were cumulated to obtain the total scores of a respondent on this variable Thus the maximum score that could be obtained by a respondent was six and minimum zero

13 Cosmopoliteness

Cosmopoliteness was operationally defined as the tendency of the farmer to be in contact with the outside world based on the belief that all the needs of an individual cannot be satisfied with in his own community The extent of cosmopoliteness was measured by following Desai s (1981) method Accordingly, the two dimension of the variable measured were

a) The frequency of visits to the nearest town in a month and

b) The purpose of visit to the town in a month

a) Frequency of visits to the nearest town in a month

Sl No	Frequency of visit	Score
1	Twice or more a week	5
2	Once a week	4
3	Once a fortnight	3
4	Once a month	2
5	Very rarely	1
6	Never	0

b) Purpose of visit to the town in a month

Sl No	Purpose of visit	Score
1	All visits relating to agriculture	5
2	Some relating to agriculture	4
3	Personal or domestic matters	3
4	Entertainment	2
5	Any other purpose	1
6	No purpose	0

The total score of cosmopoliteness for each respondent was calculated by adding the score of the above two dimensions of cosmopoliteness

14 Extension orientation

Extension orientation was operationally defined as the extent of contact of the vegetable farmer with extension agencies and their extent of participation in extension activities

The method used by Bonny (1991) was used here for quantifying this variable The extension orientation was measured on two dimensions viz extension contact and extension participation

A Extension contact

The degree of extension concact by the respondent was computed by giving scores to the items as below

Sl No	Frequency of meeting Agricultural Assistant/Agricultural officer	Scores
1	Regularly	2
2	Occasionally	1
3	Never	0

B Extension participation

Extension participation was defined as frequency of participation of the individual respondent in different extension activities conducted for the past one year Extension activities conducted to evaluate the extension participation of the respondents were study tours seminars, farm fair demonstrations and others

The respondent s participation in each of the above extension activities for the past one year was noted to get the extension participation score as below

Sl No	Category of response	Scores
1	Attented whenever conducted	2
2	Attented occasicnally	1
3	Never attented	0

The scores obtained for both the sub-items by each respondent were calculated and the total score for extension orientation was obtained by summation of the scores of extension contact and extension participation

15 Market orientation

Market orientation was one of the 3 dimensions of the scale developed by Samantha (1977) for measuring management orientation which has been operationally defined as the degree to which the farmer is oriented towards scientific farm management comprising of planning, production and marketing functions on his farm enterprise

The dimension market orientation consisted of six statements, positive and negative statements were mixed retaining at the same time a more or less psychological order of the statements In the case of positive statements a score one was given for agreement and zero for non agreement For negative statement, the pattern was reversed The total score obtained by the respondent was taken as his score for market orientation

16 Scientific orientation

This variable refers to the degree to which a farmer is oriented to the use of scientific methods for carrying out various operations connected with crop husbandry

The method developed by Supe (1969) and used by Vipinkumar (1994) was used here for measuring scientific orientation There are six statements in the scale out of which one was negative The responses were collected on a five point continuum as shown below

Sl No	Points in continuum	Scores
1	Strongly disagree	1
2	Disagree	3
3	Undecided	4
4	Agree	5
5	Strongly agree	7

The scoring pattern was reversed for negative statement The total score thus obtained by an individual for all the six statements is taken as his score for scientific orientation

17 Information source utilization

Information source utilization was operationally defined in terms of the frequency of obtaining information from different sources The different sources 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 Nair (1969) and used by Sureshkumar (1995) was adopted in this study to measure this variable Each respondent was asked to indicate as to how often he got information regarding improved agricultural practices from the each of the listed sources The scoring pattern was as follows

Sl No	Frequency of utilization	Scores
1	Never	0
2	At times needed	1
3	Wherever needed	2

The scores were summed up across each item to form information source utilization index.

3 5 Evaluative perception about the selected indigenous practices of vegetables

Evaluative perception in this study was measured using an arbitrary scale Based on review of relevant literature and discussion with experts certain attributes of the indigenous practices were selected and perception was measured in terms of these attributes The attributes selected were simplicity profitability sustainability efficiency input availability and flexibility The perceived attributes for each of these practices were rated on a three point continuum with response pattern as follows

Sl No	Response	score
1	High	3
2	Medium	2
3	Low	1

The respondents were asked to indicate against each attribute of the practices whether it was high medium or low as considered by them For each practice the frequency of response under the various points in the

continuum were multiplied with the respective weights and added up to get a cumulative index for that practice for each selected attribute The cumulative index for each practice on the different selected attributes were worked out separately for farmers and subject matter specialists including extension workers and scientists working on vegetables

Based on this cumulative index, the attributes were ranked for each selected practice

3 6 Constraints in the adoption of indigenous practices

Based on discussion with farmers and also through review of relevant literature some of the constraints faced by the farmers were recorded

The list containing these constraints were presented to the respondents They were also asked to add any constraints which they thought appropriate to be included

The response to each constraints was obtained on a dichotomous response pattern as most important and least important The frequency response under each category was worked out The frequency percentage in each constraint was worked out as follows

$$\text{frequency percentage of the constraint} = \frac{\text{Frequency obtained for a constraint}}{\text{Total number of respondents}} \times 100$$

The constraints were then ranked based on the frequency percentage of constraint

3 7 Statistical methods employed

The following statistical methods were used in the analysis of data

Mean

The mean scores for dependent variables were worked out to make suitable comparisons wherever necessary

Percentage analysis

The percentage analysis was done to make simple comparisons wherever necessary

Categorization

The means ($\bar{x}$) of dependent variables were calculated and these were used for categorization of respondents into two strata (i)$\bar{x}$ and above x (ii)Below $\bar{x}$

After grouping the respondents into two strata, the frequency of farmers falling under each category and their percentages were worked out to know the distribution of respondents under each category in relation to the dependent variables

Simple correlation analysis

Correlation coefficient was worked out to measure the degree of association between dependent variables and the different independent variables

Step down regression analysis

Step down regression analysis was carried out to trace the minimal set of independent variables contributing to maximum variability in the dependent variables

RESULTS AND DISCUSSION

CHAPTER IV

RESULTS AND DISCUSSION

This chapter deals with the results obtained in this study and the discussion based on the results Keeping the objectives in view the findings as well as the discussion on them are presented in the following sequence

4 1 Identification of indigenous practices followed by farmers in vegetable cultivation

4 2 Distribution of respondents based on their knowledge on indigenous practices in vegetables

4 3 Distribution of respondents based on their extent of adoption of indigenous practices in vegetables

4 4 Influence of personal socio economic and psychological characteristics of farmers on dependent variables

4 5 Evaluative perception about indigenous practices

4 6 Constraints in the adoption of indigenous practices

4 1 Identification of indigenous practices followed by the farmers in vegetable cultivation.

During the first half of investigation the researcher tried to collect all the available practices followed by farmers in the study areas with respect to three major vegetables selected for the study In some cases the farmer respondents have demonstrated the method of using certain indigenous practices and in certain other cases they have shown the visible results of the application of indigenous knowledge All such practices as explained by the respondents were listed and documented Such practices are briefly given here

4 1 1 Indigenous practices common to the selected vegetables (Bitter gourd Ash gourd and Cowpea)

a Seed storage

1) Storing seeds of cowpea and cucurbits with some black pepper seeds

Tne black pepper is supposed to be toxic to many of the storage pests By mixing the black pepper seeds with the vegetable seeds the insect pests can be ward off well

2 Mixing neem leaves with stored seeds

The pesticidal property of neem is proven and hence the practice ot mixing neem leaves with seeds of cowpea, bitter gourd and ash gourd is an insurance against the attack ol storage pests

3 Storing vegetable seeds in hollow bamboo stem or empty coconut shell

This traditional way of storing vegetable seeds protects the seeds against the attack of rats as well as storage pests

b Seed treatment

1 Subjecting the vegetable seeds to natural cold treatment during Makaram month (coinciding January) of the year

The seeds under storage is subjected to natural cold treatment by keeping seeds outside at night The purpose of this practice is believed to be same as that of the artificial cold treatment in the modern agricultural technology

c Land preparation

1 Burning basins before sowing

During summer season, just before raining basin are taken having a depth of 1 foot and diameter of 1 5 feet Dry leaf, twigs etc are burned to ash on these basins This practice helps in control of soil pests and adds fertility to soil

d After care and plant protection

1 Dusting wood ash over vegetable crops

During early morning, wood ash is dusted over leaves of cowpea, bitter gourd ash gourd etc Farmers believe that this practice would be helpful in controlling vegetable pests

2 Application of extract of *Leucas aspera*

This practice is suitable against many of vegetable pests attacking the vegetables The extract of *Leucas aspera* locally known as 'Thumba' is taken and mixed with soap solution and the same is sprinkled over vegetables

3 Sprinkling extract of leaves of *Ocimum sanctum*

The extract of leaves of *Ocimum sanctum* locally know n as Thulasi is sprinkled around the vegetable cultivated plot This will keep away harmful insects from attacking the vegetables

4 Fixing sticks on either side of vegetable seedlings

Fixing sticks on either side of vegetable seedling is supposed to be effective in protecting seedling from mole cricket and grass hopper attack

5 Dusting fine sand over leaves of vegetables

During early morning fine sand is dusted over leaves of vegetables with out damaging the twigs leaves, etc This is for protecting the plants from insect attack and also to enhance the growth of plant

6 Application of salt used for storing dried fish to the root zone of vegetables

Salt used for storing dried fish is applied to the root zone of vegetables This is an insurance against the attack of termites affecting the root of vegetables

7 Tobacco decoction diluted with neem oil and emulsified in soap water is used against many pests in vegetables

8 Dried coconut leaves smeared with jaggery and insecticide used in the vegetable plots as bate to attract insect and control them

9 Toddy mixed with insecticide used as bate for many insects

10 Light traps used to attract pests and collected the pests in containers having insecticide within

4 1 2 Indigenous practices common to bitter gourd and ash gourd

a Seed storage

1 Preservation of seeds in the hearth of home kitchens

In rural areas the vegetable cultivators preserve the seeds of bitter gourd ash gourd and other cucurbitaceous crops by preserving over cowdung paste fixed on the wall of kitchen over hearth The cowdung and seeds get dried gradually This is an old practice and is intended for protecting the seeds from insect attack and to improve the viability of seeds

