FEASIBILITY AND UTILIZATION OF AGRICULTURAL TECHNOLOGIES AMONG SCHEDULED CASTE FARMERS

By

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THESIS

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DECLARATION

I hereby declare that this thesis entitled 'FEASIBILITY AND UTILIZATION OF AGRICULTURAL TECHNOLOGIES AMONG SCHEDULED CASTE FARMERS' 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 any other similar title, of any other University or Society.

24/9/92

P. RAJENDRAN

CERTIFICATE

Certified that this thesis entitled 'FEASIBILITY AND UTILIZATION OF AGRICULTURAL TECHNOLOGIES AMONG SCHEDULED CASTE FARMERS' is a record of research work done independently by Sri. P. Rajendran, under my guidance and supervision and that it has not previously formed the basis for the award of any degree, fellowship or associateship to him.

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We, the undersigned, members of the Advisory Committee of Sri. P. Rajendran, a candidate for the degree of Doctor of Philosophy in Agriculture with major in Agricultural Extension, agree that the thesis entitled 'FEASIBILITY AND UTILIZATION OF AGRICULTURAL TECHNOLOGIES AMONG SCHEDULED CASTE FARMERS' may be submitted by Sri. P. Rajendran, in partial fulfilment of the requirements for the degree.

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To

My Father

(Late) Sri. S. PARAMU PILLAI

who loved and lived

for

'the man of God'

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P. RAJENDRAN

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Introduction

INTRODUCTION

The Scheduled Caste people in India occupy a pre-eminent position in the country's demography with 15.5 per cent contribution to the total population (Census 1981). The Scheduled Caste people constitute a vital force in the agricultural sector primarily as agricultural labourers and peasant farmers. The proportion of Scheduled Caste in the poverty population of India is much larger than their contribution to the total population.

As observed by the Planning Commission of India (1981), the Scheduled Castes in India are characterised by below-the-poverty-line economic status, poor asset ownership, general dependence on agricultural labour, subsistance farming, share cropping, leather work and other types of low income occupations, preponderance among bonded labourers and subjection to social and civil disabilities. They continue to be the victims of social discrimination and atrocities or crimes particularly in the rural areas. Their literacy rate is only 14.67 per cent as against 33.80 per cent for the population other than Scheduled Castes and Scheduled Tribes.

In India, the Scheduled Caste population is significant agriculturally also. While over 52 per cent of the Scheduled Caste is dependent on agriculture as agricultural labourers, only 28 per cent of the Scheduled Caste is categorised as cultivators that too, a large majority among them being marginal and small farmers (Planning Commission, 1988).

The Scheduled Castes constitute a very important section in the population in the Kerala State also. According to 1981 Census figures, there are 25.49 lakh Scheduled Castes in the state accounting for 10.02 per cent of the total population. Over 85 per cent of them reside in rural areas. The work distribution pattern of Scheduled Castes shows that 58 per cent of them are agricultural labourers, while only 2 per cent are recognised as cultivators. With respect to literacy also, the Scheduled Castes in the state lag behind with only 59.96 per cent of them as literates as compared to the literacy rate of 63.36 per cent for the rest of the population of the state.

Even though sporadic attempts at improving the lot of the Scheduled Castes were made in British India and in many of the Indian states before 1947, systematic efforts for the upliftment of these castes began only

after India attained independence. Earlier attempts were mostly confined to certain limited areas such as education and health. After Independence, the welfare of the untouchables was assigned to the states as their special responsibility and all the states passed legislation abolishing untouchability and removing other hardships and disabilities imposed on the Scheduled Castes. The untouchability Act of 1955 made the practice of untouchability a cognisable offence throughout the country. Side by side with these, a comprehensive effort to uplift the Scheduled Castes through massive socio-economic programmes was also made.

Amelioration of poverty through increased food production, improved productivity and employment generation has been given major emphasis in all the Five-Year Plans of the country. The Government of India and the State Governments, in accordance with the directive principles of state policy, have earmarked special funds for the welfare of the backward classes, including of the Scheduled Castes. During the first two plans, the major stress in carrying out development programmes for Scheduled Castes had been on education. For promoting economic upliftment, stress was laid on allotment of land and assistance for settling as

cultivators, training in village and small industries and introduction of improved techniques in traditional crafts. During the sixth plan period, the Government of India suggested that special component plan for Scheduled Castes should be formulated in each state as part of the various development programmes to enable 50 per cent of the Scheduled Castes families to cross the poverty line. From 1983-84, changes were made in the procedures for carrying out schemes under "special component plan" to ensure that 'the schemes for the benefit of the Scheduled Castes are location-specific and family oriented, and co-ordinated and integrated at the levels of the harijan habitat and family. In the Seventh Plan, the poverty line index was raised for the poverty alleviation programmes of Scheduled Castes with the facit objective that the poorest of the poor should get the assistance first.

The attempts to foster welfare of Scheduled Castes in Kerala have a long history. As early as the beginning of the 19th century, a social reform movement with the avowed objective of removing the social and economic disabilities of citizens belonging to the deprived castes was initiated by the rulers of the erstwhile Travancore state, now a part of the Kerala state.

In 1818 and again in 1853 and 1855, proclaimations were issued abolishing slave trade and slavery in any form and imposing severe punishment on offenders. In 1870, orders were passed prohibiting the use of derogatory terms (terms which indicated their serfdom) for Scheduled Castes in public documents. In the same year, members of the depressed castes were permitted to enter Government offices (Iyer, 1968). In 1894, schools were started for the benefit of the depressed castes and in the next year scholarships were instituted for them. It was ruled that in the case of private schools where the majority of children were from depressed castes, the entire cost would be born by the State Government (Pillai, 1940).

Simultaneously, efforts at educational upliftment and social reform measures such as throwing open of roads and other public premises to Scheduled Castes were also initiated. Representation was given to Scheduled Castes in various elected bodies including the State Legislative Assembly and Council.

Economic measures for the elevation of Scheduled Castes were also taken up simultaneously. These included grant of waste lands for house building and cultivation, and appointment in Government service. In 1933, a

'Protector of Backward Communities' was appointed and all the different programmes for Scheduled Castes development were co-ordinated and brought under his jurisdiction. Government also directed that the term 'Backward Communities' should be used in all official correspondence instead of the term 'Depressed Classes'.

The culmination of all these came in 1936 when the then Maharaja of Travancore by a revolutionary proclaimation (Temple Entry Proclaimation) throwned open all Government owned temples to all the backward class communities. This, at last, removed the stigma of untouchability from backward communities and conferred social equality on them (Saradamoni, 1981).

After Independence, the development programmes, as part of the various five-year plans were implemented in the Kerala State also. In 1956, a separate department was formed in the state for Scheduled Castes/Tribes development, Harijan Welfare Department . Besides the plan schemes, the Kerala State Government established in 1972, the Kerala State Development Corporation for Scheduled Castes and Scheduled Tribes with its Headquarters at Thrissur, a registered and a fully owned Government Company with the objective of promoting and implementing socio-economic development programmes

for these target groups. Similarly the Kerala Institute for Research, Training and Development Studies for Scheduled Castes/Tribes (KIRTADS) was established at Kozhikodu by the Kerala State Government in October 1979 as a specialised centre for research and evaluation of the development programmes for Scheduled Castes and Scheduled Tribes. During the later part of 1970's the 20 point programme was implemented by the Government and since development of Scheduled Castes was included in the 20 point programme, welfare measures for the Scheduled Castes were taken up on a war footing. The Special Component Plan for the State was first prepared in 1979-80 in accordance with the directions of the Government of India. The resources available from (1) different sectors of the State Plan (2) investment of Central Ministries in different sectors (3) special central assistance provided by the centre (4) Kerala State Development Corporation for Scheduled Castes and Scheduled Tribes and (5) Institutional finance, were taken into account while drawing up the Special Component Plan for the state. It was also stipulated by the Government of India that the percentage of the state plan outlay set apart for Special Component Plan should be commensurate with the Scheduled Caste population in the state. In line with the National Agenda of action for the upliftment of the

Scheduled Caste/Scheduled Tribe population various development departments, autonomous agencies, universities, voluntary agencies, private agencies etc. initiated programmes with Scheduled Caste/Scheduled Tribe population as the intended beneficiaries. The Kerala Agricultural University started its Scheduled Castes/Other Backward Communities Project Centre, financed by the Indian Council of Agricultural Research, at Nilambur in 1982 with the objective of conducting research oriented development programmes for the socio-economic upliftment of Scheduled Castes and Other Backward Communities.

Upto 1983-84 the schemes for the development of Scheduled Castes were determined at the state level and implemented by different departments and the schemes, therefore, remained routine and stereotyped. The situation changed during 1983-84 when the formulation and implementation of schemes under Special Component Plan were decentralised to the district level. A new era of development programmes for the upliftment of Scheduled Castes in Kerala started during this year. It was also celebrated as 'Scheduled Castes-Scheduled Tribes Year' by the Government of Kerala. Subsequently, to follow up further the efforts in this direction, the

Government declared 1990-91 and 1991-92 as Ambedkar Years to provide an impectus to the welfare of the Scheduled Castes in the state.

In spite of massive efforts by the Governments at the Centre and the States and Non-Governmental Agencies to uplift the Scheduled Castes population, evaluation studies conducted in this regard have painted dark/gloomy picture. Dixit (1985) has observed that often the needs of the weakest section of the society are approached in technical terms in such a way that the technical solutions are not always possible, or if the solutions are possible, social conditions are such that the benefits of technical change will not accrue to the weakest because of lack of social control. One of the tasks facing appropriate technology practitioners is to identify the needs correctly, so that benefits will truely reach the neediest.

After a detailed review, Gupta et al. (1986) maintained that much of the programmes intended for the upliftment of Scheduled Castes have not resulted in substantially benefiting them, with the result that a large proportion of them still remain below the poverty line. According to them, one of the major reasons for this unhappy situation is that the technologies introduced

under the programmes are not feasible and/or not utilised fully by the Scheduled Caste people.

Planning Board, Kerala (1988) observed that some of the existing schemes may require some modification/re-orientation in order to become suitable for the Scheduled Castes. This would be particularly true in respect of the viability of the schemes for the Scheduled Castes, who have a meagre asset structure and have virtually no investment capability".

The efforts for the economic upliftment of the socially downtrodden and economically weaker sections of the rural sector did not yield the expected results due to certain loopholes in the implementation of land reforms and technology transfer. According to Jain (1990) "some sort of a gap between ownership and operationship does exist in actual practice. The new agricultural technology has brought about a situation in which elements of disparity, instability and unrest are becoming conspicuous with the possibility of increase in tension. It has benefitted the farmers having larger farm assets and the small farmers and landless labourers and tenants have remained unaffected so far as the gains of technological development in agriculture is concerned".

The agricultural development programmes specifically aimed at the Scheduled Caste population would make a dent in their livelihood only if the agricultural technologies and enterprises introduced among them are perceived feasible and are utilised fully to reap the benefits contemplated in these schemes. In the words of Lord Blackett as quoted by Anon (1991): 'The capacity of a society to assimilate new technology depends on both its capacity to adapt the technology to its own to condition and its capacity to adapt itself to the needs of technology. Some technologies are readily accepted, others, having a more immediate disruptive potential, may require a massive education programme and a much wider scientific literacy before acceptance'.

Systematic research investigation on the success or failure of developmental programmes for the Scheduled Castes are the need of the hour in view of the magnitude of public investment and the vulnerability of the beneficiary population. Rogers and Shoemaker (1971) rightly pointed out that 'very little effort has been devoted to analysing innovation difference (that is in investigating how the properties of the innovation affect its rate of adoption). This type of research could be of great value to change agents seeking to base

their strategies on diffusion research findings. They could often predict the relations of their clients to an innovation and perhaps modify certain of these reactions by the way they name and package the innovation and by relating the new idea to existing beliefs and attitudes'. Similarly, while summarising the role of Agricultural Universities, Menon (1985) opined that the relevance of the Agricultural Universities will be, to a large extent, a function of the success and earnestness with which the Universities attend to these sections of the population and held in abolishing the under previleged'. He urged that the Agricultural University scientists should research the very frontiers of conventional agricultural expertise and internalise the peculiar challenges of the under previlaged situations and the under previleged people'.

Keeping the foregoing in view, the present investigation was designed with the over-riding objective of finding out the agricultural technology transfer and utilisation of agricultural technology pattern by the Scheduled Caste farmers. The specific objectives of the study are:

1. To assess the feasibility of agricultural technologies as perceived by the Scheduled Caste farmers,

2. To assess the utilisation pattern of agricultural technologies by the Scheduled Caste farmers,

3. To identify the constraints in the utilisation of agricultural technologies by the Scheduled Caste farmers,

4. To understand the consequences of utilisation of agricultural technologies by the Scheduled Caste farmers,

5. To find out the inter-relationship between the characteristics of the Scheduled Caste farmers and utilisation of agricultural technologies by them.

Scope of the study

This is a pioneering study of its kind conducted in Kerala to analyse the feasibility and utilisation of agricultural technologies among Scheduled Caste farmers. Similarly, the consequences of and constraints in the utilisation of agricultural technologies among the Scheduled Castes have not been so far scientifically explored. The index of feasibility proposed to be developed in the study would be an useful contribution to the body of Agricultural Extension Research. The

findings of the study would be helpful in filling this void in this respect and would enable the extension workers to identify and evaluate technologies from different sources so as to effectively inject with their client system without any rejection from the target groups. The findings of the study would also give a guideline to research system to check the feasibility of technologies while chalking out research strategies for any intended group. The study would throw light on the characteristics of Scheduled Caste farmers associated with the utilisation of agricultural technologies in general which would help in designing various extension approaches for these farmers.

Limitations of the study

The present research study formed a part of the Doctorate Degree Programme, which was a single student investigation, and hence time, money and other resources at the disposal of the investigator were limited. This limitation led to the restricted selection of districts and villages as the locale of the study and also forced to restrict the sample size. For the same reason, the generalisation of the results to the entire state in the same way will not hold good. However, the study has been designed and implemented without bias so that the

results of the study could find application to those situations similar to the study situations.

The study was based on the expressed opinions of the farmers, particularly of Scheduled Caste farmers, which may not be free from their individual biases and prejudices. There could be some distortion in the interpretation of the responses of the farmers, though every care was taken to collect the information without any loss.

With the above limitations ignored, it is believed that the findings depicted and the conclusions drawn could stand the test of more rigorous field observations.

Presentation of the study

The first chapter deals with the introduction, wherein the objectives of the study are presented. It also throws light on the scope and limitations of the study.

The second chapter, viz., review of literature deals with the review of selected important and related studies in the field of the present investigation.

The third chapter presents the methodology used in the study. The location of the study area, sampling procedure followed, quantification of the variables selected for the study, statistical techniques employed etc. are dealth with in this chapter.

The fourth chapter brings out the results of the study, followed by the fifth chapter viz., discussion, in which the results of the study are discussed.

The last chapter summarises the study with a brief resume and implication of the findings.

Theoretical Orientation

THEORETICAL ORIENTATION

A review of the existing literature on a research topic helps the researcher in the delienation of relevant concepts and their relationship and also in providing a sound theoretical framework for his study. The present study had the limitation of lack of directly related studies on feasibility and utilisation of agricultural technologies by the Scheduled Caste farmers. However, besides studies on Scheduled Caste, the available studies on other categories of farmers and related areas are also reviewed in this section and are presented under the following heads.

2.1 Concept of Scheduled Castes

2.2 Status of Scheduled Castes in India

2.3 Scheduled Castes in relation to agriculture

2.4 Feasibility of agricultural technologies

2.5 Utilisation/adoption of agricultural technologies

2.6 Constraints in the utilisation/adoption of agricultural technologies

2.7 Consequences of utilisation/adoption of agricultural technologies

2.8 Characteristics of farmers associated with utilisation/adoption of agricultural technologies

2.9 Conceptual model of the study

2.1 Concept of Scheduled Castes

The term 'Scheduled Castes' is an expression standardised in the Constitution of India though it is nowhere defined in the Constitution. The term was first used in the Government of India Act 1935 for enlisting of castes which suffered from social, economic and religious disabilities for statutory safeguards and benefits.

Article 341 of the Indian Constitution declares that the President of India "may with respect to any state or Union Territory, and where it is a state after consultation with the Governor thereof, by Public Notification specify the castes, races or tribes or parts of, or groups within castes, races or tribes which shall for the purpose of this constitution be deemed to be Scheduled Castes in relation to that State or Union Territory as the case may be".

It is further stated in Article 366(24) 'that Parliament may by Law include in or exclude from the list of Scheduled Castes specified in a Notification any caste, race or tribe'.

Thus Scheduled Castes may be defined as those groups which are named in the Scheduled Castes order of the Government of India, in force from time to time. The Scheduled Castes order is one which contains the list of castes entitled to benefit from the various special arrangements exclusively earmarked for them. In accordance with the provision of the constitution, the Scheduled Castes order was promulgated in August 1950 which was amended in 1956.

According to 1981 Census, the population of Scheduled Castes in India is about 10.4 crores. Their population has increased from 14.87% in 1961 to 15.75% in 1981 out of which 89.29% and 84% lived in villages respectively. The number of castes included in India is about 687. In Kerala, the population of Scheduled Castes accounts for 10.02% of total population and the total number of castes included under are 68.

2.2 Status of Scheduled Castes in India

In the first Five Year Plan document, the Planning Commission, Government of India (1951) observed that in a low caste society, all members of the household followed the traditional heriditary occupations and were not confined to their own villages. It was not open to

Scheduled Castes to take up occupations meant for the caste Hindus. Further, the Commission stated that, all this was sought to be altered with the accepted policy of the Government to offer special treatment to the Scheduled Castes in addition to what is meant for the general public by providing a variety of economic opportunities.

Barnabas (1963) noted that though there was greater physical proximity among Scheduled Castes and other high castes in panchayath, educational institutions, offices and public places, in reality the change in inter-caste relationship was not as significant as this overt behaviour indicates.

Arora (1968) reported that greater education of the Scheduled Castes has not usually led to the emergence of militant communal groups. On the contrary the educated members of the Scheduled Castes have tended to pass into the category or amorphous castes by changing their surnames and migrating outside their own villages.

Reddy (1968) observed that there were occupational changes among the Scheduled Castes from the traditional to non-traditional occupations such as owning the land and cultivating, seeking employment in Government services, etc.

Sachidananda (1968) reported that education has created a gulf between educated harijan children and their unlettered fathers. This has led to problems of adjustment between an educated husband and uneducated wife.

Srivastava (1970) reported that a notable feature in the persistance of untouchability and caste hiearchy is that some of the Scheduled Castes themselves practice it in relation to other Scheduled Castes.

Dube and Mathur (1972), while reviewing the welfare programmes for Scheduled Castes, commented that the houses of the Scheduled Castes were segregated from those of the caste Hindus outside the villages.

Visaria (1974), in his comprehensive study of the economic progress attained by the Scheduled Castes during 1950-1970, concludes: "Thus in terms of economic indicators - size of land holding, employment, occupation, income, savings - it is found that the position of the harijans has progressively worsned during the period".

Upamanyu and Singh (1978), in their study, concluded that all the respondents, irrespective of age and educational status, expressed an unfavourable attitude to those statutory

privileges which affect them personally than the one (the grant of financial aid) which does not affect them.

Mankidy (1979) studied the process of mobility of the Scheduled Caste families. Though at a low pace, the occupational mobility lead to the social mobility of the weaker sections as envisaged by the Government, with emphasis on the regional differences not only at state level but also within a state.

Parvathamma (1981) observed that the knowledge of availability of the various provisions for their economic benefits itself is limited to a small and neglible number in both urban/rural areas. It is only the vocal and advanced sections among the Scheduled Castes who have availed themselves of most of the benefits. Those are the people who have also acquired other forms of assets and influence and wield some power. In fact, it is a vicious circle within which the social problems of the Scheduled Castes are revolving. Doles are given to strengthen their secular position. In this process, the concerned person has to constantly declare that he comes from such and such low caste. Such public demonstration of caste status for personal benefit can never help a man to psychologically rise above narrow loyalties or to free himself from feeling constantly inferior.

Das (1982) concluded that 'as Scheduled Castes become more and more aware of their own potentialities and their own dignity as Indian citizens, they also find themselves face to face with defiant and shameless 'upper castes' who in their hearts hate the Scheduled Castes and deliberately attempt to block every avenue which might help the Scheduled Castes to stand on their own feet and to demand an equal place and equal participation in the process of nation building'.

Kananailal (1982) pointed out that 'a number of factors have contributed to form the Scheduled Castes into what may be called 'a common class' and which justify treating them as a single group. The important among these factors are the consciousness of their earlier social status as the 'untouchables', a new common name as the Scheduled Castes and political and other reservations for them.

Alexander et al. (1983) reported that all the Scheduled Caste respondents were aware of the governmental scheme to help the poor to increase their income and they also knew that under IRDP they could get assistance for milch animals, construction and repair of irrigation wells, purchase of bullock and goat units, agricultural implements, bullock carts, houses and house sites.

Charyulae et al. (1985) revealed that the Scheduled Caste beneficiaries were well aware of the schemes envisaged to improve their socio-economic status.

Rastogi (1985) observed that abysmal poverty of weaker sections render them vulnerable to exploitation and oppression by upper castes.

Singh (1987) reported that indebtedness was more among the Scheduled Castes and revealed the following causes of their indebtedness:

1. They were either landless or have very small pieces of land of poor quality
2. The religious, convivial and habitual use of liquor as a result of which major part of their income was squandered away on drinks
3. They were forced to celebrate their festivals with pomp and show by their own community failing which they were fixed by their caste panchayats.

Mohanty (1988) observed the emerging features of caste atrocities on Scheduled Castes and listed the following features:

1. All the Scheduled Castes were not equally the victims of caste atrocities

2. Increasing status mobility among the Scheduled Castes brought some imbalances in the traditional caste pride of the high castes

3. The inherent interest of the hectic profit chase by the land owners, prosperous farmers, money lenders and traders created ample conditions for these classes to utilise semifeudal and castiest modes of exploitation and oppression to accelerate their profit hunt

4. The atrocities on harijans were predominently group phenomena and occurred mostly in rural areas

5. Special facilities to the Scheduled Caste groups through various governmental programmes brought a sense of jealousy and rivalry among the upper castes

6. The evil bureaucratic loopholes made the culprits escape from the clutches of law and this increased their confidence further in suppressing the Scheduled Castes.

Majid and Ghosh (1989) revealed that Scheduled Castes devalued and disliked varioua dimensions of their socio-cultural characteristics. It appears that membership of low caste and low class group, perhaps, generates a devalued identity structure in terms of low self esteem,

negative and poor self image, low levels of aspiration, feeling of incompetence and inferiority, sense of powerlessness, alienation, loneliness and apathy conceptualised as the nucleus of 'affective syndromes'.

Rathore (1989), in a case study on space, ideology and distribution of Scheduled Castes, concluded that the Scheduled Castes were evenly distributed in space. But there was a tendency of the redistribution of population from the large-sized villages towards smaller ones and urban areas. There was also a possibility of a patron-client relationship being generated even within a caste kinship group or a class living in a village. This could lead to more rigorous exploitation of labour coming from kin groups.

Singh (1989), in his study on Dusadh, a Scheduled Caste in Bihar revealed the following:

1. Illiteracy was very common among the Scheduled Castes
2. They were under closed system of social interaction pattern
3. They had no clear-cut idea about untouchability
4. The younger generation was not very much conscious about their future perspective

5. Younger generation was more caste-conscious than its counterpart and

6. They have well exposed to the various traditions of Hindu culture.

Thakur et al. (1989) concluded that the socio-economic variations among the sampled Scheduled Caste people may be attributed mainly to the variations in household income, consumption, savings and investment pattern, nature, type and extent of gainful employment, literacy percentage as well as benefits accruing to them under the anti-poverty programmes. Among the sample households, the better-off benefitted the most and the poorest benefitted the least from the anti-poverty programmes.

The studies reviewed in the foregoing pages succinctly reveal the sad plight of Scheduled Castes in India, in general. Considering the inter regional variations with regard to the status of Scheduled Castes in the different regions of the country, it was felt appropriate to specifically review the studies on Scheduled Castes conducted in Kerala and the same is presented as follows:

Santhakumari (1976) observed that social barriers imposed by caste have been mainly responsible for preventing the full utilization of Government Welfare Programmes by the Scheduled Castes in Kerala.

Saradamani (1980) observed that infighting among the different Scheduled Castes adversely affected their collective political power. During 1980, there were about 120 organisations registered among them in Kerala state. Many of these organisations became convenient instruments for unscrupulous leaders to pocket government grants and other assistance to the Scheduled Castes.

Mathew (1986), in his study on 'Thematic comparison of Mahars of Maharashtra and the Pulayas of Kerala' indicated that state welfare measures evoked a transformation of self-perception of status identity by the Scheduled Castes. There were developmental changes but there was social differentiation too. This led to disparities among Scheduled Castes themselves. The Mahars and Pulayas - the politically mobilised caste categories - responded more towards the state benefits and achieved upward mobility. The resources were adequately tapped by their mass based leadership and their movement was organised well. The non-Mahar and non-Pulaya Scheduled Castes remained less mobile than Mahars and Pulayas because they remained within the framework provided by the state and never responded to the state resources.

Radhadevi (1990) analysed the educational status of Scheduled Caste population in urban Trivandrum and observed that for both the decades 1961-71 and 1971-81 the growth rate of the literate population was higher for the Scheduled Castes than for the non-Scheduled Castes. Among the Scheduled Castes the growth rate was higher among females than among males. The lowest literacy rate was among the Kuravans and the highest among the Vannans. In terms of the literacy rate, Paravans, Parayans, Thandans and Pulayas could be ranked in descending order.

From the foregoing, it could be surmised that the status of Scheduled Castes in Kerala also was none too appreciable. However, it could be pointed out that the Scheduled Castes population in Kerala are distinctly different from those in the rest of the country in terms of settlement pattern, education, social awareness, political consciousness etc. This could be attributed to the long history of struggle under the leadership of social reformers for freedom from suppression on communal lines which marked Kerala earlier.

2.3 Scheduled Castes in relation to agriculture

The report of the working group on the development of Scheduled Castes, Government of India (1980-85) clearly

summarised the importance of Scheduled Castes as: "Notwithstanding the extremely adverse situations, they are the poorest of those who live below the poverty line - the scheduled castes contribute significantly to the sustenance and growth of the production system of the country and the Nation's economy. In this agriculture - based economy the largest single group among agricultural labourers in the country are the Scheduled Castes going upto as much as 61% in Haryana and 71% in Punjab. Scheduled Castes women in fact constitute 72% of all women agricultural labourers in the country".

The working force in agriculture is generally classified under three broad categories such as (1) cultivators (2) agricultural labourers (3) small and marginal farmers.

The first Agricultural Labour Enquiry Committee (ALEC) (1950-51) accepted those persons as agricultural labourers who kept themselves engaged for either half or more than half of their annual working days in agricultural operations on payment of wages. The second ALEC (1956-57) included wage paid employment in other agricultural occupations like dairy, horticulture, bee keeping, poultry etc. besides cultivation of land.

The category of agricultural labourer is further subdivided into two categories: (1) landless agricultural labourers and (2) small cultivators whose earnings are wage employment.

The landless agricultural labourers may also be classified as (1) permanent labour attached to a cultivating household or (2) casual labour. The first group consists of those permanent agricultural labourers who worked with a particular land owner either for the whole year or for a fixed period of time. They work under a verbal contract or understanding with the land owner and they were never free to work elsewhere without the prior permission of their master. Their wages are also determined according to the prevailing traditional wage methods.

The second group consists of those casual agricultural labourers who work temporarily in the agricultural section with the different land owners as and when they get the opportunity to work in this sector. Their wages are determined according to the prevailing market rate and they always remain free to work any where according to their own conveniences.

Attempts at defining small and marginal farmers have yielded different operational concepts. The definition

by the Government of India was purely on the basis of land holding and irrigation status. A small farmer is defined as one who has ownership of dry land between 1 to 2 hectares and a marginal farmer as one owning less than 1 hectare of dry land. For Class I irrigated land, the ceilings were half of what were fixed under each category. According to the modern concept, the marginal farmers also belong to the category of agricultural labourers. The main source of income of this section also remains the wages earned in the agricultural sector through their small holdings. They practice share cropping and also work in other's field for earning wages whenever they are free from employment on their own small holdings (Jha, 1987).

Report of the commissioner for Scheduled Castes (1968-69) mentioned that a large majority of the former untouchables were farm workers who were hereditary serfs attached to agricultural holdings.

Easwaran (1966), while explaining the 'Jagmani system' observed that the different low castes were to render services to the high castes for which they were paid in kind. Thus after every harvest, they received a small portion of the grain for the services rendered by them.

Rao (1964) observed that the Government was the main source from which Scheduled Castes had either bought land or received it free and the land so received was very often of an inferior quality. Here, neither land ownership nor cultivation was expected to bring about any major improvement in their economic conditions.

Gupta (1980) summarised the important findings of the studies undertaken regarding allotment of land to Scheduled Castes as:

1. the beneficiaries were not identified in a systematic manner and the claims of all landless Scheduled Caste persons were not taken into consideration

2. land was also allotted to ineligible persons

3. the quality of the land allotted was very poor, uneven and rocky and it was beyond the capability of the beneficiaries to make such land cultivable with the limited resources at their command

4. there were several cases in which the beneficiaries were not even aware as to which particular plots had been allotted in their names

5. either the possession was not made or it was taken back by some powerful landlord or dominant high class person

6. the allotted plots had not been properly demarcated

7. they did not have the necessary agricultural inputs

8. most of these allottees were not given legal documents

9. inadequacy of record rights posed obstacles for obtaining institutional credit by them.

Nancharaiah (1989) concluded that:

1. land was mostly concentrated in the dominent peasant castes while Scheduled Caste farmers were mostly marginal farmers

2. larger proportion of Scheduled Caste workers were landless agricultural labourers compared to others

3. almost all female Scheduled Caste workers in the working age group were participating in work as agricultural labourers while less than 40 per cent of other females in working age group were participating in work.

The working group on the development of Scheduled Castes, Government of India (1985) classified Scheduled Castes into seven categories for the purpose of their economic development.

1. Landless agricultural labourers
2. Cultivators
3. Traditional artisans
4. Fishermen
5. Essential health service workers
6. Urban unorganised labour, and
7. The educated

The situation in Kerala in this regard was slightly different. As Saradamani (1980) in her study on Pulaya caste of Kerala stated: 'The Scheduled Castes in Kerala did not use land as a means towards upward mobility. Though Kerala has witnessed violent struggles by tenants, land to the tiller had not risen much above the level of slogan. Insufficient land to distribute was one of the main reason. Moreover to the popular mind, the teritiary services offer more security and status'.

Kurien (1982) concluded that the economic condition of the Scheduled Castes was intimately related to and indeed formed an integral part of the problem of agricultural labourers in general. The fact that those who toiled the land to feed the entire population did not get a tolerable share of the produce for themselves and their families because they had hardly any resource other than their own labour and consequently had to be at the mercy of those who employed their labour. This was the basis of the poor economic condition.

The studies reviewed in this section bring to focuss the fact that although the Scheduled Caste population in India is inextricately interlinked to progress in the agricultural front, they have remained silent observers of agricultural development without getting any benefit for themselves. One probable reason could be that the Scheduled Caste population in India involved in agriculture as agricultural labourers and wage earners largely and even in those cases where they held agricultural land, the agricultural technologies generated have glossed over them without materially benefitting them.

2.4 Feasibility of agricultural technology

Concept of feasibility

According to the Advanced Learner's Dictionary of Current English (1988) 'feasible' means:

(a) capable of being done

(b) that can be done

Webster's Nineth New Collegiate Dictionary (1988) gave meaning to the word 'feasible' as:

(a) capable of being done or carried out

(b) capable of being used or dealt with successfully

Schumacher (1973), while eulogizing the need for developing appropriate technologies, defined appropriate technology as any technology developed to the scale appropriate to the human needs and satisfying to them.

Adams (1982) reported that the ultimate adoption of technology diffused depends entirely upon the characteristics of individuals/groups.

Lakshminarayana (1984) reported that the ultimate adoption of technology depends entirely upon the characteristics of individuals/groups for whom the technology has been meant for, in addition to their perception about the attributes of the transferred technology.

Ensminger (1989) stated that for farmers to move from traditional towards a modernised agriculture, technology must prove to be trustworthy, the availability of credit and inputs must be assured, and markets must be reliable.

Singh (1984) opined that the success of transfer of technology depends upon understanding the nature and characteristics of the technology and their specific requirements, the characteristics of the farming community and effective communication strategy.

