AGRARIAN RESEARCH & TRAINING INSTITUTE

THE AGRARIAN SITUATION RELATING TO PADDY CULTIVATION IN FIVE SELECTED DISTRICTS OF SRI LANKA

PART I – HAMBANTOTA DISTRICT

Research Study Series – No. 6 February 1974

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PART I

HAMBANTOTA DISTRICT

Agrarian Research and Training Institute

colombo 1974

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PREFACE

This is the first of a series of reports based on a comprehensive survey relating to paddy cultivation carried out in five of the important paddy producing districts in the island. The report will be issued in six Parts and will contain information pertaining to all aspects of the agrarian situation in the five Districts. This report is significant in that the inter-disciplinary nature of the study was maintained from the time it was instituted and several of the Research and Training Staff and the FAO counterparts, particularly, Dr.K. Izumi, FAO Production Economist, have worked as a team to prepare this report. In view of the several disciplines involved in the study the report is being published under the name of the Institute. It is however, important to place on record the names of those officers who have contributed to this work:

Introduction	*A.S. Ranatunga* *Hiran. D. Dias* *Miss T.Sanmugam*
Summary and Conclusions	*Hiran. D. Dias*
The Setting	*A.S. Ranatunga*
Land Distribution and Tenure	*Hiran. D. Dias* *W. Gooneratne*
Co-operatives and Credit	*W. Gooneratne* *A.A.Khan (FAO)*
Agricultural Information and Extension	*A.M.T.Gunawardena* *E. K. Perera*
Management Practices	*A.S. Ranatunga* *W.A.T.Abeysekera* *A.M.T.Gunawardene* *Hiran. D. Dias*
Productivity	*A.S. Ranatunga* *W.A.T.Abeysekera* *A.M.T.Gunawardene* *Hiran. D. Dias*
Labour Utilization and Incomes	*A.S. Ranatunga* *W. Gooneratne*

The final form and structure of this report on which the remaining five Parts of the study will be based is in some measure the work of Hiran.D.. Dias who co-ordinated all work relating to this study.

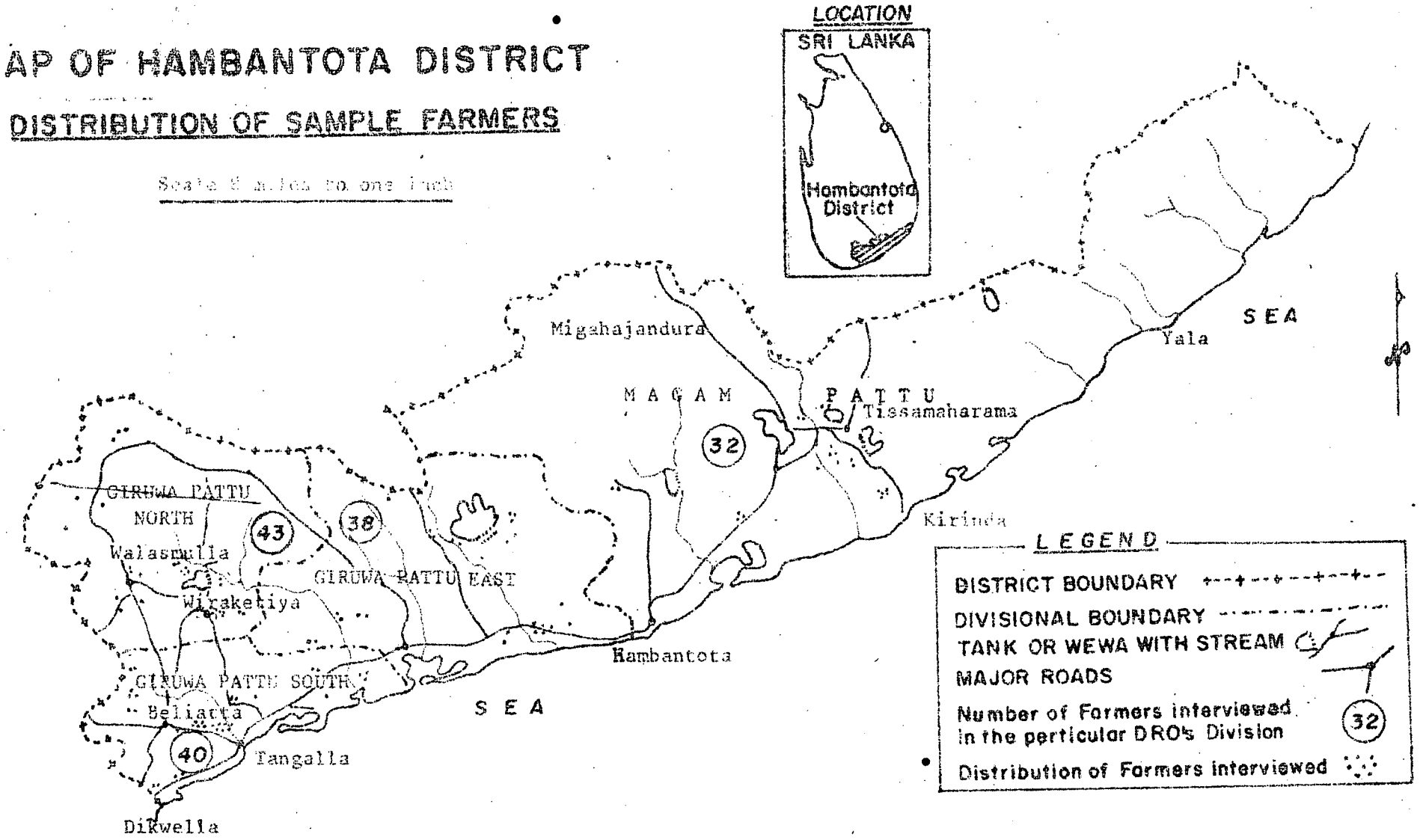
Director

Agrarian Research and Training Institute
33 Elibank Road,
COLOMBO. 5 SRI LANKA
20 February 1974

MAP OF HAMBANTOTA DISTRICT

DISTRIBUTION OF SAMPLE FARMERS

Scale 5 miles to one inch



INTRODUCTION

This Study of the Agrarian Situation relating to paddy cultivation in the Hambantota District is part of a larger study which included the important paddy producing districts of Colombo, Kandy, Anuradhapura and Polonnaruwa. While the study relating to each district can be examined in its own right, it would be necessary to keep the larger design of the work constantly in view. This is relevant because the conclusions and suggestions emerging in each individual case and in their totality are of value in determining the strategies of the development programme for paddy production in the future.

The Agrarian Research and Training Institute which was officially inaugurated in February 1972 is still an infant institution struggling to build up its organisation and personnel. Nevertheless, the Institute decided that even with the limited resources available to it at present, it would be worthwhile to undertake a survey relating to paddy cultivation in some of the important paddy producing districts in the island. There were several reasons for taking this decision. The Institute has been established for the purpose of studying and evaluating the agrarian situation in Sri Lanka where the cultivation of paddy by smallholders is a dominant feature of the agrarian situation. In recent years there have been several noteworthy surveys and research studies relating to various aspects of paddy cultivation in Sri Lanka but nevertheless there is a great deal of work that remains to be done on the socio-economic aspects of paddy cultivation in different parts of the island. This study inaugurated by the Institute should therefore be treated as an introductory inquiry intended to surface the major socio-economic and environmental factors affecting paddy cultivators in the selected districts. It is intended to be a forerunner to further studies which will clarify and sharpen the situation regarding paddy production in the country.

During the last few years there have been a number of noteworthy technical achievements in the area of rice cultivation in Sri Lanka. Among them are, the development of new high yielding varieties of paddy, greater information on soils, the availability of fertilizer mixtures suitable for different agro-climatic regions and specific recommendations for the control of major pests and diseases. But it has become increasingly apparent that even though the scientific and technical information available in the country for achieving self-sufficiency in rice production is considerable, the information available on the human and institutional factors are still very inadequate.

The declared national goal of attaining self-sufficiency in rice has to be achieved by matching the scientific and technical basis of the paddy production programme with the human and institutional

factors. The Institute releases these publications in the hope that this survey will focus greater attention on the socio-economic and environmental factor surrounding the paddy production programme in Sri Lanka.

Objectives of the Study

To ascertain

1. The influence of certain socio-economic, environmental and attitudinal factors on the adoption of different cultural practices, and the impact of such practices on the productivity of land.
2. Attitudes of farmers towards various tenurial arrangements.
3. Utilization of family and hired labour in paddy cultivation.
4. The effectiveness of different extension communication media as agents of change in cultural practices.

Area of Study

The study was confined to 833 farmers in five districts as described below:

	District	No. of farmers interviewed
Dry Zone:	Anuradhapura	201
	Hambantota	160
	Polonnaruwa	162
Wet Zone:	Colombo	152
	Kandy	158
Total		833

The number of farmers to be interviewed in each district was determined mainly in relation to the Institute's resources available.

Method of Study and Sample Design

The Survey was conducted using a questionnaire designed especially for it. In framing the questionnaire emphasis was given to the first objective dealing with production aspects. The questionnaire was divided into seven main sections as follows:

1. General information in respect of the farmer, viz: family size, particulars of land operated, sources of water, machinery, equipment, livestock, other crops cultivated, etc.

2. Tenurial arrangements and farmers' attitudes towards them.
3. Cooperative, Credit and Indebtedness.
4. Cultural practices adopted in paddy production in Maha 1971/72.
5. Cultural practices adopted in paddy production in Yala 1972.
6. Farm expenses connected with paddy production in Yala 1972.
7. Agricultural information and the farmer.

The questionnaire was pre-tested in three different areas in the Colombo district and, on the basis of the observation made during the tests, it was revised prior to the commencement of the survey. The same questionnaire was used without any modification in all five districts.

The sample used by the Department of Census and Statistics for the crop cutting survey in Maha 1970/71 formed the sample frame for the survey. The crop cutting survey is based on a stratified multi-stage random sampling design with units being chosen with probability proportional to the extent cultivated during the previous corresponding season within each stratum. The units in this case refer to parcels of paddy land cultivated by farmers. As the Institute survey concerned the farmers themselves, the farmers cultivating the respective parcels were selected in the following manner.

In relation to the resources available at the Institute and the nature of the enquiry, it was decided to limit the sample size for Hambantota district to about 150 as this number was considered adequate to provide representative data on the agrarian situation in the district. This sample was allocated among farmers cultivating under major irrigation, minor irrigation and rainfed conditions proportional to the area under cultivation in each of those strata in the district in Maha 1970/71. Having decided thus on the size and basis of the sample, the farmers to be interviewed were chosen from the list of parcels chosen for the crop cutting survey in the order in which they occurred in the list until the required number were obtained. Parcels in which crop cutting experiments had not been carried out and parcels which were cultivated by a farmer of a parcel already selected were left out. If the list of parcels after eliminating them did not provide the required number, parcels were chosen from the reserve list in the order in which they occurred. Having selected the parcels which formed the units in the crop cutting survey in this manner, the farmers cultivating them were treated as the sample for this survey.

An attempt was made to obtain estimates of a few characteristics by using a suitable estimation procedure and the estimates were found to be unreliable. There was wide variability amongst sample units and the size of the sample was inadequate to give reliable estimates. It was therefore decided not to proceed with the esti-

mation by the appropriate estimation procedure. The data has been analysed, considering the sample as a simple random sample of operators from a population of operators, and the report was based on this analysis.

The sample of parcels for the crop cutting survey was chosen with probability proportional to the extent under cultivation during the previous Maha season. As this sample of parcels and consequently clusters of parcels with corresponding operators were chosen with probability proportional to an auxiliary variate associated with size of holding, it is expected that the estimate obtained by treating the sample as a simple random sample will be biased. Estimates of characteristics positively associated with size of holding would tend to be over estimates and those negatively associated are likely to be under-estimates on the assumption that size of holding is linearly correlated positively with the auxiliary variable, extent sown during Maha 1970/71. The extent of bias depends on the nature of the distribution of the auxiliary variable in the population.

The selection of sample was based on an objective randomization procedure. The units being chosen with unequal probability. This is not the sampling design suited to some aspects of the study. This sampling procedure was adopted deliberately to enable a comparison of reported yield with yield data obtained through crop cutting experiments. This was considered important because agrarian aspects connected with production and productivity were the main concern of this survey. The nature of the analysis of the data does, however, impose certain biases on estimate and conclusions in respect of characteristics related to the size of holding.

In the sections in which such biases appear to us to be noteworthy, we have advised the reader to treat the data with caution.

Field Survey

The field work in Hambantota lasted 11 days from 21 November 1972. Four investigators from the Institute assisted by ten final year geography students from the University of Sri Lanka interviewed the farmers in the sample. Although the investigators had previous experience in field survey work of this nature they were given detailed instructions on the survey objectives and the information to be collected by the Research and Training Officers of the Institute who had designed and pre-tested the questionnaire.