2 Use of smoke to storage seeds

After rubbing with wood ash the seeds of bitter gourd and ash gourd are stored over smoke in kitchen This practice is meant for checking insect attack as well as fungus growth on storage seeds

b After care and plant protection

1 Raising seedlings of cucurbitaceous vegetables in jack leaf cones

This practice helps the proper establishment of cucurbitaceous crops after transplanting

2 Pinching tip of vines of cucurbitaceous plants

By pinching the tip of vines it is believed that branching will be enhanced and an increase in yield is also expected

3 Giving restricted irrigation to cucurbitaceous plants

After sowing up to 4 leaf stage irrigation is given to cucurbitaceous plants Then for about one month no irrigation or slight irrigation only is given After one month again good irrigation and manuring is provided to the plants The purpose is to induce vigorous growth and branching of the vines

4 Spraying extract of *Holoptelia integrifolia* leaves mixed with tobacco extract on bitter gourd and ash gourd

This biopesticide is prepared by mixing an aqueous extract of *Holoptelia integrifolia* leaves locally known as Aaval (seven Aaval leaves in one Litre of water) with tobacco de- ction (prepared by steeping tobacco wastes in water) Farmers opined that this is an effective control against many of the vegetable pests

4 1 3 Indigenous practices specifically applicable to bitter gourd

a Seeds and seed treatment

1 Covering bitter gourd fruits (seed purpose) with teak leaves

The practice of covering the bitter gourd fruits meant for seeds with teak leaves will keep the good quality of seeds This is because the oily nature of the teak leaves repels the rain drops falling on it and thus prevents the fruit from rotting

2 Placing wet bundle of straw over bitter gourd seeds

One or two days before sowing, wet bundle of straw is placed over bitter gourd seeds The purpose is to enhance the germination of seeds

3 Placing seeds of bitter gourd in banana sheath

Wet soil after mixing well with wood ash and cowdung is taken in a banana sheath and the bitter gourd seeds are sown in it This is for providing nutrients and maintaining moisture for the germinating seeds

b After care and plant protection

1 Smoking around bitter gourd pandals

During the evening hours light smoking is given around bitter gourd pandals using dry leaves twigs etc The purpose of this practice is to ward off fruit flies

2 Application of extract of bird pepper on bitter gourd plant

Extract of whole bird pepper plant locallly known as Kanthari is diluted with water and then mixed with soap solution Using tied bundle of coconut, the solution is sprinkled over bitter gourd plant The purpose is to control insect attack with the insecticidal property of kanthari plant

3 Sprinkling cowdung slurry on bitter gourd leaves

Diluted cowdung slurry is sprinkled on leaves of bitter gourd planted in kharif season The purpose is control of diseases and pests

4 Spraying extract of assafoetida and garlic on bitter gourd plant

An aqueous extract of assafoetida and garlic (5 gm /5 Litres of water each) is prepared and mixed well The solution is then sprayed over bitter gourd plants This biopesticide is believed to be effective in controlling sucking pests

5 Mulching the basins of bitter gourd plants with leaves of *Strychnos nuxvomica*

Leaves of *Strychnos nuxvomica* locally known as Kanjiram is mulched on basins of bitter gourd plants This practice reduces the attack of many of soil borne pests

6 Application of fenugreek boiled water over bitter gourd leaves

A handful quantity of fenugreek is taken and boiled in 3 Litres of water and the extract is sieved and sprayed over bitter gourd plants The purpose is to control sucking pests

7 Application of jaggery starch water over bitter gourd plants

A solution is prepared using jaggery and one or two days old starch water Then this is sprayed over bitter gourd leaves for the purpose of controlling sucking pests

8 Use of pandanus fruits in bitter gourd gardens

Pandanus fruits locally known as Thottu kaitha having an attractive smell is cut into medium sized portions and placed here and there in bitter gourd gardens The objective of this practi e is to attract and destroy the fruit flies in bitter gourd gardens

9 Use of cycus flower in bitter gourd gardens

Cut portions of cycus flower is placed in bitter gourd gardens The purpose is to attract and destroy fruit flies

10 Application of salt to bitter gourd plants

By applying salt to the basins of bitter gourd, farmers opined that yellowing can be cured to some extent

11 Hanging toddy jaggery solution in bitter gourd gardens

Toddy jaggery solution is taken in coconut shells and two to three drops of insecticide is added to it and hanging the same using rope here and there in bitter gourd gardens is found effective in controlling the insect pests in bitter gourd gardens by many of the peasants

12 Application of sand on basins of bitter gourd plants after sowing

Fifteen days after sowing sand is applied to the basins of bitter gourd plants The purpose is to maintain enough soil moisture for germinating seeds

13 Sprinkling cow s urine on bitter gourd leaves

A preparation of 4 Litres of cow's urine in about 10 Litres of water is prepared and sprinkled / sprayed over bitter gourd plants The purpose is controlling of sucking pests

14 Mulching with coconut pith

Fifteen days after sowing the soil is well mulched with coconut pith This practice is found to be effective in reducing bitterness of fruit and provide better appearance to the fruit

15 Following no-till system in bitter gourd gardens

No-till system is a traditionally practiced one where no ploughing at all or only minimum ploughing was used so that the soil is not disturbed and sowing can be done directly Some of the vegetable farmers believe that following no till system will reduce the yellowing in bitter gourd plants

4 1 4 Indigenous practices specifically applicable to ash gourd

a Seed storage

1 Keeping ash gourd seeds with bird pepper fruits

Putting some bird pepper fruits (kanthari fruits) m the ash gourd seed stored bin is a practice followed by some farmers The objective is to minimize insect attack on storage seeds

2 Keeping seeds in the unopened fruit itself

The fruits for seed purpose is hanged using rope and protected from cuts and breakages Just before sowing the fruit is broken down and seeds taken and sown directly in the field The farmers practicing this method are of the opinion that this is the best method for storing the ashgourd seeds

b Seed treatment

1 Treating ash gourd seeds with cowdung decoction

The ash gourd seeds before sowing is dipped in cowdung decoction The purpose is to induce good germination and vigourness of seedlings

4 1 5 Indigenous practices specifically applicable to cowpea

a Seed storage

1 Application of gingelly oil to cowpea seeds

Small quantity of gingelly oil is smeared to cowpea seeds under storage The purpose is to keep away storage pests

2 Keeping some mango leaves along with seeds of cowpea

This practice is believed to be effective in controlling storage pests attacking cowpea seeds

3 Storing seeds in pods itself

After drying well the seeds are stored in pods itself Farmers believed that it is difficult for the insect pests to pierce the hard pods and attack the seeds

b After care and plant protection

1 Removal of excess leaves in cowpea

By removing the excess leaves it is believed that early flowering will be induced In this case care should be taken that the middle leaves should be retained

2 Application of garlic-chilly extract on cowpea

An aqueous extract of garlic and chilly can be prepared and sprayed on cowpea against sucking pests

4 2 Distribution of respondents based on their knowledge on indigenous practices in vegetables

The distribution of respondents based on their knowledge on indigenous practices of vegetables is presented in Table 2

The commercial vegetable growers were categorized as low and high knowledge categories based on mean scores Accordingly a farmer with knowledge score below 0 30 was categorized to be in low level of knowledge while one with knowledge score of 0 30 and above was placed in category of higher level of knowledge

Table 2 reveals that majority of commercial vegetable growers (57 5per cent) had low level of knowledge about the indigenous practices of vegetables while 42 5 per cent had high level of knowledge

Similarly majority of subject matter specialists also had a low level of knowledge about indigenous practices of vegetables(60 25 per cent) as evidenced from Table 2

It could also be observed from this Table that only 39 75 per cent subject matter specialists had high level of knowledge on indigenous practices in vegetables

A low level of knowledge for majority of the respondents, in fact, reflects the present consequences of modern approach of agricultural development When the modern technology prescriptions demanded higher use of inorganic inputs by following blanket recommendations to grow the new crop varieties the use of traditional practices which were closely knit with traditional/local varieties gradually started vanishing from the scene This process which continued for the last three decades might have resulted in the increased number of respondents in the lower category

A close examination of the Table 2 reveals that the mean knowledge score of the farmers (0 30) was high as compared to the other group ie SMS (0 22)

Table 2 Distribution of respondents based on their knowledge on indigenous practices in vegetables

Category	Knowledge score			
	Farmers n – 120		SMS n – 40	
	Frequency	Percentage	Frequency	Percentage
Low (Below mean score)	69	57 5	25	60 25
High (Mean and above)	51	42 5	15	39 75
	Mean score – 0 30		Mean score – 0 22	

FIG 3

Pie diagram showing the distribution of farmers based on their knowledge on indigenous practices in vegetable cultivation

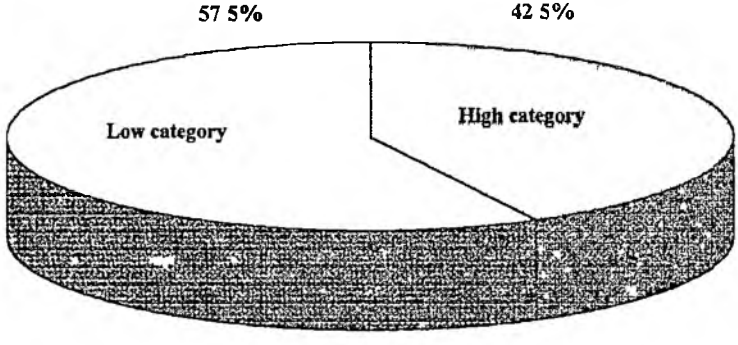
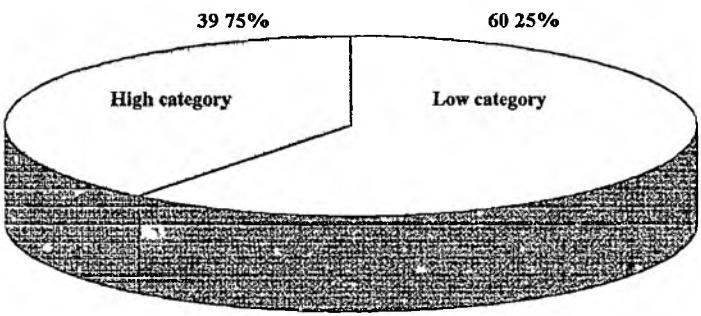


FIG 4

Pie diagram showing the distribution of SMS based on their knowledge on indigenous practices in vegetable cultivation



From the low knowledge score obtained by subject matter specialists it could be inferred that the extension functionaries as well as scientists might not have much concern about the indigenous knowledge

4 3 Distribution of farmers based on their extent of adoption of indigenous practices in vegetables.