Planck (1987) observed that each technological innovation in farming meets pre-formed cultural patterns and social structures. Adoption of techniques from a strange culture can superimpose, displace or destroy the existing culture.

Mena (1988) opined that a technology which is appropriate for certain levels of development in a particular society may be found inappropriate for other societies at similar levels of development. The development of technology requires an appreciation and consideration of local culture and conditions.

Kapur (1989) observed that each level of technology needs its own milieu, its own system of organisation to take roots. The technologies that we innovate must not only be appropriate to our needs but also to the times, and there must also be a new social organisation and environment to sustain them.

Rao (1989) expressed the view that the presumption that green revolution technologies have been basically evolved within the developing countries in response to prevailing factor endowments is not an accurate description of the reality. Many of them have been, in a large measure, transferred from the developed country situations and

adapted to the specific circumstances of the developing countries. Therefore, it becomes necessary to understand the features of these technologies and to understand the circumstances responsible for their transfer and congenial for their adaptation.

According to Swaminathan (1989), the challenge of unemployment can be met only by developing agriculture and rural occupations in a scientific manner. If farming does not lead to expanded internal and external trade, the desired degree of diversification of employment opportunities will not occur in rural and urban areas. Without diversified income earning opportunities, the plight of marginal farmers and the landless poor will become worse as population increases. A bold and imaginative programme for converting the vast human resource into the most important asset of the country is the need of the hour. A careful policy of technology choice is needed. A blend of the best in traditional and frontier technologies has to be achieved.

With a view to improve the standard of living of the Scheduled Caste, special component plans have been formulated and implemented. But as reported by Gupta et al. (1986), much of these programmes have not resulted in substantially benefitting the Scheduled Castes with the

result that a large proportion of them still remain below the poverty line. One of the major reasons for this unhappy tendency is that the technologies introduced under these programmes are not feasible and/or not utilised fully by the Scheduled Castes.

The Report of the working group on the development of Scheduled Castes, Government of India (1980-85) concluded: "It is necessary that research should be specifically directed to develop a farm technology which is appropriate to the conditions of the Scheduled Castes cultivators. Research inputs should be directed towards their needs, such as the need for reduction of risk, and taking into account their problems, like incapacity to make substantial investments, utter dependence upon their land for substance food requirements, viability to hold their produce for the shortest period when the market prices become more remunerative and so on".

These observations drive home the point that feasibility of agricultural technologies is an important determinant of its utilisation by farmers in general. Feasibility of the agricultural technology is of paramount importance in so far as the Scheduled Caste farmers are considered in view of their general vulnerability and the sophistication of the technology evolved in agricultural sector.

2.5-1 Perception of feasibility of technologies

Specific studies on the perception of feasibility by Scheduled Caste farmers were not available and hence studies conducted among other farmers are summarised below:

Jaiswal and Das (1981) reported that several attributes have to be considered carefully while developing a particular technology and transferring the same to the farming community particularly to the small and marginal farmers. They were as follows:

1. Attributes of the adopter (technical skill, attitude towards change and risk, level of aspiration and level of income)

2. Aspects of technology (profitability, divisibility, complexity, communicability and technical soundness of the technology)

3. Characteristics of economy (infrastructure demand for products, Government policy etc.)

4. Features of environment at the farm level (socio-cultural factors, farm resource constraints)

5. Risk and uncertainty

Leagans (1985) observed that the optimum adoption of agricultural production innovation is achieved only when a farmer is persuaded to accept a technocal innovation which for him is technically sound, economically feasible, physically possible and politically and socially compatible.

Ensminger (1986) expressed the view that if the small farmer is to significantly improve his yields, he must be aided with agricultural technology within his resources and competence.

Bertus et al. (1988) found that technologies that offer the greatest promise for contributing to the food security of resource-poor farmers and herders share common characteristics as:

1. Technical and environmental soundness - which means technologies are able to stabilise, if not increase, production while ensuring conservation of natural resources

2. Social desirability - which means technologies must address to farmer - identified problems and constraints

3. Economic affordability - which means that resource - poor farmers must be able to obtain and maintain the technologies

4. Sustainability - which means that technologies are environmentally, socially and economically feasible to maintain in the long term

Ellis et al. (1989) concluded that if technology is to be appropriate:

1. it must offer a positive benefit-cost ratio

2. it must economize on scarce bureaucratic resources utilized to evaluate, fund and organize it; and

3. it must have replicability by contagion-emulation of the technology on the basis of the demonstration effect alone.

Prasad (1989) stated that the appropriateness of a technology is basically a social issue. It raises questions related to who gains and who losses. It also raises questions related to the nature and extent of gains and losses. There can be several criteria for an appropriate technology.

1. It should have income yielding capability i.e. ie. giving remunerative employment, level of productivity higher than the wage rate or earning level, lower employment displacement etc.

2. It can be beneficial and will be acceptable only if its products have an assured market

3. It should reduce fatigue and drudgery

4. It should be socially acceptable ie. it should reach people in forms which they can easily understand. It should not demand quick and drastic changes in family and group relations, social structure, beliefs, customs and economic interest etc.

5. It should not have adverse effect on the ecosystem, and

6. Repair and maintenance aspects of a technology should be manageable.

An effort was made to delienate the attributes of technology reported as significant in earlier studies by various researchers and these attributes are listed as follows:

Attribute of technology	Author and year
1. Suitability	Ashby, 1982
	Hildebrand, 1981
2. Observability	Byrnes, 1982
	Dinampo, 1983
	Thamilmani, 1985
3. Compatibility	Byrnes, 1982
	Dinampo, 1983
	Arulraj, 1984
	Sen, 1984
4. Profitability	Byrnes, 1982
	Harwood, 1981
	Chakravarthy, 1982
	Sen, 1984
	Mohankumar, 1985
	Thamilmani, 1985
5. Reliability	Byrnes, 1982
6. Triability	Byrnes, 1982
	Dinampo, 1983
	Mohankumar, 1985

Attribute of technology	Author and year
7. Simplicity	Chakravarthy, 1982 Latha, 1990
8. Relative advantage	Dinampo, 1983
9. Complexity	Dinampo, 1983 Arulraj, 1984
10. Flexibility	Arulraj, 1984
11. Efficiency	Arulraj, 1984 Mohankumar, 1985
12. Cost	Thamilmani, 1985
13. Social benefit	Brady, 1981
14. Low requirement of resources	Harwood, 1981
15. Immediacy of return	Mohankumar, 1985
16. Availability	Mohankumar, 1985

2.5 Utilization/adoption of agricultural technologies

The utilization of a technology refers to the acceptance and use of the technology by those for whom it is intended. In the present context, it refers to the adoption of technology.

Leagans (1985) stated that adoption behaviour tends to be specific to particular innovation, individuals and environment. However, there are some characteristics in general such as:

1. It is an adult behaviour and as such idiosynerqtive. Individually, circumstances may vary and so adoption behaviour also varies

2. Effect of communication; ie. what, why and how of the technical ideas - is a component

3. Traditional socio-economic factors such as size of farm, age, education, family size etc. generally influence the adoption of agricultural innovation

4. Socio-psychological factors significantly involve in the adoption of an innovation

Sohi and Kherde (1980) reported that most of the small and marginal farmers adopted dairy husbandry practices to a reasonable extent. Majority (95%) of the farmers were practising protective vaccination against contagious diseases, clean watering (85%) to milch animals, pucca animal shelter (61.67%) and own watering system (60%). The least adopted practices were dehorning of young calves (5%), use of improved seeds of fodder crops (8.75%), deworming (18.3%) and castration of young male calves (20%). None of the respondents was practising loose housing of dairy animals.

Gondi and Gowder (1983) indicated that recommendation involving high cost such as use of fertilizers and plant protection chemicals have been only partially adopted by majority of farmers.

Reddy (1983) indicated that all the respondents had adopted recommended banana variety, good planting material, dug the plots 2-3 times to loosen the soil and to control weeds. Majority of the farmers followed the recommended planting season (98%), spacing (98%), use of sword suckers (93%) and providing supports by propping to prevent lodging (90%). On the other hand, it was observed that relatively very less percentage of farmers had fully adopted key practices like farm yard manure application,

split application of fertilizers and plant protection measures.

Igodan et al. (1988) revealed that the mean adoption score for the recipient farmers was higher (39.3%) than the non-recipient farmers (31.6%) of improved maize distribution programme.

Ingle et al. (1988) observed that improved seeds and fertilizers were adopted by 65.25 per cent 58.69 per cent of tribal farmers, respectively. Other practices adopted were improved method of sowing and plant protection by 32.16 and 21.74 per cent of tribals, respectively, for the dry land crops in Maharashtra.

Nandakumar (1988) observed that significant difference was found in the adoption level of recommended practices of paddy cultivation before and after the implementation of Integrated Tribal Development Programme. Majority of the respondents had low level of adoption of recommended practices of paddy cultivation and dairy management after the introduction of Integrated Tribal Development Programme.

Wadkar et al. (1988) in a comparative study between farmers from irrigated area and unirrigated area found that 50 per cent of farmers from irrigated area were high

adopters. The medium and low adopters constituted 41.67 per cent and 8.33 per cent respectively. As regards the farmers from non-irrigated area it was observed that 45 per cent were low adopters followed by 35 per cent medium adopters while only 20 per cent farmers were high adopters.

Prasad et al. (1989) revealed that 92 per cent of the farmers did not adopt the seed treatment of paddy.

Siddappa et al. (1989) reported that 99 per cent of the farmers did not adopt seed treatment in ragi.

Mahipal and Kherde (1989) observed that majority of the respondents had medium level of adoption of breeding, feeding, health care management and overall adoption of dairy innovations.

Kharwara et al. (1991) in their study on comparative adoption of improved technology by female and male headed Scheduled Caste families observed that 76 per cent of the female and 70 per cent of the male respondents accepted the improved technology of rice cultivation. It is also evident from the data that 60 per cent of the families headed by women and 48 per cent of the families headed by men adopted the improved package of practices for rice cultivation.

The findings of the studies mentioned above give a clear view of multivariant behaviour of adoption by different farmers.

2.6 Constraints in the utilization of agricultural technologies

Zinyama (1988) called the problems and/or limitations as constraints.

Gogoi and Talukdar (1989) defined constraints as those factors which have repressive effects on a desired and/or purposive action.

Prasad et al. (1987) classified the factors influencing the development of agricultural sector in India into five broad categories.

1. Common basic constraints
2. Technological constraints
3. Organisational and administration constraints
4. Extension constraints, and
5. Social constraints

Pandya and Trivedi (1988) defined constraints as those items of difficulties or problems faced by individuals in adoption of technology.

Vasanthakumar and Singh (1987) identified the constraints to agricultural development by the small and marginal farmers and classified them into five categories as general constraints, technological constraints, input-oriented constraints, credit oriented constraints and infrastructural constraints. They concluded that there were more of input oriented constraints followed by general, credit oriented, infrastructural and technological constraints in that order.

Patil et al. (1990) classified constraints into four categories as social constraints, economic constraints, situational constraints and technological constraints.

A summarised list of the important constraints experienced by farmers in the utilization of agricultural technologies as identified/reported by the researchers is presented below:

Sl. No.	Nature of constraint	Author and year
1	Lack of sufficient land	Reddy (1980) Feder et al. (1985)
2	Lack of irrigation facilities	Reddy (1980) Moorthy (1981) Gowder (1983) Prakash (1989)

Sl. No.	Nature of constraint	Author and year
3	High cost of inputs	Lingan (1981) Moorthy (1981) Waghmare & Pandit (1982) Gowder (1983) Singh et al. (1985) Patel & Mehta (1988) Sagar (1989) Patil et al. (1990)
4	Non-availability of inputs	Lingan (1981) Arakeri (1982) Waghmare & Pandit (1982) Vijayakumar (1983) Sagar (1989)
5	Non-availability of financial help/credit facilities	Lingan (1981) Arakeri (1982) FAO (1982) Ponnappan (1982) Waghmare & Pandit (1982) Kulkarni & Sangle (1984) Feder et al. (1985) Kashyap & Sharma (1988)
6	Lack of marketing facilities	FAO (1982) Gowder (1983) Singh et al. (1985) Ramanathan et al. (1987) Kashyap & Sharma (1988) Patel & Mehta (1988)

Sl. No.	Nature of constraint	Author and year
7	Lack of technical guidance	Ponnappan (1982) Waghmare & Pandit (1982) Gowder (1983)
8	Lack of knowledge	Waghmare & Pandit (1982) Kulkarni & Sangle (1984) Singh & Mathur (1984) Anantharaman et al. (1986) Patil et al. (1990) Sripal & Ramachandran(1990)
9	Lack of supporting services	Ghosh (1981) Gowder (1983) Desai (1988) Patel & Mehta (1988)
10	Lack of integration of programmes	Rao (1987)
11	Lack of working capital	Moorthy (1981) Ahuja & Bhargava (1984) Anantharaman et al. (1986) GOI (1991)
12	Inadequacy of assistance	Desai (1988) Patel & Mehta (1988) Tripathy et al. (1990) Manrai (1986)

Sl. No.	Nature of constraint	Author and year
13	Low price of the produce/ generation of low income	Moorthy (1981) FAO (1982) Ponnappan (1982) Gowder (1983) Singh et al. (1985) Lanjiwal & Kalantri(1985) GOI (1991)
14	Incompatibility of technology	Kulkarni & Sangle (1984) Patel & Mehta (1988) Tripathy et al. (1990)
15	Insufficient human capital	Feder et al. (1985) Lanjiwal & Kalantri (1985)
16	Chaotic supply of complementary inputs	Feder et al. (1985)
17	Cumbersome loan procedures and corrupt practices	Yadava (1985)
18	Wrong identification of beneficiaries	Sankaranarayana (1984) Manrai (1986) Bagchu (1987) Singh (1987) Tripathy et al. (1990) Esakky (1991)
19	Wrong identification of schemes	Bagchu (1987) Tripathy et al. (1990) Bhat et al. (1991)

2.6 Consequences of utilization of agricultural technologies

Rogers and Shoemaker (1971) defined consequences as the changes that occur within a social system as a result of the adoption and rejection of an innovation.

Pandey and Khanna (1980) observed that Small Farmers' Development Agency (SFDA) had made a positive and significant impact of income and consumption of the beneficiaries and also on the acquisition of assets by the weaker section which has improved their risk bearing ability and credit carrying ability.

Mohanty (1988) observed that special facilities to the Scheduled Caste groups through protective discrimination and subsequent manipulation of those by well-off Scheduled castes bring a sense of rivalry among the upper castes. Governmental measures for the uplift of the Scheduled Castes serve as an incentive to jealousy among the non-Scheduled Castes.

Jain (1990) stated that the efforts for economic upliftment for the socially downtrodden and economically weaker sections of the rural sector did not yield the expected results due to certain loopholes in the implementation of land reforms. Some sort of a gap between land

ownership and operatorship does exist in actual practice. The new agricultural technology has brought about a situation in which elements of disparity, instability and unrest are becoming conspicous with the possibility of increase in tension. It has benefitted the farmers having larger farm assets and the small farmers, landless labourers and tenants have remained unaffected so far as the gains of technological development in agriculture is concerned.

Nancharaiah (1990) reported that the system of permanent farm servants was changed to casual labourers which shows that there is deterioration in the patron-client relationship and weakening the feudalistic structure with the introduction of welfare programmes for the upliftment of weaker sections.

Rani and Prabhakar (1990) concluded that despite the problems associated with cross-bred animals, the Scheduled Caste beneficiaries of dairying scheme have really benefitted in terms of getting productive work throughout the year, earning improved incomes and thereby achieving a progress in their living conditions.

The nature of consequences in the utilization of agricultural technologies as reported by some of the researchers is furnished as under:

Sl. No.	Nature of consequence	Author and year
1	Increase in cropping intensity	Moorthy, (1981) Nagadevara & Swamy (1985)
2	Increase in adoption level	Dhanakumar (1982) Gavi (1983) Nandakumar (1988)
3	Benefitted the well off farmers	Kuttikrishnan (1984)
4	Increase in social status	Dhillon & Sandhu (1990)
5	Enhancement of family income	Gavi (1983)
6	Decline of income	Lakshmydevi (1985) Kuttikrishnan (1984)
7	Misutilization of inputs	Ahuja & Bhargava (1984)
8	Crossed poverty line	Sarawgi *et al.* (1986)
9	Progress in living conditions	Devan (1988)
10	Reduction of drudgery of work	Sharma (1990)
11	Generation of additional employment	Gavi (1983) Esakky, (1991)
12	Widened the gap between the poor and the poorest	Bhat *et al.* (1991)

2.8 Characteristics of farmers associated with utilisation/ adoption of agricultural technologies

Though there are many studies available on the relationship of characteristics of farmers with their adoption behaviour, specific studies pertaining to the Scheduled Caste farmers are scanty. Hence the studies on other categories of farmers are also reviewed. However, recent studies which are relevant in the present context only are included for depicting the relationship of each selected independent variable with the adoption behaviour.

2.8.1 Education

Mosher (1966) suggested that education for Scheduled Castes will help them to adopt innovation in agricultural technology.

The nature of relationship as reported by researchers is summarised below:

Author and year	Nature of relationship
Ayyadurai, 1990	Positively significant
Ramakrishna, 1980	-do-
Avanti, 1981	-do-
Venkataramu, 1983	-do-

Author and year	Nature of relationship
Yadav and Jain, 1984	Positively significant
Harish, 1985	Non-significant
Naika, 1985	-do-
Manjunath, 1986	Positively significant
Dudhani et al., 1987	Non-significant
Tantray, 1987	Positively significant
Goud, 1988	Non-significant
Singh et al., 1989	Positively significant
Satheesh, 1990	-do-
Krishnamoorthy, 1991	Non-significant

2.8.2 Family size

The review of studies on family size in relation to adoption of improved agricultural practices is summarised below:

Author and year	Nature of relationship
Jain, 1980	Positively significant
Patel, 1984	-do-
Tyagi and Sohal, 1984	Non-significant

Author and year	Nature of relationship
Aggarwal and Arora, 1989	Non-significant
Haque, 1989	Positively significant
Sagar, 1989	-do-
Reddy, 1991	Non-significant

2.8.3 Experience in farming

The review of studies on adoption in relation to experience in farming is summarised below:

Author and year	Nature of relationship
Ravichandran, 1980	Non-significant
Ranganathan, 1981	Negatively significant
Ramaswamy, 1983	Non-significant
Krishnamoorthy, 1984	Positively significant
Moorthy, 1984	-do-
Godhandapani, 1985	Non-significant
Nanjaiyan, 1985	Negatively significant
Palani, 1987	Non-significant
Ramaswamy, 1987	Positively significant
Krishnamoorthy, 1988	Negatively significant

2.8.4 Farm size

The important findings on size of holding in relation to adoption is summarised as under:

Author and year	Nature of relationship
Manivarnan, 1980	Positively significant
Ravichandran, 1980	Non-significant
Sepulveda, 1980	Positively significant
Nweke et al., 1982	-do-
Ramaswamy, 1983	-do-
Kulkarni & Patel, 1984	-do-
Gangully, 1985	-do-
Nanjaiyan, 1985	-do-
Nilchade & Thakre, 1985	-do-
Swaminathan, 1986	-do-
Palani, 1987	-do-
Reddy, 1987	-do-
Aswathanarayana, 1989	-do-
Satheesh, 1990	-do-
Gopala, 1991	-do-

2.8.5 Annual income

The nature of relationship of adoption with annual income as reported by researchers is summarised below:

Author and year	Nature of relationship
Manivarnan, 1980	Positively significant
Pamadi, 1980	-do-
Ramakrishnan, 1980	-do-
Ravichandran, 1980	-do-
Viju, 1985	-do-
Baadgaonkar, 1987	-do-
Aziz, 1988	-do-
Naik, 1988	Non-significant
Aggarwal and Arora, 1989	-do-
Anithakumari, 1989	-do-

2.8.6 Indebtedness

Khan and Vijayamma (1970) have indicated that the rural indebtedness had became a social system of institution in rural areas and it is particularly so in the case of Scheduled Castes.

The nature of relationship of indebtedness with adoption behaviour, as reported by researchers is summarised below:

Author and year	Nature of relationship
Prakash. 1980	Positively significant
Viju, 1985	-do-
Bonny, 1991	Non-significant

2.8.7. Extension guidance

The review of studies on Extension guidance in relation to adoption of improved agricultural practices is summarised below:

Author and year	Nature of relationship
Desai, 1981	Positively significant
Sainath, 1982	-do-
Gondi et al., 1983	-do-
Hemantharaju, 1984	Non-significant
Shivaraju, 1985	Positively significant
Prakashkumar, 1986	-do-
Reddy, 1987	-do-
Nandakumar, 1988	Non-significant
Ajaykumar, 1989	Positively significant
Remeshbabu, 1989	-do-

2.8.8. Extension participation

The important findings on Extension participation in relation to adoption is summarised as under:

Author and year	Nature of relationship
Avanti, 1981	Non-significant
Manjunath, 1986	Positively significant
Shivasankara, 1986	-do-
Mahadevaiah, 1987	-do-
Reddy, 1987	-do-
Remeshbabu, 1987	-do-
Nandakumar, 1988	Non-significant
Aswathanarayana, 1989	Positively significant
Gopala, 1991	Non-significant
Reddy, 1991	Positively significant

2.8.9 Social participation

The nature of relationship as reported by researchers is summarised below:

Author and year	Nature of relationship
Ayyadurai, 1980	Negatively significant
Ramakrishnan, 1980	Positively significant
Ferreira et al., 1983	-do-
Ramegowda, 1983	-do-
Krishnamoorthy, 1984	-do-
Yadav and Jain, 1984	-do-
Balasubramaniam, 1985	Negatively significant
Sreekumar, 1985	Positively significant
Viju, 1985	-do-
Swaminathan, 1986	Non-significant
Dudhani et al., 1987	-do-
Igodan et al., 1988	Positively significant
Aswathanarayana, 1989	-do-
Singh et al., 1989	-do-
Gopala, 1991	Non-significant
Krishnamoorthy, 1991	Positively significant

2.8.10 Cosmopoliteness

The important findings as reported by researchers on cosmopoliteness in relation to adoption are summarised below:

Author and year	Nature of relationship
Pamadi, 1980	Positively significant
Avanti, 1981	Non-significant
Gowder, 1983	-do-
Ramagowda, 1983	Positively significant
Palvannan, 1985	-do-
Singh and Ray, 1985	-do-
Prakashkumar, 1986	-do-
Mahadevaiah, 1987	-do-
Aswathanarayana, 1989	-do-
Gopala, 1991	-do-
Krishnamoorthy, 1991	Non-significant

2.8.11 Achievement orientation

Achievement orientation has been considered as an essential component of modernization (Lerner, 1958, MecLelland 1967 and Parsons, 1951).

The review of studies of achievement orientation in relation to adoption is summarised below:

Author and year	Nature of relationship
Janardhana, 1983	Non-significant
Prasad, 1983	Positively significant
Naik, 1984	Non-significant
Reddy, 1987	Positively significant
Sharma, 1987	-do-
Naik, 1988	Non-significant
Ajaykumar, 1989	Positively significant
Reddy, 1991	Non-significant

2.8.12 Development orientation

A review of the views of Mehta (1972), Avtar Singh (1973) and Mishra (1977) shows that leadership orientations can be divided into three related facts. That are: Responsibility and development orientation refers to the feeling by which a leader gives priority to honesty and integrity in his role - responsibility and development; faith in leadership - refer to the feeling in which a leader has confidence in others leadership and believes that other's has confidence in his leadership and sense of responsiveness - refers to the capacity of the leader to understand problems, decide their priorities and take decisions. The authors concluded that the success of

democratic decentralization, to a large extent, depends upon the development orientation of the leadership it has.

Singh (1985) opined that 'majority of the rural leaders of Scheduled Castes are highly development oriented but believe that development should follows consent and co-operation of the people and it should not be done at the cost of democratic institutions.

2.8.13 Economic motivation

The review of studies on economic motivation in relation to adoption of improved agricultural practices is summarised as under:

Author and year	Nature of relationship
Manivannan, 1980	Positively significant
Kappallanaver, 1983	-do-
Jayakrishnan, 1984	-do-
Moorthy, 1984	-do-
Joshi, 1985	-do-
Nikhade and Thakre, 1985	-do-

Author and year	Nature of relationship
Palvannan, 1985	Non-significant
Viju, 1985	Positively significant
Kubde and Kalantri, 1986	Positively significant
Prakashkumar, 1986	-do-
Balan, 1987	-do-
Remeshbabu, 1987	-do-
Krishnamoorthy, 1988	-do-
Anithavijayan, 1989	-do-
Mahipal and Kherde, 1989	-do-
Satheesh, 1990	Non-significant
Gopala, 1991	-do-

2.8.14 Risk orientation

The nature of relationship of adoption with risk orientation as reported by researchers is summarised below:

Author and year	Nature of relationship
Ayyadurai, 1980	Negatively significant
Ramaswamy, 1983	Positively significant
Rotti, 1983	-do-

Author and year	Nature of relationship
Jayakrishnan, 1984	Positively significant
Nanjaiyan, 1985	-do-
Viju, 1985	-do-
Bhaskaran & Tampi, 1986	Non-significant
Kubde & Kalntri, 1986	Positively significant
Dudhani et al., 1987	Non-significant
Palani, 1987	Positively significant
Remeshbabu, 1987	-do-
Krishnamoorthy, 1988	-do-
Ajaykumar, 1989	-do-

2.8.15 Self confidence

Srinivatsava (1970) observed that harijans identify themselves with a closed group of their own, have a hiearchy of further divisiveness among themselves and it is this process that offers resistance to the removal of untouchability.

Hassan (1977) reported that the members of the Scheduled Castes and Scheduled Tribes have more negative self-image, higher degree of anxiety, authoritativeness and dependence proveness and lower need for achievement than those of higher and lower caste people.

The review of studies in summarised below:

Author and year	Nature of relationship
Prasad, 1983	Positively significant
Reddy, 1983	-do-
Shivakumarappa, 1987	-do-
Sumathi, 1987	-do-

2.8.16 Market orientation

The nature of relationship of market orientation with adoption as reported by researchers is given below:

Author and year	Nature of relationship
Bhat, 1980	Non-significant
Kamarudheen, 1981	Positively significant
Nigagundi, 1981	Non-significant
Patil, 1985	Positively significant
Sreekumar, 1985	-do-
Basavaraja, 1987	-do-
Syamala, 1988	-do-
Ajaykumar, 1989	Non-significant

2.8.17 Level of aspiration

The important findings as reported by researchers on the relationship of level of aspiration and adoption are presented below:

Author and year	Nature of relationship
Moni, 1980	Positively significant
Sushama et al. 1981	-do-
Thiagarajan, 1981	Non-significant
Ramagowda, 1983	Positively significant
Reddy, 1987	-do-
Mahipal & Kherde, 1989	-do-

2.8.18 Rational orientation

Mannheim (1960) suggested that acts of thought may be classified as substantially rational if they reveal intelligent insight into the inter-relation of events in a given situation.

Hobbs et al. (1964) measured rationality on the basis of economic productivity of the enterprenuers. In this notion of rationality an individual was considered rational to the extent he earned more profit.

Supe and Singh (1969) inferred that the act of an individual is considered rational to the extent to which he justifies his selection of most efficient means, from among the available alternatives, on the basis of scientific criteria for achieving maximum economic ends.

2.8.19 Innovativeness

The review of studies on innovativeness in relation to adoption is summarised below:

Author and year	Nature of relationship
Ravichandran, 1980	Non-significant
Singh, 1981	Positively significant
Bindari, 1982	-do-
Geethakutty, 1982	-do-
Badchikar, 1983	-do-
Janardhana, 1983	-do-
Reddy, 1983	-do-
Hemantharaju, 1984	Non-significant
Krishnamoorthy, 1988	Positively significant
Ajaykumar, 1989	-do-
Anithakumari, 1989	Non-significant
Ravi, 1989	Positively significant
Krishnamoorthy, 1991	-do-
Reddy, 1991	-do-

From the above reviews, one could draw certain inferences, such as:

1 Inspite of observable improvement in the status of Scheduled Caste in Kerala due to various programmes implemented by development agencies, there is vast scope for making their lot better in the agricultural sector;

2 Not all the technologies introduced among the Scheduled Caste farmers are relevant to them;

3 This can be due to the inherent characteristics of the technology;

4 The perception of the Scheduled Caste farmers may vary with situation and technology;

5 The adoption/utilisation behaviour of Scheduled Caste farmers may vary with location and technology;

6 Certain characteristics of the Scheduled Caste farmers are found to be associated with their adoption/ utilisation behaviour; and

7 There are many constraints in the utilisation of agricultural technologies by the Scheduled Caste farmers.

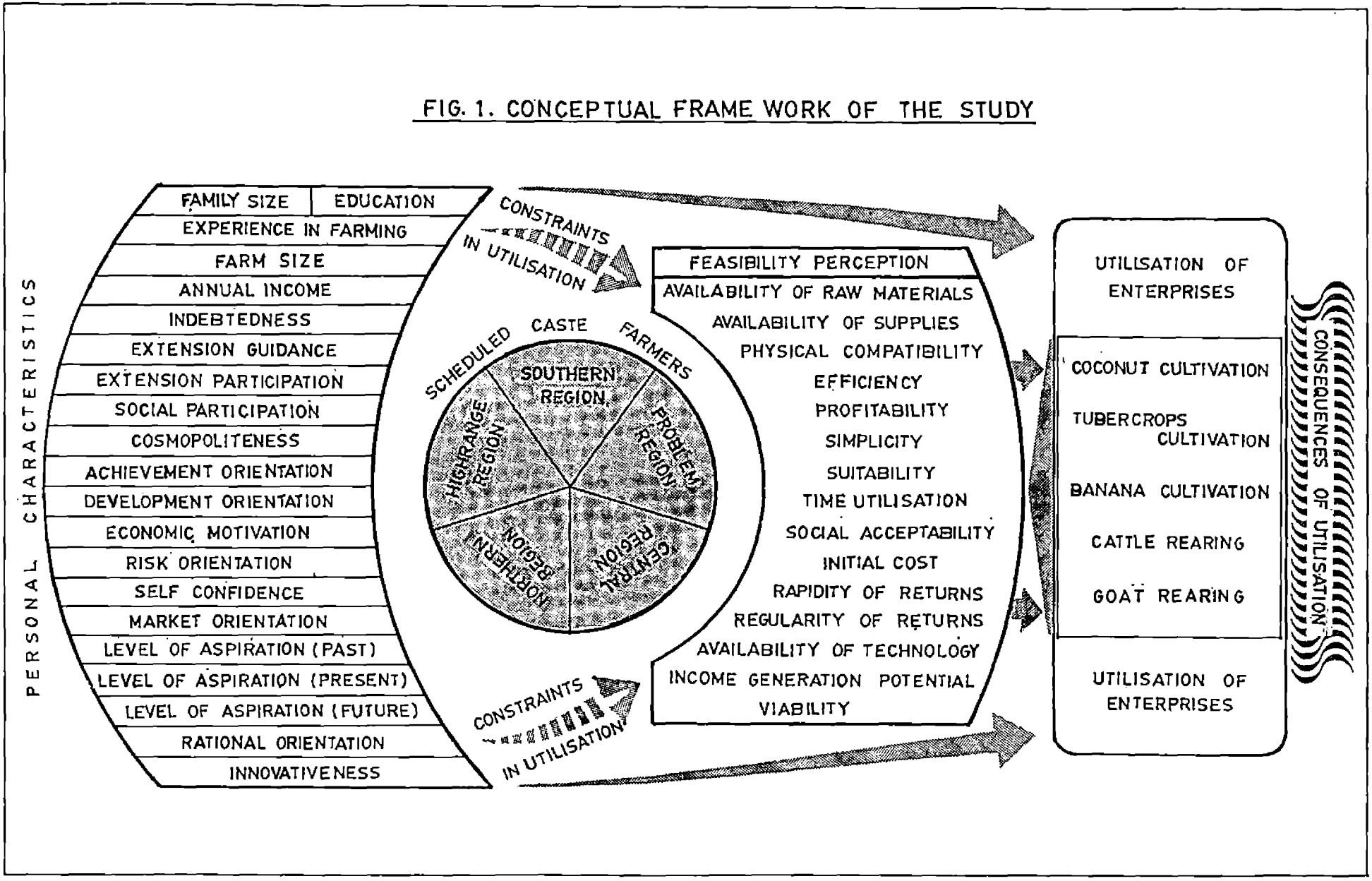
In the report of the Commissioner for Scheduled Castes and Scheduled Tribes, Government of India (1989), it has been epitomised: "The resourceless, particularly the Scheduled Castes, can not get an equitable position in the system so long as the present paradigm of development is pursued. It is the responsibility of the community of the learned to present a clear and categorical analysis of the situation as it is".