The sample farmers were contacted in the field with the assistance of the Government Agent, the District Agricultural Extension Officer and his field staff. The field work was closely supervised by four Research and Training Officers from the Institute who accompanied the investigators on their field visits to interview farmers. They also scrutinised the completed questionnaires at the end of each day and rectified any discrepancies and incomplete recording

in consultation with the investigators. The response of the farmers was very good and a total of 160 farmers were interviewed. Three separate schedules had been completed in respect of one farmer and 2 farmers did not cultivate although they had prepared the fields. The analysis relates to 156 farmers.

Definitions

Some of the classificatory and other terms used in the text of this report require definition to avoid any confusion.

1. Lowland/Highland/Chena

Land has been classified as Lowland, Highland, and Chena. 'Lowland' refers to asweddumized wetlands normally used for paddy cultivation although other crops may sometimes be grown in Yala due to lack of water. 'Highland' refers to dry lands, unirrigable by gravity methods, which is used on a permanent basis and 'Chena', such dry lands used on the basis of shifting cultivation.

2. Household/Family/Farm

Information was collected on the basis of household, 'household' being taken as all the members living under one roof. This unit is sometimes referred to as 'Family' in the text. The farming activities of the individual members of the household where they act as operators has been taken collectively to represent the 'farm'.

3. Tenurial Status

This refers to the operator's tenure relationship to the lowland operated. Where the entire operated holding is owned by members of the household, the operator has been classified as 'owner'; where the entire operated holding is rented in, leased in or taken on ande[1], the operator has been classified as 'tenant'. Where the operated holding is made up of both these categories of land, the operator has been classified as owner-tenant or tenant-owner depending on whether 50 per cent of the operated holding is owned or tenanted respectively.

4. Size of Holding

Classification according to size of holding is based on the operated lowland holding. On this basis holdings have been classified into 4 classes as follows:

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1 Ande refers to the system of share cropping which is discussed in more detail in Chapter 2.

Upto	2.00 acres	= Holdings up to and including 2.00 acres
2.00 -	4.00 acres	= Holdings over 2.00 acres up to and including 4.00 acres
4.00 -	6.00 acres	= Holdings over 4.00 acres up to and including 6.00 acres
Over	6.00 acres	= Holdings above 6.00 acres

5. Paddy Varieties

Varieties cultivated by the sample cultivators have been classified as Old High Yielding Varieties, New High Yielding Varieties and Tradicional Varieties as follows:

Old High Yielding Varieties	- H-4, H-7, H-8, H-105
New High Yielding Varieties	- BG 11-11, LD 66, MI-273, BG 34-6
Traditional Varieties	- All unselected local varieties

6. Maha/Yala

The two main seasons during which paddy is grown are referred to as Maha and Yala. 'Maha' season normally extends from about September-October to February-March and coincides with the North-East Monsoon which brings rain to the dry zone where the major paddy growing areas are located. This is the more important season. 4-4½ months and longer age varieties of paddy are grown mainly during this season. 'Yala' season normally extends from about April to August and coincides with the South-West Monsoon during which time the dry zone gets little or no rain. Shorter age varieties of 3-3½ months are grown mainly during this season especially in the dry zone.

7. Value of Paddy Produced

For purposes of valuing the paddy produced the Guaranteed Price of Rs.14/- per bushel prevailing at that period has been used.

8. Abbreviation

The abbreviations used in this report are:

AI	-	Agricultural Instructor
DRO	-	Divisional Revenue Officer
HYVs	-	High Yielding Varieties
KVS	-	Krushikarma Viyapthi Sevaka (Agricultural Extension Officer)
NHYVs	-	New High Yielding Varieties
TDM	-	Top Dressing Mixture (fertilizer)
TVs	-	Traditional Varieties
V_1/V_2	-	Basal Dressing Mixture (fertilizer)

Acknowledgements

With the limited resources of the Institute a Survey of this dimension would not have been possible without the unstinted cooperation of officers in the District. Our thanks are due particularly to the Government Agent, Hambantota and his staff, the Extension Staff of the Department of Agriculture who arranged for meetings with the farmers and the District Agricultural Extension Officer who made available his vehicles, for this work, on a number of occasions.

Finally we would like to express our appreciation of the manner in which the farmers and their families responded to our request for information.

SUMMARY AND CONCLUSIONS

A Land & Land Use

A-1 There were 49,397 acres of paddy in Hambantota district in Maha 1971/72 cultivated by 24,841 farmers; of this extent 68% was under major irrigation 21% under minor irrigation and 11% under rainfed conditions. The paddy extent cultivated by the 156 farmers sampled was 719 acres of which 66% was under major irrigation,28% under minor irrigation and 6% under rainfed conditions. In addition to the lowland utilised for paddy cultivation, these 156 farmers also operated 379 acres of highland of which encroachments and chena made up 63 acres.

A-2 Of the 156 farmers, only 21% fully owned the paddy land they cultivated; the remainder had rented or leased in at least a portion of the paddy land they cultivated. As much as 70% of the lowland was operated under tenancy, and nearly 50% of the cultivators did not own any paddy land and were fully tenant-cultivators. 25 farmers (16%) did not own any highland of whom 24 had neither any lowland or highland; while 63 farmers (40%) owned only 1 acre or less (lowland and highland taken together), 93 owned only 1 acre or less of lowland.

A-3 The average lowland holding was 4.5 acres; the median size was 4.0 acres. The holding size ranged from ½ an acre to 29 acres, the coefficient of variation being almost 80%. The average size for the holdings below the median size was about 2¼ acres while for those above the median size it was 6¾ acres. When the highland operated by these farmers was also taken into account, the average size of holding was 7 acres. There was not much variation between the average size of highland holding for the smaller and the larger paddy cultivators (cf.2-3,2-4).

A-4 Despite the extent to which irrigation facilities were available, the Index of Cropping Intensity was only 152% for major schemes, 133% for minor schemes and 171% for rainfed conditions. The relatively high index for rainfed areas is because these areas are towards the western margin of Hambantota district where rainfall is normally adequate in both seasons. The lower index in irrigated areas is due mainly to

(a) the inadequacy of water storage (relative to areas cultivated) under several major schemes, particularly in years with less than average rainfall, and

(b) the regular loss of a cultivation season in some areas (cf.A-7)

A-5 84% of the tenants (inclusive of tenant-owners and owner-tenants) paid as land rent either 25% share of the harvested crop or a fixed rent, usually 12 bushels/acre. Although the Paddy Lands Act of 1958 provided for tenants to pay whichever was less of the 25% or fixed rent, very few tenants were found to be exercising that option. Only 10% of the tenants reported that they received any collateral help from the landlords, thus making it clear that more institutional support was essential to increase the efficiency in cultivation.

A-6 84% of the tenants reported that the landlords were friends, relatives, or neighbours of the tenants emphasising the extent to which the landlord-tenant relationship is one of a personal nature. 77% of the landlords were resident in the same district with as many as 35% being from the same village. Landlords belonged to several occupational categories. Landowners (28%), persons in salaried employment (25%), priests (17%), and traders (14%) constituted the main categories. Only 13% of the tenants reported that their landlords were cultivators themselves.

A-7 Staggered cultivation has assumed serious proportions in areas with major irrigation, particularly in the areas irrigated by the Walawe Left and Right Bank channels near Ambalantota. It is one of the factors contributing towards low intensity of cropping as overlapping of seasons leads to missing a cultivation season more or less once every 4 or 6 seasons. To the extent that a cropping season is lost even when water is available, it is a waste of national resources. Additionally, the failure to cultivate at the optimum time leads to a lowering of yield (cf.Table 5-IV). Thus staggered cultivation is responsible for a substantial loss in paddy production which the country can ill-afford, particularly at present. The failure to get good yields especially from the high yielding varieties could be attributed to untimely cultivation. The farmer, however, due to the lack of appreciation of this reason might attribute it to the poor adaptibility of new seed varieties. This could be an obstacle to the diffusion of these new varieties.

A-8 Staggered cultivation also leads to inefficient use of scarce resources of irrigation water. Although most of the farmers cultivating 4-4½ month varieties sowed in November-December, some sowed as early as August and some as late as January. This makes it necessary for water to be issued from July to at least March, - 9 months for a single 4-4½ month crop. It is evident that the inadequacy of water for Yala is due partly to the wastage of water resulting from staggered cultivation.

A-9 Among the causes for staggered cultivation, choice of paddy varieties and inadequacy of draught power for land preparation are important. Traditionally the farmers in Hambantota grew 3-3½ month varieties both in Maha and Yala. With the introduction of H-4 in 1958, farmers began gradually to cultivate this variety in both seasons as they

found that the performance of H-4 was far superior to the shorter aged varieties they were accustomed to cultivate. Consequently the time interval between the seasons was inadequate for the post-harvest operations and field preparation; as a result cultivation was invariably delayed. The delays were also caused by difficulties in obtaining sufficient draught power which in Hambantota was mainly tractors. Despite the availability of relatively large numbers of buffaloes, less than 20% of the farmers depended on them for land preparation. 59% were entirely dependent on tractors and a further 23% were partially dependent. 90% of the farmers had to hire the tractors they used. Tractors available cannot meet the demand peak for field preparation which therefore gets spread over a long period of time leading to the staggering of cultivation.

A-10 The problem created by the lack of a 3-3½ month high yielding variety of paddy has been solved by the recent introduction of BG 34-6 and BG 34-8. The inadequacy of draught power is more difficult to overcome. The shortage of tractor power is partly due to the lack of spares to keep all the available tractors in working order and under such conditions the preference of tractor owners for haulage rather than for land preparation. A solution to this depends on an adequate level of import of the required spares and an efficient system of distribution and tractor maintenance. If the extra investment of scarce foreign exchange on the import of spares contributes to solving the problem of staggered cultivation, the increased production should lead to net saving in foreign exchange. Greater use of available animal power could also alleviate the draught power shortage in some areas where buffaloes are more plentiful and holding sizes are smaller. The rising cost of tractor hire may lead to some substitution of animal for mechanical power.

A-11 In the context of foreign exchange scarcity a longer term solution to the problem of draught power may be more realistic pricing of tractor services to farmers. This could lead to an increased substitution of buffalo and man power in areas where the size of holding and environmental conditions make such substitution feasible. Such a substitution would be profitable only if the margin of difference in cost is adequate to compensate for the extra effort and inconvenience in using buffalo and man power. In the short term, however, the inadequacy of buffaloes in many areas make this policy impractical. There are many aspects to this problem of draught power which justify fuller investigation before deciding on long term policies.

A-12 Stricter enforcement of cultivation schedules is also required to solve the problem of staggered cultivation. The availability of water under major schemes such as Walawe permitted farmers to ignore cultivation schedules. Certain farmers could obtain their requirements of water by manipulating pressure groups. As long as such possibilities exist staggered cultivation would continue to persist.

A-13 The problem of staggered cultivation should therefore be tackled on several fronts:

(a) Restriction of choice of paddy varieties for Yala to 3-3½ month varieties;

(b) Restoring available tractors to working order by the provision of required spares and efficient maintenance. For this purpose the spare part requirements of tractor owners should be prepared by the authorities at district level;

(c) Strict enforcement of agreed cultivation calendars and stipulated seed varieties

These measures should be adopted in one or two districts on an experimental basis to study their effectiveness in solving the problem of staggered cultivation.

A-14 A considerable extent of paddy land is not cultivated in Yala due to lack of water. A further area, although cultivated, is subject to complete or partial crop failure. It is possible, however, to successfully cultivate other field crops on well drained lands in Yala. Research and extension efforts should be directed towards identifying crops suited to the different areas and persuading farmers to adopt them in preference to paddy. The requisite inputs and know-how should be provided for this purpose. To have an impact through demonstration effects, extension efforts should concentrate on persuading at least a few farmers in each yayalto cultivate such crops on a reasonable scale, at least an area of one acre per farmer. Smaller scattered plots would be lost among paddy fields and would not have effective demonstration impact in large tracts of paddy.

B Institutions

B-1 As much as 73% of the cultivators did not obtain cultivation loans from the co-operative for Maha 1971/72. Equally noteworthy is the fact that while most (71%) of the largest farmers (over 6.00 acres) obtained loans, only 47% of the smallest farmers (2.00 acres or less) did so. From these figures it is obvious that the co-operatives are not fulfilling the very important function of providing credit, particularly to the small farmers. This was not due to a lack of demand for credit as over Rs.52,068/- had been borrowed for Maha of which only 48% came from co-operatives and the remainder from private sources. Tenants and tenant-owners depend more on private sources than owners and owner-tenants. Similarly the smaller farmers depend on such private sources to a greater extent than the larger farmers.

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1. Contiguos tract of Paddy

B-2 The rates of interest charged by the private sources varied from 20% to 150% per year. The lower rates were charged by friends and relatives; the higher rates by others such as traders, landlords or their agents and professional money lenders. The interest on credit from the institutional sources such as the co-operatives or People's Bank was only 7½-9%. Thus the tenants and small farmers who had to depend on private sources of credit were at a considerable disadvantage. The lower level of cash inputs utilised by these cultivators (cf.D-4) could be due partly to the high cost of credit effectively available to them.