The distribution of farmers based on extent of adoption of indigenous practices of vegetables is shown in Table 3 Based on mean value of the adoption quotient, the respondents were grouped into low and high categories Farmers with adoption quotient of less than 32 11 were grouped as low adopters, while those having a score of 32 11 or more were grouped as high adopters It was clear from the Table that majority (68 3 per cent) of the farmers were low adopters while only 31 6 per cent were high adopters

The emergence of new pests and diseases, commercialization of agriculture, tremendous increase in pests and diseases, use of high yielding varieties are some of the features of modern approach in agriculture In this context, conviction about relative advantages of indigenous practices is of great relevance for adoption Farmers engaged in the market oriented vegetable cultivation, probably be impatient with the slow, invisible changes which result from traditional practices Besides, they are probably getting enough critical inputs such as seeds , pesticides, fertilizers etc from various schemes of Department of Agriculture, in addition to the timely advices regarding modern cultural practices

In the light of these facts, the present finding was not surprising, as it was observed that majority of vegetable farmers had only low level of knowledge on indigenous practices

4 4 Influence of personal, socio-economic and psychological characteristics of farmers on dependent variables

4 4 1 Influence of personal , socio-economic and psychological characteristics on knowledge on indigenous practices by vegetable farmers

The results of simple correlation analysis (Table 4) and step down regression analysis (Table 5) revealed that the most important variable

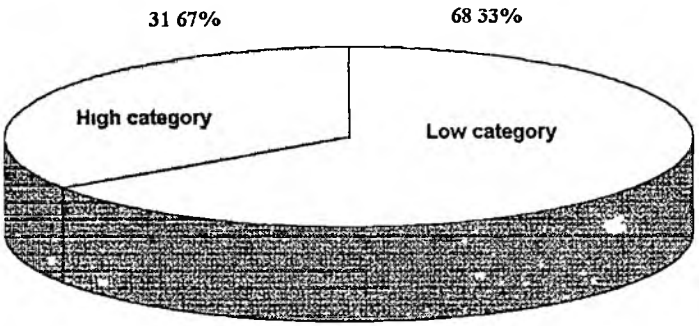
Table 3 Distribution of farmers based on their extent of adoption of indigenous practices in vegetable cultivation

(n = 120)

Category	Adoption index	Frequency	Percentage
Low	Below 32 11	82	68 33
High	32 11 and above	38	31 67
Total		120	100 00

FIG 5

Pie diagram showing the distribution of farmers based on their extent of adoption of indigenous practices in vegetables



significantly affecting knowledge on indigenous practices was market orientation This variable expressed a negative correlation with knowledge on indigenous practices

Unlike other crops, vegetable enterprise in Kerala has some unique features The market oriented approach is one among them This was clearly evident from the study locations which are pockets of vegetable cultivation in Thrissur district, where the farmers engaged in vegetable cultivation have a shift towards the market oriented economy accompanied by high costs An increase in the modern aspirations of farming community is part of this reality, resulting in a growing desire for cash income For satisfying his desire through maximization of earnings, a careful understanding of various scientific farm management practices like planning production and marketing functions is necessary As a result, he will be motivated to seek knowledge on these aspects which in turn results in diminishing of the embracement on traditional knowledge system which is said to have less scientific rationality' The observed negative and significant relationship between market orientation and knowledge on indigenous practices is thus found quite logical

Information source utilization is the next important variable which showed significant negative relationship with knowledge on indigenous practices In the present era of modern agriculture approach, the farmer who constantly receives information about various agricultural innovations cannot resist his attention from concentrating on that technology A high information source utilization index is therefore an indication of his eagerness for obtaining knowledge about modern technology On the contrary, if he has lesser orientation towards utilization of various information sources, the value he would attribute to local practices would be high He would be motivated to gather more and more knowledge using indigenous technology

Another important variable significantly and negatively correlated with knowledge on indigenous practices was economic motivation It is quite natural to think that, a farmer who was not willing to invest his available potential resources for economic ends, would naturally concentrate himself in boosting his knowledge with the use of locally available cheap inputs

Table 4 Results of simple correlation analysis of knowledge on indigenous practices with the selected personal, socio-economic and psychological characteristics of farmers

(n = 120)

Variable no	Independent variables	Correlation coefficient (r)
1	Education	-0 446 **
2	Occupation	0 105 NS
3	Annual income	-0 213 *
4	Income from vegetable cultivation	0 125 NS
5	Farm size	-0 430 **
6	Labour input	-0 130 NS
7	Cropping intensity	-0 440 **
8	Innovation proneness	0 235 *
9	Farming experience	0 461 **
10	Farming tradition	0 363 **
11	Social participation	0 087 NS
12	Economic motivation	-0 448 **
13	Cosmopoliteness	-0 389 **
14	Extension orientation	-0 442 **
15	Market orientation	-0 534 **
16	Scientific orientation	-0 469 **
17	Information source utilization	-0 509 **

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

The next variable that showed negative and significant relationship with knowledge on indigenous practices was scientific orientation The more the farmer has scientific orientation, the more would be his exposure to technologies having scientific basis This means that if a farmer has low concern for seeking scientific basis naturally his engagements would be on collecting indigenous knowledge which are supposed to have less scientific rationality This observation is in agreement with the opinion made by Salas (1994)

Extension functionaries are engaged in the process of disseminating knowledge on modern agricultural innovations An indiv dual who contacts them frequently would naturally could gather information on such aspects The solutions in the form of demonstration cum explanation to their day to day farm problems naturally forces the farmer to devalue the indigenous technology which is devoid of a formalized package of practices The observed negative relationship between extension orientation and knowledge on indigenous practices is hence found reasonable

The results showed that education also was significantly and negatively correlated with knowledge on indigenous practices With higher education individuals always look for new experiences in their surroundings In such a background the traditional practices which are considered as simple and needs a low level of comprehension will get neglected The observed result is hence reasonable This finding is in line with the observation of Mc Gregor (1991)

The observed negative relationship between annual income and knowledge on indigenous practices could be explained on the basis that poorer farmers show a greater concern for the natural resources since they have limited means of livelihood The observation made by Matose and Mukamuri (1994) agrees with this finding

The fact that with high proportion of acreage, farmers get more risk bearing capacity to acquire and comprehend the knowledge on modern practices than the indigenous practices might be the reason behind observed negative and significant relationship found between farm size and knowledge on indigenous practices

Table 5 Results of step down regression analysis of knowledge on indigenous practices with the selected personal, socio-economic and psychological characteristics of farmers

(n = 120)

Variable no	Characteristics	Regression coefficient	Standard partial regression coefficient	t value
15	Market orientation	-0 033	-0 348	3 30 **
17	Information source utilization	-0 009	-0 269	2 55 **

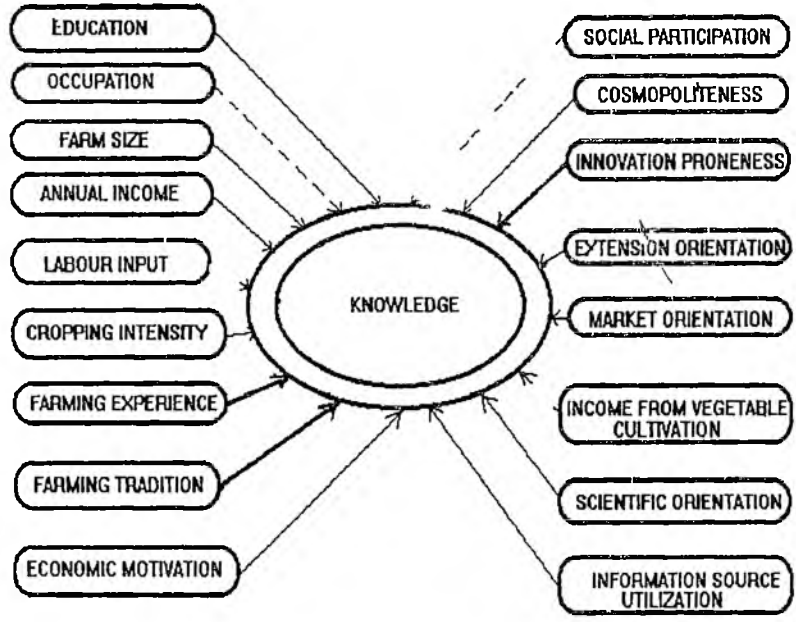
Intercept = 0 52

R^2 = 0 31

F = -27 91**

** Significant at 1% level of significance

FIG 6 EMPIRICAL MODEL SHOWING THE RELATIONSHIP OF KNOWLEDGE OF FARMERS ON INDIGENOUS PRACTICES WITH THE PERSONAL SOCIO ECONOMIC AND PSYCHOLOGICAL CHARACTERISTICS



Positive relationship

Non significant relationship

Significant relationship

Intensive cultivation through out the year, is an indication of the economic motive of the farmer As the number of crops raised in a unit area by the cultivator increases, the need for various synthetic inputs like fertilizers pesticides, herbicides also increases On the contrary, the farmer who cultivates minimum number of crops in unit area of this farm, would have less concern for profit making In order to make an income sufficient for his livelihood, he will be motivated to seek all available knowledge on indigenous technology and this might be the probable reason for the negative and significant relationship between cropping intensity and knowledge on indigenous practices

Experience always helps an individual in better evaluation In the case of vegetable farming also, higher the experience more will be his understanding about various indigenous tools and techniques Experience also helps the farmer to acquire the how to do' aspect of indigenous practice This knowledge actually is embedded in local culture and thus survives in the experience of peasant community This finding is in agreement with the observations made by Richards (1994) The observed positive and significant relationship between farming experience and knowledge on indigenous practices might be due to this reason