The theoretical framework and the methodology for the present study were designed keeping in view the foregoing inferences from the theoretical orientation.

2.9 Conceptual model of the study

The conceptual framework of the study is presented in Figure 1. The conceptual model explains the type of relationships among the various constituents of the Socio-technical system of the Scheduled Caste farmers including their personal characteristics, feasibility perception and utilisation of the agricultural technologies; and the constraints in and consequences of utilisation of these technologies. It is assumed that the personal characteristics of the Scheduled Caste farmers indirectly influences feasibility perception of agricultural technologies

FIG. 1. CONCEPTUAL FRAME WORK OF THE STUDY



shade by constraints in the utilisation of the technologies. The personal characteristics also influences the utilisation of enterprises directly. Feasibility perception directly and reciprocally influences utilisation of agricultural technologies which in turn is indirectly and reciprocally influences consequences of utilisation of agricultural technologies.

Methodology

METHODOLOGY

The methodology followed in the study is presented under the following heads:

3.1 Locale of the study

3.2 Selection of the respondents

3.3 Selection of agricultural technologies

3.4 Selection of variables for the study

3.5 Operationalisation and measurement of the variables

3.6 Procedures employed in data collection

3.7 Statistical tools used in the study

3.8 Hypotheses set for the study

3.1 Locale of the study

3.1.1 Selection of the study area

The Research Review Committee, on the recommendations of the 'Committee on Agro-climatic Zones and Cropping Patterns' constituted by the Government of Kerala in 1974, recommended that Kerala State may be divided for purposes of research and development into five agro-climatic regions, viz. Southern Region, Central Region, Northern Region, High Ranges Region and Region of Problem Areas (NARP Report, 1990).

The present study covered all the five agro-climatic regions of the state. Since the implementation of development schemes for Scheduled Caste population is centralised at the Community Development Block Level, one Block with the highest Scheduled Caste population was selected from each of the five agro-climatic regions of the state.

Community Development Block is the administrative unit for the implementation of Scheduled Castes development programmes. Agriculturally also, the Block concept has relevance, since co-ordination of the Panchayath Level Krishi Bhavans is controlled at the Block level.

Accordingly, Sasthamcottah Block in the Southern Region, Pattanakad Block in the Region of problem areas, Palakkad Block in Central Region, Kunnamangalam Block in Northern Region and Devikulam Block in High Ranges Region were selected. To make the study comprehensive and to facilitate valid generalisation, one per cent of the Scheduled Caste households in these Blocks was selected as respondents of the study using probability proportionate to size random sampling procedure. One Panchayath with the highest Scheduled Caste population was selected from each Block purposively to get the fixed sample size from each Block. The details of sampling procedure adopted for the study are presented in Table 1.

Table 1 The details of sampling procedure adopted for the study

Sl. No.	Name of Agro-climatic region	Name of block with highest number of Scheduled Caste households	Number of Scheduled Caste households in the block	Number of respondents selected for the study (1% of the total in the block)	Name of Panchayath selected
1	Southern Region	Sasthamcottah (Quilon Dt.)	6541	65	Pallickal
2	Problem Region	Pattanakad (Alappuzha Dt.)	3839	38	Ezhupunna
3	Central Region	Palakkad (Palakkad Dt.)	8952	90	Kongad
4	Northern Region	Kunnamangalam (Kozhikodu Dt.)	4868	49	Chathamangalam
5	High Ranges Region	Devikulam (Idikki Dt.)	9524	95	Munnar
		Total	33724	337	

3.1.2 A brief description of the study area

The map showing the study area is presented as Fig. 2. A brief description of the study area is presented in the pages that follow:

1 Pallickal panchayath

Pallickal panchayath which represented the southern agro-climatic region comes under the Sastham-cottah Block in Quilon District. According to 1981 Census, the total number of Scheduled Caste households in the Block was 6561 and that in the Pallickal panchayath was 1318.

Agro-climatically this region is endowed with well distributed rainfall and lower rate of laterisation. The Kallada irrigation project is the major source of irrigation of the area. The important agricultural crops in the area are rice, coconut, tuber crops, arecanut, banana, mango, jack, cashew etc. besides cattle rearing, poultry keeping and goat rearing. Rubber is gradually catching up as an important crop in the area.

The major Scheduled Caste groups in the area are Pulayas, Kuravas and Parayas. All these major caste groups especially Pulayas are traditionally agricultural

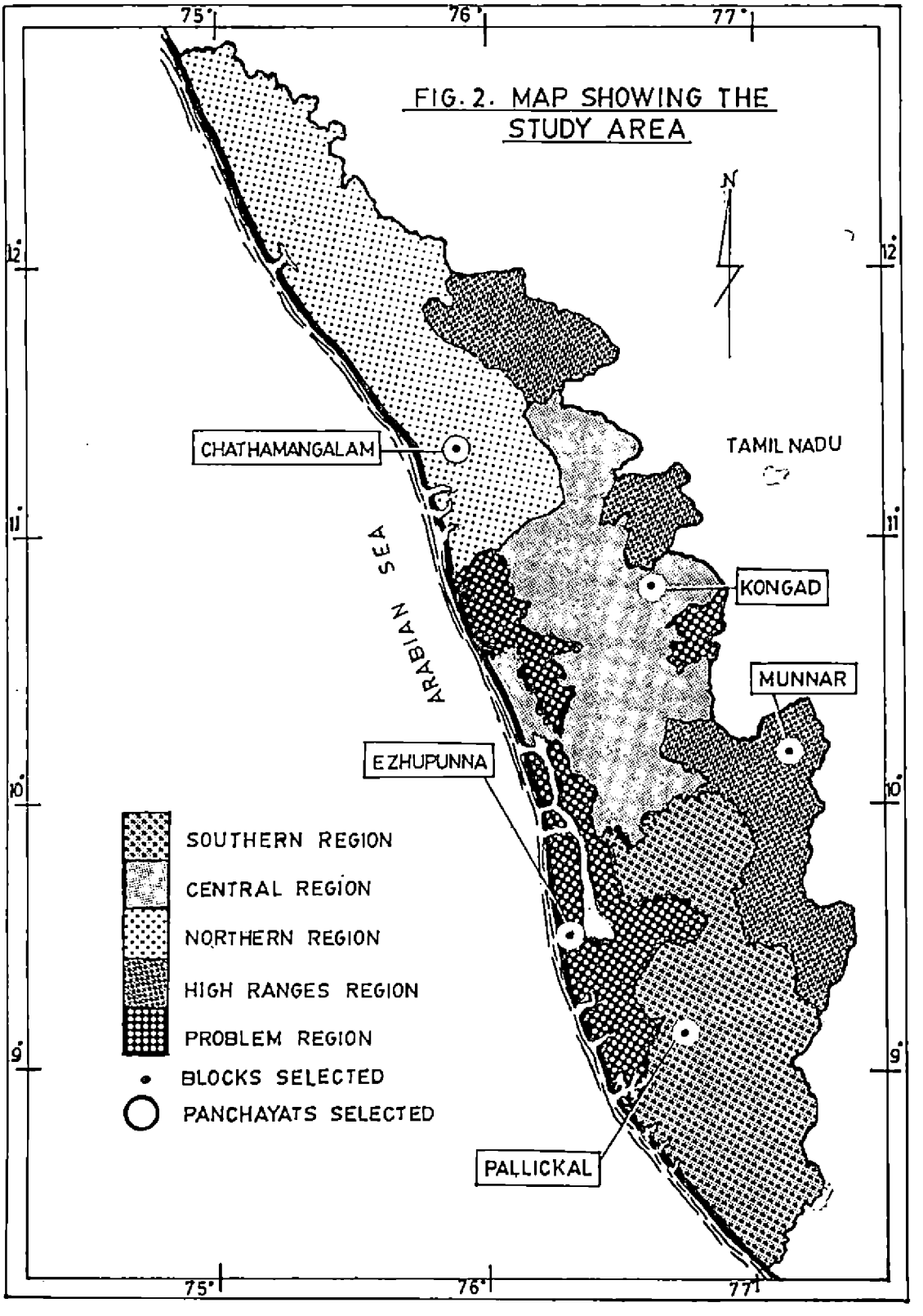


FIG. 2. MAP SHOWING THE STUDY AREA
N
75°
76°
77°
12°
11°
10°
9°
CHATHAMANGALAM
TAMIL NADU
ARABIAN SEA
KONGAD
MUNNAR
EZHUPUNNA
PALLICKAL
SOUTHERN REGION
CENTRAL REGION
NORTHERN REGION
HIGH RANGES REGION
PROBLEM REGION
BLOCKS SELECTED
PANCHAYATS SELECTED

labourers. Traditionally these groups had their own land/hutment sites which depends on the authority and status of their landlord and the internal status of the 'Samudayam' to which they belonged. Through the Kerala Land Reforms Act of 1969, all the landless and homeless agricultural labourers, mostly Scheduled Castes, were made the legal owners of the hutment sites. The size of holding varies from a mere 3 cents of land obtained from government assistance to marginal levels extending upto 1.29 acres. Since the marginal farmers of other upper castes avoid cultivation of land due to many limitations, land leasing had emerged as a new trend in converting paddy fields for cultivation of other crops like betelvine, tubers, banana etc. besides being used for brick making. The Scheduled Caste labourers usually lease in the land from their erstwhile landlords for cultivation.

The traditional feudalistic permanent labour system had markedly changed to daily casual labour system which had its impact in the agricultural scenario of the region. A high rate of occupational mobility towards tertiary services like construction works, public works, cashew processing industry, brick making, rubber plantation works etc. had resulted in acute labour shortage especially in peak agricultural seasons.

Sociologically, this region had a conspicuous impact in the transformation of social status of Scheduled Castes compared to other regions mainly due to the past efforts in erstwhile Travancore area. The efforts made by the government after independence through education and other developmental measures also had made some of the Scheduled Caste groups on par with other backward communities. The high percentage of educated persons (58%) among the unemployed youths in this region also makes this area distinctly different from the rest of the state.

2 Ezhupunna panchayath

Ezhupunna panchayath, representing the region of problem areas, comes under Pattanakad Block in Alappuzha district. According to 1981 Census, the total number of Scheduled Caste households in the Block was 3839, whereas it was 784 in the panchayath.

The problem region represents areas characterised with low lying areas below mean sea level and areas affected by salinity and salt water intrusion. Water stagnation is more prevalent in this region. The soils are highly organic in nature and are flooded for long periods.

The Scheduled Caste groups in the area are Pulayas, Velas (Paravas), Sidhanars and Pulluvas. The pulayas constituted about 95 per cent of the Scheduled Caste population in the area. Among this caste, majority are traditional inland fishermen. There are people who engaged themselves as agricultural labourers in the agricultural season. Most of them are engaged in the inland fishing in the Kuttanad waters. Youngsters prefer backwater fishing using mechanised vessels. Eventhough, they are traditionally fishermen, they are not eligible for any concessions of the Government as the 'Dheevara' community alone is actually recognised as fishermen by the Government.

The important avenue for employment in earlier times was primarily agricultural labour. The submerged paddy fields were dewatered during the months of March-April after constructing field bunds and a single crop of rice was taken. From September onwards traditional fish farming was practised and the labourers of the landlord had the right for fishing. This results in generating about 180 to 220 workdays in a year. But, with the changes in land reforms, the high intensity of political currents and resultant shift from single crop rice farming, majority of the big landlords in the region now kept the paddy fields fallow. In August-

September the whole padasekharams are auctioned for mechanised fish farming. As a result the working days available for the labourers had markedly reduced to less than 45 days per year.

The important crops grown in the area are rice, coconut and banana. Fish farming, duck farming, cattle rearing and goat rearing are the other enterprises practised in the area along with backyard poultry keeping. Attempts are progressing now for the introduction of rubber cultivation in the place of the existing coconut plantations which are under the threat of root disease Fallowing the paddy fields and converting them to mechanised and scientific fish farming is also occurred.

A number of caste organisations function among the Scheduled Caste groups especially the Pulayans. As a result of the relatively high educational status, unemployment among educated youths is widespread in this region also. A vast majority of the younger women among Scheduled Castes are now absorbed in the recently started prawn peeling units. A high occupational mobility towards tertiary services is noted in the region.

3 Kongad panchayath

The Kongad panchayath representing the Central region comes under the Palakkad block in Palakkad district. The number of Scheduled Caste households in the block was 8952 whereas the figure was 1354 in the panchayath based on 1981 Census.

The central region, especially the eastern parts of Palakkad district, represents the semi-arid dry lands of Kerala. This area falls under the rain shadow regions in the district. The dry desicating winds through the Palakkad pass in western ghats is a feature of this region. The soils are mostly alkaline in the eastern parts of this region.

The Kongad panchayath forms a part of the rice bowl of Palakkad with dry garden lands. Miscellaneous trees, bamboo and palmirah are seen grown in these lands. Besides rice, coconut, banana and tuber crops, cattle rearing, goat rearing, backyard poultry keeping and rearing of drought animals are the common enterprises in the area. Sericulture is an emerging enterprise in the region.

The important Scheduled Caste groups in the area are Cherumans, Panans, Kankkans and Valluvans. Traditional feudal relationships are still found to exist in this region. Tough and distance pollution and slight slavery still exist in certain areas. The illiteracy among the various Scheduled Caste groups is high compared to all other regions.

4 Chathamangalam panchayath

Chathamangalam panchayath which represents the northern agro-climatic region comes under the Kunnamangalam Block in Kozhikodu district. According to 1981 Census, the total number of Scheduled Caste households in the block was 4868 whereas the corresponding figure for the panchayath was 810.

Northern agro-climatic region is characterised by high rainfall distribution pattern and laterised soils. The important crops in the area are rice, coconut, arecanut, banana and tuber crops besides rubber which is becoming popular now-a-days. The other enterprises commonly practised in the area are cattle rearing, goat rearing and poultry keeping.

The migration of the farmers from the Travancore area to this region in the erstwhile Malabar state had a profound influence in the agricultural scenario of the region. The introduction of new crops as well as varieties into this area had yielded significant results. The working hours of the labourers in the region are quite different from other parts which starts from the early hours and usually ends by noon. This enables the agricultural labourers to find more time for looking after their farm.

The proximity of the area to the city of Kozhikodu attracts a large number of Scheduled Caste work force to engage in tertiary occupations. Brick making, rubber plantation, construction works etc. also absorb a large section of the Scheduled Castes for gainful employment. The unemployment among the educated Scheduled Castes is high in this area.

The important Scheduled Caste groups in the panchayath are Kalladis, Valluvans, Cherumans, Kankkans and Velas. Consumption of liquor is a habit among the majority of the Scheduled Caste population in this area. Illiteracy is prevalent among the elder generation. About 76 per cent of the Scheduled Castes were provided with houses under the different programmes of the Government.

5 Munnar panchayath

Munnar panchayath representing the high ranges region comes under the Devikulam block which has an area of 994 sq.km. According to 1981 Census, the number of Scheduled Caste households in the block was 9524 and the corresponding figure for the panchayath was 7413. About 78% of the total Scheduled Castes in the block reside in this panchayath. More than 60 per cent of the Scheduled Castes in the area are tea estate labourers. There are about 26 tea estates in Munnar panchayath.

The important Scheduled Caste groups in the panchayath are Pallans and Parayas. Other caste groups like Chakkilians and Valluvans are comparatively less. The Pallan group comprising about 65 per cent of the total population of Scheduled Castes in the panchayath are migrants from Tamil Nadu especially from places like Chinglepet, Tirunelveli and Sivakasi. The Pallans are traditionally tea estate workers. Females are the main working force. For the estate workers, residential facilities are provided in line houses in the estate with about 3 or 4 cents of lands for each family. The estate authorities do not permit the workers to make any permanent developments in this piece of land. Barring the female folk

employed in the tea estates, majority of the men folk are either unemployed or find job elsewhere in the town of Munnar. The percentage of unemployment is severe among the Scheduled Castes. High percentage of illiteracy prevails among them.

The Scheduled Castes residing outside the tea estates are concentrated either in newly developed colonies near the Munnar town or in vested forest lands without any proper title deeds. The colonists are provided with houses under the various governmental programmes especially under National Calamities and Rehabilitation Schemes and the size of holding varies from 3 cents to 20 cents. In the vested forests, the Scheduled Castes are provided with housing facilities.

3.2 Selection of the respondents

For the purpose of the study, heads of families belonging to Scheduled Castes who are either Agricultural labourers or cultivators or both were selected to serve as respondents. This was done since under the special component plans, agricultural labourers constitute 52% of all Scheduled Caste workers of the country and the cultivators who constitute 28%. Keeping in view the

necessity of including agricultural labourers and cultivators family heads belonging to Scheduled Castes, their list in the selected panchayaths was prepared in consultation with block level extension workers of related departments at the time of investigation. From the lists thus prepared, the required number of Scheduled Caste households (fixed sample size) under each block as furnished in Table 1 was randomly selected.

3.3 Selection of agricultural technologies

To identify and select the technologies for inclusion in the study, a list of technologies introduced among the Scheduled Castes was gathered from various development departments. The prepared list was sent to the concerned extension staff of the Departments of Agriculture and development at the block level for their opinion and identification of the different technologies implemented in their area during the period from 1984-85 to 1989-90 (Appendix I). Based on the responses received from the block level extension staff, specific technologies (practices) related to the following enterprises were identified.

1. Coconut cultivation
2. Tuber crops cultivation
3. Banana cultivation
4. Cattle rearing
5. Goat rearing

3.3.1 Selection of practices under each enterprise

According to Carr (1985), technology consists of a series of techniques, each technique being associated with a set of characteristics. Any or all of the characteristics may be important in determining whether it is possible and/or desirable to adopt a particular technique in a particular area.

Hence, different practices for the success of an enterprise have to be identified, which was done using the procedure detailed below:

Based on the Package of Practices Recommendations of Kerala Agricultural University (1989) and discussion with experts in the concerned fields, a list of different practices at the bearest minimum level to be followed for the success of each enterprise was identified. Only those practices which are considered vital, potential and viable for adoption by the Scheduled Caste farmers and rated as important unanimously by all the experts were finally selected.

Thus, following practices were selected under each enterprise:

No.	Enterprise	Practices selected
1	Coconut cultivation	1. Preparation of pits/basins 2. Use of organic manure 3. Use of irrigation 4. Protection for ensuring cropstand 5. Use of chemical fertilizers
2	Tuber crops cultivation	1. Use of improved varieties 2. Practice of rhizome treatment 3. Use of organic manure 4. Use of chemical fertilizers 5. Practice of intercultivation
3	Banana cultivation	1. Selection of sword suckers 2. Use of organic manure 3. Use of chemical fertilizers 4. Protection for ensuring cropstand 5. Use of irrigation
4	Cattle rearing	1. Timely artificial insemination 2. Use of balanced diet 3. Deworming of calves 4. Timely and proper milking 5. Maintenance of hygenic shed
5	Goat rearing	1. Timely insemination 2. Timely and clean milking 3. Use of balanced diet 4. Deworming of kids 5. Maintenance of hygenic shed

3.4 Selection of the variables for the study

The very objective of the study necessitated the selection of the following two key variables as:

a) Feasibility of agricultural technologies as perceived by Scheduled Caste farmers

b) Utilization of agricultural technologies by the Scheduled Caste farmers

In order to assess the influence of the profile characteristics of the Scheduled Caste farmers on the utilization of agricultural technologies by them, the characteristics of Scheduled Caste farmers for the study were identified as detailed below:

Based on the review of literature, a list of 43 variables seemingly related to the utilization of agricultural technologies was prepared. The list of variables was sent to 100 judges, comprising mostly extension scientists working in transfer of technology projects of various Agricultural Universities in India. They were asked to examine the variables critically and to rate the relevancy of each variable on a five-point continuum ranging from most relevant, more relevant, relevant, less relevant and least relevant with the weightages of 5, 4, 3, 2 and 1 respectively. Out of the 100 judges, only 46 responded (Appendix II).

The final variables were selected based on the criterion of mean relevancy score, which was obtained by summing up the weightages obtained by a variable and dividing it by the number of judges responded. The variables with their mean relevancy scores are presented in Appendix III. The variables having mean relevancy scores above the average mean relevancy scores were selected for the study. Accordingly, nineteen variables viz., Education, Family size, Farm size, Experience in farming, Annual income, Indebtedness, Extension guidance, Extension participation, Social participation, Cosmopoliteness, Achievement orientation, Development orientation, Risk orientation, Economic motivation, Market orientation, Self confidence, Level of aspiration, Rational orientation and Innovativeness were selected for the study.

3.5 Operationalisation and measurement of the variables

3.5.1 Feasibility of agricultural technologies

Theodorson and Theodorson (1970) defined perception as the selection, organisation and interpretation by an individual of specific stimuli in situation according to prior learning, activities, interests and experiences.

Feasibility of agricultural technologies refers to the perception of the farmer in terms of the degree to which the technology is capable of being used or dealt with successfully under the existing conditions.

The operationalisation of feasibility implies that several dimensions/attributes/characteristics of the technology/enterprise account for its feasibility as could be revealed from the theoretical orientation. It was therefore, decided to analyse feasibility in terms of the different dimensions/attributes/characteristics of the technology/enterprise.

The procedure adopted in the present study for measuring feasibility is discribed below:

3.5.1.1 Selection of attributes/dimensions/characteristics

Based on the review of literature, a list of dimensions/attributes that appeared to be related with feasibility of agricultural technologies was prepared. The list of attributes was sent to judges, comprising mostly Extension Scientists working in Transfer of Technology projects of various Agricultural Universities in India and field extension officers of the Development Departments in the state. They were asked to examine the

attributes critically and also to include additional attribute/dimensions if found necessary. The judges were requested to rate the relevancy of each attribute/dimension on a five-point continuum ranging from most relevant, more relevant, relevant, less relevant and least relevant with the weightages of 5, 4, 3, 2 and 1, respectively. Out of the 100 judges, only 48 responded (Appendix II).

The selection of the final attributes was based on the mean relevancy score, which was obtained by summing up the weightages obtained by an attribute and dividing it by the number of judges responded. The attributes with their mean relevancy rates are presented in Appendix IV. The attributes having mean relevancy score above the average mean relevancy score were selected for the study. Accordingly fifteen attributes were selected for the study for measuring the feasibility of an agricultural enterprise. The selected attributes were: Initial cost, Availability of raw materials, Availability of supplies and services, Physical compatibility, Efficiency, Profitability, Availability of technology, Simplicity, Suitability, Time utilization pattern, Social acceptability, Rapidity of returns, Income generation potential, Regularity of return and viability.

3.5.1.2 The operationalisation of each selected attribute and the scoring procedure followed are presented below:

i) Initial cost

It is defined as the initial investment that will be required to accept and adopt the enterprise which covers all the costs concerning the enterprise. It is evident that the rate of adoption/utilization will be more when the perceived initial cost of an enterprise is low. Hence the low perception of initial cost was assigned the maximum score, while high perception was given the minimum score.

Accordingly the scoring was:

High	Medium	Low
2	4	6

ii) Availability of raw materials

It is defined as the extent of availability of raw materials required for the proper and efficient use of any farm enterprise, which includes two aspects - (a) Timely availability of raw materials and (b) Adequacy of raw materials. Maximum score was assigned to one who

perceived the availability of raw materials as always and adequate and in terms of always and time.

The scoring pattern was as:

a)

Always	Some times	Never
3	2	1

b)

Adequate	Some what adequate	Not adequate
3	2	1

iii) Availability of supplies and services

It refers to the extent of availability of agencies handling the supply and service functions related with an enterprise, which also included two aspects in terms of adequacy and time. A respondent who perceived the availability of supplies and services as always and also adequate interms of time and always was assigned a high score.

The scoring pattern followed was:

i)

Always	Some times	Never
3	2	1

ii) Adequate — Some what — Not adequate

3 — 2 — 1

iv) Physical compatibility

It refers to the degree to which an enterprise is perceived as consistent with the infrastructural availability, past experiences and needs of the ultimate users. Maximum score was assigned to one who perceived an enterprise as highly compatible with his past experiences, needs and the infrastructural availability.

The scoring pattern followed was:

High — Medium — Low

6 — 4 — 2

v) Efficiency

It is defined as the capacity of an enterprise to produce maximum output per unit of input. The respondent who perceived the efficiency of an enterprise as 'high' was given the highest score.

The scoring pattern was as under:

Highly efficient	Moderately efficient	Less efficient
6	4	2

vi) Profitability

It refers to the net financial returns to a farmer resulting from the use of an enterprise. The respondent who perceived that the enterprise was highly profitable was given the highest score.

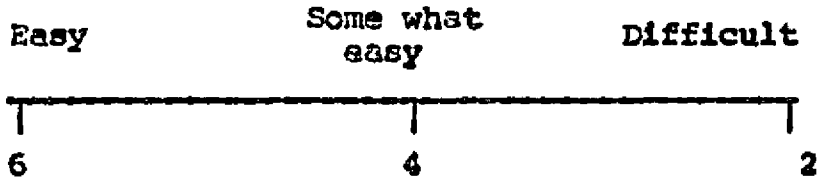
The scoring pattern was:

Highly profitable	Moderately profitable	Less profitable
6	4	2

vii) Availability of technology

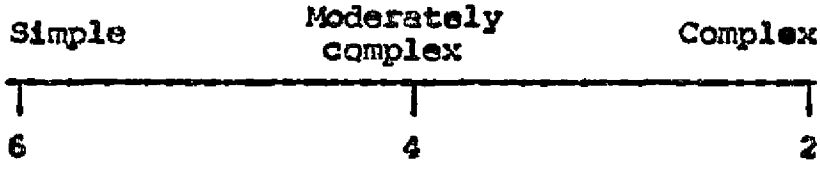
It is the degree to which a technology is readily available for use by the Scheduled Caste farmers, which could be obtained by them without any difficulty. The respondent who perceived that the technology for use was readily and easily available was assigned the highest score.

The scoring was done as:



Viii) Simplicity

It refers to the degree to which an enterprise is simple to be adopted by the Scheduled Caste farmers in terms of understanding as well as application. The respondent who perceives an enterprise as simple to follow and use was assigned a maximum score as given below:



ix) Suitability

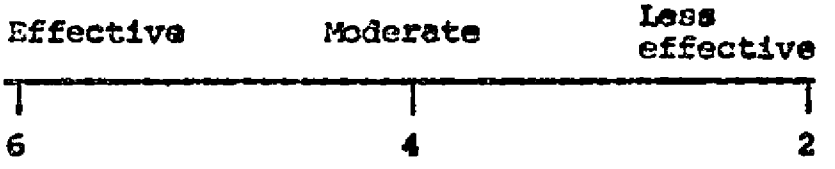
It is the degree to which the enterprise fits in with one's farming conditions or environment without posing any problem to him.

The scoring pattern followed was:

x) Time utilization pattern

It refers to the extent to which an enterprise helps a farmer for the effective utilization of time, which otherwise is wasted and utilized for unproductive purposes.

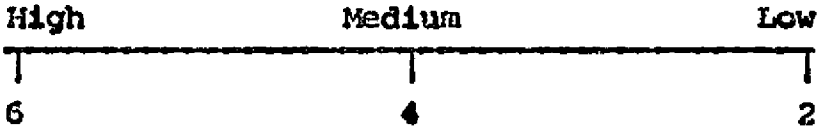
The scoring was done as follows:



xi) Social acceptability

It is the degree to which an enterprise is considered useful, practical and feasible by majority of the members of a social system.

The scoring pattern followed was:

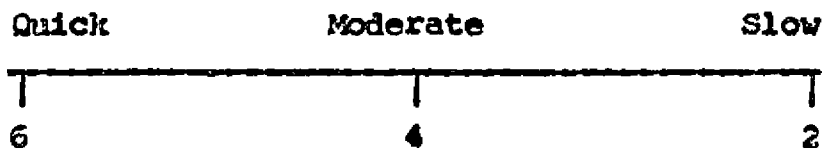


xii) Rapidity of returns

It is the ability of an enterprise to provide immediate returns to the user farmer. The farmer who

perceived the enterprise as capable of providing returns more quickly was given the highest score.

The scoring was done as:



xiii) Income generation potential

It is the ability of an enterprise to generate additional income under the existing conditions. The respondent who perceived an enterprise as capable of generating higher additional income was given the highest score.

The scoring pattern was:

xiv) Regularity of returns

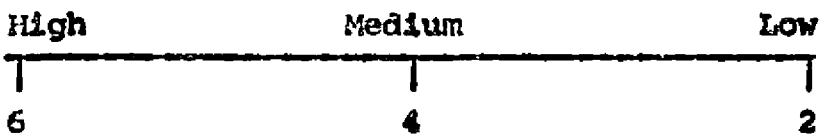
It is defined as the ability of an enterprise to provide returns on a regular basis. The respondent who perceived the enterprise as regular in providing returns was given the highest score.

The scoring was done as:

xv) Viability

It is the degree to which the enterprise is capable of being used independently as it exist. The respondent who perceived the enterprise as highly viable was given the highest score.

The scoring pattern followed was:



As detailed above, each attribute was assigned a total score ranging from 2 to 6. The summation of the total scores of the 15 attributes (selected for the study) for each respondent was considered as his feasibility perception score. Thus, the feasibility perception score of each respondent ranged from 30 to 90.

3.5.2 Utilization of agricultural technologies

The concept of utilization in the present study refers to the acceptance of the practice by the farmer

which is synonymous to the concept of adoption that is widely used in the transfer of technology process.

A review of the measurement procedure for adoption revealed that there are various measures developed and used for measurement ranging from simple to complex measurement procedures.

Wilkening (1952) developed an index for measuring adoption of improved farm practices. The index of adoption used was the percentage of practices adopted to the total number of practices applicable to a farmer.

Beal and Rogers (1960) developed an adoption scale for measuring adoption of a practice which credited an individual with one score for adoption and zero score for non-adoption of the practice.

Chattopadhyay (1963) used adoption quotient for measuring adoption behaviour. This is a ratio scale that measures behaviour on dimensions of applicability, potentiality, extent time, consistency and differential nature of innovation.

Sengupta (1967) measured the General Adoption Level of respondents; firstly assigning equal weights

for each of the practices considered and then credited with two scores for the correct adoption of the practice, one score for partial adoption and zero score for non-adoption of the concerned practice.

Singh and Singh (1974) used an adoption quotient which was a modification of the one developed by Chattopadhyay (1963). According to this, adoption quotient of each respondent was calculated by using the formulae.

$$AQ = \frac{\sum e/p}{N} \times 100$$

where AQ - Adoption Quotient

e - extent of adoption of each practice

p - potential for adoption of each practice

N - Total number of practices selected

Chandrakandan and Knight (1989) measured adoption of farm technology of groundnut cultivators through Adoption Quotient using the formula.

$$AQ = \frac{\sum_{i=i}^{m} \frac{ei}{Ei} + \frac{qi}{Qi} \times Wi}{Z \sum_{i=i}^{m} Wi}$$

where ei = Area put under i^{th} practice

Ei = Potential area for i^{th} practice

qi = quantity used for i^{th} practice

Qi = Quantity recommended for i^{th} practice

Wi = Weightage assigned to i^{th} practice

m = number of applicable practice

Since the instricacies of adoption of practices by Scheduled Caste farmers were not known and the data on different components of adoption like potentiality, time etc. could not be meaningfully interpreted, it was decided that a simple procedure may be followed to measure the adoption pattern of the respondents. Accordingly, the measurement developed by Sengupta (1967) was used for the study.

For each of the practices of an enterprise considered, equal weights were assigned. The correct adoption of the practice based on the Package of Practices Recommendations of Kerala Agricultural University, 1989 was credited with two scores; partial adoption with one score and non-adoption with zero score. Accordingly, for each enterprise the utilization score ranges from 0 to 10 as five practices were included under each enterprise.

3.5.3 Characteristics of Scheduled Caste farmers

3.5.3.1 Education

Education refers to the extent of non-formal or formal learning possessed by the Scheduled Caste farmer. The different levels of education of the respondents were scored as per the procedure followed by Thiagarajan (1987).

The scoring procedure was as follows:

Level of education	Score
Illiterate	0
Literate	1
Primary school	2
Middle school	3
High school	4
College education	5

3.5.3.2 Family size

This refers to the number of members of either sex living in a household/family dependent on the head of the family.

This was measured in numbers.

3.5.3.3 Experience in farming

Chamber's Dictionary (1976) explained experience as practical acquittance with any matter derived from the changes and trials of life.

This was measured in the number of years, the farmer respondent was actually tilling the land.