B-3 The reason stated by most for not obtaining credit from the co-peratives was ineligibility due to the failure to repay loans taken earlier. As only 27% of the farmers reported outstanding loans, however, this cannot be considered as a serious obstacle. A further 10% considered the procedure of getting a loan too difficult and 8% had no knowledge of credit facilities available to them. 17% were not eligible as they were not even members of the co-operatives. If co-operative or other institutional sources are to become effective sources of credit, much thought and attention should be paid to understanding the credit needs (for production as well as consumption purposes) of small farmers and the problems they face in obtaining credit and repaying loans. This problem needs further investigation.

B-4 The default rate was high in relation to loans obtained from co-operatives. While 65% of those who had borrowed from co-operatives had defaulted, almost no one had defaulted on the loans they obtained from private sources. Although the reason given by most (47%) for not repaying their loans was crop failure, the data for Maha did not indicate such crop failure. 29% stated that they had to settle other debts which indicates the preference given to settling loans mainly from private sources. This view is substantiated by the 13% who indicated that there was no pressure to collect the loan by the co-operatives. Although this information is indicative of the reasons for non-repayment, there can be little doubt that the low return from paddy cultivation, particularly for tenants, must be an important reason. It is significant that while only 33% of the owners defaulted, as many as 83% of the tenants did so.

B-5 Co-operatives are the only source of subsidised fertiliser available at village level. Consequently all the farmers who used subsidised fertilizer had to obtain their fertilizer from the co-operatives. 81% of the farmers with 2.0 acres or less reported obtaining fertilizer from the co-operatives while 91% of the farmers with 4.0-6.0 acres did so (cf.Table 3-II). This difference represents the difference in fertilizer application by these groups. We cannot, however, rule out the possibility that fewer small farmers utilise fertilizer due to difficulties connected with credit facilities and procedures in obtaining their requirements of fertilizer.

B-6 A large proportion of farmers reported that they obtained pesticides and weedicides from the co-operatives, the proportion being lowest (77%) for farmers with 4.0-6.0 acres. Only about 40% of the farmers obtained their seed paddy from this source. Most of the farmers obtained their requirements of certified seed paddy direct from the agricultural extension centres. The co-operatives were, however, important in the purchasing of paddy. Most farmers sold some of their surplus to the co-operative, the proportion of farmers varying from 80% for those with over 6.0 acres to 100% for those with 4.0-6.0 acres. Of the paddy produced, the proportion sold to the co-operatives was highest for smallest farmers and decreased progressively for larger farmers.

B-7 The majority of the farmers had received information concerning their agriculture in more than one way. The most important had been the methods by which the extension service of the Department of Agriculture disseminate information such as extension personnel visiting farmers, farmers visiting extension centres, demonstration plots and advisory leaflets. Of these the most important was visits by extension personnel to farmers. This method was important for general information about agriculture as well as for more specific information about new HYVs and fertilizer application.

B-8 The single most important source of information was the extension service of the Department of Agriculture. This source was much more important than any other (cf.Table 4-II). It is, however, important to note that neighbouring farmers also constitute an important source of information. It must be remembered that even they depend on the former source for their information. This method of diffusing information can be used more effectively by proper selection of farmers for intensive training. These farmers could then pass on information to neighbouring farmers. By selecting farmers on the basis of their influence within the community and the location of their fields, several centres of information diffusion could be established in each area to supplement the extension services.

B-9 Although mass media were important sources, they were much less effective than inter-personal methods, particularly for technical information such as advice on new HYVs and fertilizer application. Similarly, individual contact was much more important than group contact, such as farmer training classes, or mass contact through radio programmes and advisory leaflets.

B-10 It is noteworthy that 8% of the farmers reported no contact with extension services during Yala. A large majority of the farmers (79%), however, reported 2 or more contacts, thus indicating the widespread access to several sources of agricultural information available to farmers. There was also a significant positive relationship between the number of extension contacts and adoption of new HYVs and Yield. While those with no extension contact had an adoption rate of only 25%, the adoption rate increased fairly progressively up to 70% for farmers with 6 extension contacts.

Similarly yields increased from 18 bushels/acre to 42 bushels/acre with the increase in the number of extension contacts, although the relationship in this case is more complex than the adoption of seed varieties (cf. 4-2)

B-11 Although there was no clear relationship of access to extension information with tenurial status, there was such a relationship with size of holding. Figures suggested a tendency for bigger farmers to be better served (cf. 4-3). This may appear to be a misallocation of extension resources in view of the lower level of management practices and poorer yields among the small cultivators. On the other hand, we are not certain as to why these small cultivators do not use better management practices[1]. If this is due to difficulties in putting into practice what they know, it is not due to a lack of knowledge. Under such circumstances diversion of extension effort to these cultivators could not lead to individual or national benefit, unless steps are taken concurrently to help these farmers overcome the difficulties they experience. There was, however, evidence that nonadoption of new HYVs was due partly to lack of information. In that respect, greater attention needs to be paid to small farmers. It should also be noted that the extension effort in the past was mainly production oriented and it was to be expected that extension effort was directed more towards the farmers who were responsive and had the capacity to benefit from it.

B-12 There was also evidence to show that major irrigation areas were better served by extension services than minor irrigation areas and rainfed areas. The rainfed areas were considerably worse off than the irrigated areas. From the other evidence available, there is little doubt that irrigated areas are in a better position to benefit from extension advice, and that farmers with a less assured supply of water are reluctant to implement the recommended practices for fear of inadequate return on their investment. From a cost-benefit point of view, the extra extension effort in irrigation areas is, therefore, justified. This does not mean, however, that the rainfed areas should be neglected. The extension effort in such areas should concentrate on persuading farmers in these areas to use their land and water resources more productively, perhaps by growing other crops that require less water in Yala. Farmers should be encouraged to diversify their cropping patterns on well drained lands.

B-13 While noting that institutional support is available to most of the farmers in one way or another, it must be remembered that there are several qualitative shortcomings in them. Our study did not

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1. This term refers to the practices adopted by farmers in the cultivation of their land which affect its productivity; these are discussed in Chapter 5 of the report.

specifically inquire into the qualitative aspects of the services performed by the co-operatives or the existing services. Some shortcomings, however, have been surfaced by the information collected. The chief among these is that the segment of farmers who need institutional support most - the small cultivators - seem to be served worst. This is particularly obvious with regard to credit facilities and extension advice. With regard to the credit facilities it is clear that there is inadequate provision to meet the exigencies caused by adverse weather conditions, particularly for tenants. The need to borrow from private sources at exorbitant interest rates has not been eliminated. As long as that need prevails, those loans would become the first commitment on the farmers income. Such shortcomings indicate that the institutional framework which has been built up needs qualitative upgrading. This is an area which needs further thought and attention.

C. Labour & Employment

C-1 There was a total employable family labour force of 565 persons who worked either in their own farms only or in both their own farms and outside. Spread over the 719 acres of lowland, this works out at 0.78 persons/acre; taking the highland also into account, it works out at 0.51 persons/acre. Considering that this figure includes women, children and members of the family who are available only on a part time basis, the family labour force is insufficient for all the work on the farm, particularly in peak periods of labour demand. Consequently 80% of the farmers depend either partly or fully on hired labour - a factor that has an important bearing on the cash outlay for cultivation (cf.Table 7-XX).

C-2 Due to variations in the size of holding and size of family, the magnitude of this problem varies considerably. 70% of the families had a family labour force of 4 or more. Thus, although during peak periods of labour demand it became necessary to employ hired labour, family labour tended to be underemployed or unemployed at other times.

C-3 There were only 25 persons among the families sampled who had full time employment outside their own farms. Of the 117 who reported working on their own farms as well as outside, 53 were students and only 64 were in any gainful employment. Off-farm employment, therefore, did not constitute an important source of income for many families; just over 50 % of the families had no off-farm employment at all.

C-4 Although 80% of the farmers employed hired labour, agricultural work formed a negligible source of off-farm income for the sample farmers. Thus the wages paid to hired labour (which amounted to 41% of the average cash outlay per acre for paddy production in Yala 1972) did not accrue to the sample population. More benefit

could accrue to the paddy cultivators if more family labour can be substituted for hired labour or if paddy cultivators could employ each other to a greater extent. It is worth investigating in more detail how farm families could augment their family incomes by engaging in more agricultural work themselves.

D Management Practices & Productivity

D-1 Traditional varieties occupied only a very small extent of the cultivated area - 8% in Maha and 11% in Yala. Whilst the older HYVs still occupied an important place among the varieties cultivated, the new varieties such as BG 11-11, LD 66, MI 273, BG 34-6 and BG 34-8, had spread substantially (cf 5-4, 5-5). They occupied 259 acres (43%) in Maha and 265 acres (63%) in Yala. There was no distinguishable preference for irrigated or rainfed conditions in their spread (cf.Table 5-XVIII). A noticeable larger proportion of tenants were cultivating new high yielding varieties. When we consider the extent cultivated under these varieties, however, there was little difference in the proportions between tenants and owner cultivators. (cf 5-8). There was some distinguishable characteristics relating to the spread of new HYVs according to the size of holding. The rate of adoption was higher among the medium size holdings (2.0-6.0 acres) than among the smallest or the largest holdings, the rate of adoption being lowest among the former.

D-2 This may be explained in terms of the reasons given by farmers for not cultivating new HYVs. Difficulties in getting seed paddy and lack of information were among the important reasons reported by over 40% of the non-adopters. These are more likely to affect the smallest cultivators. The problems of inadequate information and seed paddy supply would disappear with increasing lateral spread. It must be remembered that these varieties had been introduced only in 1970/71 and problems of this nature are to be expected in the first few seasons. Problems of water supply and high cost of cultivation reported by over 25% of the farmers are more persistent problems which need attention.

D-3 The new HYVs had performed considerably better than the earlier HYVs under irrigated conditions in Maha. Under major irrigation the average yield for the new HYVs as reported by farmers was 57 bushels/acre which was almost double the yield obtained by the earlier HYVs (29 bushels/acre). Even under minor irrigation the yield of the new HYVs was markedly superior - 38 bushels/acre and 24 bushels/acre respectively. Under rainfed conditions, however, a comparison could not be made as the older HYVs were predominant.

D-4 Most of the farmers had applied fertilizer over most of the cultivated extent (cf.5-13). The average quantity applied as reported by the farmers worked out at 2.1 cwts for Maha and 2.0 cwts for Yala. We are inclined to consider these as over-estimates, particularly in the light of the low cost of cash inputs reported for Yala. For the 97 farmers in respect of whom the cash operating expenses for Yala were calculated, the cost of fertilizer amounted to only 50% of the Rs.58/- expended per acre on cash inputs (i.e.Rs.29/-), whereas the recommended application of fertilizer costs about Rs.85/- per acre at the subsidised rate. It was also noted that fewer small farmers obtained fertilizer from the co-operatives. This focuses our attention on the failure of farmers to apply the recommended amounts of fertilizer. The average applied, even as reported, is 20% short of recommendation for 3-3½ month varieties and 35% short for 4½ month varieties. As the average was made up by those who apply more as well as less than the average, there were many who fell far short of the recommended dosages. Less than 50% applied the recommended 3 or 4 doses. The final top dressing and, more often, the basal mixture were not applied (cf.5- 17). There were also shortcomings in the timeliness of application. 35% of the farmers had not applied basal mixture at the proper time, 22% the second top dressing, and 12% the first top dressing (cf. 5-15).

D-5 A significant factor affecting the level of fertilizer application was the supply of water (cf.5-15). The average quantity applied under major irrigation in Maha was 2.2 cwts as against only 1.5 cwts under rainfed conditions. For Yala, the figures were 2.1 cwts and 1.3 cwts respectively. This is also borne out by the cost of cash inputs in Yala which was Rs.66/- under major irrigation and only Rs.28/- under rainfed conditions. Similarly, the proportion of farmers who applied fertilizer three or more times was higher under major irrigation than under rainfed conditions.

D-6 There were distinguishable variations in the application of fertilizer among tenurial categories and size classes (cf.5-16). 95% of the tenants applied fertilizer at least once as against 80% of the owners but 61% owners applied fertilizer three times or more as against 56% of the tenants. This suggests that owners are more concerned than tenants about applying fertilizer according to recommendation. A greater proportion of the medium size (2.0-6.0 acres) farmers used fertilizer than either the smaller or the larger farmers; there was little difference between the two latter groups.

D-7 The farmers who transplanted under major irrigation schemes obtained 100% more yield (62 bushels/acre) than those who broadcast sowed (31 bushels/acre) (cf.Table 6-V). The difference between these two methods of planting in respect of new HYVs was less - 61 bushels/acre as against 42 bushels/acre respectively. In spite of this advantage, transplanting was practiced by very

few farmers, 17% in Maha and 9% in Yala transplanted compared to 70% and 84% who broadcast sowed. Even though the proportion of extent transplanted was highest under major irrigation in Maha, it amounted to only 25%. The reluctance of farmers to transplant despite the higher productivity borne out by these figures can be partly explained by the unwillingness of farmers to undertake the additional cost of transplanting under conditions of uncertain water supply (cf.5-13).