The significant positive relationship between farming tradition and knowledge on indigenous practices is also agreeable as everybody knows the knowledge on traditional technology is generally percolated down from generation to generation with every one making some amendments through practices

4 4 2 Influence of personal socio-economic and psychological characteristics on the dependent variable extent of adoption of indigenous practices by vegetable farmers

The results of simple correlation analysis (Table 6) and step down regression analysis (Table 7) revealed that the most important variable negatively and significantly related with extent of adoption was scientific orientation

Table 6 Results of simple correlation analysis of extent of adoption of indigenous practices with the selected personal, socio-economic and psychological characteristics of farmers

(n = 120)

Variable no	Independent variables	Correlation coefficient r
1	Education	-0 486 **
2	Occupation	0.244 *
3	Annual income	-0.276 **
4	Income from vegetable cultivation	-0 206 *
5	Farm size	-0 535 **
6	Labour input	-0 311 **
7	Cropping intensity	-0 453 **
8	Innovation proneness	0 159 NS
9	Farming experience	0 488 **
10	Farming tradition	0 451 **
11	Social participation	-0 026 NS
12	Economic motivation	-0 480 **
13	Cosmopoliteness	-0 465 **
14	Extension orientation	-0 347 **
15	Market orientation	-0 522 **
16	Scientific orientation	-0 553 **
17	Information source utilization	-0 444 **

** Significant at 1% level of significance NS - Non significant
* Significant at 5% level of significance

The indigenous knowledge systems are generally conceived to be inherited through generations and more dovetailed to the local culture and value systems and not to scientific rationality Though the farmer's experimentation contributes to the suitable modifications of these technologies the ethnic bondages are more governing the stability of the indigenous system Hence an individual who is more scientifically oriented, would naturally give low preference to the indigenous knowledge system This could be the probable reason for the significant but negative relationship between the variables scientific orientation and extent of adoption of indigenous practices The contribution of the variable was found to be substantial by step down regression analysis also

Labour input is another variable found significantly and negatively related with extent of adoption Most of the modern practices in vegetable cultivation like use of fertilizers, plant protection chemicals etc demand higher level of labour use Higher labour charges and non availability of labour in time might have made the farmers to follow the traditional cultivation practices which require comparatively lower labour force and hence the finding

Intensive cultivation through out the year warranted a higher adoption of technologies which gives quick and easy results This, in other words means that lower the cropping intensity the need for external inputs will also be less This serves as a favorable condition resulting in adoption of indigenous practices

A higher level of orientation towards scientific farming makes the farmer to take positive decisions on adoption of improved practices which have proven scientific basis This will naturally minimize the adoption of indigenous practices as is evident from observed significant negative relationship between scientific orientation and extent of adoption

The result showed that farming experience had a significant positive correlation with extent of adoption The best conclusive evaluation of any technology could be obtained from one s own direct experience with the same The farmers engaged in cultivation of vegetables might be aware of the suitability of each local practice to their own specific farm conditions The advantages derived from adoption of indigenously developed

Table 7 Results of step down regression analysis of extent of adoption of indigenous practices with the selected personal, socio-economic and psychological characteristics of farmers

(n = 120)

Variable no	characteristics	Regression coefficient	Standard partial regression coefficient	t value
5	Farm size	-3 583	-0.241	2 259 **
6	Labour input	-0 074	-0 221	3 004 **
16	Scientific orientation	-0 541	-0 348	3 287 **

Intercept = 57 53

R^2 = - 0 38 ** Significant at 1% level of significance

F = 24 84**

technologies in the light of their experiences might have made the farmers to adopt such practices with out discontinuance Hence the observed finding is quite natural and reasonable

A farmer who invests money in farming will take into account the relative suitability and advantages that may occur when he adopts various technologies This in other words can be interpreted as 'the economic motive which predominates in all their endeavors which results in a careful adoption of the technologies that gives him maximum profit with less effort and time' In this process, the adoption of indigenous technology which cannot satisfy his desire for economic motive will be minimized Viewed in this perspective observed negative relationship between economic motivation and extent of adoption is justifiable

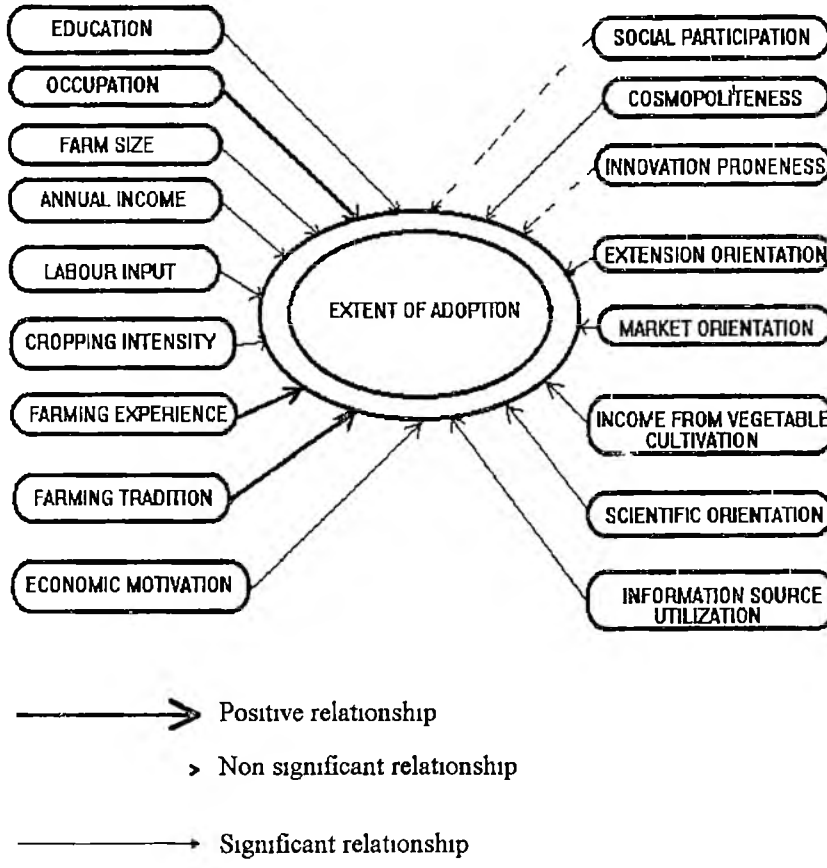
Extension functionaries impart functional and purposive information only on modern farming This serves as a favorable condition resulting in adoption of modern farming Naturally the adoption on indigenous practices would be minimized

Another variable which showed significant but negative relationship with extent of adoption was annual income Since there is no other means of livelihood, economically backward farmers exhibit greater concern for the use of natural inputs and locally available techniques But as the annual income increases, their concern for environment also decreases since they have other sources of income The observed result is hence found agreeable

The limitation of indigenous practices in its application to a large area might be the reason behind observed negative trend between farm size and extent of adoption of indigenous practices Moreover when the farm size increases the vegetable cultivation takes the form of an enterprise with commercial orientation demanding use of modern inputs On the other hand, a cafeteria of different vegetables in small scale in a piece of land normally caters to home requirements and the growing of these vegetables will be mostly following the low cost, less input oriented indigenous practices Hence, the negative and significant relationship between farm size and adoption of indigenous practices is only logical

The relationship between income from vegetable cultivation and extent of adoption is found to have a negative relationship The commercialization

FIG 7 EMPIRICAL MODEL SHOWING THE RELATIONSHIP OF EXTENT OF ADOPTION OF FARMERS ON INDIGENOUS PRACTICES WITH THE PERSONAL SOCIO-ECONOMIC AND PSYCHOLOGIAL CHARACTERISTICS



of agriculture is a feature of modern agricultural approach which aims at the production of agricultural goods in terms of quantity and there by more income generation whereas the indigenous production system aims in quality of the produce which is not much oriented to high income generation

Education is another variable found to be related significantly with an inverse trend with adoption of indigenous practices The modern educational approach orients an individual to mordern methods in all walls of life In addition it cultivates a general tendency to discard the old customs and traditions instead of making an attempt to systematically analyse to see whether there is any rationality behind such traditions It is only natural to observe under these circumstances to have lower adoption of indigenous practices by the persons possessing higher education

4 5 Evaluative perception about indigenous practices.

A. Bitter gourd.

The evaluative perception score of farmers and SMS for the different selected attributes for each indigenous practice under each cultural operation of the crop was recorded

a) Evaluative perception of respondents in seed storage in bitter gourd

Based on perception score obtained for each attribute, the attributes were ranked for each practice under the cultural operation seed storage and are shown in Table 8

For the practice 'storing the seeds over smoke in kitchen after rubbing it with wood ash, the farmers and SMS perceived highest sustainability and profitability However, they perceived low efficiency and flexibility for this practice

Subjecting the seeds under storage to a minimum quantity of smoke for a particular period might check the fungus and insect attack on storage seeds and this would definitely ensure the storage quality of seeds This may be the probable reason for the high perception of attribute sustainability of this practice by the respondents

Table 8. Evaluative perception of respondents in seed storage in bitter gourd

Farmers (n 120) SMS (n – 40)

Sl No	Attribute	Storing seeds over smoke after rubbing it with wood ash				Pressing seeds over cowdung paste fixed on walls of kitchen over hearth				Mixing black pepper seeds with bittergourd seeds			
		Farmers		SMS		Farmers		SMS		Farmers		SMS	
		Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank
1	Simplicity	330	III	104	III	340	VI	105	VI	335	IV	120	I
2	Profitability	331	II	108	I	351	III	116	II	338	II	119	II
3	Sustainability	338	I	106	II	352	II	117	I	340	I	117	III
4	Efficiency	268	V	88	V	356	I	112	III	328	VI	109	V
5	Input availability	323	IV	105	III	541	V	111	IV	334	V	116	IV
6	Flexibility	263	VI	86	VI	348	IV	106	V	336	III	108	VI

However it was found that this practice decreases the germination capacity of storage seeds and probably this might signify the low perceived efficiency on this practice by the respondents

It may also be noted that the perception of both the respondent groups were similar in the case of this practice