3.5.3.4 Farm size

This refers to the actual area of land possessed by the farmer respondent, which was measured in cents.

3.5.3.5 Annual income

This refers to the total annual earnings of the farmer from both farm and non-farm sources.

The income obtained by a farmer in an year from both agricultural as well as non-agricultural sources were taken into account in calculating the annual income of a farmer.

3.5.3.6 Indebtedness

This refers to the total debt in terms of money the farmer respondent owes at the time of investigation

to various money lending sources such as private money lenders, banks, merchants, petty traders, co-operatives etc.

This was assessed based on the amount in rupees a farmer owes to different sources at the time of investigation as reported by him.

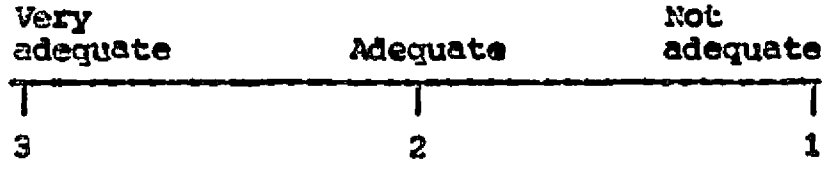
3.5.3.7 Extension guidance

For this study, extension guidance was operationalised as the degree of guidance actually received by the Scheduled Caste farmer directly from the various extension personnel in relation to adoption of the various practices of the enterprise.

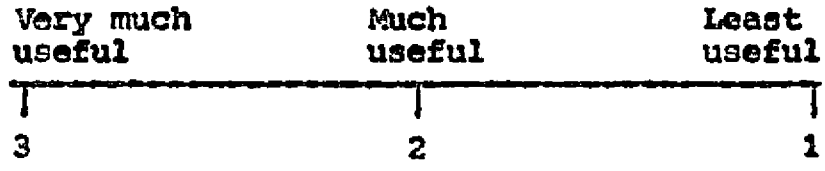
The procedure developed by Desai (1981) was used for the measurement of this variable. Extension guidance was quantified taking into account how much guidance or advice each respondent had received in various activities during the year prior to the investigation. This was measured by getting the responses for two statements related to two activities viz., how much of extension guidance was received during the last one year and how much useful the guidance was for the farmers. The respondents' response was recorded in a three point continuum for the two statements.

The scoring procedure was as follows:

a) Technical guidance received during the last one year was:



b) Technical guidance received was:



The respondent's score was obtained by summing up the scores thus obtained.

3.5.3.8 Extension participation

It refers to the extent of involvement of the Scheduled Caste farmer in the various extension educational activities organised for them in the locality. This was measured using the procedure suggested by Bhaskaran (1979) with slight modification. The respondents' participation in each of the activities was recorded on a three-point continuum and the scores given were: Whenever conducted 2, Some times 1, Never 0. The extension activities included

are as shown in Appendix V. Summing up the scores obtained by the farmer in all the activities, the respondents' extension participation score was obtained.

3.5.3.9 Social participation

Social participation refers to the degree of involvement of the respondent in formal organisations either as a member or as an office bearer. The scoring procedure developed by Kamarudin (1981) was followed with slight modification. The respondent's involvement in each of the organisation was recorded in a three-point continuum for two dimensions - Membership in the organization and frequency of participation. Based on nature of membership, the scores given were: Membership 1, Active member 2, Office bearer 3 and based on frequency of participation, the scores given were Regularly 2, Occasionally 1 and Never 0.

The cumulated score of the respondent was taken as his social participation score.

3.5.3.10 Cosmopoliteness

Cosmopoliteness is defined as the degree to which a Scheduled Caste farmer is oriented to his immediate outside social system. The cosmopolite farmer

is likely to be a changed individual in that he is motivated to look beyond his environment while others continue to maintain a localistic frame of reference.

This variable was measured using the scale developed by Desai (1981). Two dimensions of the variable were considered in this case: (a) the frequency of visit to the nearest town, (b) the purpose of visit to the town. The items and scoring pattern followed was shown below:

a) Frequency of visits to the nearest town.

Items	Score
1. Two or more per week	5
2. Once per week	4
3. Once in fifteen days	3
4. Once in a month	2
5. Seldom	1
6. Never	0

b) The purpose of visit

Items	Score
1. All visits relating to agriculture	5
2. Some relating to agriculture	4

Item	Score
3. Personal/domestic	3
4. Entertainment	2
5. Others	1
6. No response	0

The cumulated maximum socre obtainable was 10 and the minimum was zero.

3.5.3.11 Achievement orientation

This was operationalised as the need or desire associated with a Scheduled Caste farmer which drives him to excel in farming the thereby attain a sense of personal accomplishment.

The scale developed by Singh (1985) was used in this study for the measurement of achievement orientation. The scale consisted of four statements of which three were positive statements. Based on the response of each statement in terms of Agree/Disagree the scores of 1 and 0 were given, respectively. The scoring was reversed in the case of negative statements. The total score obtained by the respondent was taken as the achievement orientation score of the individual which ranged between 0 and 4.

3.5.3.12 Development orientation

Development orientation was operationalised as the extent of positive orientation of Scheduled Caste farmers towards the various developmental programmes. It implies the feeling of commitment of a person to give priority to socio-economic development and mobility, rather than any of the traditiona, emotional or ascriptive factors.

In this study, the scale developed by Singh (1985) was used for measuring development orientation with slight modifications in the scoring procedure. There were seven positive statements and based on the response for each statement in terms of Agree/Disagree, the scores 1 and 0 were given, respectively. The scores thus ranged from 0 to 7. The higher the score, the higher will be the development orientation of the respondent.

3.5.3.13 Economic motivation

It was operationalised as the drive for occupational excellence in terms of profit making and the relative value placed on economic ends by a Scheduled Caste farmers. The scale developed by Thiagarajan (1981) and adopted by

Selvanayagam (1986) was used for this study with modification in the scoring procedure. All the four statements included in the scale were positive and based on the responses for each statement in terms of Agree/Disagree, Scores of 1 and 0 were given, respectively. The scores thus ranged from 0 to 4. The total score obtained by the respondent was taken as his economic motivation score.

3.5.3.14 Risk orientation

Risk orientation for the purpose of this study was defined as the degree to which a Scheduled Caste farmer is oriented towards risk and uncertainty and exhibits courage to face problems in farming.

The scale developed by Singh (1977) and adopted by Selvanayagam (1986) was used with slight modification for measuring risk orientation in the present study. There were three statements included in the scale of which the first statement was positive and the other two negative. Based on the response of each statement in terms of Agree/Disagree, the scores 1 and 0 were given for the positive statement and 0 and 1 for the negative statements, respectively.

The total score obtained by the respondent was taken as his risk orientation score. The scores ranged between zero and three.

3.5.3.15 Self confidence

This refers to the extent of feeling of an individual about ones own power, abilities and resourcefulness to perform any activity which he desires to undertake.

This variable was measured using a scale originally developed by Basavanna (1971) and modified by Prasad (1983). The scale consists of 10 statements. These statements were to be answered by a farmer as either Agree/Disagree. The 'Agree' response given a score of 'zero'and 'Disagree' response a score of 'one', for each of the items except negative items numbers three, six and ten (Appendix V) in which case, the scoring was reversed.

The summation of the scores obtained by an individual indicated his/her level of self confidence. The higher the score, the higher was the level of self confidence. The scores ranged from 'zero' to 10.

3.5.3.16 Market orientation

Market orientation is one of the three subscales of the scale developed by Samantha (1977) for measuring management orientation, which is operationally defined as the degree to which a farmer is oriented towards scientific farm management comprising of planning, production and marketing functions/activities of his farm enterprises.

Market orientation was measured using the sub-scale which consisted of six statements, three positive and three negative statements. In the case of positive statements, a score 'one' was given for agreement and 'zero' for dis-agreement. For negative statement, the pattern was reversed. The total score obtained by the respondent was taken as his score for market orientation.

3.5.3.17 Level of aspiration

This was operationalised as the overall assessment of a Scheduled Caste farmer in relation to his concern for widhes and hopes for the future or for the fears and worries about the future in his own reality world.

Self-anchoring striving scale developed by Cantrill (1965) was used in this study for measuring the level of aspiration. A figure of ladder with 10 steps was shown to

each respondent with the explanation that the top of the ladder represented the best possible (score 10) and the bottom one represented the worst possible life for an individual (Score 1). He/she was then asked to indicate a step on the ladder where he stood for each of the three time spans: (a) at the present time (Present), (b) five years before (Past) and (c) five years from now (Future). The scores were given corresponding to the steps indicated by the respondent and the scores on the Present, Past and Future were calculated separately. With a scoring procedure of 10 scores, each time span will have a total score which ranged from 1 and 10.

3.5.3.18 Rational orientation

This was operationalised as the extent of rationality and scientific belief of a Scheduled Caste farmer in relation to the different scientific recommendations of an enterprise. The procedure developed by Jetley (1977) and adapted by Selvanayagam (1986) was used for measuring rational orientation of a farmer.

The question 'What do you feel about the increased improvement in your life'? Was posed to the respondent which was rated based on the response as follows:

Response	Score
1. Belief in stars, and not in scientific recommendations	1
2. Belief in stars and scientific recommendations	2
3. Belief only in scientific recommendations	3

The score obtained by the respondent was taken as the rational orientation score of the respondent.

3.5.3.19 Innovativeness

It was operationalised as the degree to which a Scheduled Caste farmer is relatively earlier in adopting new ideas.

The procedure developed by Singh (1977) and adapted by Selvanayagam (1986) was used to measure innovativeness of a farmer.

The question "When would you prefer to adopt an improved practice in farming"?

Response	Score
1. As soon as it is brought to my knowledge	3
2. After I have seen some other farmers using it successfully	2
3. Prefer to wait and take my own time	1

3.6 Procedure employed in data collection

The data collection was done by the Researcher using a structured interview schedule prepared for the purpose of the study (Appendix V). The interview schedule consisted of three parts. Part I contained questions on information on various independent variables. Part II was intended to gather information on utilization of the different enterprises. Questions for collecting data on different practices under each enterprise as well as the constraints and consequences of the utilization to be collected were also included in Part II. Part III was meant to collect data on perception of the farmers about the feasibility of agricultural technology.

The collection of data was done during January 1991 to November 1991.

3.7 Statistical tools used in the study

The data collected from the respondents were scored, tabulated and analysed using suitable statistical methods. The statistical methods used in the study were performed using VERSA IWS Computer at the College of Agriculture, Vellayani. Described below are the Statistical methods used in the study.

3.7.1 Mean

The mean of the feasibility perception scores and utilization scores for the different enterprises and for the different regions was used as a cut of point and also to make comparisons.

3.7.2 Percentage analysis

After grouping the farmers in to various categories based on the scores on utilization of agricultural technologies, simple percentage was worked out to find out percentage distribution of the farmers.

3.7.3 Zero-order correlation

It was used to find out the relationship between perception of feasibility of the technologies by the respondents and their utilization of the enterprises.

3.7.4 The Kruskal Wallis One-Way Analysis of Variance By Ranks

This non-parametric test was used to compare the different regions with respect to the perception of the determinants of feasibility and utilization of the different enterprises.

3.7.5 The Kendalls' coefficient of concordance (W)

Kendalls' coefficient of concordance (W) was computed to test the extent of agreement of the rankings obtained on various components with regard to different regions to different enterprises.

3.7.6 The Spearman rank correlation coefficient (r_s)

Spearman rank order correlation was computed to test the validity of the calculated feasibility ranking compared with the observed rank in field test.

3.7.7 Step-wise Regression Analysis

This was done to know the relative effect of the independent variables in predicting the variation in the utilization of agricultural technologies by the Scheduled Caste farmers. The best fitting regression equation of dependent variable and independent variables was estimated by step-wise regression as suggested by Draper and Smith (1966).

3.8 Hypotheses set for the study

The major hypotheses set for the study were presented below:

1. There would be no significant agreement in the perception of the determinants of feasibility of the selected enterprises by the respondents from different regions

2. There would be no significant relationship between feasibility perception and utilization of the enterprises such as coconut, tuber crops, banana, cattle and goat by the respondent

3. There would be no significant difference in the perception of the respondents from the different agro-climatic regions with respect to the determinants of feasibility and utilization of the practices for different enterprises

4. There would be no significant contribution of the characteristics of the respondents such as education, family size, farm size, experience in farming, annual income, indebtedness, extension guidance, extension participation, social participation, cosmopoliteness, achievement orientation, development orientation, economic motivation, risk orientation, self confidence, market orientation, level of aspiration, rational orientation and innovativeness in the extent of utilization of agricultural technologies/enterprises by them.

Results

RESULTS

Keeping the objectives of the study in view, the results are presented under the following heads.

4.1 Feasibility of agricultural technologies as perceived by the respondents

4.2 Utilization of agricultural technologies by the respondents

4.3 Constraints in the utilization of agricultural technologies

4.4 Consequences of utilization of agricultural technologies

4.5 Relationship between characteristics of the respondents and utilization of agricultural technologies

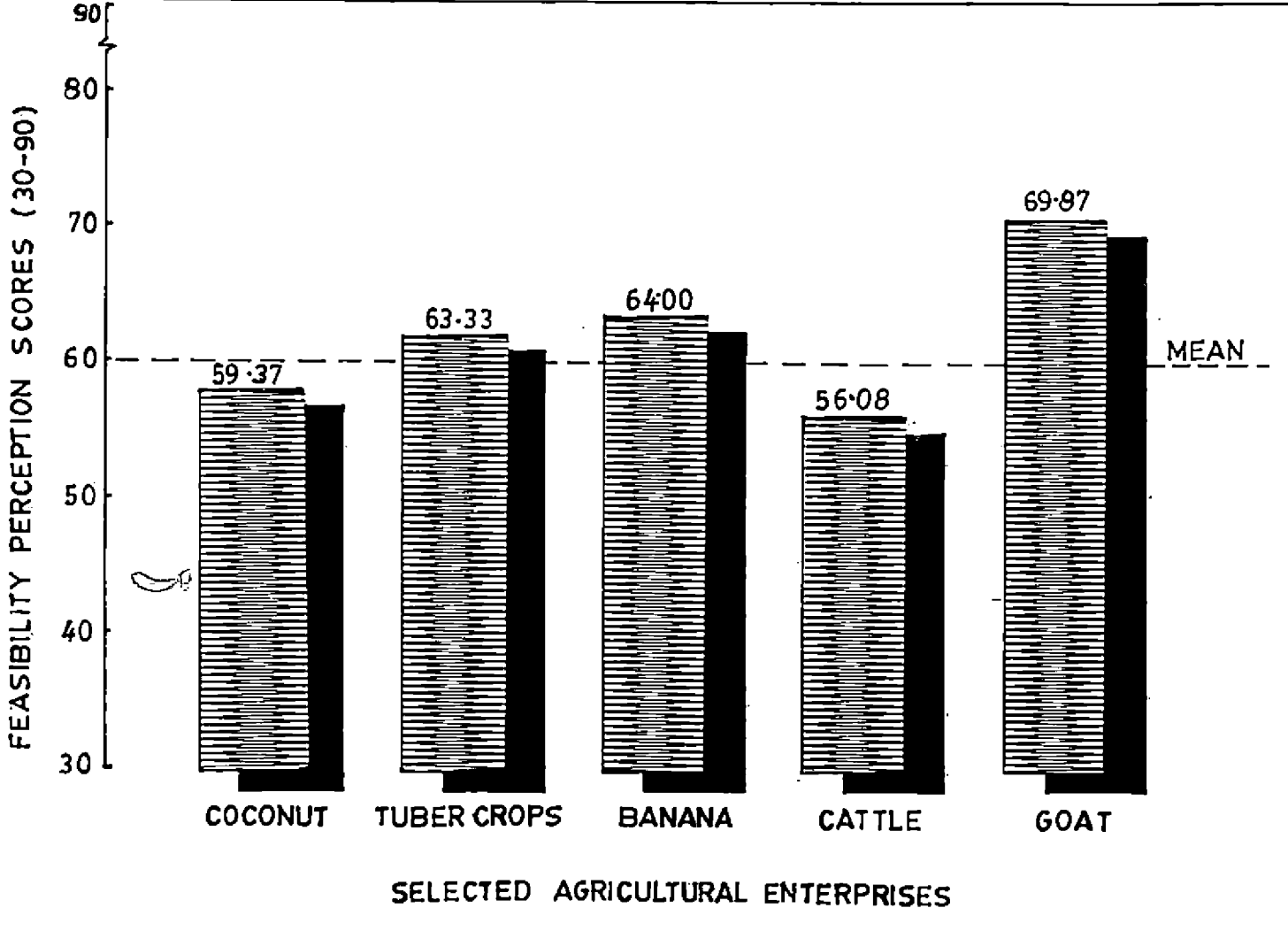
4.1 Feasibility of agricultural technologies as perceived by the respondents

4.1.1 The feasibility perception scores of the respondents for five selected enterprises are given in Table 2.

Table 2 Feasibility perception scores of the respondents for the selected agricultural enterprises

Sl. No.	Enterprise	n	Mean score	Rank
1	Coconut	129	59.37	IV
2	Tuber crops	90	63.33	III
3	Banana	46	64.00	II
4	Cattle	102	56.08	V
5	Goat	90	69.87	I

FIG. 3. FEASIBILITY PERCEPTION SCORES OF THE RESPONDENTS FOR THE SELECTED AGRICULTURAL ENTERPRISES



It is evident from the data in Table 2 that among the five enterprises studied, the respondents perceived goat rearing as the most feasible enterprise, while cattle rearing was considered the least feasible. It could also be seen from the Table that banana, tuber crops and coconut were ranked second, third and fourth respectively with respect to their feasibility perception by the respondents.

4.1.2 Region-wise comparison of mean feasibility scores

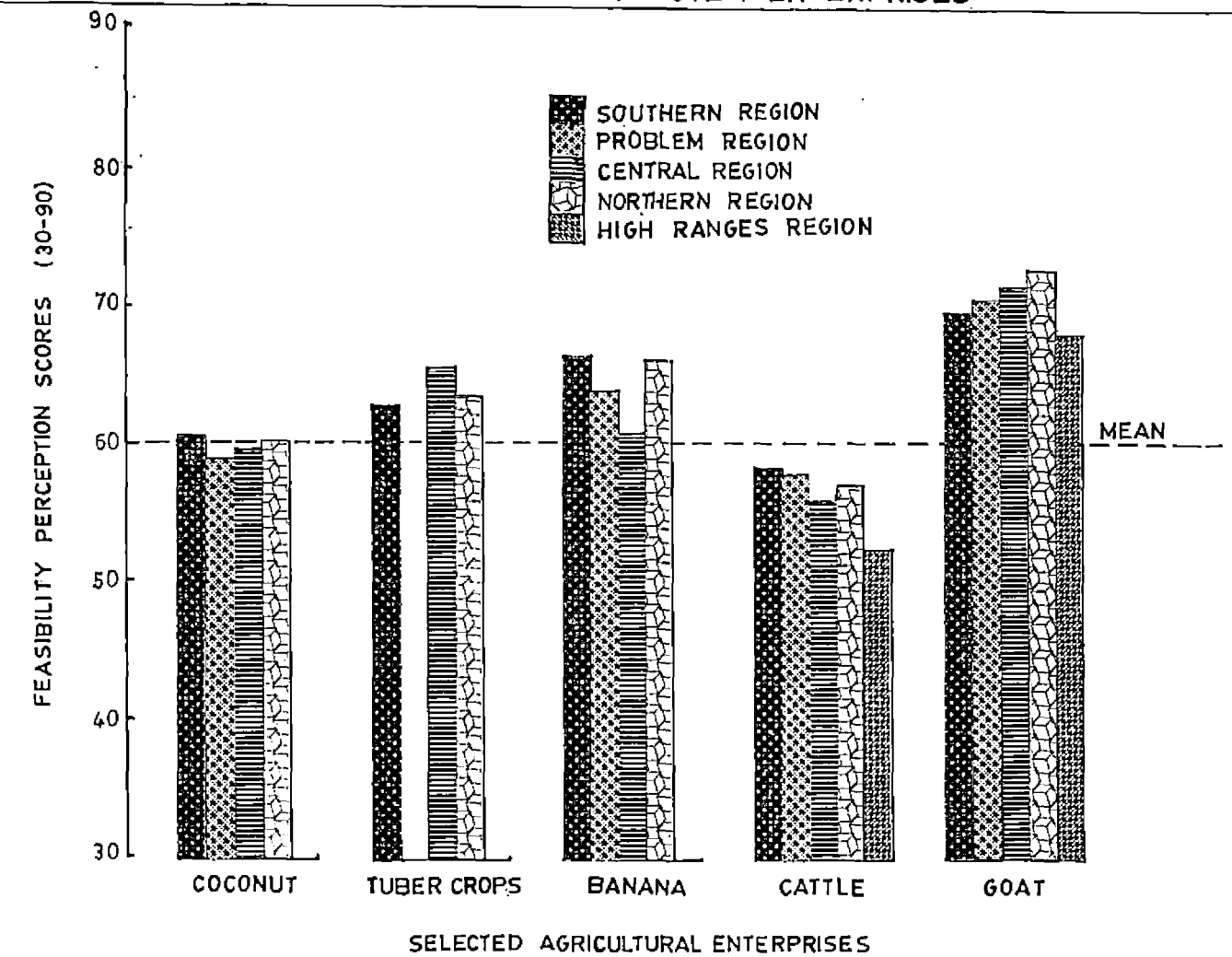
Region-wise comparison of the mean feasibility perception scores of the respondents for the five selected enterprises is made in Table 3.

It is interesting to find from the data presented in Table 3 that coconut cultivation as an enterprise was perceived as the most feasible one by the respondents in the Southern Region, closely followed by those in the Northern Region. Tuber crops cultivation, on the other hand, was perceived as more feasible in the Central Region when compared to the Northern and Southern Region. In the case of banana cultivation also, the feasibility perception was identical with that of coconut cultivation. Again, the respondents of Southern Region had perceived cattle rearing as the most feasible enterprise. In so

Table 3 Region-wise comparison of mean feasibility perception scores for the selected enterprises

Sl. No.	Agro-climatic Regions	Feasibility perception scores for				
		Coconut (n = 129)	Tuber crops (n = 90)	Banana (n = 45)	Cattle (n = 102)	Goat (n = 90)
1	Southern Region	60.18 (I)	62.45 (III)	65.89 (I)	58.76 (I)	68.84 (IV)
2	Problem Region	58.75 (IV)	-	63.50 (III)	58.25 (II)	69.55 (III)
3	Central Region	59.11 (III)	65.30 (I)	61.10 (IV)	56.50 (IV)	70.89 (II)
4	Northern Region	59.60 (II)	63.37 (II)	65.79 (II)	57.78 (III)	72.38 (I)
5	High Ranges Region	-	-	-	52.74 (V)	67.23 (V)

FIG. 4. REGION-WISE COMPARISION OF MEAN FEASIBILITY PERCEPTION SCORES FOR THE SELECTED ENTERPRISES



far as goat rearing was concerned, respondents from the Northern Region followed by those in the Central Region had perceived it as more feasible.

4.1.3 Determinants of feasibility of the selected enterprises as perceived by the respondents

4.1.3.1 Coconut cultivation

The determinants of feasibility of coconut enterprise as perceived by the respondents are furnished in Table 4.

It is evident from the results in Table 4 that 'physical compatability', 'availability of technology' and 'suitability' were perceived to be relatively important determinants of feasibility of coconut cultivation as an enterprise. 'Rapidity of returns', 'time utilisation pattern' and 'profitability' were perceived to be relatively less important determinants in this respect.

4.1.3.2 Tuber crops cultivation

The determinants of feasibility of tuber crops cultivation as perceived by the respondents are furnished in Table 5.

Table 4 Determinants of feasibility of coconut enterprise as perceived by the respondents (n = 129)

Code No.	Determinants of feasibility	Mean score	Rank
X_4	Physical compatibility	5.67	I
X_7	Availability of technology	5.51	II
X_9	Suitability	5.49	III
X_1	Initial cost	5.43	IV
X_8	Simplicity	5.33	V
X_5	Efficiency	5.24	VI
X_2	Availability of raw materials	4.76	VII
X_{15}	Viability	3.47	VIII
X_{13}	Income generation potential	3.22	IX
X_3	Availability of supplies and services	2.89	X
X_{14}	Regularity of returns	2.65	XI
X_{11}	Social acceptability	2.62	XII
X_6	Profitability	2.57	XIII
X_{10}	Time utilization	2.26	XIV
X_{12}	Rapidity of returns	2.23	XV

Table 5 Determinants of feasibility of tuber crops as perceived by the respondents (n = 90)

Code No.	Determinants of feasibility	Mean score	Rank
X_4	Physical compatibility	5.73	I
X_5	Efficiency	5.73	
X_7	Availability of technology	5.71	II
X_6	Profitability	5.58	III
X_1	Initial cost	5.56	IV
X_8	Simplicity	5.47	V
X_9	Suitability	5.36	VI
X_2	Availability of raw materials	5.16	VII
X_3	Availability of supplies and services	4.00	VIII
X_{15}	Viability	3.51	IX
X_{14}	Regularity of returns	2.40	X
X_{10}	Time utilization	2.36	XI
X_{12}	Rapidity of returns	2.36	
X_{13}	Income generation potential	2.29	XII
X_{11}	Social acceptability	2.13	XIII

It is evident from Table 5, that 'physical compatability,' 'efficiency' and 'availability of technology' were rated high in terms of importance as determinants of feasibility of tuber crops cultivation. 'Social acceptability,' 'income generation potential' and 'rapidity of returns' were rated low in terms of importance as determinants of feasibility of tuber crops.

4.1.3.3 Banana cultivation

The determinants of feasibility of banana cultivation as perceived by the respondents are given in Table 6.

It could be observed from Table 6, that 'simplicity,' 'time utilisation pattern' and 'initial cost' were perceived as more important in determining the feasibility of banana enterprise. 'Regularity of returns,' 'rapidity of returns' and 'availability of supplies and services' were considered as less important as is evident from the Table.

4.1.3.4 Cattle rearing

Table 7 depicts the perceived determinants of feasibility of cattle enterprise by the respondents.

Data in Table 7 reveal that in the case of cattle enterprise, the respondents perceived 'social acceptability,'

Table 6 Determinants of feasibility of banana as perceived by the respondents (n = 46)

Code No.	Determinants of feasibility	Mean score	Rank
X_8	Simplicity	5.74	I
X_{10}	Time utilization	5.61	II
X_1	Initial cost	5.52	III
X_2	Availability of raw materials	5.52	
X_7	Availability of technology	5.30	IV
X_5	Efficiency	4.43	V
X_9	Suitability	4.22	
X_4	Physical compatibility	4.22	VI
X_{13}	Income generation potential	4.22	
X_6	Profitability	4.13	VII
X_{15}	Viability	4.09	VIII
X_{11}	Social acceptability	3.83	IX
X_3	Availability of supplies and services	2.61	X
X_{12}	Rapidity of returns	2.48	XI
X_{14}	Regularity of returns	2.09	XII

Table 7 Determinants of feasibility of cattle enterprise as perceived by the respondents (n = 102)

Code No.	Determinants of feasibility	Mean score	Rank
X_{11}	Social acceptability	5.35	I
X_8	Simplicity	5.10	II
X_{10}	Time utilization	4.94	III
X_1	Initial cost	4.88	IV
X_9	Suitability	4.12	V
X_{12}	Rapidity of returns	4.02	VI
X_4	Physical compatibility	3.92	VII
X_2	Availability of raw materials	3.71	VIII
X_{13}	Income generation potential	3.61	IX
X_{15}	Viability	3.20	X
X_7	Availability of technology	2.75	XI
X_5	Efficiency	2.67	XII
X_6	Profitability	2.67	XII
X_{14}	Regularity of returns	2.59	XIII
X_3	Availability of supplies and services	2.57	XIV

as the most important determinant of feasibility. 'Simplicity' and 'time utilisation pattern' were also rated high in this regard. 'Availability of supplies and services', 'regularity of returns' and 'profitability' were perceived as least important determinants of feasibility for cattle enterprise.

4.1.3.5 Goat rearing

The determinants of feasibility as perceived by the respondents on goat enterprise are given in Table 8.

It is observed from the Table 8 that 'simplicity', 'physical compatability', 'efficiency' and 'time utilisation pattern' were ranked high in terms of importance as determinants of feasibility of goat enterprise as perceived by the respondents while 'availability of supplies and services', 'viability' and 'regularity of returns' were assigned lower ranks in terms of importance.

4.1.4 Region-wise and attribute-wise comparison of mean feasibility scores

Region-wise and attribute-wise comparison of the mean feasibility perception scores of the respondents for the five selected enterprises are made in the following tables.

Table 8 Determinants of feasibility of goat enterprise as perceived by respondents (n = 90)

Code No.	Determinants of feasibility	Mean score	Rank
X_8	Simplicity	5.64	I
X_4	Physical compatibility	5.48	II
X_5	Efficiency	5.42	III
X_{10}	Time utilization	5.42	
X_9	Suitability	5.35	IV
X_{12}	Rapidity of returns	5.35	
X_{13}	Income generation potential	5.29	V
X_1	Initial cost	5.02	VI
X_2	Availability of raw materials	5.00	VII
X_6	Profitability	4.78	VIII
X_{11}	Social acceptability	4.02	IX
X_7	Availability of technology	3.91	X
X_{14}	Regularity of returns	3.67	XI
X_{15}	Viability	2.26	XII
X_3	Availability of supplies and services	2.22	XIII

4.1.4.1 Coconut cultivation

Region-wise determinants of feasibility of coconut enterprise as perceived by the respondents is given in Table 9.

The results in Table 9, indicates that there is not complete uniformity in the perception scores by the respondents in different regions. However, the respondents of the Problem Region, Central Region and Northern Region exhibit more or less a similar pattern compared to the respondents of Southern Region. In Southern Region, 'suitability', 'initial cost' and 'physical compatibility' were ranked first in the order of importance while 'regularity of returns', 'time utilisation pattern' and 'rapidity of returns' were ranked least. 'Physical compatibility' was ranked first by the respondents in the other three regions. 'Availability of technology' was ranked second by the respondents of Problem and Northern Region while 'suitability' was ranked second by the respondents in Central Region. 'Rapidity of returns' and 'time utilisation pattern' were ranked least by the respondents in Central, Northern and problem regions.

The coefficient of concordance (W) worked out for the rankings of all the four regions was found to be

Table 9 Regionwise determinants of feasibility of coconut enterprise as perceived by farmers (n = 129)

Determinants	Southern region n = 31		Problem region n = 24		Central region n = 44		Northern region n = 30	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Initial cost	5.48	II	5.33	IV	5.36	III	5.53	III
Availability of raw materials	4.45	VII	5.08	VI	4.77	VII	4.80	VII
Availability of supplies and services	2.90	XI	2.75	XI	2.95	X	2.93	X
Physical compatibility	5.48	III	5.75	I	5.59	I	5.93	I
Efficiency	5.48	IV	5.00	VII	5.32	V	5.00	VI
Profitability	3.09	X	2.50	XII	2.27	XIV	2.53	XII
Availability of technology	5.48	V	5.58	II	5.36	IV	5.73	II

Table 9 (contd....)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Simplicity	5.48	VI	5.42	III	5.27	VI	5.20	V
Suitability	5.80	I	5.25	V	5.40	II	5.47	IV
Time utilization	2.26	XIV	2.00	XV	2.55	XIII	2.07	XIV
Social acceptability	2.77	XII	2.50	XIII	2.68	XII	2.47	XIII
Rapidity of returns	2.45	XIII	2.25	XIV	2.18	XV	2.07	XV
Income generation potential	3.22	IX	3.25	VIII	3.09	IX	3.40	~~IX~~ VIII
Regularity of returns	2.12	XV	2.91	X	2.72	XI	2.86	XI
Viability	3.48	VIII	3.16	IX	3.55	VIII	3.00	~~VIII~~ IX.

Coefficient of concordance (W) = 0.9424 $X^2 = 57.774^{**}$

*Significant at 0.01 level

significant which revealed that there was agreement in the rankings in this respect made by the respondents in the different regions.

4.1.4.2 Tuber crops cultivation

Region-wise determinants of feasibility of tuber crops cultivation as perceived by the respondents are furnished in Table 10.

The data in Table 10 depicts the mean perception scores on the most important determinants of feasibility in the different regions. 'Efficiency' was ranked first in Southern Region where as 'physical compatibility' along with 'availability of technology' was ranked first in Central Region. In Northern region, 'physical compatibility', 'initial cost' and 'simplicity' were ranked first in terms of importance. 'Availability of technology' was ranked second in this region.