D-8 There was no distinguishable pattern of preference for transplanting among the tenurial groups of size classes (cf.5-11). This is surprising as one would have expected the smaller farmers to intensify the input of labour to maximise the yield from their smaller holdings. In Hambantota, however, even the smaller holdings are probably too large to be transplanted with only family labour and in the absence of the practice of attan[1], hired labour would have to be utilised. It is, therefore, noteworthy that among the reasons given by farmers for not transplanting, lack of funds and shortage of labour figured prominently. A considerable number also stated that the supply of water was unreliable. This implies that they could not be certain of a return on their investment.

D- 9 Chemical weed control (43%) and chemical combined with hand-weeding (39%) were the most prevalent methods of weeding among the farmers. The most significant feature which emerged from this analysis was how unimportant hand-weeding had become. As few as 8% of the farmers practiced hand-weeding only - mainly the small farmers under rainfed conditions. This is one of the few operations for which primarily family labour is used. Sprayers and sprayer-operators, however, have often to be hired for spraying weedicides as only 16 of the 154 farmers owned sprayers. More family labour could be used for weeding as this work does not coincide with peak periods of demand for labour. It is, therefore, worth investigating further why farmers do not substitute more of their family labour for the cash inputs they now use. This is particularly important at present because relatively abundant labour resources available locally can be an effective substitute for weedicides which have to be imported using scarce foreign exchange.

D-10 There were also considerable variations within the area according to supply of water and its reliability which appear as the most important variables affecting management practices. This is to be expected as the yield figures (cf.Tables 6-III and IV) indicate that returns on effort and investment are dependent on the availability and reliability of water. The figures for owner and tenant-cultivators who comprise 109 of the 156 farmers showed lowest yields under rainfed conditions - only 21 bushels/acre in Maha and 15 bush/acre in Yala as against 33 bush/acre and 30 bush/acre respectively under major irrigation. The yield under minor irrigation in Maha was almost as high as under major irrigation

1. Exchange labour.

(30 bushels/acre) but in Yala it approximated to the yield under rainfed conditions (18 bushels/acre). The overall yield for Maha was 33.8 bushels/acre and Yala 23.5 bushels/acre. In considering these figures it must be remembered that they represent yields reported by the farmers. The yield in Yala was particularly low because of adverse weather conditions.

D-11 Both with regard to the adoption of the new HYVs and the application of fertilizer, the medium size farmers (2.0 to 6.0 acres) were doing better than the farmers who were smaller or bigger than them. This was reflected in the higher yields obtained by them, particularly farmers with holdings of 2.0-4.0 acres. The poorer management level and low productivity of the farmers with 2.0 acres or less could be explained partly by the less satisfactory supply of water available to them - only 27% of their extent came under major irrigation. This raises the question of an optimum farm size and what variables affect this optimum.

D-12 There was a greater proportion of tenants than owners with respect to the cultivation of new HYVs and the application of fertilizer. Despite this and a less satisfactory supply of water the yields obtained by the owners was considerably higher. It is difficult to explain this without further investigation. Possible explanations, however, may be

(a) although the proportion is greater among tenants in terms of the number of farmers, it is not so in terms of the extent

(b) the owners perhaps pay more attention to their cultivation with regard to the timeliness of operations, weeding, and application of fertilizer in the recommended manner;

(c) deliberate under reporting by tenants to save on the share of crop paid to the land owner.

Owner-tenants appear to be the least satisfactory group both in regard to management practices and yields. Although in relation to management practices tenant-owners were as good or better than owners and tenants, their yields were lower.

E Sales & Income

E-1 The proportion of production sold amounted to 48% in Maha and 40% in Yala. This represented 17 and 10 bushels/acre respectively for the two seasons (cf.6-4). The proportion sold was highest among farmers with 4.0-6.0 acre holdings in Maha and 2.0-4.0 acre holdings in Yala. It is noteworthy that only 19% of production was sold by farmers with 2.0 acres or less in Yala, indicating that this group which was seen to have lower yields has

to retain most of their production for consumption. They perhaps repay most of their loans also in paddy. Figures also show that owner cultivators under major irrigation sold as much as 66% of their production in Maha and 55% in Yala.

E-2 66% of the sales in Maha and 71% in Yala were made to the co-operatives. This proportion was highest for farmers with 2.0 acres or less - 82% in Maha and 95% in Yala. This is perhaps because they sell only a small amount of paddy and that also in small quantities as and when they need money. This finding is contrary to the generally held belief that small farmers are compelled by reason of indebtedness to sell their produce to private traders. The following reasons may explain the apparent contradictions:

(a) Since the smaller farmers are relatively less indebteded to co-operatives they may have a preference to sell their paddy to this institution;

(b) Indebtedness to private sources does not necessarily imply borrowings from traders;

(c) It is more advantageous for traders to deal with the larger farmers as the turnover is greater.

The largest sales to the private traders are made by the biggest farmers. This may be to avoid recovery of loans by the co-operatives.

E-3 The average cash outlay per acre for the 97 farmers from whom data could be collected for Yala was Rs.352/- (cf.7.11). Of this only 17% (Rs.58/50 was spent on purchased inputs and the cost of fertilizer accounted for only half this cost indicating the very low level of fertilizers, pesticides and weedicides used during this season. This is in contrast to the relatively large amounts of fertilizer that the farmers reported they used under management practices. On the other hand as much as 23% was spent on draught power and a further 41% on hired labour. With heavy dependence on hired draught power and labour, farmers are left with only a small amount of cash to spend on the much needed vital inputs such as fertilizer and agro-chemicals. This problem needs further investigation to enable remedial policy measures to be taken.

E-4 The cash outlay varies according to supply of water from Rs.379/- per acre under major irrigation to Rs.212/- per acre under rainfed conditions. It is significant that the cost of purchased inputs increases from Rs.28/- under rainfed conditions to Rs.66/- under major irrigation. Even at the latter level it represents only 17% of the cash expenses and is inadequate to provide agro-chemicals and fertilizer according to the recommendations. Whether a higher level of cash expenditure is justifiable under conditions available

in the field is doubtful when we consider the net farm operating income. It was only Rs.90/- per acre under major irrigation and Rs.123/- per acre under rainfed conditions. The adverse weather conditions in Yala had deprived the farmers under major irrigation schemes who invested more in anticipation of higher yields thus giving them a lower return on their investment and effort. Farmers who invested less under rainfed conditions made higher profits by keeping their cash inputs low. Given the conditions that affected the farmers in Yala 1972, the farmers who invested less had gained more. This indicates that the policy of minimizing risk which farmers adopt under conditions of uncertainty is well-founded. Higher investment in purchased inputs would, therefore, be justified only under conditions where farmers have assurance of getting an adequate return from their investment.

E-5 Tenants were particularly poorly placed with a net farm operating income of only Rs.11/- per acre. Of the Rs.413/- spent as cash operating expenses, 28% (Rs.114/-) had been spent as payment of land rent. Given the cost of field operations amounting to Rs.247/- only Rs.50/- was available for purchased inputs. Although in a good year the tenant could expect a reasonable return, in an average year he can expect little. In a bad season like Yala 1972 the tenant had almost nothing. This indicates that tenants can expect to get an adequate return on their cash input only in good years. In other years a high level of cash input would be too risky. The net farm operating income was only Rs.43/- per acre for tenant-owners and Rs.98/- per acre for owner-tenants. The owners, on the other hand, had a net farm operating income of Rs.267/- per acre. This was due to the yield obtained by these owner cultivators which was exceptionally high for Yala 1972. (Income from paddy was computed at Rs.14/- per bushel, the Guaranteed Price operating at that time).

E-6 72% of the families received additional income from sources other than paddy cultivation. 61% however, earned Rs.500/- or less and 80% earned Rs.1,000 or less for the year from such sources. The higher incomes for paddy cultivation was earned by those having larger holdings under major irrigation. The families under major irrigation had earned Rs.3,032/- for the year while under rainfed conditions the families had earned only Rs.668/-. This difference was due partly to the higher yields under irrigation and partly to the larger size of holdings. As could be expected, the income per family was highest for owners. It was Rs.3,095/- for them for the year compared to Rs.2,253/- for tenants. It was lowest for tenant-owners with Rs.2,021/- despite the larger size of holdings. The per acre income for them was only Rs.355/- as against Rs.1,035/- for owners.

E-7 The gross farm family income for many families was less than Rs.200/- per month. 32% of the families earned Rs.2,000 or less for the year from all sources. A further 37% earned between Rs.2,000 and Rs.4,000 for the year. The proportion of families earning Rs.2,000 or less was greater among tenants than among the other tenurial categories.

Chapter 1

THE SETTING

1.1 General

Hambantota district located in the South Eastern part of Sri Lanka covers an area of 1013 square miles. For administrative purposes, the district is demarcated into four Revenue Divisions -

a) Magam Pattu[1]
b) Giruwa Pattu East
c) Giruwa Pattu South
d) Giruwa Pattu North

The 1971 census gives the total population as 341,005, giving Hambantota district an average density of population of 337 per square mile. Agriculture is the main occupation of the population. Agriculture in this district is considerably influenced by the variation in natural conditions within the district. Although most of the land in this district is undulating. a small area in Giruwa Pattu North has ridge and valley topography. In terms of climate this district falls mainly within the dry zone. The western part is wetter and has its rainfall more evenly distributed through the year. The pattern of rainfall distribution within the district shows considerable variations.

Table I-I: Rainfall in Hambantota District (inches)

Station	1962-71	1972
Tangalle	53.23	50.08
Tissamaharamaya	39.61	31.01
Palatupane (lewaya)	40.78	28.37
Badagiriya Tank	30.99	36.60
Bata atta	48.53	45.23
Uduwila	34.54	21.67
Ambalantota	39.63	38.96
Hambantota	43.83	45.00
Average	41.39	37.11

The average annual rainfall recorded at eight of the stations for the period 1962-71 was only 41 inches. The maximum rainfall occurs during the North East monsoon throughout the district, whilst the South West monsoon is restricted mostly to the western

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1 Since 1972,Magam Pattu has been further subdivided into two Revenue Divisions.

part of the district comprising mainly parts of Giruwa Pattu North and South. Consequently there is a better annual distribution of rainfall in the western area of the district, as it receives rain from both monsoons, whereas the eastern area comprising of Giruwa Pattu East and Magam Pattu receive rain mostly during the North East monsoon. This area normally experiences severe dry conditions accompanied by warm dusty winds between the months of May and September. A closer look at the rainfall recorded in some of the areas located in the two sectors of the district indicate marked variations. According to rainfall data, Kirama situated in Giruwa Pattu North, has recorded an average of 98 inches during the period 1962 - 71, whereas during the same period the average recorded in Tissamaharamaya in Magam Pattu was only 31 inches, and Ambalantota located in the centre of Giruwa Pattu East has received an average of only 38 inches.

The rainfall figures, however, do not show adequately the weather conditions which affected the paddy cultivators during Maha and Yala of 1971/72. The weather conditions were adverse in Yala when farmers in the drier areas towards the eastern part of the district (Magam Pattu) suffered due to lack of water and farmers in the central part (area fed by the Walawe left and right bank channels) suffered from an excess of water at harvesting stage. The conditions in Maha were normal for the district.

In the drier parts of the district, consisting of Magam Pattu and Giruwa Pattu East, low thorny scrub jungle predominates on the unirrigable highlands. Thorny bushes separated by bare patches of sandy soil is a feature of the landscape in this region. Chena cultivation is common both in Magam Pattu and parts of Giruwa Pattu East during the North East monsoon on highlands. Cotton is a major crop in chenas, and is often associated with other crops such as chillies, maize, kurakkan, and vegetables. Rearing of cattle primarily for producing curd is an important activity that farmers in Magam Pattu and Giruwa Pattu East engage in. In contrast, the western sector of the district which has a better distribution of rainfall from both monsoons is densely populated and generally the highlands are planted with crops such as coconut, jak, citrus, plantains, mangoes, and pineapples. Citronella is also an important crop grown in this region.

1.2 Paddy Cultivation

Paddy is the most important crop grown in this district on which a large majority of those engaged in agriculture are dependent for their livelihood.

Table 1-II: Asweddumized Paddy Acreage - Maha 1971/72

	Major Irrigation	Minor Irrigation	Rainfed	Total
Extent in Acres	33,828	10,357	5,212	49,397
%	*68*	*22*	*10*	*100*

Source: Department of Census and Statistics

Sixty-eight per cent of the paddy acreage is irrigated from major schemes, and twenty per cent from minor schemes. The important major schemes in the district are:-

Walawe Scheme	12,670 acres
Kirindi Oya Scheme	9,300 "
Urubokke Oya Scheme	4,100 "
Kirama Oya Scheme	3,600 "
Muruthawela Scheme	1,400 "

Though both Urubokke Oya and Kirama Oya schemes are classified as major irrigation schemes, the irrigation facilities under them are far from adequate to provide an assured supply of water during most parts of the year. Though 88 per cent of the paddy acreage has some irrigation facilities, the extents sown are relatively low particularly in Yala season. For the period 1968 - 71 the acreage sown in the district was about 80 percent of the asweddumized extent in Maha and 58 per cent in Yala.