Table 8 also shows that pressing seeds over cowdung paste fixed on walls of kitchen over the hearth was perceived as having high efficiency by farmers and both the respondent groups perceived high sustainability also for this practice

Cowdung is reported to have some anti fungal properties (Pereira, 1993) Besides such a coating by cowdung acts as an insect proof for the seeds The farmers also experienced that cowdung coated seeds have long viability for germination ie , even after one and a half years of storage, the seeds germinated and seedlings were more healthy The high perception for sustainability and efficiency might be due to these reasons

It could be seen from the Table that the practice of keeping seeds along with some pepper seeds attained highest rank for the attribute sustainability by farmers followed by the attribute profitability whereas the perception of SMS was high in terms of the attribute simplicity followed by profitability

Discussion with research personel revealed that the alkaloid present in pepper seeds can keep the seeds pest free for a long time It may be this reason which accounted for the high perceived attribute of sustainability by farmers Pereira (1993) also observed similar results with black pepper seeds with respect to it's toxicity to storage pests

However majority of the respondents from both the groups opined that this alkaloid might inhibit the germination capacity of storage seeds The low perceived efficiency by majority of respondents might be due to this fact

b) Evaluative perception of respondents in land preparation in bitter gourd

Based on perception score obtained for each attribute, the attributes were ranked for each practice under the cultural practice land preparation and are shown in Table 9

The Table revealed that both the respondent groups perceived the attribute 'input availability as high for the practice mixing the soil with sand' Besides the farmers perceived this practice as highly simple also as indicated from the Table

The availability of sand is not a problem for the farmers and also simply mixing the soil with the sand is not a laborious work Due to these reasons such a result is clear and obvious

The Table also shows that the flexibility is perceived as low by majority of both the respondent groups The impracticability of this practice in sandy areas might be the reason behind this perception

The practice mixing the soil with coconut pith was having high rank for the attributes sustainability followed by efficiency perceived by most of farmers and SMS

The coconut pith can act as a soil conditioner Pereira (1993) The capacity of coconut pith to improve soil aeration and moisture retention is well understood from time immemorial Besides this the farmers experienced better colour of bitter gourd fruits reduction in bitterness of fruits etc as some of the best results obtained by this practice It might be these reasons which accounted for the high perceived sustainability and efficiency of this practice by majority of farmers and SMS The farmers however recorded low input availability for this practice The attribute flexibility of this practice was perceived as low by SMS The applicability of this practice only to porous, sandy soils which has low moisture retention capacity might be the reason behind low perceived flexibility of this practice by SMS

Table 9 Evaluative perception of respondents in land preparation in bitter gourd

Farmers (n = 120) SMS (n = 40)

Sl No	Attribute	Mixing the soil with sand				Mixing the soil with Coconut pith			
		Farmers		SMS		Farmers		SMS	
		Score	Rank	Score	Rank	Score	Rank	Score	Rank
1	Simplicity	358	I	108	II	285	II	82	IV
2	Profitability	172	V	45	V	193	VI	70	III
3	Sustainability	223	III	65	IV	345	I	118	I
4	Efficiency	180	IV	93	III	288	II	107	II
5	Input availability	285	II	109	I	203	V	61	V
6	Flexibility	122	VI	42	VI	208	IV	60	VI

c) Evaluative perception of respondents in seed treatment in bitter gourd

Based on perception score obtained for each attribute, the attributes were ranked for each practice under the cultural operation seed treatment and are shown in Table 10

The results given in the table for the practice exposing the seeds to snow at night hours during cool months indicated that both the respondent groups ie farmers as well as SMS perceived this practice as highly sustainable The probable reason is that this natural cold treatment might have similarity in purpose with the artificial cold treatment of seeds in modern technology The low rank obtained for the attribute input availability by both the respondent groups is self explanatory as it is evident from the fact that this natural cold treatment can be carried out only during cool months of an year

The practice of placing wet bundle of straw over seeds for one or two days before sowing was perceived as high in terms of attribute efficiency followed by simplicity by farmers The SMS also perceived high efficiency for this practice, as it could be observed from the Table

The wet bundle of straw placed over seeds can enhance the process of germination by affecting the factors of germination viz temperature humidity moisture etc This might be the reason for the perceived high efficiency of this practice by majority of both the respondent groups

The Table also indicated that the practice of placing seeds in banana sheath after thoroughly mixed it with wood ash cowdung and is perceived to be highly profitable and efficient by majority of farmer respondents while SMS perceived the attributes input availability and sustainability of this practice as high

It is understood that banana sheath and sand are better for conservation of moisture which is essential for seed germination Besides cowdung and ash provides nutrients for the germinated seedlings This might be the reason for such high degree of profitability and efficiency for

Table 10 Evaluative perception of respondents in seed treatment in bitter gourd

Farmers (n = 120) SMS (n 40)

Sl No	Attribute	Exposing the seeds to snow at night hours during cool months				Placing wet bundle of straw over seeds				Placing seeds in banana sheath after mixing with ash, cowdung and sand			
		Farmers		SMS		Farmers		SMS		Farmers		SMS	
		Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank
1	Simplicity	314	III	109	II	321	II	115	II	333	V	114	V
2	Profitability	315	II	91	IV	318	III	116	I	351	I	116	III
3	Sustainability	318	I	112	I	314	IV	112	III	337	IV	117	II
4	Efficiency	301	IV	96	III	323	I	109	IV	340	II	115	IV
5	Input availability	161	VI	42	VI	309	V	108	V	339	III	120	I
6	Flexibility	299	V	80	V	307	VI	90	VI	327	VI	107	VI

this practice as perceived by farmers It may also be noted that both the respondent groups perceived low flexibility for this practice

d) Evaluative perception of respondents in after care in bitter gourd

Based on perception score obtained for each attribute, the attributes were ranked for each practice under the cultural operation after care and are shown in Table 11

Results in Table 11 revealed that sprinkling cowdung slurry over leaves was perceived as high in terms of sustainability and efficiency by farmers and SMS had a high degree of perception of this practice in terms of the attributes input availability and sustainability

The findings show that sprinkling cowdung slurry on leaves act as a pesticide particularly affective against fungi which attack seedlings The slurry, besides it's manurial properties act as a coating which prevents excess moisture loss This might be the probable reason for high perceived sustainability and efficiency However, simplicity of this practice was perceived to be low by both the respondent groups As far as farmers who are engaged in large scale cultivation is concerned this practice may not be that simple and feasible for application The reason for low degree of perception of the attribute simplicity is hence reasonable

Mulching the soil with coconut pith 15 days after sowing is another after care practice followed by farmers The results in the Table 11 indicated that sustainability and efficiency of this practice were ranked high by both the respondent groups The same reasons cited for this practice under the cultural operation of land preparation holds good here also

It was also observed that input availability of the practice was low for majority of farmer respondents, while SMS perceived low profitability for this practice

The results in Table 11 also indicate that keeping the land without ploughing or in other words no-till system was perceived as high in terms of simplicity and profitability by majority of respondents from both the groups As no labour cost is involved in this, such a result is clear and obvious

Table 11 Evaluative perception of respondents in after care in bitter gourd

Farmers (n = 120) SMS (n = 40)

Sl No	Attribute	Sprinkling cowdung slurry over leaves				Mixing soil with coconut pith				Following no-till sysytem			
		Farmers		SMS		Farmers		SMS		Farmers		SMS	
		Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank
1	Simpl city	180	VI	94	V	280	III	93	IV	329	I	109	I
2	Profitability	233	IV	99	IV	190	VI	100	III	312	II	93	II
3	Susta nability	333	I	120	I	347	I	118	I	183	IV	40	V
4	Efficiency	330	II	112	III	293	II	105	II	181	V	81	V
5	Input availability	328	III	116	II	201	V	90	V	–	–	–	–
6	Flexib l ty	202	V	90	VI	204	IV	88	VI	201	III	89	III

No-till system is a traditionally practiced one by farmers, where no ploughing at all or only minimum ploughing was used so that the soil was not disturbed and sowing was done directly Though this system has some advantages like minimization of erosion or maximization of soil moisture, it is adversely affecting the cultivation due to weed infestation and lack of seed bed

With no-tillage, the soil is more likely to compacted, which can reduce the plant growth (National Research Council, 1989) The low efficiency and sustainability perceived by both the respondent groups for this practice might be due to these reasons

e) Evaluative perception of respondents in plant protection - yellowing and dwarfing

Based on perception score obtained for each attribute, the attributes were ranked for each practice under the plant protection for yellowing and dwarfing and are shown in the table 12

Spraying extracts of assafoetida and garlic was found to be high in simplicity by farmers and SMS The sustainability was also ranked high by both the respondent groups

Farmer made research is always simple and devoid of complex steps as in the case of synthetic pesticide formulations These indigenous research is finely tuned in accordance with the environment Without making any harmful residues in nature, this bio-pesticide acts on pests These reasons might be accounted for the high sustainability and simplicity of the practice as perceived by the respondents

However, efficiency of this practice was found to be low by majority of respondents from both the groups, probably due to the comparative judgment with the results of use of the highly toxic chemical insecticides

Mulching with nuxvomica leaves was perceived as having high sustainability and simplicity by farmers The toxicity of nuxvomica plant is known from time immemorial By mulching with the leaves of nuxvomica,

Table 12 Evaluative perception of respondents in plant protection Yellowing and dwarfing in bitter gourd

Farmers (n = 120) SMS (n = 40)

Sl No	Attribute	Spraying extract of assafoetida and garlic				Mulch ng nuxvom ca leaves on bas ns				Spnnkling cow's urine on leaves			
		Farmers		SMS		Farmers		SMS		Farmers		SMS	
		Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank
1	Simplicity	358	I	118	II	303	II	109	I	211	V	97	V
2	Profitab lity	329	III	99	III	301	III	103	II	297	III	109	III
3	Sustainability	333	II	120	I	330	I	80	II	328	I	112	II
4	Efficiency	126	VI	80	VI	200	VI	42	VI	298	II	115	I
5	Input ava lab lity	328	IV	96	IV	201	V	48	V	210	VI	90	VI
6	Flexibility	201	V	89	V	208	IV	49	IV	273	IV	106	IV