'Social acceptability' was ranked least by the respondents in all the three regions as a determinant of feasibility of tuber crops enterprise followed by 'regularity of returns', 'income generation potential' and 'rapidity of returns' in Southern, Central and Northern Regions respectively.

Table 10 Regionwise determinants of feasibility of Tuber crops enterprise as perceived by the respondents (n = 90)

Determinants	Southern region		Central region		Northern region	
	Mean	Rank	Mean	Rank	Mean	Rank
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Initial cost	5.53	IV	5.35	VI	6.00	I
Availability of raw materials	5.12	VI	5.35	VI	4.84	IV
Availability of supplies and services	3.76	VII	4.22	VII	4.00	V
Physical compatibility	5.59	III	5.72	I	6.00	I
Efficiency	5.82	I	5.68	VI	5.68	II
Profitability	5.59	III	5.51	IV	5.68	II
Availability of technology	5.71	II	5.72	I	5.68	II

Table 10 (contd.....)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Simplicity	5.24	V	5.41	V	6.00	III
Suitability	5.24	V	5.62	III	5.05	VIII
Time utilization	2.35	X	2.37	X	2.32	VIII
Social acceptability	2.06	XIII	2.27	XII	2.00	IX
Rapidity of returns	2.41	IX	2.32	XI	2.32	VIII
Income generation potential	2.23	XI	2.27	XII	2.42	VII
Regularity of returns	2.12	XII	2.65	IX	2.42	VII
Viability	3.65	VIII	3.57	VIII	3.16	VI

Coefficient of concordance (W) 0.576

$X^2 = 24.192^*$

*Significant at 0.05 level

The coefficient of concordance (W) computed for the rankings of the different regions was found significant which revealed that all the rankings indicated agreement among the respondents in the different regions.

4.1.4.3 Banana cultivation

Table 11 depicts the region-wise perceived determinants of feasibility of banana enterprise by the respondents.

A glance at the data in Table 11 revealed that in the case of banana enterprise, the respondent in the different regions had perceived different determinants of feasibility. 'Suitability' was considered as the most important determinant by the respondents of Southern and Central Regions. 'Time utilisation pattern' ranked first by the respondent in Central Region and also of the farmers in Northern Region. In Problem Region, 'simplicity' was ranked first by the respondents, which was also ranked second by those in Southern Region.

In all the regions, 'availability of supplies and services' was ranked least by the respondents.

Table 11 Regionwise determinants of feasibility of Banana enterprise (n = 46)

Determinants	Southern region n = 15		Problem region n = 8		Central region n = 14		Northern region n = 9	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Initial cost	5.06	V	5.75	II	5.57	II	4.89	V
Availability of raw materials	5.46	IV	5.75	II	5.43	III	5.55	II
Availability of supplies and services	2.00	XIII	2.50	VIII	2.00	XII	2.00	XII
Physical compatibility	4.67	VI	4.00	V	3.71	VII	4.00	VIII
Efficiency	4.67	VI	4.50	IV	4.57	V	5.33	III
Profitability	4.00	IX	4.50	IV	4.00	VI	4.67	VI
Availability of technology	4.53	VII	3.00	VII	4.00	VI	4.44	IV

Table 11 (Contd.....)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Simplicity	5.73	II	6.00	I	5.29	IV	5.11	IV
Suitability	6.00	I	5.75	II	5.71	I	5.33	III
Time utilization	5.60	III	5.00	III	5.71	I	6.00	I
Social acceptability	2.66	XI	2.25	IX	2.57	X	2.88	X
Rapidity of returns	2.40	XII	2.50	VIII	2.43	XI	2.66	XI
Income generation potential	3.73	X	3.50	VI	3.25	VIII	4.89	V
Regularity of returns	4.67	XII	4.00	V	3.14	IX	5.33	III
Viability	4.40	VIII	4.50	IV	3.71	VII	5.11	IX

Coefficient of concordance (W) = X^2 = 19.712 NS

*Significant at 0.01 level

The coefficient of concordance (W) worked out for the rankings of the regions was found to be non-significant which revealed that the rankings of the different regions are not in agreement. The data in Table 11 also clearly brings out the unrelated nature of rating by the respondents.

4.1.4.4 Cattle rearing

Region-wise determinants of feasibility as perceived by the respondents for cattle enterprise are furnished in Table 12.

It is evident from the results in Table 12 that 'Social acceptability' was ranked highest in all the regions except central region where 'simplicity' was rated first and 'social acceptability' as second determinant of feasibility by the respondents. 'Simplicity' was ranked second by the respondents of Southern, Problem, Northern and Hill Tract regions. 'Time utilisation pattern' was also considered second in Southern and Central regions by the respondents.

'Availability of supplies and services' was ranked least by the respondents in Southern, Problem and Northern Regions. In Central region, 'viability' followed by 'efficiency' were ranked least by the respondents.

Table 12 Regionwise determinants of feasibility of cattle enterprise as perceived by the respondents (n = 102)

Determinants	Southern region		Problem region		Central region		Northern region		Hill tract region	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Initial cost	4.84	III	5.45	I	5.31	III	5.38	III	4.18	II
Availability of raw materials	3.58	VIII	4.00	VI	3.23	VIII	3.38	VII	4.18	II
Availability of supplies and services	2.63	XII	2.00	XII	2.46	XI	2.00	XI	3.03	VIII
Physical compatibility	4.21	VI	4.00	VI	4.53	IV	4.30	V	3.09	VII
Efficiency	3.16	IX	2.18	XI	2.08	XIII	2.31	X	3.15	VI
Profitability	2.84	XII	2.55	IX	2.54	X	2.31	X	2.85	X
Availability of technology	2.95	XI	2.91	VIII	2.38	XII	2.46	IX	2.97	IX

Table 12 (contd.....)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Simplicity	5.26	II	5.27	II	5.85	I	5.54	II	4.18	II
Suitability	4.95	II	4.55	V	4.23	V	4.62	IV	3.21	V
Time utilization	5.26	II	5.09	III	5.62	II	5.38	III	4.00	IV
Social acceptability	5.47	I	5.45	I	5.62	II	5.85	I	4.84	I
Rapidity of returns	4.42	VI	4.00	VI	3.69	VI	4.00	VI	4.06	III
Income generation potential	3.05	X	4.73	IX	3.62	VII	4.62	IV	3.15	VI
Regularity of returns	2.84	XII	2.36	X	2.00	XIV	2.31	X	3.09	VII
Viability	3.67	VII	3.64	VII	3.15	IX	3.23	VIII	2.97	IX

Coefficient of concordance (W) = 0.604

$X^2 = 42.28^*$

*Significant at 0.01 level

A different picture was observed in Hill tract region where 'profitability', 'availability of technology' and 'viability' were ranked least by the respondents as determinant of feasibility of cattle enterprise.

The coefficient of concordance (W) worked out for the rankings of all the five regions was found to be significant, which revealed that there was agreement in the rankings made by the respondents in the different regions.

4.1.4.5 Goat rearing

Region-wise determinants of feasibility of goat enterprise as perceived by the respondents is given in Table 13.

It is evident from the data in Table 13 that a wide variation of perception existed between regions on the determinants of feasibility of goat enterprise. 'Simplicity' was ranked as more important determinant of feasibility by the respondents of Central and Northern regions. In Problem and Hill Tract regions 'rapidity of returns' was rated as the most important determinant by the respondents. In Southern region, the respondents perceived both 'time utilisation pattern' and 'income generation potential' as the most important determinants

Table 13 Regionwise determinants of feasibility of Goat enterprise as perceived by the respondents (n = 90)

Determinants	Southern region		Problem region		Central region		Northern region		Hill Tract region	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Initial cost	4.95	V	4.18	VIII	5.66	II	5.43	IV	4.24	VII
Availability of raw materials	4.95	V	5.09	V	5.03	VII	5.14	VI	4.82	XI
Availability of supplies and services	2.53	X	2.03	X	2.28	XIV	2.28	XI	2.00	XII
Physical compatibility	5.26	III	5.46	III	5.66	II	5.57	III	5.41	III
Efficiency	5.26	III	5.82	II	5.17	VI	5.57	III	5.65	II
Profitability	4.63	VI	4.91	VI	4.97	VIII	4.43	VIII	4.82	VI
Availability of technology	4.00	VII	3.09	IX	4.28	VI	4.57	VII	3.18	X

Table 13 (contd.....)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Simplicity	5.37	II	5.27	IV	6.00	I	6.00	I	5.29	IV
Suitability	5.37	III	5.27	IV	5.52	III	5.43	IV	5.06	V
Time utilization	5.47	I	5.09	V	5.45	IV	5.71	II	5.29	IV
Social acceptability	4.00	VII	3.09	IX	4.69	X	4.57	VII	3.06	XI
Rapidity of returns	5.16	IV	6.00	I	4.90	IX	5.57	III	5.76	I
Income generation potential	5.47	I	5.09	V	5.38	V	5.29	V	5.06	II
Regularity of returns	3.26	IX	4.73	VII	3.24	XII	3.71	IX	4.12	VIII
Viability	3.37	VIII	4.18	VIII	2.76	XIII	3.29	X	3.41	IX

Coefficient of concordance (W) = 0.456

$x^2 = 31.920^*$

*Significant at 0.01 level

of feasibility of goat enterprise. 'Physical compatibility' and 'efficiency' were rated as second most determinant of feasibility by the respondents in all the five regions.

Availability of supplies and services' was ranked as the least important determinant of feasibility by the respondents in all the regions.

The coefficient of concordance (W) computed for the rankings of the five regions was found to be significant, which revealed that these rankings indicated agreement among the respondents in the different regions.

4.1.5 *Composite feasibility perception index of the enterprises*

After analysing the feasibility perception scores for each enterprise seperately, it was thought fit to arrive at a composite feasibility perception index for all the five enterprises taking into consideration the responses of the respondents in all the regions with respect to all the five enterprises.

Weighted arithmatic mean of each determinant of feasibility for all the five enterprises were worked out

reckoning the respective sample sizes as the weights. The overall mean scores and the ranking of the determinants are presented in Table 14.

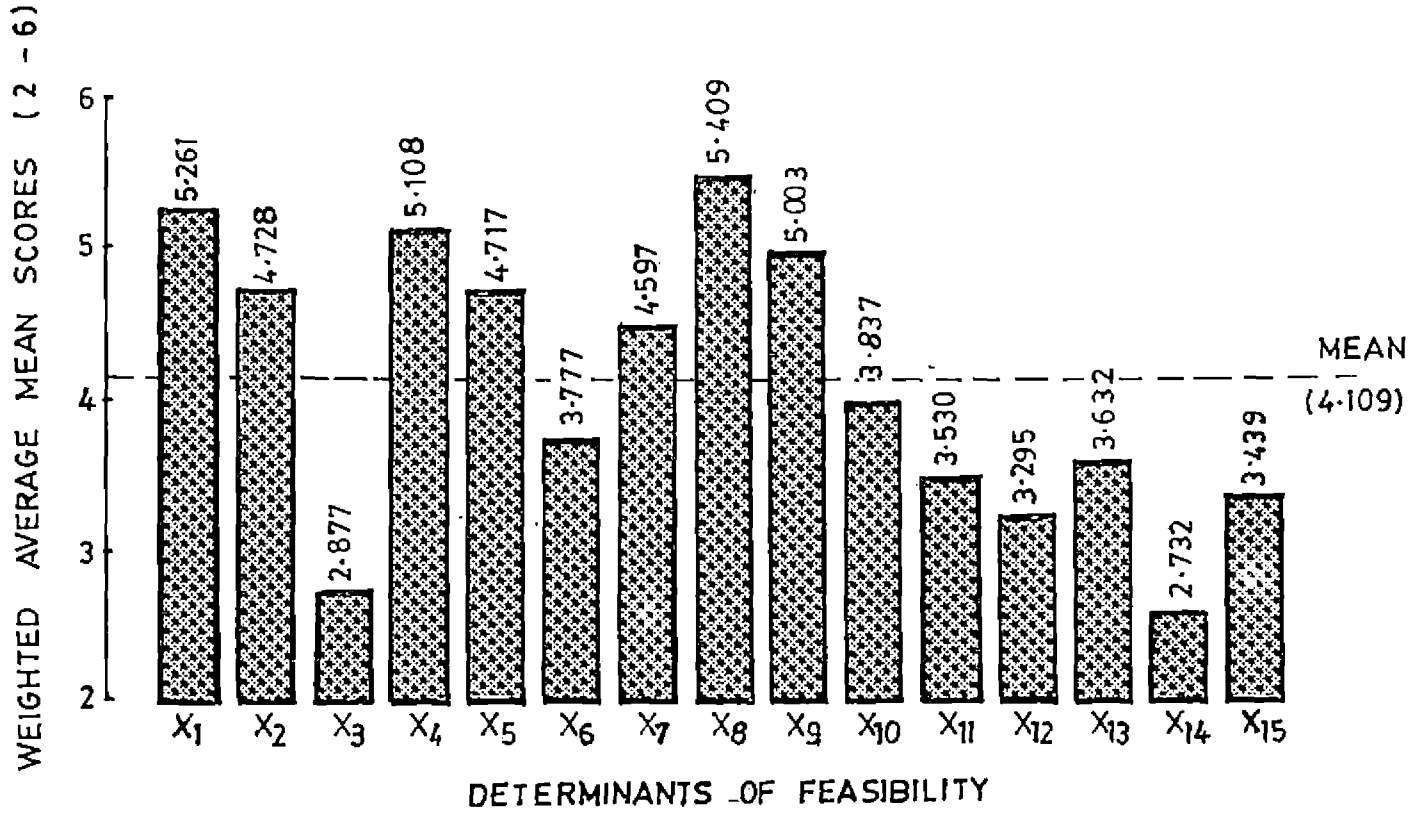
Of the fifteen determinants of feasibility, only those determinants which had weighted mean scores above the overall mean score of 4.109 were taken as the most important determinants of feasibility for the purpose of further validation. The selected determinants of feasibility were simplicity, initial cost, physical compatibility, suitability, availability of raw-materials, efficiency and availability of technology.

For validation of these seven determinants of feasibility arrived at as above, 30 Scheduled Caste farmers were selected from an area other than the ones where the main study was conducted. They were asked to indicate their perception of importance of each of these seven determinants of feasibility in relation to the different welfare schemes relevant to them. The ranks assigned to these seven determinants by the respondents were worked out and the two sets of rankings viz. the one which was obtained based on the weighted mean scores and the one which was obtained in the validation, among 30 respondents were tested for their similarity in ranking using Spearman rank order correlation test (Table 15).

Table 14 Weighted mean scores of the determinants of feasibility of technologies

Code No.	Dimension of feasibility	Weighted mean scores	Rank	
X_8	Simplicity	5.409	I	
X_1	Initial cost	5.261	II	
X_4	Physical compatability	5.108	III	
X_9	Suitability	5.003	IV	
X_2	Availability of raw materials	4.728	V	
X_5	Efficiency	4.717	VI	
X_7	Availability of technology	4.597	VII	Mean 4.109
X_{10}	Time utilization	3.837	VIII	
X_6	Profitability	3.777	IX	
X_{13}	Income generation potential	3.632	X	
X_{11}	Social acceptability	3.530	XI	
X_{15}	Viability	3.439	XII	
X_{12}	Rapidity of returns	3.295	XIII	
X_3	Availability of supplies and services	2.877	XIV	
X_{14}	Regularity of returns	2.732	XV	

FIG. 5. WEIGHTED AVERAGE MEAN SCORES OF THE DETERMINANTS OF FEASIBILITY OF TECHNOLOGY



X_1- Initial cost. X_2- Availability of raw materials. X_3- Availability of supplies & services

X_4- Physical compatibility. X_5- Efficiency. X_6- Profitability

X_7- Availability of technology. X_8- Simplicity. X_9- Suitability

X_{10}- Time utilisation. X_{11}- Social acceptability. X_{12}- Rapidity of returns

X_{13}- Income generation potential. X_{14}- Regularity of returns. X_{15}- Viability

Table 15 Result of Spearman rank order correlation test

Sl. No.	Determinants	Ranking in the main study	Ranking in the validation study
1	Simplicity	I	I
2	Initial cost	II	IV
3	Physical compatibility	III	V
4	Suitability	IV	II
5	Availability of raw-materials	V	III
6	Efficiency	VI	VII
7	Availability of technology	VII	VI

$$r_S = 0.6786^*$$

*Significant at 0.01 level

From the data presented in the table, it is evident that there was significant correlation in the rankings obtained with regard to the determinants of feasibility derived based on the weighted mean scores and the validation study as indicated by the r_s value of 0.6786, which was significant at 0.01 level. This indicated that the developed index for measuring the feasibility of agricultural technologies is a valid and reliable measure.

4.2 Utilization of agricultural technologies by the respondents.

The overall utilization of different enterprises, the region-wise comparison of the utilization of the different enterprises and the utilization of the selected practices under each enterprise by the respondents are furnished in the following tables.

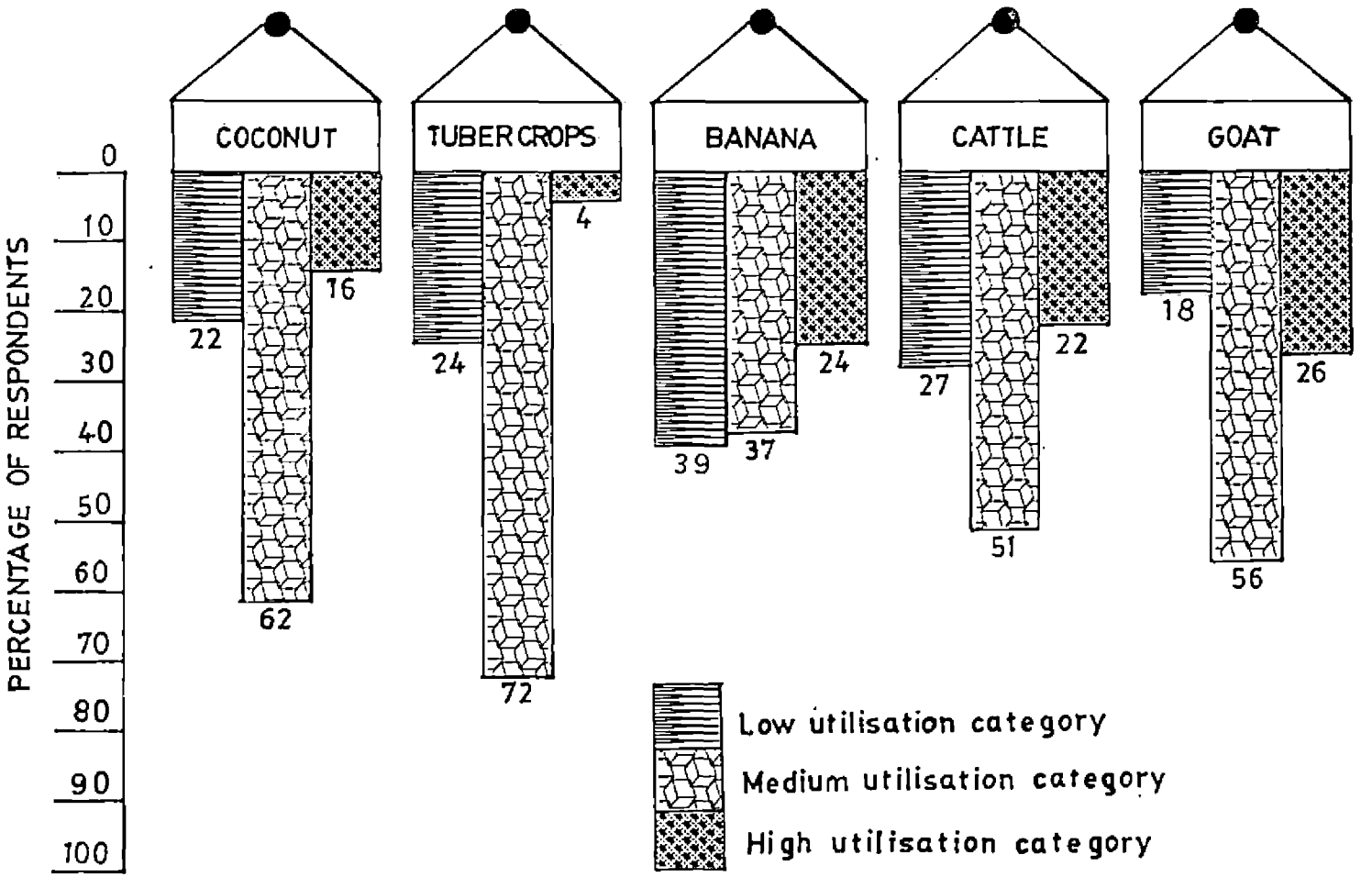
4.2.1 The distribution of respondents according to their utilization of the selected enterprises is furnished in Table 16

The data in Table 16 revealed that more than 50% of the respondents are distributed in the medium category with respect to the level of utilization for all the selected enterprises except banana cultivation. In the

Table 16 The distribution of respondents according to their utilization of the selected enterprises

Sl. No.	Enterprise	n	Category of respondents based on utilization	f	%
1	Coconut	129	Low	29	22
			Medium	80	62
			High	20	16
2	Tuber crops	90	Low	21	24
			Medium	65	72
			High	4	4
3	Banana	46	Low	18	39
			Medium	17	37
			High	11	24
4	Cattle	102	Low	28	27
			Medium	52	51
			High	22	22
5	Goat	90	Low	16	18
			Medium	51	56
			High	23	26

FIG. 6. UTILISATION OF ENTERPRISES BY THE RESPONDENTS



case of banana cultivation, the respondents were more or less equally distributed in the low and medium utilization categories (39 and 37% respectively). A higher percentage of respondents in the high utilization category was noticed in the case of goat rearing, followed by banana cultivation and cattle rearing in that order.

4.2.2 The region-wise comparison ofthe utilization of the selected practices under the different enterprises by the respondents are furnished in the following tables.

4.2.2.1 Coconut cultivation

4.2.2.1 (i) The distribution of respondents in different regions according to their utilization of coconut enterprise is furnished in Table 17.

The results in Table 17 indicated that more than 50 per cent of the respondents in all the four regions are distributed in the medium level of utilization with respect to coconut enterprise, a maximum of 68% in Southern region and minimum of 54% in Problem region. 20% of respondents in the high utilization category was observed in Northern region. Higher percentage of respondents (33%) in the low utilization category was observed in Problem region.

Table 17 Distribution of respondents in different regions according to their utilization of coconut

Category	Region I		Region II		Region III		Region IV	
	f	%	f	%	f	%	f	%
Low	5	16	8	33	11	25	5	17
Medium	21	68	13	54	27	61	19	63
High	5	16	3	13	6	14	6	20
	31		24		44		30	

4.2.2.1 (ii) Practice-wise utilization of coconut enterprise for all the regions taken together is furnished in Table 18.

The Table revealed that there is medium level of utilization noticed for all the selected practices under coconut enterprise. In the case of 'use of organic manure', none of the respondents belonged to the low category. There was a higher percentage (32%) of respondents under low category in the case of 'protection for ensuring crop stand'. About one fourth of the respondents belonged to the low category with respect to the practices of 'preparation of pits' and 'irrigation'. A higher percentage of respondents under high category was in the case of 'use of organic manure' (19%) followed by 'preparation of pits' (12%). Only 4% of the respondents belonged to the high utilization category with respect to 'irrigation'.

4.2.2.2 Tuber crops cultivation

(i) The distribution of respondents in different regions according to their utilization is furnished in Table 19.

The data in Table revealed that in Southern and Central regions, there was none in the high utilization

Table 18 Distribution of respondents according to utilization of the 5 practices in coconut (n = 129)

Sl. No.	Practice	Category	f	%
1	Preparation of pits	Low	31	24
		Medium	83	64
		High	15	12
2	Organic manure	Low	0	0
		Medium	104	81
		High	25	19
3	Irrigation	Low	31	24
		Medium	93	72
		High	5	4
4	Ensuring crop stand	Low	41	32
		Medium	81	63
		High	7	5
5	Use of chemical fertilizers	Low	16	12
		Medium	99	77
		High	14	11

Table 19 Distribution of respondents in different 3 regions according to their overall utilization - Tuber crops (n = 90)

Category	Southern Region		Central Region		Northern Region	
	f	%	f	%	f	%
Low	3	9	12	32	6	32
Medium	31	91	25	68	9	48
High	0	-	0	-	4	20
	34		37		19	

category of tuber crops cultivation. Ninety one per cent of the respondents in Southern region belonged to the medium category, while 68% and 48% of the respondents in Central and Northern regions respectively occurred in this category. 32% of the respondents in both Central and Northern regions were observed under the low utilization category with respect to tuber crops cultivation.

(ii) Practice-wise utilization of tuber crops enterprise for all the regions is furnished in Table 20.

It was observed from the results in Table 20 that none of the respondents belonged to the high utilization category for any of the selected practices in tuber crops. Majority of the respondents were found in the medium utilization category with respect to the different practices, except the 'use of high yielding varieties' in which case, majority (71%) were in the low utilization category.

4.2.2.3 Banana cultivation

(i) The distribution of respondents in different regions according to their utilization is furnished in Table 21.

About one-half of the respondents, except in Northern region, belonged to the low utilization category

Table 20 Distribution of respondents according to utilization of the 5 practices in Tuber crops (n = 90)

Sl. No.	Name of practice	Category	f	%
1	Use of HY varieties	Low	64	71
		Medium	26	29
		High	0	0
2	Seed materials treatment	Low	42	47
		Medium	48	53
		High	0	0
3	Use of organic manure	Low	30	33
		Medium	60	67
		High	0	0
4	Use of chemical fertilizers	Low	30	33
		Medium	60	67
		High	0	0
5	Inter cultivation	Low	12	13
		Medium	78	87
		High	0	0

Table 21 Distribution of respondents in different regions according to their overall utilization - Banana (n = 46)

Category	Region I		Region II		Region III		Region IV	
	f	%	f	%	f	%	f	%
Low	7	47	4	50	7	50	0	0
Medium	2	13	4	50	5	36	6	67
High	6	40	0	0	2	14	3	33
	15		8		14		9	

67 and 50% respectively of the respondents in Northern and Problem regions belonged to the medium utilization category. More than one-third of the respondents in Southern and Northern regions were found in the high utilization category.

(ii) Practice-wise utilization of banana cultivation for all the region is furnished in Table 22.

The data in Table indicated that none of the respondents were found in the high utilization category with respect to 'use of organic manure', 'use of chemical fertilizers' and 'irrigation'. Majority of the respondents belonged to the medium utilization category for all the selected practices. A higher percentage (46% and 35% respectively) of respondents were found in the low utilization category with respect to the practices of 'fertilizer application' and 'protection for ensuring crop stand'.

4.2.2.4 Cattle rearing

(i) The distribution of respondents in different regions according to their utilization of cattle rearing is furnished in Table 23.

Table 22 Distribution of respondents according to utilization of the five practices in Banana (n = 46)

Sl. No.	Name of practice	Category	f	%
1	Selection of sword suckers	Low	3	6.5
		Medium	40	87
		High	3	6.5
2	Use of organic manure	Low	14	30
		Medium	32	70
		High	0	0
3	Use of fertilizers	Low	21	46
		Medium	24	54
		High	0	0
4	Ensuring crop stand	Low	16	35
		Medium	29	63
		High	1	2
5	Irrigation	Low	5	11
		Medium	41	89
		High	0	0

Table 23 Distribution of respondents in different regions according to their overall utilization - Cattle (n = 102)

Category	Region I		Region II		Region III		Region IV		Region V	
	f	%	f	%	f	%	f	%	f	%
Low	6	32	8	73	10	38	0	--	4	12
Medium	9	48	3	27	11	42	11	85	18	55
High	4	20	0	--	5	20	2	15	11	33
	19		11		26		13		33	

More than 50% of the respondents belonged to the medium utilization category in Northern and Hill Tract regions. None of the respondents were found in the low utilization category in Northern region while none of the respondents occured in the high utilization category in the Problem region. Majority of the respondents in the Problem region were found in the low utilization category.

(ii) Practice-wise utilization of cattle rearing for all the regions taken together is furnished in Table 24.

From the data in Table 24, it could be observed that none of the respondents were found in the low utilization category with respect to the practices of 'timely artificial insemination', 'balanced diet' and 'deworming of calves'. Similarly none of the respondents were found in the high utilization category with respect to the practices of 'timely milking' and 'hygenic maintanance of cattle shed'. A large majority of the respondents belonged to the medium level of utilization for all the selected practices.

4.2.2.5 Goat rearing

(i) The distribution of respondents in different regions according to their utilization of goat rearing is furnished in Table 25.

Table 24 Distribution of respondents according to utilization of the five practices in Cattle (n = 102)

Sl. No.	Name of practice	Category	f	%
1	Timely artificial insimination	Low	0	--
		Medium	76	75
		High	26	25
2	Balanced diet	Low	--	--
		Medium	102	100
		High	--	--
3	Deworming of calves	Low	--	--
		Medium	87	85
		High	15	15
4	Timely and proper milking	Low	8	8
		Medium	94	92
		High	--	--
5	Hygenic maintanence of shed	Low	6	6
		Medium	96	94
		High	--	--

Table 25 Distribution of respondents in different regions according to their utilization - Goat (n = 90)

Category	Region I		Region II		Region III		Region IV		Region V		Grand Total
	f	%	f	%	f	%	f	%	f	%	
Low	6	32	2	18	4	14	3	21	1	6	16
Medium	9	48	8	73	17	59	9	64	10	59	53
High	4	20	1	9	8	27	2	15	6	35	21
	19		11		29		14		17		90

More than 50% of the respondents in all the regions (except Southern region) were found in the medium utilization category. 35% and 27% respectively of respondents in Central and Hill tract region were found in the high utilization category. About one-third of the respondents in Southern region co-alesced in the low utilization category.

(ii) Practice-wise utilization of goat rearing in respect of all the regions is furnished in Table 26.

None of the respondents belonged to the high utilization category for the practices viz., 'timely insemination', 'timely proper milking' and 'hygenic maintanance of shed'. A higher percentage (32%) of the respondents occured in the low utilization category with respect to the practice of 'timely insemination' of animals. More than 80% of the respondents were found in the medium utilization category for all the practices except 'timely insemination'.

4.2.3 Correlation between feasibility perception and utilization of agricultural technologies by the respondents is presented in Table 27.

Out of the selected five enterprises, feasibility perception of the enterprise and its utilization by the

Table 26 Distribution of respondents according to utilization of the five practices in Goat

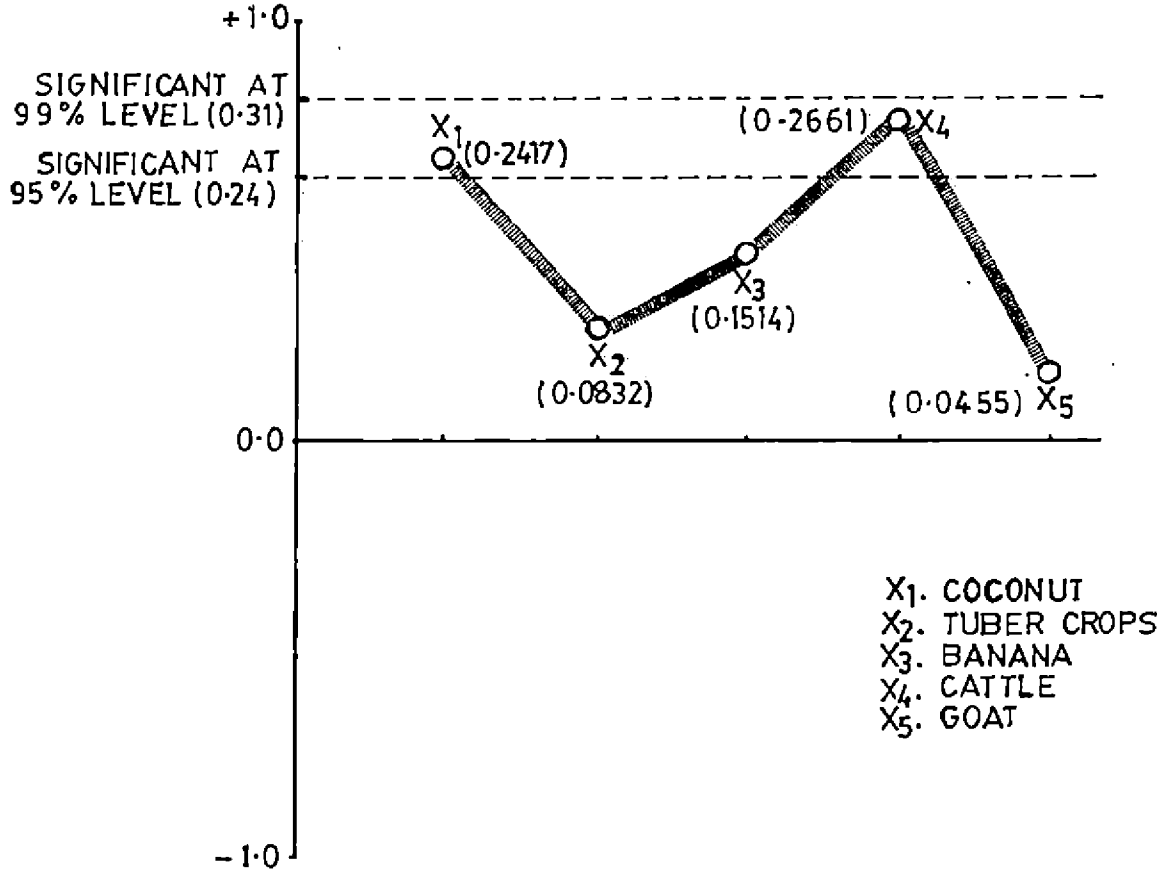
Sl. No.	Name of practice	Category	f	%
1	Timely insemination	Low	29	32
		Medium	61	68
		High	--	--
2	Timely and proper milking	Low	8	9
		Medium	82	81
		High	--	--
3	Balanced diet	Low	6	7
		Medium	83	92
		High	1	1
4	Deworming of kids	Low	--	--
		Medium	75	83
		High	15	17
5	Hygenic shelter	Low	1	1
		Medium	89	99
		High	--	--

Table 27 Coefficient of correlation between feasibility perception and utilization of the five selected enterprises

Sl. No.	Enterprise	n	'r' value
1	Coconut	129	0.2417*
2	Tuber crops	90	0.0832
3	Banana	46	0.1514
4	Cattle	102	0.2661*
5	Goat	90	0.0455

*Significant at 0.05 level

FIG. 7. CORRELATION BETWEEN FEASIBILITY PERCEPTION AND UTILISATION OF SELECTED ENTERPRISES



respondents were found significantly related only with respect to coconut and cattle whereas in the case of other three enterprises, significant relationship was not noticed.