On the basis of agro-climatic conditions, Hambantota is a dry zone district, but the entire paddy area of 49,000 acres does not fall in the dry zone. Of the total of 200 Cultivation Committees in the district, 50 of them comprising nearly 11,900 acres of paddy really experience wet and intermediate zone climatic conditions. Most of this paddy land is either rainfed or is dependent on minor anicut schemes for irrigation and has a more assured supply of water during the South West monsoon (Yala season).

Table 1-III: Number of Cultivation Committees in the Wet and Intermediate Zones

	No.	Acreage
Giruwa Pattu North	32	8,016
Giruwa Pattu South	18	3,902

Unlike most of the other dry zone districts, Hambantota has relatively a smaller acreage under colonization schemes, there being only three colonization schemes under operation at present.

Table 1-IV: Colonization Schemes in Hambantota

Name of Scheme	Acreage
Badagiriya	1,250
Muruthawela	1,400
Mahagalawewa	276
Total	2,926

Table 1-V: Asweddumized Paddy Acreage according to Size of Holding

Size of Holding Acres	No. of Holdings No.	%	Extent Acres	%
Less than 1 acre	700	5	270	1
1 to under 2½ acres	3010	18	2450	6
2½ to under 5 acres	5780	34	10420	23
5 to under 10 acres	5550	33	20030	45
10 to under 25 acres	1322	8	6907	16
25 and over	240	2	3783	9
Total	16602	100	43860	100

Source: Census of Agriculture 1962

The above data from the 1962 census undoubtedly needs modification as the asweddumized extent has increased by 6,000 acres during the last ten years. However, it is of interest to note that 70% of the paddy area consists of holdings of over 5.00 acres, and 20% over 10.00 acres in extent. The number of holdings in different sized groups shows that 43% of them is over 5.00 acres in extent. The above figures point to the fact that in Hambantota, generally the size of holdings cultivated by peasant farmers is relatively large. As 77% of all holdings are over 2½ acres in extent, uneconomic small-holdings are not a major problem in paddy production in this district, unlike in the densely populated wet zone areas.

Table 1-VI Tenurial Status of Paddy Cultivators

DRO Division	Tenant Cultivators on Thattumaru land	Tenant Cultivators on Other land	Owner Cultivators	Land Owners using hired labour	Total
Magam Pattu	3	2082	1738	19	3842
Giruwa Pattu North	584	2963	3797	11	7355
Giruwa Pattu East	20	3365	3020	101	6506
Giurwa Pattu South	163	3335	3639	1	7138
Total	770	11745	12194	132	24841
%	3	47	49	1	100

Source: Department of Agrarian Services Record (1972)

Table 1-VII: Cultivated Extent According to Tenurial Categories (Acres)

DRO Division	Tenant Cultivators on Thattumaru land	Tenant Cultivators on Other land	Owner Cultivators	Land Owners using hired labour	Total
Magam Pattu	9	7255	4722	153	12189
%	–	*60*	*39*	*1*	*100*
Giruwa Pattu North	1317	4892	3144	13	9366
%	*14*	*52*	*34*	–	*100*
Giruwa Pattu East	61	9638	7367	444	17519
%	–	*55*	*42*	*3*	*100*
Giruwa Pattu South	325	6400	3388	3	10116
%	*3*	*63*	*34*	–	*100*
Total	1712	28185	18671	613	49190
%	*4*	*57*	*38*	*1*	*100*

Source: Department of Agrarian Services Records (1972)

The tenurial pattern given earlier shows that there are about an equal number of cultivators in each of the two main categories, viz. tenants and owner cultivators. The ratio of tenants and owner cultivators to total number of cultivators is 50 and 49% respectively. Though the total number of tenants and owner cultivators was about the same, the extent of paddy land cultivated by these two major groups show considerable variations. Of the 49,000 acres of paddy land, 30,000 acres were cultivated by tenants. This is 23% more than the area operated by owner cultivators. In the densely populated Giruwa Pattu South, the tenants operate 32% more land than the owner cultivators. This data stresses the relative importance of tenant cultivators as paddy producers in this district.

1.3 Draught Power

Table 1-VIII: Availability of Tractors as at end of 1972

Type	No
Four Wheel	275
Two Wheel	625
Total	900

No accurate data is available as to the number of buffaloes in the district. But recently, the Statistics Division at the Hambantota Kachcheri has collected information in respect of buffalo population in the district through Gramasevakas and the relevant information is presented in Table 1-IX.

Table 1-IX: Availability of Buffaloes

Revenue Division	Males	Milk Buffaloes	Other Females
Magam Pattu	2140	3195	2715
Giruwa Pattu East	4094	2180	4626
Giruwa Pattu South	2883	1349	1548
Giruwa Pattu North	1097	753	887
Total	10214	7477	9766

Source: District Agricultural Extension Officer, Hambantota

1.4 The Sample Population

The total number of persons in the 156 households interviewed was 1147. *The average size of a family was 7.3 which was higher than the average of 6.0 in Zone II*[1] *that includes Hambantota district.* In order to estimate the man-power available for farm work, persons of 14 years of age and over were categorised separately (Table 1-X).

Table 1-X: Distribution of Sample Population

DRO Division	No. of families	No of persons 14 years of age & over	Average No per family. 14 years & over.
Magam Pattu	32	122	3.8
Giruwa Pattu East	38	176	4.6
Giruwa Pattu South	41	169	4.1
Giruwa Pattu North	45	181	4.0
Total	156	648	4.2

The average number of members per family of 14 years of age and over was 4.2

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1 Socio Economic Survey of Ceylon, 1969-70 - Department of Census and Statistics.

Zone II - Hambantota, Moneragala, Amparai, Polonnaruwa, Anuradhapura and Puttalam districts.

Table 1-XI: Nature of Employment of Sample Population

DRO Division	No. of persons 14 years of age and over	No. of persons 14 years & over Working only on the farm	Working on the farm and outside	Working only outside the farm
Magam Pattu	122	92	22	6
Giruwa Pattu East	176	137	25	14
Giruwa Pattu South	169	126	34	9
Giruwa Pattu North	181	132	34	15
Total	648	487	115	44
%	*100*	*75*	*7*	*18*
Average per farm	4.2	3.1	0.8	0.3

In the 14 years and over age group, 75% were found to be working only in their own farms, and 18% were engaged in outside employment. *There were altogether 98 students in this group, and 58% of them were found to be engaged in farming activities on a part time basis.*

1.5 Source of Water

91% of those who were interviewed depended on wells for their domestic water requirements although they did not all have their own wells. 56% of them depended on major irrigation and 31% on minor schemes for cultivation purposes.

Table 1-XII: Source of Water for Household and Cultivation Purposes

DRO Division	For Household Purposes No. of Households dependent on Wells	Tanks	Rivers	For Cultivation Purposes No. of farmers dependant on Major Irrigation	Minor Irrigation	Rainfall
Magam Pattu	29	1	3	24	8	-
Giruwa Pattu East	32	-	9	30	10	-
Giruwa Pattu South	39	-	-	16	14	5
Giruwa Pattu North	43	-	-	14	21	10
Total	143	1	12	84	53	15
%	*91*	-	*9*	*56*	*34*	*10*

The total extent of lowland operated by the 156 farmers was 719 acres. The extents irrigable during the two seasons show considerable variation and this is particularly marked in Giruwa Pattu South.

Table 1-XIII: Distribution of Irrigated Lowland

DRO Division	Maha Season	Yala Season
Magam Pattu	161.5	129.5
Giruwa Pattu East	173.8	142.8
Giruwa Pattu South	142.1	89.1
Giruwa Pattu North	120.8	113.5
Total	598.20	474.9
%	*83*	*66*

It is seen that 83% of the lowlands in Maha and only 66% in Yala had irrigation facilities.

1.6 Machinery and Equipment

Hambantota is one of the few dry zone districts where farmers are heavily dependent on tractors for tillage as well as for threshing. Two wheel tractors are particularly popular in Hambantota.

Table 1-XIV: Availability of Machinery and Equipment

Equipment and Machinery	No. of farms reporting	Total No. of machinery
Tractors (4 wheel)	3	3
Tractors (2 wheel)	11	12
Trailers	9	10
Sprayers	16	17
Dusters	2	2
Ploughs (a) Light iron	2	2
(b) Village plough	5	7

Of the 156 farmers interviewed, 11 possessed their own two wheel tractors. With regard to hand implements, it was surprising to find that 7 of the farmers interviewed did not possess even a single mammoty, 96 of them had only 2 mamoties each, and only 18 possessed more than 4 mammoties each.

1.7 Livestock

Out of 156 farmers, only 13 farmers reported having any buffaloes. The total number was only 144 animals, and 116 of them were owned by 5 of the farmers. These 5 farmers did not own a single plough.

Table 1-XV: Livestock Population Reported by Sample Farmers

	No. of farmers reporting	Total No. of livestock
Buffaloes (working)	13	144
Buffaloes (calves)	16	92
Cattle (Milk and working)	51	206
Cattle (calves)		80
Poultry	14	89

Their interest in buffaloes was mainly confined to production of curd and hiring of the animals for mudding the fields. This data confirms the earlier statement regarding the heavy dependence of farmers on tractors.

1.8 Land Use

A large majority of those interviewed had a few trees of coconut, jak, and mango in their home gardens.

Table 1-XVI: Crops (other than paddy) Reported by Farmers

Crop	No. of farmers reporting	Total Acreage/ Total No. of trees.
Coconut	141	202 acres
Jak	99	612 trees
Mango	94	259 trees
Lime	64	466 trees
Plantains	66	4063 trees
Chillies	47	Small extents in home gardens
Onions	13	- do -
Green Gram	18	- do -
Maize	14	- do -

Coconut cultivation is undertaken in relatively large blocks in parts of Giruwa Pattu North and South which experience heavier rainfall. Another important crop that brings in substantial income to farmers is plantains which is grown extensively in both Giruwa Pattu North and East.

Table 1-XVII: Distribution of Chena Cultivation

DRO Division	Total No. of farmers reporting	No. reporting chena cultivation
Magam Pattu	32	16
Giruwa Pattu East	38	3
Giruwa Pattu South	41	-
Giruwa Pattu North	45	1
Total	156	20
%	*100*	*13*

Chena cultivation was important only in Magam Pattu where 50% of the farmers interviewed were found to be engaged in chena cultivation. The size of chena ranged from 0.75 to 6.0 acres, the average being 2.13 acres. In chenas, jungle clearing is generally undertaken during the dry months of July to August and sowing is done before the onset of monsoon rains in October. The principal crops cultivated were found to be chillies, maize, green gram, ground nut, vegetables and cotton. *It was significant that the traditional pattern of cropping in chenas had changed recently due to very attractive prices fetched by crops such as chillies, green gram, and ground nut.* The traditional crops of the Ruhuna chena, such as cotton, kurakkan and various types of vegetables no longer occupy a dominant place in the cropping pattern.

Farmers now tend not only to concentrate more of their time in the chenas, but also emphasize crops such as chillies and green gram. Cotton which was a premier crop for decades in the chenas of Hambantota no longer occupy that position. In fact, only 4 of the 20 chena cultivators reported any cultivation of cotton during 1971/72 Maha season. Twelve out of the 20 who had chenas (60%) indicated that they were busy in chenas in weeding and tending to crops such as chillies during the months from November to January. They also indicated that on the average 2-3 family members had worked right through the Maha season in chenas. Since 1971-72 was the first Maha season after the price of commodities such as chillies and green gram had begun to rise, it is yet premature to gauge the effect of chena cultivation on lowland paddy production due to diversion of labour from paddy fields to chena during the peak paddy cultivation season (November to January). *However, it is reasonable to expect that with very attractive prices fetched in the open market for chillies and other crops such as maize, green gram, and ground nut which now occupy a dominant place in chenas, paddy production particularly in Magam Pattu is likely to suffer in the seasons to come.*

Chapter 2

LAND DISTRIBUTION & TENURE

2.1 Land Distribution

When we consider the various characteristics relating to the distribution and tenure of land cultivated by this sample of farmers, it must be kept in mind that the sample units (i.e. parcels) were selected with probability proportional to size. The figures are, therefore, likely to be biased by the characteristics of the larger holdings which are over represented by treating the sample chosen as a simple random sample representative of the population. The figures relating to central tendency (such as average and median) are likely to be over estimated. The extent of bias in the estimates depends on the nature of the parent population. *The full extent of the land operated by the sample of 156 cultivators was 1097.71 acres making an average of 7.04 acres per operator.* This average holding size, however, hides many inequalities which would be considered later. Much of this land was lowland which accounted for 66% of the total extent. The remainder was highland, part of which was operated as chena. The distribution of this land by type of land according to how it was held is shown in Table 2-I.

Table 2-I: Classification of Operated Land by Tenure Status and Type of Land

Type of Tenure	Lowland		Highland		Total	
	Acres	%	Acres	%	Acres	%
Owned	203.26	*28*	280.50	*74*	483.58	*44*
Rented/Leased in	504.50	*70*	35.38	*9*	539.88	*49*
Encroached/Chena	11.00	*2*	63.25	*17*	74.25	*7*
Total	718.76	*100*	379.13	*100*	1097.71	*100*

Almost 50% of the total extent was operated under some form of tenancy; the extent of land held under tenancy was very much greater in lowlands (70%) than in highland (9%). Only 28% of the lowland was owned by the operators whilst as much as 74% of the highland was owned by them. These figures are influenced by the bias in the sample mentioned above. As the larger holdings were operated mainly by the tenants the bias towards larger holdings in the sample would exaggerate the extent of tenancy. According to Table 1-VII only 57% of the paddy land was operated by tenant cultivators.