Table 12 contd

Sl No	Attribute	Spraying fenugreek boiled water				Spraying extract of kanthari plant				Spraying jaggery starch water solution			
		Farmers		SMS		Farmers		SMS		Farmers		SMS	
		Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank
1	Simplicity	189	VI	49	VI	200	VI	55	VI	279	III	59	VI
2	Profitability	218	III	89	II	230	V	83	IV	280	II	90	II
3	Sustainability	329	I	74	III	319	I	90	II	300	I	120	I
4	Efficiency	198	IV	55	V	299	II	98	II	129	VI	69	IV
5	Input availability	229	II	93	1	278	III	100	I	238	IV	63	\
6	Flexibility	190	V	65	IV	240	IV	71	V	231	V	71	III

there is a chance of destruction of soil borne pests The highly perceived sustainability might be due to this reason However, efficiency of this practice was perceived as low by majority of respondents from both the groups The belief that such indigenous pest control methods cannot keep pace with today s situation might be the reason behind this finding

Another observation from the table is that spraying cow's urine is perceived to be highly sustainable and efficient practice for majority of farmers Cow's urine is supposed to have some repellent action against sucking pests acting on the crop Pal and Mahindra (1992) also reported similar results with cow's urine Besides the insecticidal activity, the manurial property of the same is also known to everybody The observed high sustainability and efficiency as perceived by the respondents is thus explanatory However, majority of them perceived this practice as less simple, may be due to its limitation in applicability to large scale cultivation

The SMS respondents, on the other hand perceived this practice to be highly input available and profitable one

The practice of spraying fenugreek boiled water on leaves was perceived to be highly sustainable one by the farmer respondent The fenugreek were used by traditional farmers as against many of the pests (Pereira, 1993) The insect repellent property of fenugreek minimizes the attack of sucking pests of bitter gourd Probably, this reason might be accounted for the highly perceived sustainability for this practice

It may also be noted that input availability of the practice was perceived as high by both the respondent groups, while their perception regarding simplicity of the practice was lowest The Table also indicates that sustainability of the practice of spraying extracts of kanthari plant was perceived as high by farmer respondents and both the categories perceived comparatively high efficiency also for this practice, may be due to the ability of the plant to control the insect attack with its insecticidal property However, both the farmer and SMS respondents perceived this practice as less simple

Sprinkling jaggery with old starch water was perceived highly sustainable by majority of respondents from both the respondent groups Jaggery starch solution is sticky in nature and besides this, the insecticidal property of starch solution is known May be, these reasons accounted for such a result

The Table also indicates that efficiency was perceived as low by farmer respondents The reason, cited in the case of all indigenous pesticidal measures found suitable here also Hence such a result needs no explanation The SMS respondents perceived this practice as less simple may be due to its limitation in applicability to a large extent

f) Evaluative perception of respondents in plant protection - against fruit fly

Based on perception score obtained for each attribute, the attributes were ranked for each practice under the cultural operation plant protection against fruit fly in bitter gourd

The ranks shown in Table 13 indicates that placing cut portions of pandanus fruit in bitter gourd gardens was perceived as highly simple and profitable by respondents from both the groups The reason behind such a perception is clear and obvious However, the input availability of this practice was perceived to be lowest by majority of farmers and SMS Pandanus plant is somewhat a rare one in the study regions Moreover, availability of pandanus fruit is seasonal These might be the reasons for perceived low input availability of this practice

The efficiency and profitability were ranked as the most important attributes by majority of respondents for the practice of hanging toddy mixed with insecticide in bitter gourd pandal Such a result was least surprising as it could be explained on the basis that toddy, with its particular smell attracts the insect population which will then get killed in the solution due to the toxicity of the insecticides The respondents from both the categories perceived this practice as less simple

The results shown in Table 13 revealed that of the six attributes of the practice placing cut portions of cycus flowers in bitter gourd garden the

Table 13 Evaluative perception of respondents in plant protection against fruit fly in bitter gourd

Farmers (n = 120) SMS (n = 40)

Sl No	Attribute	Plac ng cut portions of Pandanus fruit In Bitter gourd gardens				Hanging toddy mixed with insecticide In Bitter gourd gardens				Placing cut portions of Cycus flowers In B tter gourd gardens			
		Farmers		SMS		Farmers		SMS		Farmers		SMS	
		Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank
1	Simpl city	238	I	116	I	187	VI	75	VI	323	I	117	I
2	Profitability	198	II	110	II	298	II	117	I	300	II	111	II
3	Sustainab lity	197	III	98	III	198	IV	87	III	298	III	108	III
4	Effic ency	125	IV	89	IV	310	I	99	II	201	IV	101	IV
5	Input availability	124	VI	63	VI	189	V	80	V	129	VI	79	VI
6	Flexibl ty	123	V	87	V	295	III	86	IV	132	V	89	V

attribute simplicity was ranked as the most important one followed by profitability

The input availability of this practice was perceived to be low by majority of respondents as shown in the Table The reason cited earlier ie, in the case of pandanus fruit holds good here also

B Ashgourd

The evaluative perception score of farmers and SMS for the different selected attributes for each indigenous practice under each cultural operation of this crop was recorded

a) The evaluative perception of respondents in seed storage in ash gourd

For the practice of keeping seeds along with some kantharı fruits the sustainability was recorded as the highest by both the respondent groups as shown in Table 14 Besides the farmer respondents perceived this practice as more efficient also which could be due to the insect repellent property of the kantharı fruits The SMS were however not much convinced about the efficiency of this practice as indicated from this Table

Pressing seeds on cowdung paste fixed on walls of kitchen over the hearth was perceived as highly efficient and sustainable by the respondents from both the groups The reasons cited for this practice in the case of bitter gourd is found suitable here also

The practice of storing seeds in unopened ashgourd itself till land preparation was perceived as highly profitable and simple by majority of respondents both farmers and SMS However efficiency of this practice was perceived as low by majority of farmer respondents and SMS The probable reason is that seeds within the ashgourd may get germinated some times owing to the congenial surroundings for germination resulting in less efficiency

Table 14 Evaluative perception of respondents in seed storage in ash gourd

Farmers (n = 120) SMS (n = 40)

Sl No	Attribute	Mixing kanthari fruits with ash gourd seeds				Pressing seeds over cowdung paste fixed on walls of kitchen over hearth				Storing seeds in unopened fruit itself			
		Farmers		SMS		Farmers		SMS		Farmers		SMS	
		Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank
1	Simplicity	319	VI	94	VI	320	VI	90	VI	353	II	120	I
2	Profitability	321	V	114	II	324	III	116	II	358	I	119	II
3	Sustainability	331	I	116	I	329	I	119	I	321	IV	112	III
4	Efficiency	328	II	98	V	328	II	113	III	296	V	111	V
5	Input availability	326	IV	108	IV	321	V	102	IV	–	–	–	–
6	Flexibility	327	III	111	III	323	IV	91	V	351	III	101	IV

b) Evaluative perception of respondents in land preparation in ash gourd

Based on perception score obtained for each attribute, the attributes were ranked for each practice under the cultural operation of land preparation and are shown in Table 15

Burning basins 15 days before sowing was perceived to be high in terms of attribute sustainability by majority of farmers and SMS The farmer respondents perceived this practice as efficient also This practice is believed to be effective in controlling soil borne pests Besides, the burned ash provides nutrients also These might be the reasons signifying the highly perceived attribute sustainability and efficiency by the respondents

The perception pattern for the practice of mixing soil with coconut pith was more or less similar to that of bitter gourd and hence needs no explanation

c) Evaluative perception of respondents in seed treatment m ash gourd

The attributes were ranked for each practice under the cultural operation of seed treatment based on perception score obtained for each attribute

The results given in Table 16 indicate that the sustainability of the practice of giving a natural cold treatment to seeds during cool months was perceived as high by majority of respondents from both the groups while the input availability of this practice was low as expressed by them The reason cited for bitter gourd stands suitable here also

The practice of putting seeds in cowdung decotion was perceived as highly efficient by farmers The SMS perceived high sustainability for this practice as evident from the Table The fact that cowdung provides nutrients close to the emerging roots and thus imparts vigourness to the seedlings might be the reason behind such perception

Table 15 Evaluative perception of respondents in land preparation in ash gourd

Farmers (n = 120) SMS (n = 40)

Sl No	Attribute	Burn ng basins 15 days before sowing				Mixing soil with coconut pith			
		Farmers		SMS		Farmers		SMS	
		Score	Rank	Score	Rank	Score	Rank	Score	Rank
1	S mpl city	348	III	117	II	289	III	58	V
2	Profitability	330	VI	108	IV	276	IV	89	III
3	Sustainability	360	I	118	I	351	I	115	I
4	Efficiency	352	II	110	III	301	II	90	II
5	Input availability	331	V	105	V	201	VI	55	VI
6	Flexib lity	332	IV	102	VI	211	V	60	IV

Table 16 Evaluative perception of respondents in seed treatment in ash gourd

Farmers (n = 120) SMS (n = 40)

Sl No	Attribute	Exposing the seeds to snow at night hours dunng cool months				Putting seeds in cowdung solution			
		Farmers		SMS		Farmers		SMS	
		Score	Rank	Score	Rank	Score	Rank	Score	Rank
1	Simplicity	314	III	109	II	351	IV	113	IV
2	Profitability	315	II	91	IV	356	III	116	II
3	Sustainability	318	I	112	I	353	V	117	I
4	Efficiency	301	IV	96	III	360	I	110	V
5	Input availability	161	VI	42	VI	358	II	114	III
6	Flexibility	299	V	80	V	350	VI	109	VI

However, this practice was reported for asngourd only and may be this reason accounted for the low perceived flexibility

d) Evaluative perception of respondents in plant protection in ash gourd

The attributes were ranked for each practice under the cultural operation of plant protection based on the perception score obtained for each attribute

The results given in Table 17 indicate that the practice of spraying tobacco decoction mixed with rotten fish was found to be highly sustainable and efficient by majority of the respondents The fowl smell of this solution might be able to repel the insects thus effectively protecting the plant This might be the probable reason behind such perception

However, the input availability was perceived to be low by most of the respondents Lack of availability of rotten fish might be the reason

The sustainability and simplicity of the practice of mulching nuxvomica leaves on basins was recorded as high by the farmer respondents