4.2.4 The Region-wise comparison with respect to the perception of the respondents regarding the determinants of feasibility and utilization of practices is presented in Table 28 - Results of Kruskal Wallis test

4.2.4.1 Coconut cultivation

a) Feasibility perception

Out of the four regions, significant difference in the perception of feasibility was observed with regard to profitability (X_6) and regularity of returns (X_{14}). There was no significant difference noted in the case of other determinants of feasibility.

b) Utilization of practices

Out of the five practices studied under coconut cultivation 'protection for ensuring crop stand (Y_4)' showed no significant difference between the different regions. The other four practices exhibited significant difference between the regions.

Table 28 Regionwise interrelationship between determinants of feasibility scores and utilisation scores for different practices of the selected enterprises

	Feasibility dimensions															Utilisation				
	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}	X_{12}	X_{13}	X_{14}	X_{15}	Y_1	Y_2	Y_3	Y_4	Y_5
Coconut	0.6152	0.5243	4.7091	1.9185	3.5655	1.4558	1.2858	2.2108	19.5067*	7.0805										
(df_3)	2.3795	2.6648	9.4121*	1.1640	4.7091	1.8112	8.7753*	8.1696*	8.0067*	16.9359*										
Tuber crops	3.9456	0.7307	0.3304	2.0416	2.5594	0.9052	0.3281	1.8528	162.3900*	110.8926*										
(df_2)	1.9282	1.5335	0.2758	3.5985	3.6774	0.1288	3.7137	0.0000	2.9719	2.9665										
Banana	1.3255	1.2128	9.2038*	10.3630*	1.8442	3.6617	10.6858*	3.1563	304.4447*	205.8816*										
(df_3)	0.4361	4.2893	2.8085	3.5226	3.3027	0.5089	15.3561*	228.6728*	251.8041*	377.6815*										
Cattle	9.9660*	11.2651*	19.0470*	4.5653	24.0887*	10.2061*	20.7169*	3.3051	82.9223*	78.3545*										
(df_4)	8.0937	18.9298*	2.9262	20.5541*	18.5876*	3.2551	14.9566*	33.5666*	5.9736	99.0434*										
Goat	9.5237*	2.4562	3.8469	14.3650*	1.7863	20.9616*	1.6445	11.5653*	168.5635*	10.4666*										
(df_4)	0.6740	1.4683	2.4928	7.7810	2.0403	11.0662*	13.3700*	123.3134*	1.0762	168.7136*										

0.05 level df_4 9.488
df_3 7.815
df_2 5.991

0.01 level df_4 13.277
df_3 11.345
df_2 9.210

2 Tuber crops cultivation

a) Feasibility perception

Out of the three regions, under tuber crop enterprises, no significant difference in the perception of feasibility was observed in any of the dimensions of feasibility.

b) Utilization of practices

Among the regions, significant difference was observed in the selected practices of seed treatment (Y_2) and use of chemical fertilizers (Y_4) with respect to tuber crop cultivation.

3 Banana cultivation

a) Feasibility perception

Out of the four regions, significant difference was observed in the case of efficiency (X_5), availability of technology (X_7), income generation potential (X_{13}) and regularity of returns (X_{14}). All other dimensions exhibited no significant difference.

b) Utilization of practices

Among the regions, significant difference was observed in all the five practices selected under banana enterprise.

4 Cattle rearing

a) Feasibility

Out of the five regions, significant difference was observed in respect of determinants viz., initial cost (X_1), availability of supplies and services (X_3), physical compatibility (X_4), efficiency (X_5), simplicity (X_8), suitability (X_9), time utilization pattern (X_{10}), social acceptability (X_{11}), income generation potential (X_{13}), and regularity of returns (X_{14}). No significant difference was observed in cases of the other five determinants of feasibility.

b) Utilization of practices

Significant difference was observed in all the five practices of cattle rearing except the practice of deworming of calves (Y_3).

5 Goat rearing

a) Feasibility perception

Out of the five regions, significant difference in the feasibility perception was observed in the case of determinants initial cost (X_1) availability of technology (X_7), social acceptability (X_{11}), rapidity

of returns (X_{12}), regularity of returns (X_{14}) and viability (X_{15}). All the other determinants of feasibility showed no significant difference.

b) Utilization of practices

Out of the five practices under goat rearing, except the practice of 'use of balanced diet', all other selected practices showed significant difference in the utilization among the different regions.

4.3 Constraints in the utilization of agricultural technologies

The constraints in the utilization of agricultural technologies, in general, and for each enterprise is presented in the following tables. The respondents were asked to identify the important constraints from the identified list of constraints. Hence, there is the possibility of a respondent indicating more than one constraint. The percentage figures of the responses do not add upto 100 because of multiple responses.

4.3.1 Table 29 presents the constraints in the utilization of practices under coconut enterprise

On a clear perusal of the data in Table 29, it becomes clear that the most important constraint perceived

Table 29 Constraints in the utilization of coconut cultivation as reported by the respondents

Sl. No.	Constraint	f	%
1	Supply of inferior and discarded seedling	81	62.90
2	Supply of inputs at far off places from home	62	48.06
3	Chaotic supply of complementary inputs	53	41.08
4	Lack of irrigation facilities	46	35.65
5	Lack of follow up by Government agencies	37	28.68
6	Unsuitability and/or smallness of holding	27	20.93
7	Lack of proportionate supply of inputs based on size of holding	26	20.60
8	Continued assistance to the same families	24	18.65

by the respondents in the utilization of coconut enterprise was the supply of inferior/discarded seedlings, that too in off season.

Similarly a large majority of respondents felt inadequacy in the supply of inputs both in terms of location and periodicity as an important constraint. Lack of irrigation was also reported by over 35% of the respondents as an important constraint.

4.3.2 The constraints in the tuber crop cultivation as reported by the respondents are presented in Table 30.

The most important constraint as reported by over 80% of the respondents was unavailability of improved planting materials to them. The negligence of this crop by way of not providing any assistance by the concerned agencies was the second important constraint reported by about 71% of the respondents. Over 50% of the respondents perceived changed dietary habits as the constraint in the cultivation of tuber crops.

4.3.3 The constraints in the cultivation of banana as reported by the respondents are presented in Table 31.

Table 30 Constraints in the utilization of tuber crops cultivation as reported by the respondents

Sl. No.	Constraint	f	%
1	Unavailability of improved seed materials	72	80.00
2	Lack of financial assistance	64	71.11
3	Changed dietary habits	46	51.11
4	Lack of attention due to negligence of the crop	33	36.67
5	Lack of suitable land	26	28.88

Table 31 Constraints in the utilization of banana cultivation as reported by the respondents

Sl. No.	Constraint	f	%
1	Lack of small scale credit facilities	38	82.70
2	Unavailability of sword suckers for planting	26	56.52
3	Lack of technical guidance	24	52.20
4	Full utilization not possible due to indebtedness	21	45.65
5	Lack of suitable own land	18	39.13
6	Cumbersome tenancy regulations	14	30.43
7	Lack of crop insurance	12	26.10
8	Lack of assured irrigation	8	17.40

As is evident from the results in Table 31, more than 82% of the respondents reported lack of easy and adequate credit facilities as the important constraint in the utilization of banana enterprise. Unavailability of sword suckers in time for planting and lack of technical knowledge were reported as constraints by more than 50% of the respondents. Indebtedness and lack of suitable own land, were also reported as constraints in the utilization of banana enterprise.

4.3.4 Table 32 presents the constraints in cattle rearing as perceived by the respondents

From the results presented in Table 32, it was very clear that lack of knowledge about the improved practices in scientific cattle rearing emerged as the most important constraint as more than 90% of the respondents indicating this reason. Around 87 per cent of the respondents reported lack of operating/maintenance capital as another important constraint. Non-availability of supporting veterinary services (75%), unstable price for inputs and produces (66%) and susceptibility of the animals to diseases were also reported as other important constraints by more than 60% of the respondents.

4.3.5 The constraints in the utilization of goat enterprise as perceived by the respondents are presented in Table 33.

Table 32 Constraints in the utilization of cattle rearing as reported by the respondents

Sl. No.	Constraint	f	%
1	Lack of knowledge about improved practices	92	90.20
2	Lack of operating/maintanence capital	89	87.25
3	Non-availability of supporting services	76	74.50
4	Unstable prices for inputs and products	68	66.67
5	Susceptibility of animals to diseases	62	60.78
6	Negligence of officials for genuine complaints	48	47.59
7	Untimely loan disbursement and hasty purchase of animals	44	43.14
8	Wastage of time and money as a result of cumbersome procedure in getting loans	41	40.20
9	Lack of grazing land/fodder	34	33.33
10	Lack of social support in marketing and maintanence	26	25.50

Table 33 Constraints in the utilization of goat rearing as reported by the respondents

Sl. No.	Constraint	f	%
1	Lack of availability of grazing land/fodder	52	57.77
2	Lack of timely veterinary services	48	53.33
3	Susceptibility of animals to diseases	44	48.88
4	Non-Availability of improved breeds	36	40.00
5	Lack of working capital	26	28.89

It is clear from the results presented in Table 33, that lack of availability of grazing land/ fodders was reported as the most important constraint in goat farming. About 53% of the respondents reported lack of timely veterinary services as a constraint in goat farming. Susceptibility of animals to diseases and non-availability of improved breeds were also reported by more than 40% of the respondents.

4.3.6 The constraints in the utilization of agricultural technologies in general as reported by the respondents are presented in Table 34.

From the results presented in Table 34, it was very clear that lack of technical knowledge about the improved practices in the production system emerged as the most important constraint in the utilization of agricultural technology in general. This was the only constraint with more than 50 % of the respondents reported. Lack of necessary supporting services and lack of small scale credit facilities were also reported as major constraints by about 48 and 46 per cent of the respondents respectively.

4.4 Consequences of utilization of agricultural technologies as perceived by the respondents

Table 34 Constraints in the utilization of agricultural technologies by the respondents (n = 337)

Sl. No.	Constraint	f	%
1	Lack of technical knowledge	182	54.06
2	Lack of necessary supporting services	164	48.66
3	Lack of small scale credit facilities	158	46.88
4	Unavailability of raw materials	122	36.21
5	Unsuitability of the land possessed	88	26.11
6	Unstable prices for inputs and products	74	21.96
7	Cumbersome procedure for credit facilities	56	16.62
8	Lack of irrigation	44	13.05
9	Negligence of officials for genuine suggestions and/or complaints	38	11.28

The consequences of utilization of agricultural technologies in general and for each enterprise in particular are presented in the following tables. The most important consequence as identified by the respondents only was taken. Hence, in this case, unlike the constraints which have been stuided earlier, only one consequence as reported by a respondent was taken and hence the frequency of consequences tally with the respondents.

4.4.1 Table 35 presents the consequences of utilization of coconut cultivation as reported by the respondents

From the results in Table 35, it is observed that 32% of the respondents reported misutilization of the input supplied by Government agencies at source and/or at field level. The insufficient attention for the crop was reported by about 29% of the respondents. 16% of the respondents reported that they consider coconut cultivation as a security measure for arranging petty loans.

4.4.2 The consequences of utilization of tuber crops enterprise as reported by the respondents are presented in Table 36.

Table 35 Consequences of utilization of coconut cultivation as reported by the respondents (n = 129)

Sl. No.	Consequence	f	%
1	Misutilization of inputs supplied by Government agencies	41	31.78
2	Forced enterprise and hence neglected	37	28.68
3	Crop pledging for unproductive loans	21	16.28
4	Poor crop stand due to untimely planting	16	12.40
5	No consequence of significance	14	10.86

Table 36 Consequences of utilization of tuber crops cultivation as reported by the respondents (n = 90)

Sl. No.	Consequence	f	%
1	Neglect of the crop since crop is not remunerative	48	53.34
2	Changed dietary habits and hence diluted interest in the crops	34	37.78
3	Rice substituted with tubers	6	6.67
4	No consequence of significance	2	2.21

It is evident from the result in Table 36 that 53 per cent of the respondents reported that since the crops are not remunerative, they have neglected its cultivation. The changed dietary habits had forced the crop as unimportant and outdated as reported by 37 per cent of the respondents.

4.4.3 Table 37 presented the consequences of utilization of banana enterprise as reported by the respondents

It can be observed from the Table that majority (52%) of the respondents reported better returns from banana cultivation as a consequence of its utilization. 26 per cent of the respondents reported more employment opportunities while 15 per cent reported that the cultivation of banana improved their living conditions.

4.4.4 The consequences of utilization of cattle rearing as reported by the respondents are presented in Table 38.

From the results in Table 38, it can be seen that the cattle rearing has resulted in 33 per cent of the respondents being included in the list of defaulters of the credit agencies. At the same time, 24 per cent of

Table 37 Consequences of utilization of banana cultivation as reported by the respondents (n = 46)

Sl. No.	Consequence	f	%
1	Better returns	24	52.17
2	Gainful employment throughout the year	12	26.09
3	Progress in living condition	7	15.22
4	Loss of money due to adverse conditions	2	4.35
5	Enhanced self perception of status	1	2.17

Table 38 Consequences of utilization of cattle rearing as reported by the respondents (n = 102)

Sl. No.	Consequence	f	%
1	Defaulting in repayment of loans	34	33.33
2	Increased employment	24	23.53
3	Increased indebtedness	18	17.65
4	Misutilization of Government loans and subsidy payment	13	12.75
5	Increased income	8	7.84
6	Enhanced political mileage	3	2.94
7	Strained relations with others due to grazing of animals in private/public lands	2	1.96

the respondents have reported that the cattle enterprise had increased their employment. 18 per cent of the respondents reported that the enterprise has increased their indebtedness, while 12 per cent of them consider it as a subsidy programme by the Government officials for them. Increased income was reported by only 8 per cent of the respondents.

4.4.5 Table 39 presented the consequences of utilization of goat enterprise as reported by the respondents

From the results in Table 39, it is observed that 29 per cent of the respondents reported increased income due to the utilization of goat enterprise. 27 percentage of the respondents reported strained relations with others due to grazing of animals in public/private lands, and inclusion under the defaulters list was reported by 24 percentage of the respondents.

4.4.6 The consequences of utilization of agricultural technologies in general as reported by the respondents are presented in Table 40.

It is evident from the results in Table 40 that over 21 per cent of the respondents reported untimely and ineffective utilization of the inputs received. Insufficient attention/neglect of the enterprises was

Table 39 Consequences of utilization of goat rearing as reported by the respondents (n = 90)

Sl. No.	Consequence	f	%
1	Increased income	26	28.89
2	Strained relations with others due to grazing of animals in public/private lands	24	26.67
3	Defaulting in repayment of loans	22	24.44
4	Increased employment	14	15.56
5	No consequence of significance	4	4.44

Table 40 Consequences of utilization of agricultural technologies by the respondents (n = 337)

Sl. No.	Consequence	f	%
1	Untimely and ineffective utilization of input	74	21.96
2	Insufficient attention/neglect of the enterprise	49	14.54
3	Became defaulters in the lists of officials	44	13.05
4	Increased income	42	12.46
5	Alienation of younger generation from agricultural enterprises	40	11.87
6	Increased employment	36	10.68
7	Social restrictions increased	26	7.72
8	Assistance used for political mileage	26	7.72

reported by 14 per cent of the respondents, while 13.05 per cent of them reported defaulting in repayment of loans. Increased income was reported by only 12.46 per cent of the respondents.

4.5 Relationships between characteristics of the respondents and their utilization behaviour are presented in the following Table.

The linear regression equation for a particular response Y in terms of 'independent' or predictor variables X_1, X_2 ..... X_n is assumed as the complete set of variables from which the equation is to be chosen. Two opposed criteria of selecting a resultant equation are usually involved. They are as follows:

1. To make the equation useful for productive purposes, it is required that the model should include as many X's as possible so that reliable fitted values can be determined.

2. Because of the costs involved in obtaining information on a large number of X's and subsequently monitoring them, the equation should include as few X's as possible

The compromise between these extremes is what is usually called 'selecting the best regression equation'

(Draper and Smith, 1966). The stepwise regression analysis is one of the statistical procedures for accomplishing this purpose.

In this study also, step-wise regression analysis was employed to select the best regression equation and thereby identity the best sub group of variables out of many for predicting the variation in utilization behaviour (dependent variable). This was done for the pooled sample, (n = 457). Since the preditability was low, the analysis was again done using the combined average score for each of the 337 respondents.

Table 41 presents the results of the step-wise regression analysis which depicts all the significant steps included. From the Table, it could be inferred that the step No.1 with only one variable (X_7) included, could explain more than 5 per cent of the variation in utilization of the respondents. The predictive power increases with the inclusion of each variable in the successive steps till a particular step, when the R values starts decreasing. That step which gives the highest R value is taken as the last step, in which all the variables included will be significant. In the present study, as could be seen from the Table, step No.7 was taken as the last step. The seven variables included

Table 41 Stepwise regression analysis of selected characteristics of the respondents with the utilization scores of agricultural technologies by the respondents (n = 337)

Steps included		Variables entered	Value of R^2	% of variation	Increase in per cent
1	X_7	Extension guidance	0.0661	6.6099	6.6099
2	X_{14}	Risk orientation	0.0880	8.7978	2.1879
3	X_{15}	Self confidence	0.1063	10.6268	1.8290
4	X_1	Education	0.1178	11.7806	1.1538
5	X_{13}	Economic motivation	0.1261	12.6102	0.8296
6	X_{16}	Market orientation	0.1350	13.4997	0.8895
7	X_{10}	Cosmopoliteness	0.1431	14.3056	0.8059

The regression equation is:

$$Y = 3.6081 + \underset{(0.037)}{0.0656}\ X_{10} + \underset{(0.072)}{-0.1497}\ X_{16} + \underset{(0.083)}{0.1389}\ X_{13} + \underset{(0.050)}{0.0931}\ X_1 +$$

$$\underset{(0.040)}{0.0796}\ X_{15} + \underset{(0.107)}{-0.3041}\ X_{14} + \underset{(0.078)}{0.2927}\ X_7$$

in this final step accounted only for 14.305 per cent of the variation in the utilization indicating the multiplicity of the factors, besides those included in the study, which influence this multidimensional behavioural component of the Scheduled Caste farmers. The F value of 7.84 was found significant, which indicated the significance of the regression equation in predicting the utilization. The regression equation obtained in this study is:

$$Y = 3.6081 + 0.0656\ X_{10} + -0.1497\ X_{16} + 0.1389\ X_{13} + 0.0931\ X_{1} + 0.0796\ X_{15} + -0.3041\ X_{14} + 0.2927\ X_{7}$$

The variables are presented in their decreasing order of importance in explaining the variation in utilization of the respondents.

It is very clear from the data in Table 41 that extension guidance (X_7) was the most important variable, followed by risk orientation (X_{14}), self confidence (X_{15}), education (X_1), economic motivation (X_{13}), market orientation (X_{16}) and cosmopoliteness (X_{10}) in that order.

Discussion

DISCUSSION

The important results of the study are discussed in this section.

4.1 Feasibility of agricultural technologies as perceived by the respondents

4.1.1 Overall feasibility perception

The results in Table 2 revealed that among the five enterprises studied, the respondents perceived goat rearing as the most feasible enterprise, while cattle rearing was considered the least feasible one. Banana, tuber crops and coconut were ranked second, third and fourth enterprises respectively in the feasibility perception by the respondents. The reasons for 'goat rearing' emerging as the most feasible enterprise in the eyes of the Scheduled Caste respondents are not beyond easy comprehension. Goat, traditionally and even now is considered the 'poor man's cow' and hence it is but natural that the Scheduled Castes respondents being invariably low in their socio-economic status, would prefer goat as an enterprise dear to them. Goat rearing is less complex a technology warranting very limited space

and attention, has the potential to yield observable result, that too, in a short span of time and such other advantages attendent with goat rearing might have surely influenced the perception of Scheduled Caste respondents about feasibility in its favour.

On the contrary, cattle rearing is still considered a complex enterprise necessitating high initial cost, atmost care and attention and high risk which might have deterred the generally poor Scheduled Castes farmers from preferring cattle rearing as a feasible enterprise.

The reasons for the relatively poor feasibility perception of the Scheduled Castes respondents in respect of banana, tuber crops and coconut are also obvious. Though the Scheduled Caste farmers have now gained access to landed property mainly through the enactment of land reforms act, the land available for cultivation of crops like banana, tuber crops and coconut is meagre. Moreover, cultivation of these crops on a limited scale, cannot be expected to be profitable beyond a limit. There are historical reasons also behind this fact. People belonging to the Scheduled Castes were, till recently, mainly agricultural labourers and settled agriculture was alien to them even till the recent past. Naturally these

factors could be weighed in the relatively inconspicuous rating assigned to these crop enterprises. The singular most important revelation that goat rearing is preferred as the most feasible enterprise by the Scheduled Caste respondents, as a whole, reiterates the phenomenal concept of 'small is beautiful' and compels one to add that small is not only beautiful but is also feasible.

4.1.2 Agro-climatic region-wise feasibility perception

The results presented in Table 3 relating to the region-wise comparison of mean feasibility scores of the selected enterprises have brought out some interesting and contrasting facts. In the case of coconut and banana, the respondents from southern region closely followed by northern region perceived these enterprises as most feasible compared to other regions in the state. The southern region and the northern region are relatively free from the dreaded disease of root wilt affecting coconut palms. Similarly, in the case of banana also, the southern and the northern regions now witness a spurt in banana cultivation. It could also be observed that in the new coconut plantation there is a prevalent practice of leasing out these lands during the initial periods for cultivation of banana and in many cases this benefit is capitalised by the Scheduled Caste farmers. In the central region, tuber

crops were perceived as the most feasible enterprise. The central region is marked by high temperature, low moisture and dry desicating wind, the conditions where tuber crops thrive best.

Cattle as an enterprise found favour with the respondents in the southern region closely followed by the problem region. Of the five agro-climatic regions in the state, the southern and the problem regions are considered more progressive agriculturally. The level of awareness and consequently scientific advancement in agriculture among the farmers are more pronounced in these regions. Cattle rearing is now followed on scientific lines by even the Scheduled Caste farmers. This could be obviously the reason for the fairly high feasibility rating given by the respondents to cattle rearing as an enterprise. It is also relevant here to mention that among the five enterprises evaluated in the present investigation, cattle and goat rearing were applicable to be respondents from hill tract region. Location specific high altitude crops like beans, cabbage, potatoe and other plantation crops are largely cultivated by traditional farmers in this region and a large majority of people belonging to the Scheduled Castes worked as plantation labourers and therefore, even these crops are not feasible to the Scheduled Caste respondents. It is

also pertinent that compared to other regions, the feasibility ratings given to cattle and goat are very low. Lack of proper programmes under agriculture, preponderance of estate workers and temporary settlers could be attributed as the reasons for these results.

From the above discussions on the preception of feasibility of different enterprises in different regions, the following conclusions could be arrived out.

1. Agro-climatic differentiation cause variations in the perception of feasibility of the enterprise

2. The stage of development of the region is an important determinant of perception of feasibility of different enterprises

All these point out to the irrelevance of categorising the Scheduled Caste farmers on a state level and succinctly brings to focus the need for reckoning the regional level of development while planning strategies of technological intervention among Scheduled Caste farmers.

4.1.3 Determinants of feasibility of the selected enterprises as perceived by the respondents

4.1.3.1 Coconut cultivation

Tables 4 and 9 depicted the overall and region-wise determinants of feasibility of coconut enterprises as perceived by the respondents. A detailed analysis of the overall determinants and the specific ones in relation to the coconut enterprise in the different regions clearly revealed that apart from physical compatibility and suitability; efficiency, availability of technology and initial cost were found to be the more important determinants that govern utilization of coconut farming.

It appears that though the farmers are having linkering doubts about the physical compatibility of land on the one side, the efficiency of the component input in ensuring a high level of productivity and the absence of specific technology for the same also appear to be the determinant factors of feasibility of coconut farming even on a limited scale.

Region-wise analysis indicated that the respondents from the southern region valued more the suitability and initial cost determinants. But the specific characteristics of the land in the problem, northern and central regions makes the respondents to view physical compatibility as the most important determinant. Availability

of technology in coconut cultivation to overcome the peculiar different characteristics of these regions also figured in their perception of the determinants of feasibility. This points out to the fact that input supply alone is not enough in making an enterprise a success unless it is supplemented and supported by constant educational programmes.

The coefficient of concordance (W) worked out for the rankings of all the four regions was found to be significant which revealed that there was agreement in the rankings. In the light of the above, the hypothesis formulated for the study that there will be no agreement in the perception of feasibility determinants of coconut enterprise by the respondents from different regions is rejected.

4.1.3.2 Tuber crops cultivation

The overall and region-wise perception on the determinants of feasibility of tuber crops enterprise are presented in Tables 5 and 10. Physical compatibility, efficiency and availability of technology were ranked high in terms of importance as determinants of tuber crops cultivation. Efficiency was ranked first in the southern region while physical compatibility along with availability of technology was ranked first

in central region. In northern region, physical compatibility, initial cost and simplicity were ranked first while availability of technology was ranked second. Social acceptability was ranked least in all the three regions.

Tuber crops are familiar to the Scheduled Caste farmers as they consider them as an important item in their diet. As such, it is quite a compatible enterprise in terms of its cultivation and also as a food ingredient. Even though tuber crops are familiar, to them, its cultivation is not considered as efficient due to lack of available technology to boost production and productivity. Hence it is probable that these attributes were ranked high by the farmers in terms of their importance as determinants of feasibility of tuber crops.

Region-wise analysis also indicated that profitability and availability of technology and the negative effect of social acceptability are the most critical determinants in the selection of this enterprise. This again holds further proof that apart from the traditional knowledge, recent scientific knowledge is necessary to ensure better returns from this enterprise which they are not aware of, but which they are in need of.

At the same time, cultivation of tuber crops is not considered by the Scheduled Caste farmers as one which gets social approval due to the degraded social status assigned to it as an enterprise by the farmers in general. So also, tuber crops as an enterprise has very low potential of generation of income, additional employment and profit. The low ranking of these attributes as determinants of feasibility is thus quite logical. The coefficient of concordance (W) computed for the rankings of the different regions was found significant which revealed that all the rankings in the different regions are in agreement. Hence the hypotheses that there will be no agreement in the perception of the determinants of feasibility of tuber crops by the respondents from different regions is rejected.

4.1.3.3 Banana cultivation

The results of overall and region-wise determinants of feasibility of banana cultivation as perceived by the respondents are presented in Tables 6 and 11. It is revealed that simplicity, time utilization and initial cost were perceived as overall determinants of feasibility by the respondents. The perception of the respondents from the different regions also varied. Simplicity was ranked first in the problem region while suitability was

ranked first in the southern and the central regions. In the northern and the central regions time utilization was ranked as the most important determinant. In all the regions, availability of supplies and services was ranked least by the respondents.

Banana is a versatile crop cultivated mostly in leased in lands by the respondents and is considered as an efficient enterprise in terms of utilization of time and also derivation of profit. These traits are reflected in the rating both for overall as well as specific regions. Though banana is a profitable enterprise, the limiting dimensions of this enterprise are availability of raw materials and high initial investment as reported by the respondents. The respondents were confident that they can manage banana successfully in all the regions, provided the required facilities are made available.

The analysis of coefficient of concordance showed that there is a distinct difference between the regions in respect of their response to the different determinants of feasibility employed in the present study. The farmers of the southern and the central regions behaved more or less similarly, but in a pattern distinctly different from the farmers of the problem region and the northern region.

This is discernable in respect of regularity of returns, income generation potential, profitability, efficiency and availability of raw materials.

The regions show distinct difference in the system production practices of banana cultivation and is independent of the recommended technology. This will naturally affect the returns from the enterprise and the difference among regions shall be attributed to these differences in the production process of banana which are not part of the technology, per se. Hence the hypothesis that there will be no agreement in the perception of determinants of feasibility of banana enterprise by the respondents from the different regions is accepted.

4.1.3.4 Cattle rearing

Table 7 and 12 presented the overall and region-wise perception of the respondents towards the determinants of feasibility of cattle enterprise. Social acceptability was ranked high as a determinant of feasibility by the respondents. Region-wise also similar trend was observed except in the central region where simplicity was ranked first. Availability of supplies and services was ranked least by the respondents in the southern, the problem

and the northern regions. In the central region viability was ranked least whereas in the hill tract region profitability, availability of technology and viability were ranked least by the respondents as determinants of feasibility of cattle enterprise.

Contrary to the perception of Scheduled Caste farmers about tuber crops cultivation, they had a different perception about cattle rearing which they viewed as one that adds to their social status and hence take up cattle rearing mainly as a status symbol. The high initial cost which might have acted as a deterrent gets nullified through institutional support and subsidy facilities provided by the Government. A well significant and noteworthy observation is that they did not consider cattle as an enterprise for sustenance, which normally is otherwise. Because of this distorted perception they did not consider it as worthy in respect of regularity of returns, profitability, efficiency and income generation potential. This suggests that it is only an alternate means for livelihood if at all it is considered so as the wide difference in the ranking between simplicity and availability of technology indicates. This would mean that the respondent's approach to cattle enterprise is a negative one and as such is likely to fail in long run.

This overall trend is observed in all regions. In profitability and efficiency it is ranked least and it is preferred on the basis of social acceptability alone. The liberal institutionalised support to meet the initial high cost makes it a short cut method to win over social status.

The coefficient of concordance (W) worked out for the rankings of all the five regions was found to be significant which revealed that the rankings are in agreement. In the light of the above, the hypothesis formulated in the study that there will be no agreement in the perception of the determinants of feasibility of cattle enterprise by the respondents from different regions is rejected.

4.1.3.5 Goat rearing

The overall and region-wise determinants of feasibility of goat farming as perceived by the respondents are presented in Tables 8 and 13. Data in Table 8 revealed that simplicity, physical compatibility, efficiency and time utilization were ranked high in terms of importance as determinants of feasibility of goat enterprise. Wide variation existed in the case of first rank of determinant region-wise as simplicity in the central and the northern

regions, rapidity of returns in the problem and the hill tract regions. In the southern region both time utilization and income generation potential were ranked as most important determinants. Physical compatibility and efficiency were ranked as second most important determinant in all the regions by the respondents. Availability of supplies and services was ranked as the least important determinant of feasibility by the respondents in all the regions.

The feasibility determinants of goat enterprise has followed the inherent characteristics of the enterprise in general. Simplicity, efficiency, rapidity of returns and income generation potential are found to be the main criteria on which the selection of the enterprise is based.