2.2 Landlessness

There was considerable landlessnes among the tenants of lowland

holdings, 24 of whom (31%) did not own any land at all. A further 34 (44%) of these tenants owned highland holdings with an extent of 1 acre or less. There were 5 tenant-owners who owned 1 acre or less of land when both their lowland and highland were taken together. *Thus, out of the 156 cultivators, 40% owned 1 acre or less of whom 15% had no land of their own.* The magnitude of landlessness can be seen from Table 2-II. As the survey studied only agricultural operators, the figures for landlessness relate only to them and do not include agricultural workers, without land, who work as hired labour.

Table 2-II: Number of Cultivators Owning Little or no Land

Tenurial Category	Lowland only			Highland only			Lowland and Highland		
	No land	Up to ½ac.	lac.	No land	½ac.	lac.	No land	½ac.	lac.
Owners	-	1	2	-	-	-	-	-	-
Tenants	77	77	77	24	40	58	24	40	58
Owner-Tenants	-	-	3	-	2	6	-	-	-
Tenant-owners	-	8	11	1	11	14	-	-	5
Overall	77	86	93	25	53	78	24	40	63

2.3 Distribution of Lowland

Most of the lowland is cultivated by tenants. Of the 707.76 acres which is either owned/allotted and rented/leased in, 52% is operated by 77 tenants who do not own any lowland. Tenant-owners account for a further 18%. Owners who operate only their own land cultivate 13% of this area, whilst a further 11% was operated by cultivators who work land that they have rented/leased in, in addition to their own land. *Of the 147 operators falling into these categories, 78% operated at least some rented/leased in land.* The 9 cultivators who did not fall within these categories operated 50.76 acres of which 11 acres were encroachments and 13.08 acres were leased in.Table 2-III shows the distribution of lowland according to tenurial categories together with the highland (owned, allotted, rented or leased in), chena and encroached land operated by them. It is noteworhty that only 4% of the total extent operated was reported as chena and 3% as encroachments. Only 20 cultivators (13% of the sample) reported working any chena land. *Except for the 11 acres of lowland encroached by 9 cultivators in the category 'others', encroachments were in highland.* Of the 156 farmers falling into this sample 77 tenants constituted 49% of the sample. The 22 tenant-owners (14%) and 16 owner-tenants (10%) should also be considered as tenants to varying degrees. *Only 21% of the sample farmers were fully owner cultivators.* The remaining 9 farmers (6%) could not be classified into any of these categories because of the complicated nature of their tenurial conditions.

Table 2-III: Distribution of Operated Land Among Tenurial Categories

Tenurial category	No of operators	Lowland Acres	%	Highland Acres	%	Chena Acres	%	Encroachment Acres	%	Total Extent Acres	%
Owners	32	95.63	*13*	84.61	*27*	14.00	*34*	3.00	*9*	197.24	*18*
Tenants	77	367.28	*52*	104.46	*33*	20.25	*49*	15.50	*48*	507.49	*46*
Owner-Tenants	16	79.70	*11*	33.50	*11*	1.00	*2*	-	-	114.20	*10*
Tenant-Owners	22	125.39	*18*	39.56	*12*	3.00	*7*	3.00	*9*	170.95	*16*
Others	9	39.76	*6*	53.75	*17*	3.50	*8*	11.00	*34*	108.01	*10*
Total	156	707.76	*100*	315.88	*100*	41.75	*100*	32.50	*100*	1097.89	*100*
%		*64*		*29*		*4*		*3*		*100*	

When we examine the distribution of the lowland holdings by size of holding (Table 2-IV) operators of medium size holdings (2.00 - 4.00 and 4.00 - 6.00 acres) predominate. 65% of the cultivators operate holdings falling within those categories, the proportion being slightly greater in the former categories. The proportion of land operated by these two categories was 56%, the proportion being considerably more for the larger size category. *Although only 17% of the cultivators fell into the largest size category (over 6.00 acres), they operated as much as 38% of the lowland extent, - i.e. more than twice as much land as one would expect if the land was distributed proportionately. In contrast to this, 18% of the cultivators fell into the smallest size category (2.00 acres or less) and they cultivated only 6% of the lowland extent.* These inequities in the distribution of land are seen in Fig. I.

2.4 Distribution of Highland

Even with regard to highland[1] the farmers with the largest lowland holdings operate proportionately more highland. Farmers with the smallest lowland holdings were more favourably placed with regard to the distribution of highland; 21% of the total extent falling into this land category was operated by them. The cultivators in the size category 4.00 - 6.00 acres operate proportionately more of lowland but less of highland. The cultivators in the size category 2.00 - 4.00 acres are noteworthy in that they operate proportionately less both of lowland and highland; although they account for 33% of the cultivators in the sample, they operated only 21% of the lowland and 27% of the highland. The distribution of land holding by size category is shown in Table 2-IV and Figs. II and III.

1 Highland operated by cultivators falling within the various lowland size categories is shown in Table 2-IV.

Fig: I

LORENZ CURVE FOR THE DISTRIBUTION OF LOWLAND

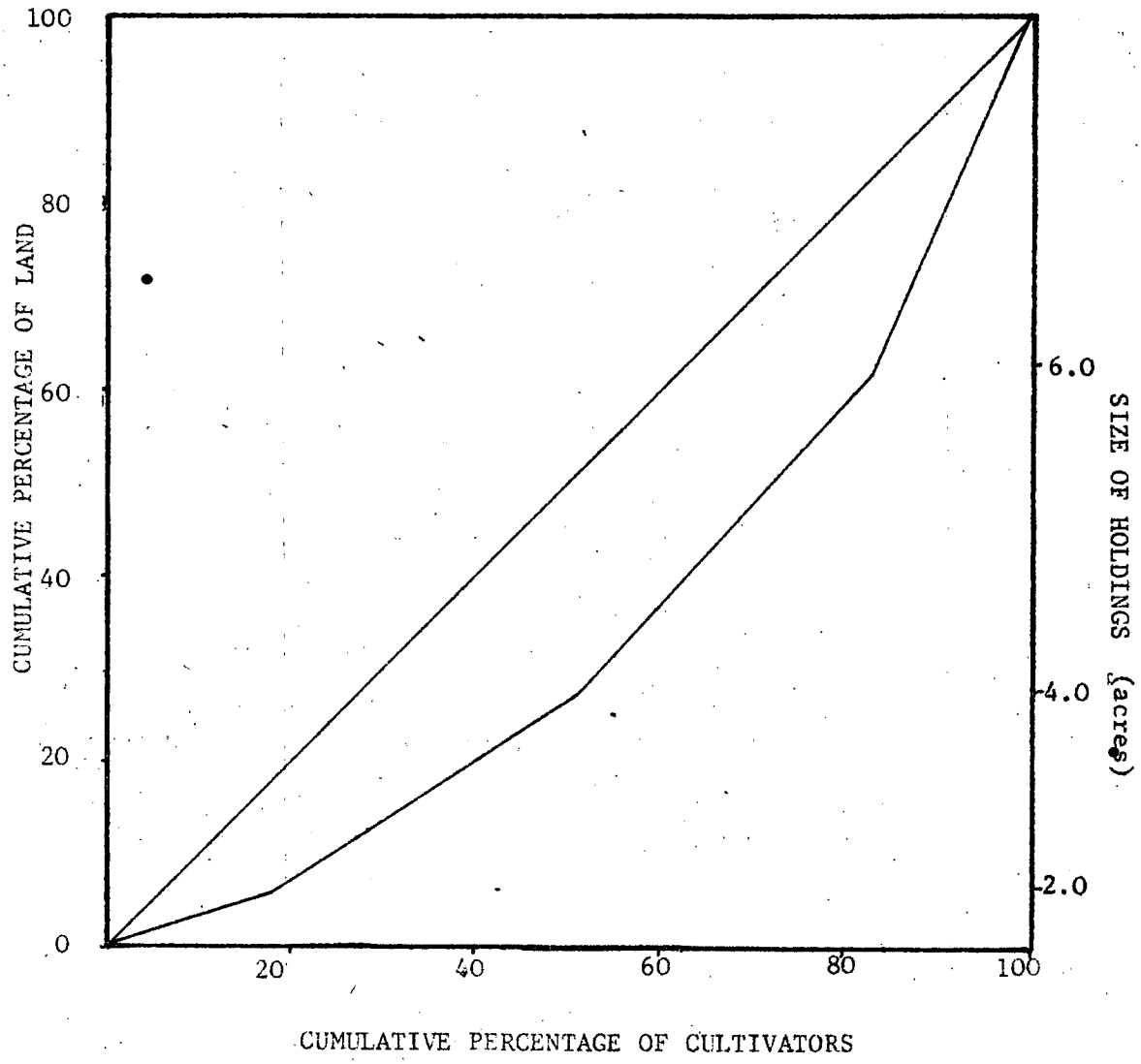


Table 2-IV: Distribution of Operated Land According to Size of Lowland Holding of Operators

Size of Lowland Holding (acres)	No of operators No.	%	Operated Lowland Acres	%	Operated Highland Acres	%	Total extent operated Acres	%
Upto 2.00	28	*18*	40.08	*6*	79.31	*21*	119.39	*11*
2.00- 4.00	52	*33*	154.54	*21*	103.08	*27*	257.62	*23*
4.00- 6.00	49	*32*	253.63	*35*	105.24	*28*	358.87	*33*
Over 6.00	27	*17*	270.51	*38*	91.50	*24*	362.01	*33*
Total	156	*100*	718.76	*100*	379.13	*100*	1097.89	*100*

2.5 Overall Size of Holding

The average operational size for the sample as a whole is 7.04 acres. This, however, decreases to 6.57 acres if we exclude chena and encroachments. *When we exclude the 9 cultivators classified as 'others' the average holding size is 6.73 acres made up of 4.54 acres lowland, 1.78 acres highland, 0.41 acres chena and encroachments. These figures show the average size of the holding, particularly of the lowland holding, is larger than in most parts of Sri Lanka.*[1] Although the size of holding in Hambantota tends to be larger than in many other areas of the country, these figures are somewhat exaggerated due to the nature of the sample. Comparison of Tables 1-VI and 1-VII give an average paddy holding of about 2.00 acres for the district. This figure is, howver, unrealistically low; the nature of information collected by the Department of Agrarian Services provides a fairly reliable figure for the total extent cultivated but the number of operators tends to become exaggerated. In registering paddy cultivators under the Paddy Lands Act the operator of each parcel is registered separately. The same cultivator could, therefore, be registered more than once and the total would be exaggerated. The average size of the lowland holding is, therefore, between 2.00 - 4.5 acres, probably nearer the larger figure.

As the study is concered primarily with paddy cultivation, we shall deal mainly with the characteristics of lowland holdings. Further, as chena and encroachments form a very small proportion of the land operated by this sample, we shall refer to them only briefly. The discussion that follows refers to classes of cultivators who have been classified as owners, tenants, owner-tenants, and tenant-owners unless otherwise specified.

2.6 Size Characteristics of Lowland Holdings

The average of 4.54 acres for the lowland holdings encompasses holdings ranging in size from 0.5 acre to 29.00 acres. The

1 According to the 1962 Census of Agriculture, the average size of holding for all agricultural land was approximately 4.00 acres and for asweddumized paddy land it was approximately 2.00 acres.