The SMS also perceived high sustainability for this practice The reason cited as in the case of bitter gourd holds good here also

Another observation from the Table is that input availability of the practice was perceived as low by both the respondent groups This may be due to the lack of availability of the plant resulted from destruction of commons

C COWPEA

The evaluative perception score of farmers and SMS for the different selected attributes for each indigenous practice under each cultural operation of this crop was recorded

Table 17 Evaluative perception of respondents in plant protection in ash gourd

Farmers (n = 120) SMS (n = 40)

Sl No	Attribute	Spraying tobacco decotion mixed with extract of rotten fish				Mulching nuxvomica leaves on basins			
		Farmers		SMS		Farmers		SMS	
		Score	Rank	Score	Rank	Score	Rank	Score	Rank
1	Simpl city	303	V	112	II	343	II	112	I
2	Profitability	325	III	99	V	321	III	107	III
3	Susta nability	345	I	117	I	360	I	110	II
4	Effic ency	333	II	102	III	291	VI	83	V
5	Input availability	289	VI	98	VI	293	V	69	VI
6	Flexibility	320	IV	100	IV	310	IV	89	IV

a) Evaluative perception of respondents in seed storage in cowpea

Based on perception score obtained for each attribute the attributes were ranked for each practice under the cultural operation seed storage and are shown in Table 17

The sustainability was perceived as high by farmer respondents for the practice of mixing mango leaves with cowpea seeds under storage The SMS respondents perceived this practice as highly input available one indicated from results shown in Table 19 The efficiency of this practice was however perceived as low by respondents from both the groups This result is however in contradiction with the findings indicated by Pereira, (1993)

The practice of smearing seeds with gingelly oil was found to be efficient by both the respondent groups This may be due to the ability of gingelly oil to check fungus growth on storage seeds as opined by research persons The sustainability was also ranked high by the respondents

The results shown in the Table 19 also indicate that the practice of storing the seeds in unopened pods itself was found to be highly simple by both SMS and farmers Their perception regarding efficiency of this practice was also found to be similar as indicated from the Table The fact that insects find it difficult to pierce the hard pods and attack the seeds in it might be reason behind highly perceived efficiency of this practice

b) Evaluative perception of respondents in plant protection in cowpea

The attributes were ranked for each practice under the cultural operation plant protection based on perception score obtained for each attribute

The results given in Table 19 indicate that the practice of dusting ash over the crop was found as simple and input available one by majority of respondents However efficiency of this practice was low for majority of them

Table 18 Evaluative perception of respondents in seed storage in cowpea

Farmers (n = 120) SMS (n 40)

Sl No	Attribute	M xing mango leaves with cowpea seeds				Smearing seeds with gingelly oil				Storing the seeds in unopened pods itself			
		Farmers		SMS		Farmers		SMS		Farmers		SMS	
		Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank
1	S mplicity	328	I	117	II	328	IV	97	V	325	I	115	I
2	Profitability	324	II	115	III	328	III	101	IV	309	IV	110	III
3	Sustainabil ty	321	III	114	IV	329	II	112	II	319	III	107	IV
4	Efficiency	318	VI	112	V	341	I	116	I	324	II	112	II
5	Input availab lity	320	IV	120	I	325	V	110	III	–	–	–	–
6	Flexibility	220	VI	108	VI	202	VI	69	VI	307	V	101	V

Spraying extract of Thumba mixed with soap solution was perceived as highly profitable by farmers The SMS on the other hand perceived this practice as a simple one The Table also reveals that both the respondent groups perceived this practice as less efficient The reason cited in the case of all biopesticides holds good here also Input availability was the attribute which was ranked high by the respondents from both the groups for the practice of spraying extract of garlic mixed with extract of chilly They also ranked high profitability for this practice However, simplicity for this practice was low as perceived by farmers and SMS The reason like limitation in applicability to a large extent is found suitable in this case also for such a perception

The practice of spraying fenugreek boiled water was perceived as highly sustainable and input available one by farmer respondents The SMS also perceived this practice as input available one It may be noted that both the respondent groups perceived this practice as less simple The reasons cited for this practice in the case of bitter gourd holds good here also

4 6 Constraints in the adoption of indigenous practices

The major constraints experienced by the farmers in the adoption of indigenous technology are presented in Table 20 These constraints were ranked based on the severity with which they were felt by farmers as indicated by them

Emergence of new pests and diseases was reported by 98 per cent of the farmers as the most important constraint Eighty eight per cent of the farmers pointed out increased pests and diseases as the next important constraint Low productivity (86 per cent) lack of quick results (76 per cent) limitation in applicability to large scale (74 per cent) were the constraints which obtained ranks third fourth and fifth respectively

Problems like emergence of new pests and diseases increased pests and diseases are some of the major issues related to the modern technology Since immediate solutions in the form of pesticides/insecticides is made available to them the farmers will find no time to research with local materials to cope with these situations

Table 19 Evaluative perception of respondents in plant protection in cowpea

Farmers (n = 120) SMS (n = 40)

Sl No	Attribute	Dusting ash over crop				Spraying extract of Thumba mixed with soap solution			
		Farmers		SMS		Farmers		SMS	
		Score	Rank	Score	Rank	Score	Rank	Score	Rank
1	Simplic ty	352	I	113	II	324	III	114	I
2	Profitability	348	III	106	V	331	I	95	IV
3	Sustainability	343	IV	107	IV	317	IV	96	III
4	Efficiency	336	VI	101	VI	326	V	87	VI
5	Input availability	351	II	120	I	330	II	98	II
6	Flexibility	340	V	109	III	325	VI	92	V

Table 19 Contd

Farmers (n = 120) SMS (n = 40)

Sl No	Attribute	Spraying extract of garlic and chilli				Spraying fenugreek boiled water			
		Farmers		SMS		Farmers		SMS	
		Score	Rank	Score	Rank	Score	Rank	Score	Rank
1	Simplicity	278	VI	88	VI	307	VI	84	VI
2	Profitability	316	II	103	II	335	III	111	II
3	Sustainability	312	III	97	III	339	I	96	III
4	Efficiency	291	IV	92	IV	326	IV	86	V
5	Input availability	319	I	109	I	337	II	112	I
6	Flexibility	284	V	93	V	316	V	93	IV

A comparison with modern technology which gives relatively quicker and visible results was reflected in the constraints lack of immediate results and low productivity perceived as important by the farmers

Limitation in applicability to a large extent was also reported as an important constraint Like wise the other constraints recorded by the respondents were Time consuming methods (58 per cent), Lack of knowledge (49 per cent) Lack of attractiveness of the produce in the market (42 per cent) and Lack of availability of local inputs (10 per cent)

Table 20 Constraints perceived by farmers in adoption of indigenous practices

(n = 120)

Sl No	Constraints	Frequency (%)	Rank
1	Increased pests and diseases	88	II
2	Lack of availability of local inputs	10	IX
3	Low productivity	86	III
4	Emergence of new pests and diseases	98	I
5	Limitation in applicability to large scale	74	V
6	Lack of immediate results	76	IV
7	Time consuming methods	58	VI
8	Lack of attractiveness of the produce in market	42	VIII
9	Lack of sufficient knowledge	49	VII

SUMMARY

3 To study the knowledge and evaluative perception of these practices by the farmers extension workers and scientists

4 To assess the influence of personal, socio-economic and psychological characteristics on adoption of indigenous practices by farmers

5 To assess the influence of personal, socio-economic and psychological characteristics on knowledge on indigenous practices by farmers

To conduct the study, 120 respondents were selected by proportionate random sampling from the blocks having maximum area under vegetables in Thrissur district namely Wadakkancherry, Puzhakkal and Chalakkudy The required information was collected by personally interviewing them with a pre-tested structured interview schedule The major results of the study were detailed below

1 During the first phase of the study, 47 indigenous practices existing among the three selected vegetables in the study areas were identified Out of this 47 indigenous practices, 15 practices were commonly applicable to all the three selected vegetables 6 practices were common to bitter gourd and ash gourd, 18 practices were applicable to bitter gourd only and only 3 practices were applicable to ash gourd while 5 practices were applicable to cowpea only

2 Distribution of respondents based on their knowledge on indigenous practices showed that majority of both farmers and SMS belong to lower category of knowledge on indigenous practices in vegetables

3 Distribution of farmers based on their extent of adoption revealed that majority of farmers belong to lower category of adoption of indigenous practices in vegetable

4 The simple correlation analysis to study the influence of personal socio economic and psychological characteristic on the knowledge on indigenous practices possessed by farmers revealed that out of the 17 variables only 3 variables namely farming experience farming tradition and innovation proneness were positively and significantly related with the dependent

variable knowledge on indigenous practices The variables education, income from vegetable cultivation, farm size cropping intensity, economic motivation cosmopoliteness, extension orientation market orientation, scientific orientation and information source utilization had significant negative relationship with knowledge on indigenous practices

The step down regression analysis explained 31% variability on knowledge on indigenous practices by the variables market orientation and information source utilization

5 The simple correlation analysis to study the influence of personal, socio-economic and psychological characteristics on extent of adoption of indigenous practices shows that the variables occupation, farming experience and farming tradition had significant positive relationship with the extent of adoption of indigenous practices in vegetable cultivation While the variables education, annual income, income from vegetable cultivation, farm size labour input, cropping intensity, economic motivation, cosmopoliteness extension orientation, market orientation scientific orientation and information source utilization had significant negative relationship with the extent of adoption of indigenous practices

The step down regression analysis explained 38 % variability on extent of adoption by the variables farm size labour input and scientific orientation

6 The evaluative perception of respondents for the attributes such as simplicity, profitability, sustainability, efficiency input availability and flexibility for each indigenous practice under each cultural operation was worked out and observed that, in general, the attributes simplicity sustainability and profitability of majority of the indigenous practices were perceived more or less high by the respondents

7 The most important constraints identified by the farmers in the use of indigenous technology were Emergence of new pests and diseases (98 per cent), Increased pests and diseases' (88 per cent) and Low productivity (86 per cent)

Suggestions for future research

Since the present study was designed to get the different indigenous practices existing in only three vegetables, efforts should be directed to collect indigenous practices in other crops also