Unlike the cattle enterprise, where a negative approach is evident in their perception, physical compatibility has been considered as one of the most important feasibility determinants in the case of goat enterprise. This suggests a basic understanding of the enterprise by the farmers. Technical support provided to the farmers can make this a successful enterprise.

The coefficient of concordance (W) worked out for the rankings of all the five regions was found to be

significant which revealed that the rankings are in agreement. The hypothesis formulated for the study that there will be no agreement in the perception of the determinants of feasibility of goat enterprise by the respondents from different regions is rejected based on the significant coefficient of concordance.

4.1.4 Composite feasibility perception index of the enterprises

Through Tables 14 and 15 the results of the analysis to arrive at a composite feasibility perception index for all the five enterprises are presented. The resultant feasibility index contained seven determinants namely simplicity, initial cost, physical compatibility, suitability, availability of raw materials, efficiency and availability of technology. The developed index was validated in a study undertaken in a non-sample area.

The resulting feasibility index of the study shows that seven determinants significantly influenced the success of an enterprise. It should be convincingly simple and understandable to them. The enterprise should be in tune with the financial position of the beneficiary. If it is beyond his reach, financial support will be necessary for its utilization. The enterprise should be

compatible with the holding and the nature of the farm. The success of an enterprise is also influenced by the availability of quality inputs in sufficient quantities in time. The study also revealed that in addition to its simplicity, physical compatability or availability of raw materials, technological support is a basic as well as an important determinant in the success of an enterprise irrespective of its nature.

If the different enterprises selected for the study are in their present state, reviewed back based on the developed feasibility index, it could be seen that the goat enterprise alone is in line with the emerging feasibility index. Even in this case, availability of technology has been found as a lacuna. Physical compatibility appears not to have received the attention that it should deserve. Initial cost appears to be misleading in that only in enterprises where high initial cost is incurred, there has been external financial support. This indicates the necessity of reorienting 'financing' of the Scheduled Caste farmers to take up new enterprises.

Thus the review will suggest that the utilization of enterprises except probably that of 'goat rearing' has not been soundly based and that their conceptual understanding of the enterprise is only peripheral. This

probably is the reason why the efforts to improve this lot of farmers have not reached the desired level of success. A restructuring of enterprises based on the component inputs and a consistent and continuous technological support is basically necessary to arrest the present trend.

4.2 Utilization of agricultural technologies by the respondents

4.2.1 Overall utilization of the selected enterprises

As could be observed in the results in Table 16, more than 50 per cent of the respondents belonged to the medium category with respect to the level of utilization for all the selected enterprises except banana. It was also noticed that a high percentage of utilization was in the case of goat farming.

The utilization pattern of the various enterprises by the respondents clearly indicated the transitional nature of the respondents towards scientific agriculture, but at the same time retaining some of the traditional practices. They did not totally adopt the indigenous knowledge and the traditional ways of doing things. They incorporate some of the improved methods or ideas from the

modern scientific technology in the different enterprises. Some of the traditional practices were considered more relevant and advantageous to them and some of the practices even though considered better could not be carried out successfully due to various extraneous reasons as mentioned by them in the feasibility perception like cost, availability of technology, availability of raw materials to their expectations etc. With the result, it could be quite possible that a medium level of utilization of the enterprises was observed. This finding is in confirmation with the results of Singh et al. (1989) who found that majority of the agricultural labourers and small farmers (60 per cent and 70 per cent respectively) exhibited medium level of adoption of improved innovations.

In the case of banana cultivation, most of the selected practices were beyond their reach due to the environmental reasons like scarcity of water for irrigation, high winds that cause destruction, availability of suitable land etc. Hence they are forced to continue the traditional ways in sucker selection, irrigation, protection etc. which resulted in the present finding of low level of utilization in the case of banana. These results were in contrast to those of Reddy (1983) who indicated that all the respondents had adopted recommended practices of banana elsewhere which confirmed the potentiality of the crop.

There was congregation of the respondents in the medium and high levels of utilization in respect of the goat enterprise. It could be recalled here that this enterprise was perceived as the most feasible one also. The intrinsic characteristics of goat enterprise coupled with the need to harness maximum profit from the enterprises might have lead the respondents to resort to scientific practices which are quite compatible with the resources and abilities of the respondents.

4.2.2 Region-wise comparison of the utilization of the selected practices under the different enterprises

The data on region-wise comparison of the utilization of the selected practices under the different enterprises by the respondents are furnished in Tables 17 to 26.

4.2.2.1 Coconut cultivation

In the case of coconut enterprise, the results of Table 17 indicated that more than 50 per cent of the respondents in all the four regions were distributed in the medium level of utilization with a maximum of 68 per cent in the southern region. Among the practices under this enterprise (Table 18) in the case of 'use of

organic manure', none of the respondents belonged to the low category. A higher percentage (32 per cent) under low category was noticed in the practice of 'ensuring crop stand' while only 4 per cent of the respondents belonged to the high utilization category with respect to 'irrigation'.

The small size of holdings force the respondents to restrict the number of coconut trees in the houseyard. Since only limited trees are grown, in majority of the cases, it became a practice to collect the organic and other household wastes around the base of the trees as such or in small basins taken around the trees. This indirect application of organic manure is a result of the environmental sanitation methods used traditionally in the households in Kerala State. Thus more or less a uniform pattern was found in the application of organic manure, which reflected in the results. So also, for these palms near the households, waste water is used for irrigating the coconut enterprises. The waste water is just poured or directed into the bottom of the trees/ the basins taken around the trees and it can not be considered as a scientific method of irrigation. Hence the obtained results of low percentage of respondents in high level of utilization of the use of irrigation is quite natural.

Mostly, small holdings of the respondents without clear demarcation of the boundaries itself pave the way for an indifferent attitude developed in them for protecting the plants. This attitude is again augumented with the initial cost and labour required in providing a protection to the plant from animals and even human being. The small holding also prevent them in restoration of the recommended practice of preparation of pits/basins for the plants, which is not possible under such conditions.

The reasons put forth earlier in discussing the feasibility perception on coconut enterprise holds good in the case of its utilization also. A similar trend was observed in relation to the region-wise utilization of coconut enterprise vis-a-vis the region-wise feasibility perception by the respondents.

4.2.2.2 Tuber crops cultivation

The distribution of the respondents in different regions and the practice-wise utilization in the case of tuber crops are presented in Tables 19 and 20. It could be observed from the Tables that there was none in the high utilization category of tuber crops cultivation where as 32 per cent of the respondents in both the central and the northern regions were observed under the

low utilization category. Majority of the respondents in the southern and the central regions belonged to the medium category of utilization of tuber crops.

As far as the practices under tuber crops enterprise are concerned, as evident from Table 20, none of the respondents belonged to the high utilization category for any of the selected practices in tuber crops cultivation. In the case of use of high yielding varieties, majority of the respondents (71 per cent) were in the low utilization category.

The fact that tuber crops are neglected by the farmers in Kerala is substantiated by the findings of the study as clearly indicated in both the level of utilization of the enterprise in general as well as the practice-wise utilization. Earlier, tuber crops were considered as the major cultivated crop in the garden lands. After harvest, the labourers mostly people belonged to the Scheduled Castes also used to get a portion of the seed materials, mostly the wastes after preparing the seed material, for the next season from the landlords. Most of these discarded materials, but precious for the Scheduled Castes labourers were used as planting materials in their tiny holdings following the practices adopted by the landloards. Since the

tuber crops could be stored for long period, the same were stored by them for lean periods when they have limited work in the fields.

As time passed by the farmers in general went for crop diversification in the farms for more remunerative crops. Thus tuber crops were neglected. Similarly, due to tho marginal lands where in tuber crops were cultivated by the Scheduled Castes respondents, there was little scope for improving productivity or to increase profits and therefore the Scheduled Castes respondents also were found to neglect this enterprise gradually.

4.2.2.3 Banana cultivation

The region-wise comparison of the utilization of the selected practices under banana cultivation is made in Tables 21 and 22. It is observed from the results in Table 21, that more than one-third of the respondents in the southern and the northern regions were found in the high utilization category and about one-half of the respondents except in the northern region belonged to the low utilization category with respect to banana cultivation.

The overwhelming presence of the respondents from the southern and the northern regions in the high category

of utilization with regard to banana enterprise could be attributed to the following reasons. In the southern region the agro-climatic and edaphic factors are conducive to scientific and intensive cultivation of banana. In the northern region where there is the massive and impressive presence of the settler farmers in the farm front, their influence on the adoption of scientific cultivation practices for banana by the respondents could normally be expected to be sizeable, prompting the respondents to follow scientific agricultural practices in their banana fields. In the central region very few respondents exhibited appreciable utilization of scientific practices in banana cultivation. Since the central region is shrodded with peculiar problems like inadequate irrigation facilities and high protection cost for banana plants against dry winds, it is only natural that the respondents, from this region showed poor utilization pattern in respect of this enterprise. The showing of the respondents from the problem region in this respect was much worse due to the problems of water stagnation and the sure way of getting a good crop of banana is only a distant dream to the farmers in this region since protection of the plants against submergence warrants huge investment which the Scheduled caste farmers would ill-afford.

Practice-wise utilization pattern (Table 22) revealed that none of the respondents was found in the

high utilization category with respect to use of organic manure, chemical fertilizers and irrigation. This could be attributed to the high cost involving nature of these practices which the Scheduled Castes farmer would find difficult to adopt. Majority of the respondents belonged to the medium utilization category for all the selected practices. In all the regions, one could very well notice the positive approach and orientation of the respondents towards banana crop as an economic proposition and the reason for the same is obvious.

4.2.2.4 Cattle rearing

Table 23 and 24 portrayed the results of the region-wise comparison of the utilization of the selected practices under cattle enterprise. None of the respondents was found in the low utilization category in the northern region while none of the respondents figured in the high utilization category in the problem region. The results also showed that none of the respondents was found in the low utilization category with respect to the practices of timely artificial insemination, balanced diet and deworming of calves. Similarly none of the respondents was found in the high utilization category with respect to the practices of timely proper milking and hygenic maintenence of cattle shed.

Out of the five agro-climatic regions in the state, the problem region exhibit a dismal picture in respect of dairying due to the problems attendant with flooding, non-availability of pasture land, increasing incidence of diseases, poor infrastructural facilities like marketing milk etc. When this is the general trend observed among farmers in the problem region, the Scheduled Castes respondents can not be exceptions to this.

On the contrary, the conditions prevailed in the northern region are conducive enough to foster the development of dairying. Availability of pasture lands, comparably lesser disease prevelence, a well established net work of milk marketing co-operatives and above all the influence of settlers in the area could very well be the reasons for the appreciable level of adoption of improved practices of cattle rearing by the Scheduled Caste respondents in the northern region.

In most cases, dairy animals are supplied to the Scheduled Caste farmers as part of IRDP and other similar programmes. The dairy animals supplied invariably are cross-breds and it has now been a practice in vogue that cross breds are fed with cattle feeds manufactured by private companies. The high amount of publicity given

by these private companies is one of the sure reasons for the high awareness of balanced feeding to dairy animals resulting in the appreciable adoption of the practice. Veterinary hospitals have cropped up almost in every Panchayath in the state providing facilities for artificial insemination, deworming and veterinary care which might be the reason for the utilization of these practices by a higher section of the respondents.

Although there is a provision for construction of cattle sheds as part of IRDP and similar programmes, the amount given is too little that many a times, the Scheduled Caste farmer obtain these loans only to misuse them. Similarly the practices advocated for clean and proper milking are a bit too dogmatic to the Scheduled Castes farmers forcing them to stick on to their conventional procedures of milking.

4.2.2.5 Goat rearing

The region-wise comparison of utilization of the selected practices under goat enterprise are presented in Tables 25 and 26. It is observed that about one-third of the respondents in the southern region were found in the low utilization category. One-third of the respondents in the central and the hill tract region were found in

the high utilization category. Practice-wise, none of the respondents belonged to the high utilization category for the practices viz. timely insemination, timely milking and hygenic maintanence of shed. A higher percentage (32 per cent) of the respondents clustered in the low utilization category with respect to the practice of timely insemination of animals.

It could be surmised from the above that the respondents hailing from the central and the hill tract regions were relatively better in the utilization of selected practices in goat rearing when compared to their counter parts from southern and the problem regions. Traditionally, as explained earlier, the central and the hill tract regions are known for the prevelance of goatry due to the congenial agro-climatic conditions obtained in these regions. The recent trend of crop diversification and intensification in the southern region and the inimical environment in the problem regions could be attributed as the reasons for the phenomena. Though goat farming is wide spread among the Scheduled Caste farmers in the northern and the hill tract regions, latent scientific practices like artificial insemination timely proper milking and hygenic maintanence of shed have not made their dent so far in any appreciable manner and the results obtained in this regard also reiterates this fact.

4.2.3 Inter-relationship between feasibility perception and utilization

Results of the inter-relationship between feasibility perception and utilization of agricultural technologies by the respondents (Table 27) revealed that out of the selected five enterprises feasibility perception of the enterprise and its utilization by the respondents were found significantly related only with respect to coconut and cattle enterprises.

The significant relationship between feasibility perception and utilization in respect of coconut and cattle enterprises could be attributed to the perennial nature of the coconut crop and the sentimental attachment towards cows exhibited by the Scheduled Castes respondents.

Moreover, the two enterprises find pre-eminence in the case of loan and free distribution schemes for the benefit of Scheduled Caste farmers. As such, there will be lenear relationship between perceived feasibility and utilization of practices in the case of these two enterprises. In addition, these two enterprises are comparatively of long standing nature in terms of returns unlike the three other enterprises which are taken up marginally with an eye on immediacy of return associated with them.

The lack of significant relationship between feasibility perception and utilization with respect to banana, tuber crops and goat, in spite of the comparatively high feasibility rating given to these three enterprises, is a veiled indicator of the constraints experienced by the Scheduled Caste farmers in the utilization of these enterprises. In the light of the above discussion, the hypotheses formulated for the study that there would be no relationship between feasibility perception and utilization of the enterprises are rejected in the cases of coconut and cattle enterprises while the hypothesis with respect to the enterprises like banana, tuber crops and goat are accepted.

4.2.4 The region-wise comparison with respect to the perception of the respondents regarding the determinants of feasibility and utilization of practices.

The results relating to the region-wise comparison with respect to the perception of the respondents regarding the different determinants of feasibility and tutilization of the different practices of the selected enterprises are presented in Table 28. The results indicated that in the case of coconut cultivation, region-wise significant difference was observed in two feasibility determinants

viz., profitability (X_1) and income generation potential (X_2). Out of the five practices, the practice of ensuring crop stand (Y_1) showed no significant difference between the different regions. None of the diterminants of feasibility for tuber crops showed any significant difference between different regions. In the case of utilization, the practices of seed material treatment (Y_2) and use of chemical fertilizers (Y_4) showed significant differences between different regions in the case of tuber crops enterprise. The determinants of feasibility viz., efficiency (X_5), availability of technology (X_7), income generation potential (X_3) and regularity of returns (X_4) showed significant differences among regions as far as banana enterprise was concerned. Among the regions significant difference was observed in all the five selected practices under banana enterprise with reference to utilization. Ten out of the fifteen selected determinants of feasibility on cattle enterprise showed significant difference between the regions. In the case of utilization of practices under cattle enterprise, significant difference was observed in all the five selected practices except in the practice of deworming of calves (Y_3). In the case of goat enterprise, difference in the perception of the respondents was observed significant in the case of determinants like initial cost (X_1), availability of technology (X_7), social acceptability (X_{11}), rapidity of returns (X_{12}),

regularity of returns (X_{14}) and viability (X_{15}). Out of the five practices under goat rearing use of balanced diet (Y_3) only showed non-significant difference in the utilization among the different regions.

On a cursory perusal of the significant results in Table 28, it could be deduced that there were marked inter-regional differences in most cases with respect to feasibility perception and utilization of practices for the five enterprises studied. These results augur well the need for regional development and introduction of appropriate technologies/enterprises taking into consideration the peculiarities of agriculture and agriculturists in the various regions. The results also endorse the popular belief that there will be matching between the perceived feasibility of an enterprise and the utilization of the enterprise by the Scheduled Castes farmers. It is also to be highlighted here that in most cases of the selected practices which do not involve much of capital investment there were no differences among the respondents from the various regions. This confirms the tendency among the resource poor farmers like the Scheduled Castes respondents in this study to go for agricultural practices which are less cost involving irrespective of the regions they hail from. In the light of the above discussion, the hypotheses

formulated for the study that there would be no significant difference in the perception of the respondents from the different agro-climatic regions in relation to the determinants of feasibility and utilization of the practices for different enterprises is rejected.

4.3 Constraints in the utilization of agricultural technologies

The constraints in the utilization of specific enterprises and in general are presented in Tables 29 to 34. One could notice from the results in Table 29 to 33 that though there is variation in the ranking of importance of constraints in relation to the different enterprises, more or less a similar trend could be observed in the constraints in the utilization of agricultural technologies as evidenced from Table 34.

In the case of coconut cultivation, the most important constraint was the untimely supply of inferior/ discarded seedlings, while unavailability of improved planting materials was the most important constraint in tuber crops cultivation. Lack of easy and adequate credit facilities was the important constraint in the utilization of banana enterprise and lack of availability

of grazing land/fodder was reported as the most important constraint in goat farming. Lack of knowledge about improved practices emerged as the most important constraint in cattle rearing.

The Bueurocratic nature of allocation of funds and the immediate necessity to incur expenditure during the fag end of the financial year, unfortunately coincides with the off season or dry summer months as far as agricultural operations are concerned. The pressing need for target achievement by the field extension staff makes it almost impossible to select good quality planting materials and also to allot them in time. The free distribution programme of any kind must be followed only after the selection of beneficiaries fully eligible to receive the inputs supplied. The non-availability of the profile of farmers in the areas in the present case, beneficiaries were mostly selected in a hurry, poses a major problem in this regard. Even the selection of beneficiaries is done yielding to extraneous influences, as an extension worker remarked: 'To avoid conflicts among the beneficiaries and to please the interests of extraneous influences - mainly the political, communal and casteist - equal distribution is done irrespective of the requirements or needs of the selected beneficiaries'. Many a time the very selection of the area itself was made on political interests.

This eventually leads to misutilization of the inputs supplied as was noticed in the present investigation. The respondents also feel that after sales and other distribution programmes, the discarded and low quality planting materials are supplied to them and hence they are very much doubtful of the potential of the materials supplied to them. In many locations it could be observed that the crop stand of the coconut seedlings planted by the Scheduled Caste beneficiaries was poor which is singularly due to the above limitations in the free distribution schemes. This result also derived support from the findings of Reddy (1980) and Fedar et al. (1985).

In the case of tuber crops, the non-availability of planting materials from the landlords due to the changed farmer-labourer relationships, the Scheduled Caste respondents are compelled to purchase seed materials from other sources if they desire to grow tuber crops. As such there are no supportive programmes for providing planting materials or for giving financial assistance for the cultivation of tuber crops. Further, the changed dietary habits and storage concepts also force them to neglect tuber crops which result in low yields which makes the crop non-remunerative. The findings of Moorthy (1988), FAO (1982) and Singh et al. (1985) also supported the results of the study.

Banana cultivation, especially in leased in lands requires finance from the very beginning. Acquiring land for cultivation itself demands finance. The cultural operations also warrant money to be invested. The resultant income from the crop can only be expected after a specific period and hence financial soundness becomes an important parallel necessity along with labour for banana cultivation. Even though nominal assistance is provided in some areas, by and large, the financial assistance extended to the Scheduled Castes farmers is quite inadequate and hence this emerged as the most important constraint in the case of banana. enterprise. This result is supported by the findings of Arakheri (1982) and Kashyap and Sharam (1988) who reported that lack of credit facilities was the main constraint of landless and marginal families.

Unlike the past, a reasonable income from cattle rearing demands scientific practices to be followed by the Scheduled Castes farmers. For example a practice like artificial insemination demands a thorough knowledge of the animal behaviour, facilities for the practice, the services of extension staff and so on. The same holds good for most of the practices like feeding, milking, disease control etc. Viewed from this angle, it is but natural that lack of knowledge of improved practices was

ranked as most important constraint in the utilization of cattle enterprise. This finding of the study derived support from the findings of Ghosh (1981), Waghmare and Pandit (1982), Gowder (1983), Singh and Mathur (1984), Kulkarni and Sangle (1984) and Patel and Mehta (1988).

Lack of selective feeding habits of goat is a blessing and at the same time a menace for the farmers. It is true that the goats survive on any green plant with which they come across. But the problem is the lack of availability of such green fodder plant belts, now-a-days in the vicinity of the Scheduled Castes settlements which was not the case in earlier times. Further the changed relationship between the landlords and the Scheduled Castes who were formerly their tenants also had restricted the grazing of the goats in other's land. Keeping in view of this changed secnario, it is quite understandable that lack of grazing lands/fodders was reported as the most important constraint in the utilization of goat farming.

The findings in Table 34 relating to the overall constraints reported by the respondents in general in the utilization of agricultural technologies indicated that for the success of any programme as such sufficient knowledge about the technology, adequate support services, credit facilities, availability of raw materials etc. are

considered important. The complete absence/inadequacy of the above requirements pose as a threat to the effectiveness of a technology among Scheduled Castes farmers. Thus it could be noticed that the respondents had rightly indicated lack of technical knowledge, lack of necessary supporting services, lack of small scale credit facilities, and unavailability of raw materials as important constraints.

4.4 Consequences of utilization of agricultural technologies

As observed from Tables 35 to 39, the respondents, reported different consequences of the utilization of the different enterprises. While in the case of coconut enterprise, misutilization of inputs supplied by government agencies was reported as a major consequence, while neglect of the crop since crop is not remunerative was the major consequence in the case of tuber crops cultivation. Better returns/increased income was reported as the major consequences of banana cultivation and goat rearing. The major consequence as reported by the respondents in the utilization of cattle rearing was defaulting in repayment of loans.

More or less the same type of consequence of utilization of agricultural technologies in general were reported by the respondents as evidenced in Table 40.

There is a strong relationship between the most important constraint identified and the major consequence reported by the respondents in the case of coconut enterprise. The probable reasons put forth earlier while discussing the utilization and the constraints equally hold good in interpreting the consequence of utilization of this enterprise. Similar results was also reported by Ahuja and Bhargava (1984).

The established saying of 'daily labour, daily bread' had almost changed with the policy of saving for consumption for more than one day as a result of the various improvements in the life of Scheduled Castes farmers. The well developed public distribution system in the state also had enabled them to purchase their share of rations for one week with one or two days wages. A stage has come wherein anything can be purchased for consumption at any time with the money they posses. They are in the process of increasing their own purchasing power in these days. This had resulted in giving up the practice of saving at peak times to tide over the adverse conditions during lean periods. With the neglected attitude of farmers in general towards tuber crops and the changed agrarian relationships, the availability of seed materials had become a problem. Furthermore, the changed dietary habits from traditional tuber crops to

rice, vegetables etc. also had hastened the degradation of tuber crops among the Scheduled Caste farmers. These changes had a cumulative effect on the low value assigned by the respondents to the tuber crops.

Though majority of the farmers belonged to either low or medium category with respect to utilization of improved practices of banana cultivation, it is quite interesting to note that majority of the respondents have reported better returns from banana cultivation. This points to the fact that inspite of certain constraints like lack of credit facilities, full utilization of the technology could be ensured if there is a positive feeling developed among the respondents about the potentiality of the enterprise.

A similar trend was noticed with respect to the feasibility perception and utilization of goat enterprise. It is but natural that the same positive trend was reflected in the evaluation of consequence of utilization of goat rearing also. The positive attributes of goat rearing coupled with the socio-economic and situational conditions of the respondents make goat rearing a conducive enterprise which might have resulted in their evaluation of goat rearing as a profitable enterprise.

Cattle rearing by virtue of its high technical nature demands relatively higher finance for its effective utilization. Since credit becomes a limiting factor for the Scheduled Castes farmers they will be forced to depend on spurious lending agencies for credit facilities. The social acceptability of cattle rearing as perceived by the respondents also makes them prefer this enterprise even if it may not be feasible considering one's resources and capability. Thus, the Scheduled Castes farmer is forced into an inextricable trap wherein he takes up cattle rearing as an enterprise to boost his social status but his technical illiteracy with regard to cattle rearing makes his enterprise unviable. This forces him to default loan repayments finally ending broke.

4.5 Relationship between characteristics of the respondents and their utilization of agricultural enterprises

The results furnished in Table 41 point out to the emergence of seven independent variables out of the 21 selected for the study as important in influencing and explaining the variation in the utilization of the enterprises by the respondents of the study. These variables were extension guidance (X_7), risk orientation (X_{14}), self confidence (X_{15}), education (X_1), economic

motivation (X_{13}), market orientation (X_{16}) and cosmopoliteness (X_{10}). Focussing on the step-wise regression analysis it could be deduced that extension guidance was the most important determinant of utilization of enterprises by the respondents among the independent variables included. This variable is reported to emerge as a discriminating variable in most of the extension researches conducted in recent times. It is a happy augury that the degree of extension guidance derived by the Scheduled Castes farmers has come out as significant in substantially predicting the utilization of the enterprises by the respondents. Mosher (1979), while explaining his 'Rural Vaccum Theory', highlighted the need for intensifying extension efforts particularly in the developing economies that too more specifically among the weaker sections in these societies. In India, the growth of extension machinery consequent upon the introduction of the Training and Visit approach has been phenomenal. In this regard, Kerala too does not lag behind. The panchayath-level Krishi Bhavans with agricultural officers and demonstrators form the nucleus of extension efforts at the grassroot levels. Similarly, animal husbandary programmes like 'Operation Flood', 'Disease Free Zone' etc. also brought the veterinarians closer to the poorer sections of the society, particularly the Scheduled Caste people. To be brief, the time

has dawn when farmers irrespective of those belonging to higher or lower rungs in the ladder of socio-economic status could have easy access to the extension machinery and thereby derive benefits of the latest technology if they so desire. Various research studies have established close relationship between the extent of extension guidance available to the farmers and agricultural advancement, (Gondi et al., (1983); Prakashkumar (1986); Remesh Babu (1987) and Ajayakumar (1989). In the light of these observations, the hypothesis that there would be no significant contribution of extension guidance and utilization of the enterprises by the Scheduled Castes farmers is rejected.

The next variable in the order of importance was risk orientation. The importance of risk orientation vis-a-vis utilization of enterprises has been brought to focus in many recent studies in the field of management science. The Minimax-Maximin postulates reflecting individuals tendancy to minimise risk and maximise profits in varying circumstances could very well be cited here. It is a known fact that only persons willing to take risk have succeeded in business enterprises. Similarly, many studies have also pointed out to the significant relationship between risk orientation and adoption/utilization of improved agricultural practices, Viju (1985); Kubde and Kalntri (1986); Palani (1987) and Moorthy (1988). In the

light of the above, the hypothesis formulated in the study that there would be no significant contribution of risk orientation of the respondents in explaining the variations in the utilization of enterprises by them is rejected.

Self confidence was the next variable responsible for explaining variation in the dependent structure namely utilization of enterprises by the respondents. It must be made clear here that those respondents who exhibited high self confidence also had appreciably utilized the enterprises. 'Confidence breeds confidence' is the saying to be recollected in this context. The respondents who had appreciable self confidence deserve special mention viewed in their historic background of suppression and exploitation by high caste people. When security measures as part of the Government Policy were extended to this section of the population who wished that the proverbial 'Pigmallion Effect' would come tmue in their cases also. Therefore, there is no surprise in the present finding that the respondents who had self confidence in themselves also had inbibed technologies introduced among them. Supportive evidences come from the studies on Prasad (1983), Sumathi (1987) and Shivakumarappa (1987). In the light of the above discussion, the hypothesis formulated in the study that

there would be no significant contribution of self confidence of the respondents in explaining the variations in the utilization of enterprises by them is rejected.

It is heartening to note that education has also emerged as an important determining variable of utilization of enterprises by the respondents in the step-wise regression analysis. Education has been proved to be instrumental in widening the mental horizon of people and thereby providing them with a perspective vision of worldly things. Education also plays an enabler role in enhancing the knowledge levels and reorienting attitudes of people. Considering the traditional and backward status of the Scheduled Castes respondents, education might have provided the new impetus to them in absorbing technologies. Education also makes them immune to exploitation by others and is now considered as the key of success irrespective of the field of activity. The neo-literates among the Scheduled Castes respondents who have benefitted from massive literacy drive of the Government of Kerala also would have come into contact with various extension functionnels including those from the departments of agriculture, animal husbandry etc. which might have prompted them to adopt enterprises included in the study. The positive and significant relationship

between education and utilization of improved agricultural practices was also reported by Tant-ray (1987); Singh et al. (1989) and Satheesh (1990). Therefore, the hypothesis that there would be no significant contribution of educational level of the respondents in explaining the variations in the utilization of enterprises by them is rejected.

The next variable emerged as important in the stepwise regression analysis was economic motivation. There are well established theories in psychology that different motives of an individual energise and drive them towards the achievement of specific goals. Among different motivations, economic motivation is finding a place of eminance due to obvious reasons. In the present case, the respondents hailed from comparatively lower economic strata and therefore, the urge for economic improvement would be an important motive among them. Now-a-days every body had the cognition that economic progress is a sure step to overall progress. People belonging to Scheduled Castes are hard pressed for money to make both ends meet. One of the means of achieving this would be to take up new enterprises and even a decent living. Naturally those respondents who had expressed high economic motivation would have utilised the enterprises more which probably explains

the above result. Studies by Joshi (1985), Balan (1987), Anitha (1989) and Mahipal and Kherde (1989) have also confirmed this finding. In the light of the above, the hypotheses set for the study in this context is rejected.

Market orientation also had relationship with the extent of utilization of the enterprises by the respondents. On a closer perusal it would be seen that majority of the enterprises included in the study dependent on remunerative market prices. Market orientation of an individual is a sine-qua-non if he has to succeed in taking up enterprises. In the present times wide market fluctuations have either enhanced or retarded production of many agricultural commodities. A successful farmer is usually one who has his eyes and ears on the market. Scheduled Caste farmers being handicapped with meagre resources would be extra conscious in taking up enterprises lest it would doom their lives. On all these counts it is quite logical to accept that the respondents market orientation had a positive impact on the utilization of the enterprises studied. These results are corroborated by those of Patil (1985); Basavaraja (1987) and Syamala (1988). In the light of the above discussion, the hypotheses that there would be no

significant contribution of market orientation of the respondents in explaining the variations in the utilization of the enterprises by them is rejected.

Cosmopoliteness as a characteristic variable was also found to wield its influence on the utilization of the enterprises by the respondents. It has been found in many studies, Prakashkumar (1986); Mahadeviah (1987); Aswathanarayana (1989) and Gopala (1991) that cosmopolitan farmers excel in the adoption of improved practices. More cosmopoliteness means more external orientation which means more external exposure. A cosmopolitan individual is bound to be a better knower of scientific developments than a localite farmer. He is also expected to have better contact with extension agencies which would have facilitated his utilization of improved agricultural practices. With social transformation on the anvil, people hailing from the Scheduled Castes have now opportunities to visit cities, towns and to establish contact with the outside world. In a state like Kerala which is marked by an increasing urban sprawl, opportunities to peep into the external world are available to the Scheduled Castes also. The above discussion justifies the rejection of the hypotheses that there would be no significant contribution of cosmopoliteness of the respondents in explaining the variations in the utilization of enterprises by them.

Summary

SUMMARY

The Scheduled Castes contribute a vital force in the agricultural sector primarily as agricultural labourers and peasant farmers in India. With 10.02 per cent contribution to the total population of the state, the Scheduled Castes are an important section in Kerala's agriculture also. However, they have remained socially, economically and educationally backward over the years. With a view to improve the standard of living of the Scheduled Castes, Special Component Plans have been formulated and implemented. Much of these programmes have not benefited the Scheduled Castes people substantially with the result that a large proportion of them still remain below the poverty line. They not only suffer from inequality in respect of economic opportunities, they are also victims of a deep social bias, which contributes to what can be called a social inaccessibility factor.