Fig: II

PERCENTAGE DISTRIBUTION OF OPERATED LAND ACCORDING TO SIZE OF HOLDING

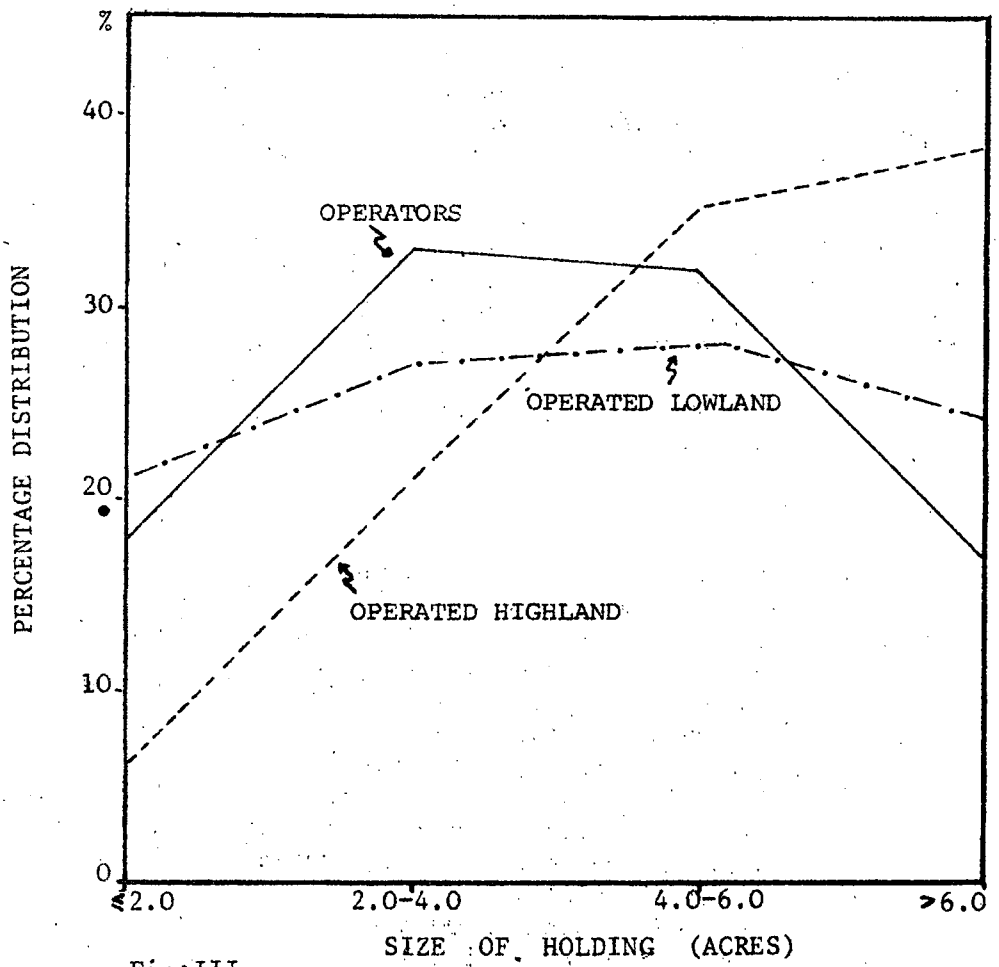
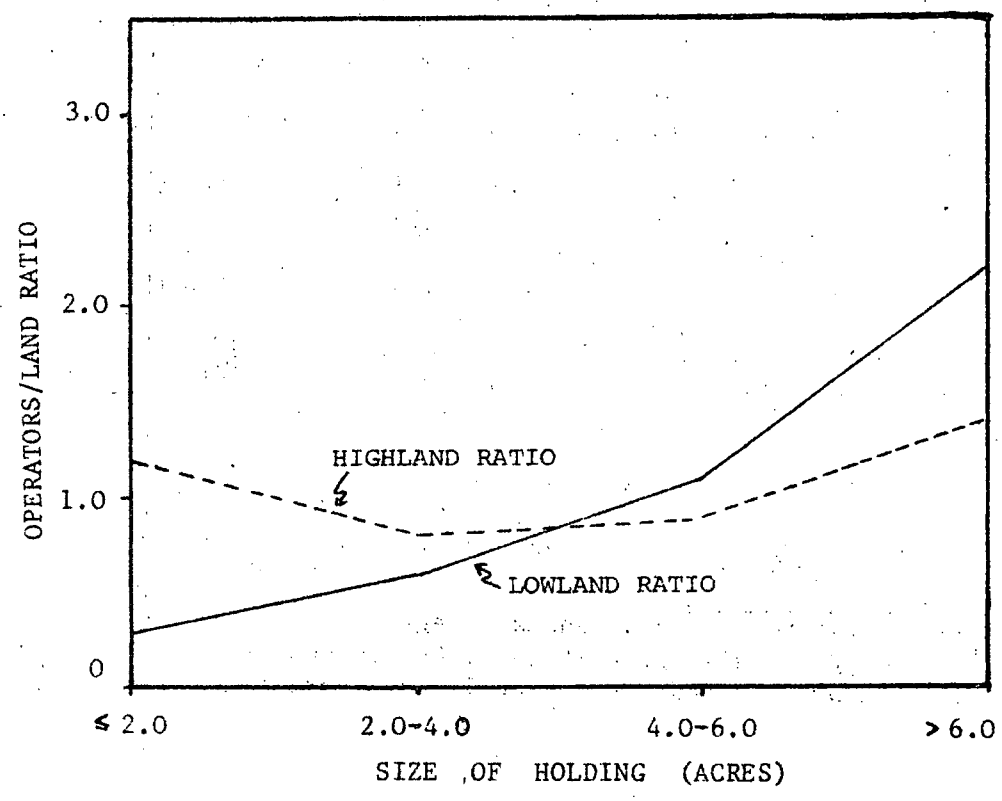


Fig:III

RATIO OF PERCENTAGE DISTRIBUTION OF OPERATORS TO PERCENTAGE DISTRIBUTION OF OPERATED LAND ACCORDING TO SIZE OF HOLDING



standard deviation for these holdings is 3.57 indicating that there is a considerable variation in the size of holdings; the coefficient of variation is equal to 79%. The median size for the holdings was 4.00 acres with the average for the holdings smaller than the median being only 2.34 acres as compared to 6.75 acres for holdings larger than the median. *Thus the cultivators with holdings larger than the median were operating on an average almost three times as much land as cultivators with holdings smaller than the median.*

Average size of holding varies among the cultivators falling into the different tenurial categories as can be seen from Table 2-V. The average size is largest among tenant-owners (5.69 acres) and smallest among the owners (2.99 acres). The average holding of tenant-owners is 90% larger than the average holding of owners. Taken as an average these holding sizes are reasonably large by Sri Lanka standards.

Table 2-V: Size Characteristics of Lowland Holdings

	Average size of holding	Median size of holding	Average size of holdings for cultivators with holding		Standard Deviation	Range of Size
			Less than median	More than median		
Owners	2.99	3.00	1.66	4.31	1.8	0.88- 8.00
Tenants	4.76	4.13	2.70	8.26	2.48	0.5 -12.00
Owner-tenants	4.98	4.00	1.99	7.97	4.46	1.25-20.00
Tenant-owners	5.69	3.75	2.35	9.05	6.21	0.76-29.00
Overall	4.54	4.00	2.34	6.75	3.57	0.5 -29.00

If we apply the cost function derived by Izumi and Ranatunga[1] C=1.25 (17.909 - 0.112Y), the estimated cost per bushel will be Rs. 13.31 at a yield of 60 bushels per acre providing a profit margin of Rs. 4.69 per bushel on the guaranteed price of Rs.18/- per bushel. On that basis, the owners with their average holding of 3.00 acres could earn a profit of Rs. 844.20 for a season. On the basis that tenants pay 25% of their harvested crop as rent on land they could earn on their average holding of 4.76 acres, Rs. 1,004.60 for a season. Of the average holding of 4.98 acres, among owner-tenants, 2.77 acres were owned and 2.21 acres were rented in. Among the tenant-owners whose average holding size was 5.69 acres only, 1.66 acres were owned and 4.04 acres were rented in. On the same assumptions made earlier the owner-tenants could earn Rs. 1,245.00 and tenant-owners Rs.1,319.76 per season. If we consider that the income from one season must be sufficient for a family for six months, then the monthly incomes among the

1 Izumi and Ranatunga - Cost of Production of Paddy - Yala 1972 ARTI Research Study Series, No.1, July 1973.

the tenurial categories would be as follows:-

Owners	Rs. 140.66
Tenants	Rs. 167.44
Owner-tenants	Rs. 207.65
Tenant-owners	Rs. 219.96

The lower income which appears here for owners is due to the much smaller size of holdings they operate. The cultivators who have rented in land show larger incomes despite the payment of land rents because of the larger holdings.

Even with the assumptions that have been made for the above estimates which would be seen to be optimistic (cf. Table 7-XXIII) the levels of income are low. Realistic figures with regard to yields, costs and incomes are discussed in other sections of this study. Here we will consider the unrealistic picture presented by the 'average size'. If we consider the owners, 47% of them have holdings smaller than 3.00 acres. Similarly 47% of the tenants, 50% of the owner-tenants and 77% of the tenant-owners have holdings smaller than the average for the respective tenurial categories. This is due to the wide variations in size of holdings in these categories which is demonstrated by their coefficients of variations: Owners = 60%, Tenants = 52%, Owner-Tenants = 89%, and Tenant-owners = 100%. The range of size is greatest among tenant-owners where it extends from 0.76 to 29.0 acres and smallest among owners where it ranges from 0.88 to 8.0 acres. There are also appreciable differences in the average size of holdings of the cultivators with holdings smaller and larger than the median size. The average size of holding is only 1.66 acres for owner cultivators with holding sizes smaller than the median size compared to 4.31 acres for those larger - that is 2.6 times larger. The magnitude of difference for the other categories is 3.1 for tenants, 4.0 for owner-tenants, and 3.9 for tenant-owners.

It can be seen from these figures that the hypothetical incomes computed for the average size of holding must in fact vary considerably for individual cultivators because of the variation in their holding sizes. Whilst large numbers of these farmers who have holdings smaller than the average can expect incomes lower than those computed, several could expect incomes higher than them. Income variation resulting from variation in the size of holdings are considerable even if productivity is assumed to be uniform. Productivity differences which are discussed in later chapters further complicate the problem. It must also be remembered that these incomes cannot be expected throughout the year as some of the land is not cultivated in both seasons.

2.7 Proportion of Lowland Owned/Rented

It is useful to examine the variations in the extents owned and rented in by owner-tenants and tenant-owners. The differences in the average size of holding between these two categories was 0.71 acres. The average extent owned by owner-tenants was 2.77 acres compared to the average of 1.66 acres owned by tenant-owners, - a difference of 1.11 acres. The tenant-owners rented on an average 4.04 acres compared to the average of 2.21 acres by owner-tenants a difference of 1.83 acres. Here again,

considerable differences are observed when we compare the cultivators with holdings smaller and larger than the median size as shown in Table 2-VI.

Table 2-VI: Proportion of Operated Lowland Owned/Rented

Characteristics	Owner-Tenants				Tenant-Owners			
	Cultivators with Holdings				Cultivators with Holdings			
	Smaller than median size		Larger than median size		Smaller than median size		Larger than median size	
	Acres	%	Acres	%	Acres	%	Acres	%
Average extent of owned land	1.17	*59*	4.38	*55*	0.38	*16*	2.94	*33*
Average extent of land rented in	0.82	*41*	3.59	*45*	1.97	*84*	6.11	*67*
Average extent of total holding	1.99	*100*	7.97	*100*	2.35	*100*	9.05	*100*

Among owner-tenants 59% of the operational holding was owned by the smaller[1] cultivators compared to 55% by the larger[1] ones. Among the tenant-owners only 16% of the operational holding was owned by the smaller cultivators compared to 33% by the larger ones.

2.8 Distribution of Lowland Among Different Size Holdings

The distribution of holdings among the different tenurial categories by size is shown in Table 2-VII and Fig.IV.

Table 2-VII: Distribution of Lowland Holdings According to Tenurial Categories

Size of Holding Acres	Owners				Tenants				Owner-Tenants				Tenant-Owners			
	Operators		Extent operated		Operators		Extent operated		Operators		Extent operated		Operators		Extent operated	
	No.	%	Acs.	%	No.	%	Acs.	%	No.	%	Acs.	%	No.	%	Acs.	%
Up to 2.0	12	*37*	16.13	*17*	7	*9*	10.00	*3*	5	*31*	8.19	*10*	3	*14*	4.26	*3*
2.0-4.0	13	*41*	39.50	*41*	26	*34*	78.40	*21*	3	*19*	7.76	*10*	8	*36*	21.63	*17*
4.0-6.0	5	*16*	24.00	*25*	32	*42*	168.13	*46*	5	*31*	28.25	*35*	6	*27*	28.50	*23*
Over 6.0	2	*6*	16.00	*17*	12	*15*	110.75	*30*	3	*19*	35.50	*45*	5	*23*	71.00	*57*
Total	32	*100*	95.63	*100*	77	*100*	367.28	*100*	16	*100*	79.70	*100*	22	*100*	125.39	*100*