Moreover, in order to get a distinctive out look of these knowledge, an exhaustive research with larger sample and wider area must be carried out Efforts to test the scientific rationality of these practices would be of ample scope

Testing the validity of these technology in different locations of Kerala will enhance the development of sustainable production technology

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APPENDICES

Appendix - I

THRISSUR SUB DIVISION

	Name of block	Area under vegetables (hec)
1	Ollukkara	231 72
2	Cherppu	96 00
3	Anthicadu	14 50
*4	Puzhakkal	250 00
5	Thalikkulam	45 50
6	Kodakara	239 00

IRINJALAKKUDA SUB DIVISION

	Name of block	Area under vegetables (hec)
*1	Chalakkudy	240 00
2	Vellangallur	22 50
3	Irinjalakkuda	103 00
4	Mala	47 00
5	Kodungallur	19 00
6	Mathilakam	17 50
7	Chavakkadu	21 00

WADAKKANCHERRY SUB DIVISION

	Name of block	Area under vegetables (hec)
*1	Wadakkancherry	261 60
2	Pazhayannoor	108 00
3	Chovvannoor	72 00
4	Mullassery	17 50

* Blocks having the maximum area under vegetables selected for the study

Appendix - II A
A STUDY ON THE INDIGENOUS PRACTICES OF VEGETABLE CULTIVATION IN THRISSUR DISTRICT

INTERVIEW SCHEDULE

Block

Krishibhavan

1 Name of respondent

2 Address

3 Education

Illiterate
Functionally literate
Primary school level
Middle school level
High school level
Pre-degree or equivalent
Degree and above

4 Occupation

Farming as a primary occupation
Farming as secondary occupation

5 Annual income
a) From agrl sources
b) From other sources
Total income

6 Income for vegetable cultivation

7 Farm size

	Area (acre)	Area under vegetables (acre)
1 Owned land		
a) Wet land		
b) Garden land		
2 Leased in land		
a) Wet land		
b) Garden land		
Total		

8 Labour input

Operation	Family Labour		Hired labour		Total	
	M	F	M	F	M	F
1 Preparation of land						
2 sowing/planting						
3 Manuring						
4 Weeding/intercultural operation						
5 Application of plant protection measures						
6 Harvesting						

9 Cropping intensity

How many crops do you raise in an year ? Give details

a) Wet land	b) Dry land
1) Single/Double/Tripple cropped	1) Single/Double/More than 2 crops or crop combination
2) Specify (crop sequence)	2) Specify (crop sequence)

10 Farming experience

11 Farming tradition

12 Social participation

a) Are you a member/office bearer in any of the following organisations? If Yes please specify the organisation and role

Organisation	Member	office bearer
1 Panchayat		
2 Co-operative society		
3 Vegetable growers association		
4 Farmers organisation		
5 Trade unions		
6 Political organisations		
7 Others (specify)		

b) If you are a member how frequently you attend its meeting and other activities

Regularly attend / occasionally attend / Never attend

13 Economic motivation

Indicate whether you agree or disagree with the following statements

Statements	Agree	Disagree
1 A farmer should work towards larger yields and economic profit		
2 The most successful farmer is one who makes the maximum profit		
3 A farmer should try any new farming idea which may earn him more money		
4 A farmer should grow cash crops to increase monetary benefits in comparison to growing of food crops for home consumption		
5 It is difficult for the farmer s 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		

14 Cosmopolıteness

a) Frequency of vısıtıng the nearest town

Twice or more tımes a week / Once ın a week / Once ın a fortnight / Once ın a month / Very rarely / Never

b) Purpose of vısıt

All vısıts relatıng to agrıculture / Some relatıng to agrıculture / Personal / Domestıc matters / Entertaınment / Other purpose / No response

15 Extensıon orıentatıon

a) Extensıon contact

Category of personnel	Frequency of contact		
	Regularly	Occasıonally	Never
1 Assıstant Dırector of Agrıculture			
2 Agrıcultural Officer			
3 Agrıcultural Assıstant			

b) Extension participation

	Activities	Attended whenever conducted	Occasionally attended	Never attended
1	Study tours			
2	Seminars			
3	Farm fair/Farm day			
4	Demonstration			
5	Others (specify)			

16 Market orientation

	Statements	Agree	Disagree
1	Market use is not so useful to a farmer		
2	A farmer can get good price by grading his produce		
3	Processing facilities can help a farmer to get better price for his produce		
4	One should sell his produce to the nearest market irrespective of price		
5	One should purchase his inputs from the shop where his relatives purchase		
6	One should grow those crops which have more market demand		

17 Scientific orientation

Please give your Agreement / Disagreement with the following statements

Statements	SA	A	UA	DA	SDA
1 New method of farming give better results to a farmer than old methods					
2 The way of farming by traditional method is still the best way to farm					
3 Even a farmer with lot of farm experiences should use new methods of farming					
4 A good farmer experiments with new ideas of farming					
5 Though it takes time for a farmer to learn methods in farming it is worth the effort					
6 The traditional methods of farming have to be changed in order to raise the standard of living of a farmer					

18 Innovation proneness

Statements	Most like	Least like
A. a) I try to keep myself upto date with information on new farm practices but that does mean that I try out all the new methods on any farm		
b) I feel restless till I try out a new farm practice I have heard about		
c) They talk of new farm practices these days but who knows if they are better than old		
B a) From time to time I have heard of several new farm practices and have tried out most of them in the last few years		
b) I usually want to see what results my neighbours obtain before I try out the new farm practice		
c) Some how I believe that the traditional ways of farming are the best		
C a) I am conscious about trying a new farm practice		
b) After all our forefathers were wise in their farming practices and I do not see any reasons for changing those old methods		
c) Often new practices are not successful however, if they are promising I would surely like to adopt them		

19 Information source utilisation

How often do you use the following 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			

Appendix II - B

List of indigenous practices selected for measuring knowledge, extent of adoption and evaluative perception by the respondents

I BITTER GOURD

		w*
a	Seed storage	
1	Storing seeds over smoke after rubbing it with wood ash	2
2	Pressing seeds over cowdung paste fixed on walls of kitchen over hearth	3
3	Mixing black pepper seeds with bitter gourd seeds	1
b	Land preparation	
1	Mixing the soil with sand	2
2	Mixing the soil with coconut pith	1
c	Seed treatment	
1	Exposing the seeds to snow at night hours during cool months	2
2	Placing wet bundle of straw over seeds	1
3	Placing seeds in banana sheath after mixing with ash, cowdung and sand	3
d	After care	
1	Sprinkling cowdung slurry over leaves	3
2	Mixing soil with coconut pith	1
3	Following no-till system	2

e Plant protection - yellowing and dwarfing

1	Spraying extract of assafoetida and garlic	6
2	Mulching nuxvomica leaves on basins	1
3	Sprinkling cow's urine on leaves	4
4	Spraying fenugreek boiled water	3
5	Spraying extract of kanthari plant	5
6	Spryng jaggery - starch water solution	2

f Plant protection - against fruit fly

1	Placing cut portions of pandanus fruit in gardens	2
2	Hanging toddy mixed with insecticide in gardens	3
3	Placing cut portions of cycus flowers in gardens	1

II ASH GOURD

a Seed storage

1	Mixing kanthari fruits with ash gourd seeds	1
2	Pressing seeds over cowdung paste fixed on walls of kitchen over hearth	3
3	Storing seeds in unopened fruit itself	2

b Land preparation

1	Burning basins 15 days before sowing	2
2	Mixing soil with coconut pith	1

c Seed treatment

1	Exposing the seeds to snow at night hours during cool months	1
2	Putting seeds in cowdung solution	2

d Plant protection

1	Spraying tobacco decoction mixed with extract of rotten fish	2
2	Mulching nuxvomica leaves on basins	1

III COWPEA

a Seed storage

1	Mixing mango leaves with seeds	2
2	Smearing seeds with gingelly oil	3
3	Storing seeds in unopened pods itself	1

b Plant protection

1	Dusting ash over crop	2
2	Spraying extract of thumba mixed with soap solution	1
3	Spraying extract of garlic and chilli	4
4	Spraying fenugreek boiled water	3

NB - w* - Weightage assigned to the practices for calculating adoption quotient

Appendix II - C

Constraints experienced by the vegetable farmers in the adoption of indigenous practices

Which among the following constraints would you identify as the most important and least important in the adoption of indigenous practices?

Constraints	Most important	Least important
1 Increased pests and diseases		
2 Lack of availability of local inputs		
3 Low productivity		
4 Emergence of new pests and diseases		
5 Limitation in applicablity to large scale		
6 Lack of immediate results		
7 Time consuming methods		
8 Lack of attractiveness of the produce in market		
9 Lack of sufficient knowledge		

INDIGENOUS PRACTICES OF VEGETABLE CULTIVATION IN THRISSUR DISTRICT

BY

MANJU.V.

ABSTRACT OF A THESIS

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Department of Agricultural Extension

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ABSTRACT

A study on the indigenous practices of vegetables was carried out using 120 vegetable farmers selected from the three vegetable growing blocks of Thrissur district of Kerala state namely Chalakkudy, Wadakkancherry and Puzhakkal The data were collected with the help of a pre-test structured interview schedule by personally interviewing the respondents selected from three vegetable growing panchayats of the above blocks The analysis of the data revealed that, out of seventeen selected personal, socio-economic and psychological characteristics of the farmers ten variables were negatively and significantly related with their knowledge on indigenous practices Of these, maximum variation on knowledge on indigenous practices was caused by two characteristics namely market orientation and information source utilisation of the farmers

Similarly out of these seventeen personal socio-economic and psychological characteristics of the respondents, twelve characteristics were negatively and significantly related with their extent of adoption of indigenous practices Of these, maximum variation was contributed by three variables such as farm size, labour input and scientific orientation

The evaluative perception of indigenous practices by farmers and subject matter specialists were separately measured in terms of six selected attributes The attributes selected were simplicity, profitability, sustainability, efficiency, input availability and flexibility The results in general indicated that the attributes simplicity, sustainability and profitability of majority of the indigenous practices were perceived as more or less high by the respondents

Emergence of new pests and diseases, incred pests and diseases, low productivity were some of the important constraints perceived by the farmers in the case of indigenous technology ado