In the agricultural front also, a number of new technologies are introduced among the Scheduled Castes people as part of development schemes implemented by various agencies. The feasibility of these technologies to the Scheduled Castes, their utilization of these technologies and its consequences and the constraints

faced by them have not been comprehensively and systematically studied so far in Kerala. Therefore, the present investigation was designed with the following specific objectives:

1. To assess the feasibility of agricultural technologies as perceived by the Scheduled Caste farmers

2. To assess the utilization pattern of agricultural technologies by the Scheduled Caste farmers

3. To identify the constraints in the utilization of agricultural technologies by the Scheduled Caste farmers

4. To understand the consequences of utilization of agricultural technologies by the Scheduled Caste farmers

5. To find out the inter-relationship between the characteristics of the Scheduled Caste farmers and utilization of agricultural technologies by them

The study was conducted covering all the five agro-climatic regions of the Kerala State. Since the implementation of development schemes for Scheduled Caste population is centralised at the Community

Development Block level, one block with the highest Scheduled Caste population was selected from each of the five agro-climatic regions. To make the study comprehensive and to facilitate valid generalizations, one per cent of the Scheduled Caste households in these blocks were selected as respondents of the study using probabaillity proportionate to size random sampling procedure. One panchayath with the highest Scheduled Caste population was selected from each block purposively to obtain the fixed sample size from each block. Accordingly, Palickal (southern region), Ezhupunna (problem region), Kongad (central region), Chathamangalam (northern region) and Munnar (hill tract region), panchayaths were selected. A total of 337 Scheduled Caste farmers were selected as respondents of the study from these five panchayaths. For the purpose of the study, heads of families belonging to Scheduled Castes who are either agricultural labourers or cultivators or both were selected to serve as the respondents.

To identify and select the technologies included for the study, a list of technologies introduced among the Scheduled Castes was prepared and sent to the concerned extension staff at the block level for identification of the different technologies implemented in their area during the period from 1984-85 to 1989-90. Based on their

responses, five enterprises viz., coconut cultivation, tuber crops cultivation, banana cultivation, cattle rearing and goat rearing were selected for the study. Five specific practices each for the selected enterprises, which were considered vital, potential and viable for adoption by the Scheduled Caste farmers, were selected based on the rating of the experts in the relevant fields. The characteristics of the respondents for the study were selected based on the criterion of mean relevancy score obtained through judges ratings. The variables finally selected were education, family size, farm size, experience in farming, annual income, indebtedness, extension guidance, extension participation, social participation, cosmopoliteness, achievement orientation, development orientation, risk orientation, economic motivation, market orientation, self confidence, level of aspiration, rational orientation and innovativeness of the Scheduled Caste respondents.

Feasibility of technology was analysed in terms of the different dimensions/attributes/characteristics of the technology which were termed as determinants of feasibility for the present study. Based on review of related literature, a list of determinants that could probably be related to feasibility of agricultural technologies was prepared and sent to experts who served as judges. The judges rated

these determinants for relevancy and the final list of 15 determinants of feasibility which had relevancy scores above the overall mean score were selected for the purpose of the study. The determinants viz., initial cost, availability of raw materials, availability of supplies and services, physical compatibility, efficiency, profitability of technology, simplicity, suitability, time utilization pattern, social acceptability, rapidity of returns, income generation potential, regularity of returns and viability were finally selected for the study for measuring the feasibility of an agricultural enterprise.

Utilization in the present study is conceptualised as the acceptance of the practice by the Scheduled Castes farmers. The utilization of the different practices under each enterprise was measured using the adoption index suggested by Sengupta (1967). Similarly, determinants of feasibility of enterprises and the selected characteristics of the respondents were quantified using scientific procedures developed/selected for the study.

The data collection was done using structured interview schedule developed for the study which comprised of III parts. Part I refers to the profile of the respondents, Part II refers to the perception of feasibility

of the selected technologies and the Part III refers to the utilization of the enterprises along with constraints in and consequences of utilization of the same.

The collection of data was done during January 1991 to November 1991.

Statistical tools like mean, percentage analysis, zero-order correlation, Kruskal Wallis one-way analysis of variance, Kendall's coefficient of concordance, Spearman rank order correlation and step-wise regression analysis were employed for analysing the data and to draw meaningful interpretations.

The salient findings of the study are summarised and presented below:

1. Goat rearing was perceived as the most feasible enterprise while cattle rearing was perceived as the least feasible enterprise by the respondents in general.

2. Agro-climatic differentiation caused variations in the perception of feasibility of the enterprises. In the case of coconut and banana, the respondents

from southern region closely followed by those in the northern region perceived these enterprises as most feasible. In the central region, tuber crops were perceived as the most feasible enterprise. Cattle as an enterprise found favour with the respondents in the southern region closely followed by those in problem region,

3. Physical compatibility, suitability, efficiency, availability of technology and initial cost were found to be the important determinants of feasibility of coconut enterprise,

4. Physical compatibility, efficiency and availability of technology were perceived as the important determinants of feasibility of tuber crops enterprise

5. Simplicity, time utilization pattern and initial cost were perceived as the important determinants of banana cultivation,

6. Social acceptability, simplicity and time utilization were perceived as the important determinants of feasibility of cattle rearing enterprise,

7. Simplicity, physical campatibility, efficiency and time utilization were perceived important in determining the feasibility of goat farming

8. Simplicity, initial cost, physical compatibility, suitability, availability of raw materials, efficiency and availability of technology were found to be the crucial determinants of feasibility of agricultural technologies in general,

9. More than 50 per cent of the respondents were distributed in the medium category with respect to the level of utilization of the selected enterprises studied except banana where the respondents were more or less equally distributed in the low, medium and high utilization categories,

10. In the case of coconut, more than 50 per cent of the respondents in all the four regions were distributed in the medium level of utilization with a maximum of 68 per cent in the southern region,

11. None of the respondents belonged to the high utilization category for any of the practices under tuber crops,

12. More than one third of the respondents in the southern and the northern regions were found in the high utilization category and about one-half of the respondents except in the northern region belonged to the low utilization category with respect to banana enterprise,

13. In the case of cattle rearing none of the respondents was found in the low utilization category in the northern region while none of the respondents figured in the high utilization category in the problem region,

14. Majority of the respondents were found in the medium utilization category for all the practices under goat rearing,

15. Feasibility perception of the enterprise and its utilization by the respondents were found significantly related with respect to only coconut and cattle enterprises,

16. There was marked inter-regional differences in most cases with respect to feasibility perception and utilization of practices for the five enterprises studied,

17. Supply of inferior/discarded seedlings, that too in off seasons was reported as the most important constraint in the utilization of coconut enterprise,

18. Unavailability of improved planting materials with necessary initial assistance was reported as the most important constraint in tuber crop cultivation,

19. Lack of easy and adequate credit facilities was the most important constraint in banana cultivation as reported by the respondents,

20. Lack of knowledge about improved practices was reported by the respondents as the most important constraint in cattle rearing

21. Non-availability of grazing land/fodder was reported as the most important constraint in goat farming,

22. Lack of technical knowledge, lack of necessary supporting services and unavailability of raw materials were reported as the major constraints in the utilization of agricultural technologies in general,

23. Misutilization of inputs supplied by Government agencies was the major consequence observed in respect of coconut enterprise,

24. Neglect of the crop since the crop is not remunerative was reported as the major consequence in respect of tuber crops cultivation,

25. Better returns/income was reported as the major consequence in the case of banana and goat enterprises,

26. The Scheduled Caste farmers became defaulters in repayment of loans as a consequence of utilizing the cattle rearing enterprise,

27. Seven out of the 21 independent variables viz., extension guidance, risk orientation, self confidence, education, economic motivation, market orientation and cosmopoliteness were found to be significant in influencing and explaining the variation in the utilization of the enterprises by the Scheduled Caste farmers.

Implications

Since there were differences in the feasibility perception of the selected enterprises by the respondents in the various regions, it is suggested that thorough feasibility analysis in the various regions must be made before technologies/enterprises are introduced for the benefit of Scheduled Caste people. Simplicity, initial cost, physical compatibility were perceived to be the important determinants of feasibility in general. This calls for concerted effort on the part of the extension machinery to introduce only technologies which have these desirable attributes, to be effective in the implementation of developmental programmes for the Scheduled Caste farmers.

Among the enterprises studied, goat, banana and tuber crops were found to be favoured when compared to the coconut and cattle enterprises by the respondents. This implies that these farmers perceived more benefit from intermediate level technologies, than capital intensive or long-term enterprises. Efforts should be made to conscientise the Scheduled Caste farmers in taking up enterprises which have long-term benefits also.

In general, the utilization behaviour of the Scheduled Caste farmers with reference to the selected enterprises was not upto the desired level. Since these farmers are in a state of transition from tradition to modernity in agriculture, special agencies should be formed to speed up this process of transition and to ensure wholesome benefit of developmental programmes to this section of the population.

It was found that there was widespread misutilization of inputs by the Scheduled Caste farmers since the inputs were supplied on an ad hoc basis that too during off seasons. This calls for a systematic approach of input distribution involving decentralised nurseries, local group action, training and information support and guaranteeing initial establishment of the inputs supplied.

As suggested by Esakky (1991) to ensure that the agricultural development programmes are beneficial to the Scheduled Caste farmers in absolute and long-term perspective, there must be a measure of accountability on the part of the developmental personnel concerned. Community level development programmes enabling income and employment generation would be more beneficial to the Scheduled Caste farmers than the half-hearted free distribution schemes now in vogue.

Special crop insurance schemes for the Scheduled Caste farmers cultivating crops like banana, vegetables etc. in leased in lands should be formulated and implemented in order to attract them, particularly the Scheduled Caste youth, to these remunerative enterprises.

Dairying as an enterprise is now a burden than a profitable business to the majority of the Scheduled Caste beneficiaries. Inferior stock, lack of training and similar other causes constrained the Scheduled Caste people from taking up this enterprise on profitable lines. Dairy development schemes specifically oriented to the needs and levels of expertise of the Scheduled Caste farmers should be formulated and implemented. Milk marketing oc-operatives should be organised in the Scheduled Castes areas. The inter departmental integration between the Departments of Dairy Development, Animal

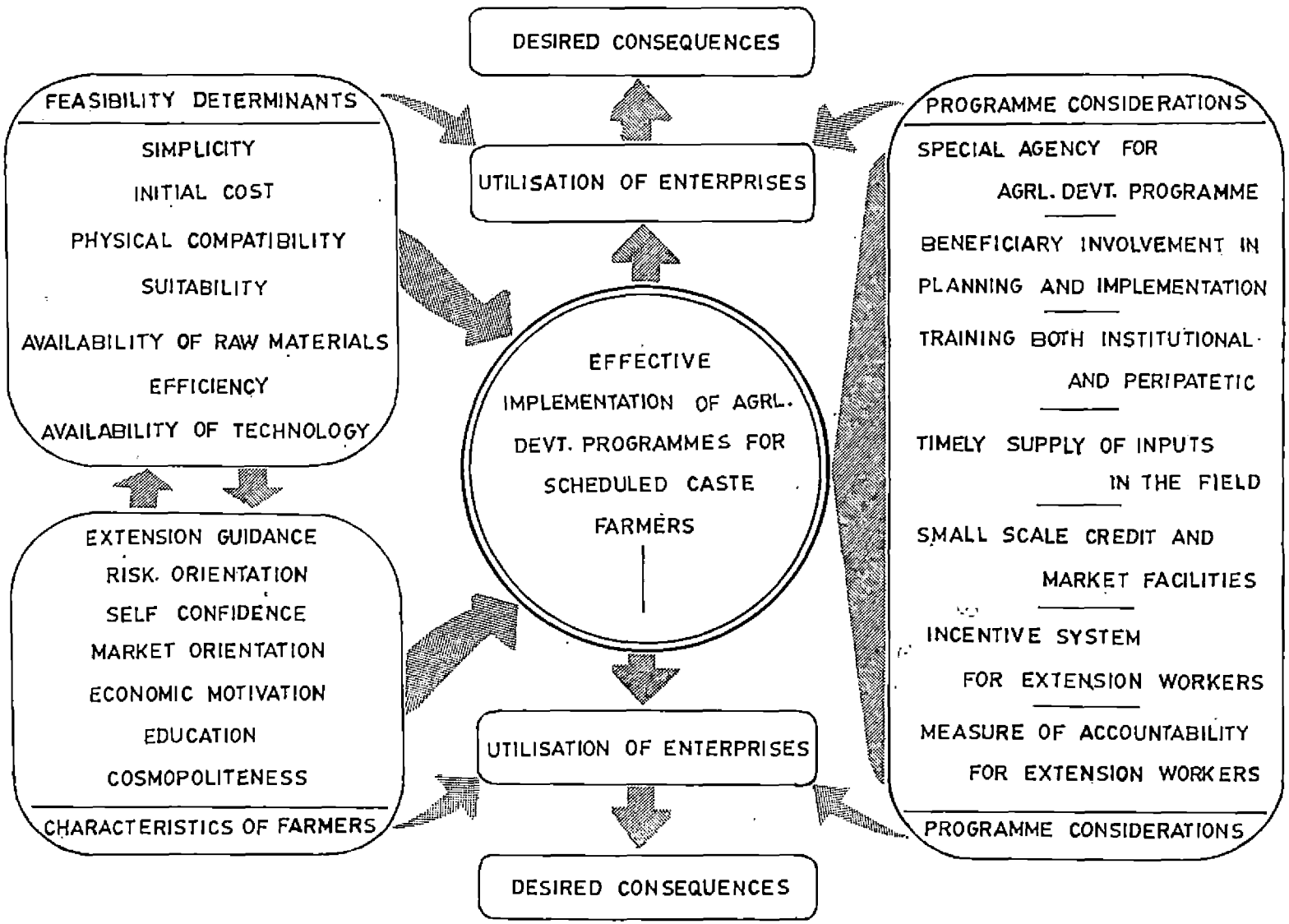
Husbandry, Agriculture, Co-operation, Health, Welfare and the Development department which is now nominal should be made more functional so that the benefits of development schemes will be available fully to the Scheduled Caste people.

Goat as an enterprise has great potential among the Scheduled Caste farmers. Programme to popularise improved breeds of dual purpose would be use in this regard.

Even in the miniscule plots of the Scheduled Caste farmers, tuber crops and vegetables can be grown through out the year with initial assistance from the Department of Agriculture. This, it is hoped, would ensure nutritious and wholesome food to these people even during lean seasons.

The study has pointed out that extension guidance was found to have significant influence on the utilization of technologies by the Scheduled Caste farmers. This necessitates that special extension services exclusively for the Scheduled Caste population should be initiated with adequate incentive system for extension workers dealing with these sections of the population.

FIG. 8. SUGGESTED MODEL FOR THE EFFECTIVE IMPLEMENTATION OF AGRICULTURAL DEVELOPMENT PROGRAMMES AMONG SCHEDULED CASTE FARMERS



Suggestions for future research

1. Action research studies and formulation, implementation and evaluation of developmental programmes for Scheduled Castes should be conducted in representative Scheduled Caste social systems,

2. Comparative studies on utilization of agricultural technologies by Scheduled Caste farmers in progressive and non-progressive areas may be taken up,

3. Research studies on youth and women belonging to Scheduled Castes in relation to their involvement in agricultural enterprises may be initiated,

4. Studies to evaluate the impact of developmental programmes in different sectors among the various Scheduled Caste people may be taken up,

5. Studies including more number of variables which help to explain the differences in utilization of agricultural enterprises may be conducted,

6. Studies combining the ethno-anthropological aspects of Scheduled Caste people with their agricultural practices may be initiated.

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Appendices

APPENDIX I

KERALA AGRICULTURAL UNIVERSITY

Directorate of Extension
Mannuthy, 28.11.1990

From

Dr. A.G.G. Menon
Director of Extension &
Chairman, Advisory Committee

To

Sir,

Sub:- KAU - Ph.D. programme - A study on agricultural technology among Scheduled Caste farmers - details regarding

...

Sri. P. Rajendran is undertaking a research project on Agricultural Technologies among Scheduled Caste farmers for his Ph.D. programme under my guidance. He has to identify technologies that have been implemented for Scheduled Caste farmers. A list of technologies that are proposed for them is furnished.

I am to request you to kindly go through the list and select the technologies that have been implemented in your Block through your office with particular reference to ..... panchayath for the period from 1985 to 1990.

I know that you have already schedule of work yet, considering the importance of this study in the development of Scheduled Caste programmes in the state. I hope that you will kindly spare some time and provide the information at your earlier convenience.

A self addressed stamped envelop is enclosed.

Thanking you,

Yours faithfully,

(A.G.G. MENON)

LIST OF TECHNOLOGIES

	85-86	86-87	87-88	88-89	89-90
1. Mashroom cultivation					
2. Minor irrigation scheme					
3. Duck units					
4. Broiler units					
5. Goat rearing					
6. Betelvine cultivation					
7. Milch animals					
8. Sheep rearing					
9. Bee keeping					
10. Crossbred Heifer calf and calf feed					
11. Rabbit rearing					
12. Soil conservation programmes					
13. Cultivation of flowering plants					
14. Fish farming					

LIST OF TECHNOLOGIES

	85-86	86-87	87-88	88-89	89-90
15. Installation of pumpsets					
16. Work bullocks					
17. Sericulture scheme					
18. Smokeless choola					
19. Agricultural implements					
20. ESP type latrine					
21. Gobar gas plant					
22. Free distribution schemes					
23. Any other (specify)					

APPENDIX II

KERALA AGRICULTURAL UNIVERSITY

Dr. A.G.G. MENON
Director of Extension

Directorate of Extension
Mannuthy, 17.12.1990

Dear Sir/Madam,

Sri. P. Rajendran is undertaking a study entitled "Feasibility and Utilization of Agricultural Technologies among Scheduled Caste farmers" as part fulfilment of his Ph.D. course, under my guidance. The main objective of his study is to develop an index for measuring feasibility of agricultural technologies for Scheduled Caste farmers. The study also aims to analyse the utilization of agricultural technologies by the target group. In this context he has identified certain attributes/variables in relation to feasibility/utilization of agricultural technologies.

In view of your rich experience and expertise, you have been identified to as a judge for rating the relevancy of the list of attributes/variables furnished in Schedule attached (Part I & II).

I know that you have a busy schedule. Yet, I hope that you will kindly co-operate in this academic pursuit.

I, therefore, request you to spare a portion of your valuable time to return the list (Part I & II) duly filled at your earliest convenience, but preferably within a fortnight in the enclosed self addressed stamped envelop.

Thanking you,

Yours sincerely,

(A.G.G. MENON)

Encl: 1. Schedule (Part I & II)
2. Stamped self addressed envelop

To

SCHEDULE (PART I)

(To be returned)

Attribute	Relevancy				
	Most Relevant	Relevant	Undecided	Less Relevant	Least Relevant
(1)	(2)	(3)	(4)	(5)	(6)
A. Economical					
1. Initial cost					
2. Continuing cost					
3. Income Generation Potential					
4. Employment Generation Potential					
5. Scale neutrality					
6. Commercialization					
7. Regularity of returns					
Any other (please specify)					
B. Environmental					
1. Energy saving potential					
2. Resource recycling capacity					
3. Spatial threshhold					
4. Availability of raw materials					
5. Availability of supplies and services					
6. Infrastructural development					
Any other (please specify)					

Schedule (Part I) Contd.....

(1)	(2)	(3)	(4)	(5)	(6)
C. Technological					
1. Physical compatibility					
2. Efficiency					
3. Trialability					
4. Complexity					
5. Profitability					
6. Communicability					
7. Availability					
8. Decrease in discomfort					
9. Flexibility					
10. Simplicity					
11. Observability					
12. Viability					
13. Desirability					
14. Suitability					
15. Local resource utilization					
16. Physical labour requirement					
17. Skilled labour requirement					
Any other (please specify)					

Schedule (Part I) Contd.....

(1)	(2)	(3)	(4)	(5)	(6)
D. Temporal					
1. Sustainability					
2. Time saving					
3. Time utilization pattern					
4. Rapidity of returns					
Any other (please specify)					
E. Socio-cultural					
1. Social acceptability					
2. Social approval					
3. Cultural compatibility					
Any other (please specify)					

SCHEDULE (PART II)

(To be returned)

(Variable)	Relevancy				
	Most Relevant	Relevant	Undecided	Less Relevant	Least Relevant
(1)	(2)	(3)	(4)	(5)	(6)
A. Personal					
1. Age					
2. Education					
3. Nature of family					
4. Marital status					
5. Dependency					
6. Farm size					
7. Ownership of land					
8. Family labour					
9. Annual income					
10. Indebtedness					
11. Training					
12. Migration					
13. Experience					
14. Socio-economic status					
15. Occupational mobility					
Any other (please specify)					

Schedule (Part II) Contd.....

(1)	(2)	(3)	(4)	(5)	(6)
B. Extension & Communicational					
1. Extension guidance					
2. Extension participation					
3. Exposure to mass media					
4. Cosmopoliteness					
Any other (please specify)					
C. Socio-psychological					
1. Achievement orientation					
2. Attitude towards Development					
3. Change proreness					
4. Credit orientation					
5. Competitive orientation					
6. Deferred gratification					
7. Economic motivation					
8. Empathy					
9. Innovativeness					
10. Risk preference					
11. Rational orientation					
12. Man-Nature orientation					
13. Level of aspiration					

Schedule(Part II) Contd.....

(1)	(2)	(3)	(4)	(5)	(6)
14. Self confidence					
15. Self reliance					
16. Self concept					
17. Market orientation					
Any other (please specify)					
D. Socio-cultural					
1. Social participation					
2. Socio-cultural linkage					
3. Value orientation					
4. Caste orientation					
Any other (please specify)					
E. Political					
1. Political knowledge					
2. Political participation					
3. Confidence in leadership					
Any other (please specify)					

APPENDIX III

List of attributes of feasibility with their mean relevancy score

Sl. No.	Attribute	Mean relevancy score
(1)	(2)	(3)
A.	Economical	
*1.	Initial cost	4.91
2.	Continuing cost	2.82
*3.	Income Generation Potential	4.44
4.	Employment Generation Potential	3.42
5.	Scale neutrality	2.60
6.	Commercialization	3.10
*7.	Regularity of returns	4.28
B.	Enviornmental	
1.	Energy saving potential	2.12
2.	Resource recycling capacity	3.08
3.	Spatial threshhold	2.82
*4.	Availability of raw materials	4.90
*5.	Availability of supplies & services	4.83
6.	Infrastructural development	3.21

Appendix III (Contd.....)

(1)	(2)	(3)
C.	Technical	
*1.	Physical compatibility	4.81
*2.	Efficiency	4.72
3.	Triability	2.82
4.	Complexity	3.10
*5.	Profitability	4.72
6.	Communicability	3.10
*7.	Availability of technology	4.71
8.	Decrease in discomfort	2.10
9.	Flexibility	2.30
*10.	Simplicity	4.70
11.	Observability	3.16
*12.	Viability	3.81
13.	Desirability	2.10
*14.	Suitability	4.64
15.	Local resource utilization	2.10
16.	Physical labour requirement	2.20
17.	Skilled labour requirement	2.30

Appendix III (Contd.....)

(1)	(2)	(3)
D.	Temporal	
	1. Sustainability	2.64
	2. Time saving	3.12
	*3. Time utilization pattern	4.62
	*4. Rapidity of returns	4.54
E.	Socio-cultural	
	*1. Social acceptability	4.62
	2. Social approval	3.12
	3. Cultural compatibility	2.16
	Average	3.47

*Attributes selected for the study

Appendix IV (Contd.....)

(1)	(2)	(3)
D.	Socio-cultural	
	*1. Social participation	4.62
	2. Socio-cultural linkage	3.21
	3. Value orientation	2.28
	4. Caste orientation	2.62
E.	Political	
	1. Political knowledge	2.10
	2. Political participation	3.15
	3. Confidence in leadership	3.20
	Average	3.54

*Variables selected for the study

APPENDIX V

FEASIBILITY AND UTILIZATION OF AGRICULTURAL TECHNOLOGIES AMONG SCHEDULED CASTE FARMERS

No.

Date

Department of Agrl. Extension
College of Horticulture
Vellanikkara - 680 654

Interview Schedule

Part I

1. Name and address of the respondent :

2. Occupation: Main :

   Subsidiary :

3. Members of the family:

Sl. No.	Name	Age	Relation-ship	Whether married/ unmarried	Occupation	Education	Whether engaged in family labour

4. Size of holding (cents)

Type	Land owned	Land leased-out	Land leased-in	Others	Total
Wet land					
Dry land					
Garden land					

5. Nature of ownership

Type	Wet	Dry	Garden	Total
Owned with proper title deed				
Owned without title deed				
Tenancy				
Govt. land (specify)				

6. How long have you been in farming

	Area under cultivation	Crops grown
i) As cultivator		
ii) As Agricultural labourer		

iii) Whether work for the same Landlord? Yes/No

7. Annual income

i) Farm farming: Crops
Livestock

ii) From non-farm sources (specify)

iii) Total

8. Material possession:

i) Livestock

ii) Farm implements

iii) House type

9. Indebtedness:

What is your total debt as on date:

i) Government Credit Agencies

ii) Non-Governmental Credit Agencies

iii) Others (specify)

10. Extension guidance:

i) How much of technical guidance was received during the last one year : Very adequate/ Adequate/ Not adequate

ii) How useful was the technical guidance you have received? Very much / Much / Least

11. Extension participation

(Please indicate your frequency of participation in the following extension activities)

Sl. No.	Extension activities	Frequency of participation Whenever conducted	Occasionaly	Never
1	Compaigns			
2	Film shows			
3	Seminars			
4	Group meetings			
5	Exhibitions			
6	Demonstrations			
7	Others (specify)			

12. Social participation

Sl. No.	Organisation	Nature of participation		Frequency of participation		
		Member	Office bearer	Always	Some times	Never
1.	Panchayath					
2.	Service Co-operatives					
3.	Milk Co-operatives					
4.	Political organisation					
5.	Trade unions					
6.	Farmer's organisation					
7.	Youth club					
8.	Any other (specify)					

13. Extent of cosmopoliteness

(Please indicate how frequently did you visit the nearest town and the purpose of your visit)

i) Frequency of visit

- Two or more times a week
- Once in a week
- Once in fifteen days
- Once in a month
- Occasionally
- Never

ii) Purpose of visit

- All visit relating to agriculture
- Some relating to agriculture
- Personal/domestic matters
- Entertainment
- Other purpose
- No response

14. Achievement orientation

Do you agree with the following statements?

Agree/Disagree

i) Money is the only basis of comfort and status in life

ii) Whatever the means one has to use, he should try to rise as high as possible in life

iii) Rather than copying and emulating others, one should be satisfied with what one has

iv) Because money makes the man go, one should earn as much money as he can

v) The charm of life is are spending money and not in accumulating money

15. Development orientation

Do you agree with the following statements?

Agree/Disagree

i) Maintaining healthy relations and harmony in different communities is more essential than the achievement of socio-economic progress

ii) The programmes of social and economic upliftment should be abandoned if they adversely affect the sweetness of personal human relations

iii) Whatever be their importance, the plans and policies which hurt the sentiments of the people should be dropped

iv) Views and consent of the people must be sought before the implementation of any policy or a programme

Agree/Disagree

v) The programmes of economic development which cause hardships to the people should be dropped

vi) Even if development programmes are delayed, efforts must be made to take people into confidence before they are implemented

vii) The programmes inviting people's displeasure should not be implemented

16. Economic motivation

Do you agree with the following statements?

Agree/Disagree

i) A farmer should work towards larger yields and economic benefits

ii) The most successful farmer makes more profits

iii) The farmer should try new farming methods

iv) The farmer should grow/use/ HYV/improved crops/animals to make good profit

17. Risk preference

Do you agree with the following statements?

Agree/Disagree

i) A farmer should be willing to take greater number of risks to stay in farming

ii) It is best for a farmer to use old methods, proven over years

iii) Trying new methods involves much danger or loss

18. Self confidence

Please check whether the following statements are 'true' or 'false' in your case.

	True/False
i) I have a horror of failing in anything I want to accomplish	
ii) I feel insecure within muself	
iii) I can face a difficult situation without worry	
iv) I am hesitant about farming decisions	
v) I frequently feel unworthy	
vi) I can adjust readily to new situations	
vii) I am usually discouraged when the opinions of others differ from my own	
viii) I have several times given up doing a thing because I thought too little of my ability	
ix) I find it hard to keep my mind on a task or job	
x) I have enough faith in my ability	

19. Market orientation

Do you agree with the following statements?

	Agree/Disagree
i) Market is not useful to a farmer	
ii) A farmer can get good price by eliminating the middlemen	
iii) One should sell his produce to the nearest market irrespective of price	
iv) One should purchase his inputs from shops when his friends/ relatives purchase	
v) One show grow those crops which have more market demand	
vi) Co-operatives can help a farmer to get better price for his produce	

20. Level of aspiration

i) All of us want certain things out of life. If you imagine your future as a farmer in the best possible way, what would your life look like there if you are to be happy? What are your hopes for the future?

1.

2.

3.

4.

ii) On the contrary, if you imagine your future in the worst possible light what would your life look like? What are your fears and worries for the future?

1.

2.

3.

4.

iii) Here is a ladder. Suppose we say that the top of the ladder represents the best possible life for you and the bottom represents the worst possible life. In the light of the hopes and fears for the future,

a) Where on the ladder do you feel you personally stand at the present time? Step No.....

b) Where on the ladder would you say you stand five years ago? Step No.....

c) Where on the ladder you think you would be five years from now? Step No.....

21. Rational orientation

What do you feel about the increased income and improvement in life. These may be due to:

a) Beliefs in stars and not in scientific recommendation

b) Beliefs in stars and scientific recommendations

c) Beliefs only in scientific recommendations

FEASIBILITY AND UTILIZATION OF AGRICULTURAL TECHNOLOGIES AMONG SCHEDULED CASTE FARMERS

By

RAJENDRAN, P.

ABSTRACT OF A THESIS

Submitted in partial fulfilment of the requirement for the degree

Doctor of Philosophy in Agriculture

(Agricultural Extension)

Faculty of Agriculture

Kerala Agricultural University

Department of Agricultural Extension

COLLEGE OF HORTICULTURE

Vellanikkara, Thrissur

1992

ABSTRACT

A study was conducted in Kerala State with the over-riding objective of analysing the feasibility perception and utilization pattern of agricultural technologies by the Scheduled Caste farmers of the state and the constraints in and the consequences of utilization of technologies by them. The study was conducted covering all the five agro-climatic regions of the state, using probability proportionate to size random sampling procedure. Three hundred and thirty seven Scheduled Caste farmers from five panchayaths coming under five Blocks with the highest Scheduled Caste population representing each agro-climatic region were selected as the respondents.

Five enterprises viz., coconut cultivation, tuber crops cultivation, banana cultivation, cattle rearing and goat rearing were selected and five specific practices for each of these enterprises were selected for assessing the utilization pattern of farmers. Feasibility of technology was analysed in terms of different attributes. Fifteen attributes viz., initial cost, availability of raw materials, availability of supplies and services, physical compatibility, efficiency, profitability, availability of technology, simplicity,

suitability, time utilization pattern, social acceptability, rapidity of returns, income generation potential, regularity of returns and viability, were selected for the study.

The characteristics of the farmers such as education, family size, experience in farming, farm size, annual income, indebtedness, social participation, extension guidance, extension participation, cosmopoliteness, achievement orientation, development orientation, risk orientation, economic motivation, market orientation, self confidence, level of aspiration, rational orientation and innovativeness were selected for the study. These variables were quantified using standardised procedures. Statistical methods such as mena, percentage analysis, zero-order correlation, Kruskallwalli's one-way analysis of variance, Kendall's coefficient of concordance, Spearman rank order correlation and stepwise regression analysis were employed for analysing the data.

The major findings of the study are were :

1. Goat rearing was perceived as the most feasible enterprise while cattle rearing was perceived as the least feasible enterprise by the respondents in general,

2. Agro-climatic differentiations caused variations in the perception of feasibility of the enterprises,

3. Simplicity, initial cost, physical compatibility, suitability, availability of raw materials, efficiency and availability of technology were found to be the crucial determinants of feasibility of agricultural technologies in general,

4. More than 50 per cent of the respondents were distributed in the medium category with respect to the level of utilization of the selected enterprises,

5. Feasibility perception of the enterprises and its utilization by the respondents were found significantly related with respect to only coconut and cattle enterprises,

6. There was marked inter regional differences in most cases with respect to feasibility perception and utilization of practices for the five enterprises studied,

7. Lack of technical knowledge, lack of necessary supporting services and unavailability of raw materials were reported as the major constraints in the utilization of agricultural technologies in general,

8. Untimely and ineffective utilization of inputs and inclusion in the defaulters list of credit agencies were reported as the major consequences of utilization of agricultural technologies in general,

9. The characteristics of the respondents viz., extension guidance, risk orientation, self confidence, education, economic motivation, market orientation and cosmopoliteness were found to be significant in influencing and explaining the variation in the utilization of the enterprises by the Scheduled Caste farmers.

Based on the findings of the study, a model for the effective implementation of agricultural development programmes among Scheduled Caste farmers in the state has been suggested.