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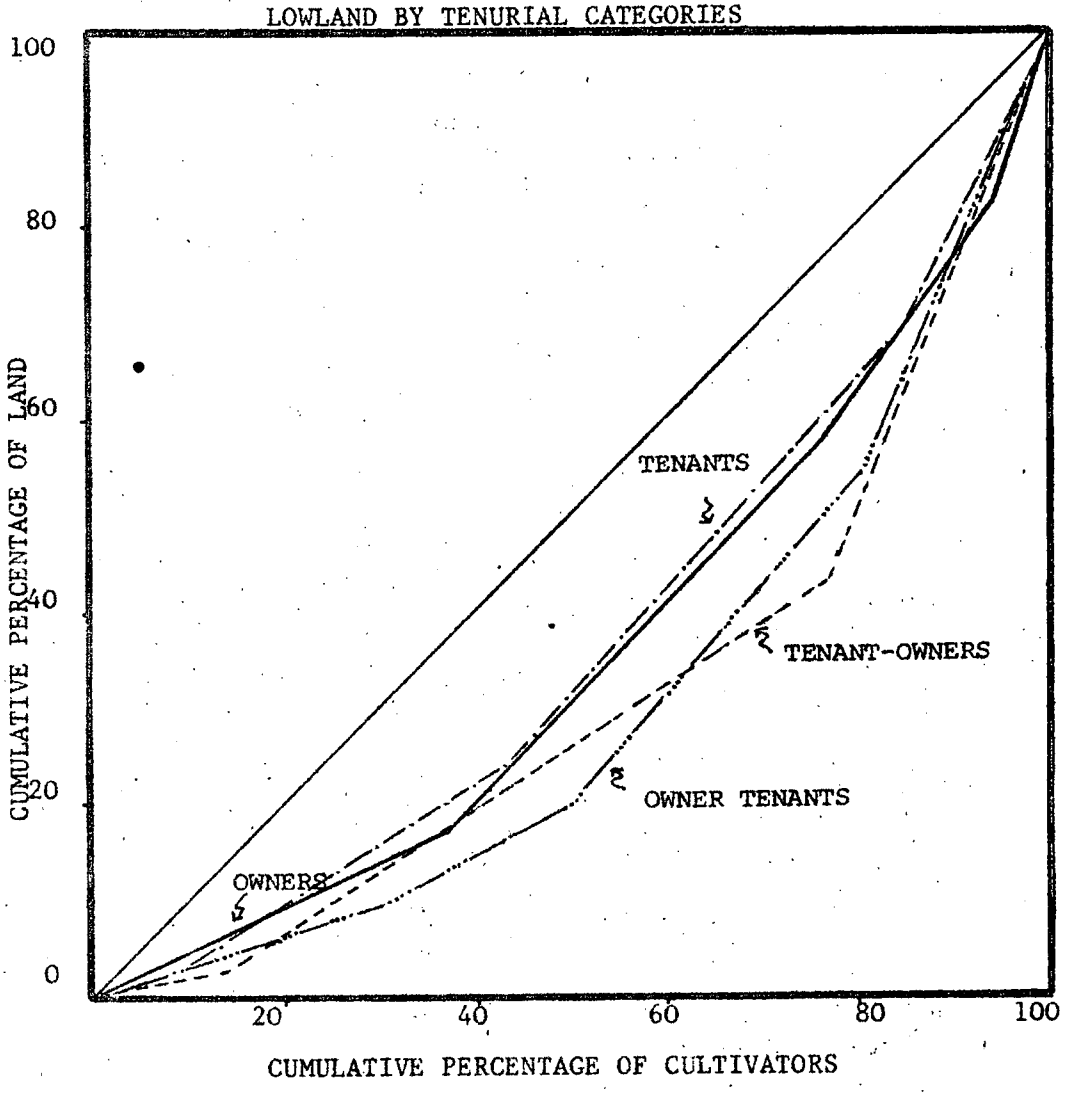
1 Refer to cultivators with holdings larger and smaller than the median size in the relative category.

Fig:IV

LORENZ CURVES FOR THE DISTRIBUTION OF LOWLAND BY TENURIAL CATEGORIES



78% of the owners operate holdings of 4.00 acres or less; the amount of land falling within this class, however, is only 58% of the total extent in this tenurial category. Among the tenants 76% operate holdings 2.00 - 6.00 acres accounting for 67% of the land in that tenurial category. 15% of the tenants operate holdings larger than 6.00 acres; the extent cultivated by them is 30% of the total extent. Among owner-tenants 50% have holdings of over 4.00 acres accounting for 80% of the land in that category. 63% of the tenant-owners have holdings of 2.00 - 6.00 acres but they cultivate only 40% of the extent falling in this tenurial category. 23% of cultivators with holdings of over 6.00 acres cultivate as much as 57% of the total extent in this category.

9 cultivators do not fall within the tenurial categories discussed above. They operate 50.76 acres making up an average of 5.64 acres per operator. 5 of them have holdings in excess of 6 acres; of the total extent, 11.00 acres were reported as encroachment by 5 operators. A further 13.08 acres were reported as leased in by 4 operators. The extent of owned land operated by these 9 was 26.68 acres; as 3 operators had no land of their own among the 9, the average extent of land owned by the remaining 6 was 4.45 acres.

2.9 Highland Operated by Paddy Cultivators

Before we consider the distribution of the lowland holdings with reference to the water supply, let us briefly examine the highland holdings of the 147 cultivators classified as owners, tenants, owner-tenants, and tenant-owners according to their lowland holdings. *Of the 147, 10 cultivators did not operate any highland holdings; all 10 were among tenants.* The distribution of highland holdings among the remaining cultivators is shown in Table 2-VIII. The owners had the largest average extent amounting to 2.64 acres; among them the average holding was largest for cultivators with 4.00 - 6.00 lowland holdings. Tenants had the smallest average (1.56 acres), tenants with smaller lowland holdings tending to have smaller highland holdings also. *Taken as a whole, cultivators with lowland holdings of over 6.00 acres had the largest highland holdings, (2.6 acres) and cultivators with lowland holdings of 2.00 - 4.00 acres had the smallest (1.61 acres).* The nine cultivators, who did not fall into the above categories had 53.75 acres of highland. The 5 cultivators with lowland holdings of over 6.00 acres had an average of 5.2 acres of highland.

2.10 Distribution of Land According to Water Supply Conditions

We can now consider the distribution of lowland holdings. With reference to water supply, 57% of the land cultivated by owners fall under major irrigation. The proportion of land under major irrigation is highest among tenant-owners (74%) and the lowest among owner-tenants (47%). Although the proportion of land under major irrigation among tenants (69%) is less than among tenant-owners, it is higher than among owners. *The land of the larger landlords (whose land has been rented out to tenants) seem to have benefited more from major irrigation than the land of the owner cultivators who were mainly in the rainfed areas in the*

Table 2-VIII The Distribution of Highland Among

Size of Holding (Acres)	Owners Land: No. of Op.	Own-ed	Leas-ed	Total	Avg/ Op.	Tenants Land: No. of Op.	Own-ed	Leas-ed	Total	Avg / Op	Owner-: No. of Op.	Own-ed
Up to 2.00	12	32.25	-	32.25	2.69	7	2.25	0.88	3.13	0.47	5	8,25
2.00-4.00	13	29.61	2.00	31.61	2.43	22	22.16	8.25	30.41	1.38	3	3.50
4.00-6.00	5	17.50	-	17.50	3.50	28	30.74	13.50	44.24	1.58	5	16.75
Over 6.00	2	3.25	-	3.25	1.63	10	20.50	6.00	26.50	2.65	3	3.50
Total	32	82.61	2.00	84.61	2.64	67	75.65	28.63	104.28	1.56	16	32.00

* Classification of the operators is based on the size of their

Table 2-IX Distribution of Operated Lowland by Tenurial

Source of Water Supply	Owners: Operators No.	%	Extent Acres	%	Tenants: Operators No.	%	Extent Acres	%	Owner-Tenants: Operators No.	%	Extent Acres	%
Major Irrigation	14	44	54.50	57	49	63	253.15	69	7	44	37.50	47
Minor Irrigation	12	37	26.53	28	22	28	98,50	27	6	37	36.44	46
Rainfed	6	19	14.50	15	6	9	15.63	4	3	19	5.76	7
Total	32	100	95.53	100	77	100	367.28	100	16	100	79.70	100

Operators by Tenurial Category and Size of Holding *

Tenants Land				Tenant-owners Land				All Tenurial Categories Land			
Leased	Total	Avg/ Op.	No. of Op.	Owned	Leased	Total	Avg/ Op.	No. of Op.	Owned	Leased	Total	Avg./ Op.
-	8.25	1.65	3	3.50	2.50	6.00	2.00	27	46.25	3.38	49.63	1.85
-	3.50	1.75	8	8.56	-	8.56	1.07	46	63.83	10.25	74.08	1.61
-	16.75	3.35	6	7.00	0.75	7.75	1.29	44	71.99	14.25	86.24	1.96
1.5	5.00	1.67	5	17.25	-	17.25	3.45	20	44.50	7.50	52.00	2.60
1.5	33.50	2.09	22	36.31	3.25	39.56	1.80	137	226.57	35.38	261.95	1.91

lowland holding

Category according to supply of Water

Tenant-Owners				Total			
Operators No.	%	Extent Acres	%	Operators No.	%	Extent Acres	%
13	59	93.00	74	83	57	438.15	66
6	27	26.50	21	46	31	187.97	28
3	14	5.89	5	18	12	41.78	6
22	100	125.39	100	147	100	667.90	100

Table 2-X Distribution of Operated

Size of Holding		Owners			All Sources
		Major	Minor	Rainfed	
0 to 2.00	Extent	1.50	9.63	5.00	16.13
	%	*9*	*60*	*31*	*100*
2.00 - 4.00	Extent	27.00	12.50	-	39.50
	%	*68*	*32*	-	*100*
4.00 - 6.00	Extent	10.00	4.40	9.50	23.90
	%	*42*	*18*	*40*	*100*
Over 6.00	Extent	16.00	-	-	16.00
	%	*100*	-	-	*100*
Total	Extent	54.50	26.53	14.50	95.53
	%	*57*	*28*	*15*	*100*

Lowland by Size of Holding and Tenurial Category According to Supply of Water

Tenants				Owner-Tenants				Tenant-Owners				All Tenurial Categories			
Major	Minor	Rain fed	All Sources	Major	Minor	Rain-fed	All Sources	Major	Minor	Rain fed	All Sources	Major	Minor	Rain fed	All Sources
5.25	2.50	2.25	10.00	2.00	2.94	3.25	8.19	1.75	1.75	0.76	4.26	10.50	16.82	11.26	38.58
52	*25*	*23*	*100*	*24*	*36*	*40*	*100*	*41*	*41*	*18*	*100*	*27*	*44*	*29*	*100*
38.65	30.50	9.25	78.40	3.00	2.25	2.51	7.76	11.00	5.50	5.13	21.63	79.65	50.75	16.89	147.29
49	*39*	*12*	*100*	*39*	*30*	*31*	*100*	*51*	*25*	*24*	*100*	*54*	*34*	*12*	*100*
116.00	48.00	4.13	168.13	17.00	11.25	-	28.25	18.75	9.75	-	28.50	161.75	73.40	13.63	248.78
69	*29*	*2*	*100*	*60*	*40*	-	*100*	*66*	*34*	-	*100*	*65*	*30*	*5*	*100*
93.25	17.50	-	110.75	15.50	20.00	-	35.50	61.50	9.50	-	71.00	186.25	47.00	-	233.25
84	*16*	-	*100*	*44*	*56*	-	*100*	*87*	*13*	-	*100*	*80*	*20*	-	*100*
253.15	98.50	15.63	367.28	37.50	36.44	5.76	79.70	93.00	26.50	5.89	125.39	438.15	187.97	41.78	667.90
69	*27*	*4*	*100*	*47*	*46*	*7*	*100*	*74*	*21*	*5*	*100*	*66*	*28*	*6*	*100*

western part of the district. Considerable proportion (46%) of the land operated by owner-tenants fall under minor irrigation; the proportion varies between 21% and 28% among the other categories. The distribution of this land is shown in Table 2-IX.

When we consider water supply by size of holding, only 27% of the extent in the smallest size class (2.00 acres or less) gets water from major irrigation. 29% is rainfed, the remainder is under minor irrigation. *Thus operators of the smallest holdings have the least assured supply of water. Conversely, none of the land in the largest size class (over 6.00 acres) is rainfed and as much as 80% receive water from major irrigation works.* The proportion of land receiving water from major irrigation works is 54% for size class 2.00 - 4.00 acres and 65% for size class 4.00 - 6.00 acres. It is evident, from these figures, that the supply of water becomes more assured as the size of holding increases. Table 2-X gives information about cultivators getting irrigation water.

Among the nine cultivators falling outside the categories discussed above, 4 come under major irrigation shcemes with a total extent of 26.5 acres; the remaining five come under minor irrigation with 24.25 acres.

2.11 Tenancy Conditions

Asit was pointed out earlier, about 78% of the total number of respondents classified into 4 major tenurial categories, cultivate at least some land on ande. Ande is the term used to refer to the traditional system of renting out land on the basis of share-cropping. The arrangement under which such land is cultivated varies considerably. The arrangements prevailing in this district are discussed in later sections. Among all tenurial categories those who are purely tenants account for more than twise the number of other tenants taken together.

Needless to say that the economic conditions of a tenant depend essentially on his power of negotiation which, among other things, depend on:

a) the amount of land (lowland and highland) owned by the tenant
b) strength of outside family incomes, and
c) pressure for land in the area

It is also affected by the relationship of the tenant to his landlord and the nature of the landlord himself. The rent paid by the tenant or that demanded by the landlord or the collateral help offered by the latter, are all in one way or other affected by this relationship.

Table 2-XI Occupation of Landlord and His

Relationship	Occupational					
	Salaried Employment		Non-Salaried professions		Trader	
	No.	%	No.	%	No.	%
1. Friend	9	36	4	50	7	51
%	14		6		11	
2. Neighbour	4	16	0	0	1	7
%	51		0		12	
3. Sub Total of 1 & 2	13	52	4	50	8	58
%	18		6		11	
4. Relative	3	12	2	25	3	21
%	9		6		9	
5. Other	9	36	2	25	3	21
%	45		10		15	
6. Total	25	100	8	100	14	100
%	20		6		11	

Relationship to Tenants

	Categories											
	Landowner		Priest		Farmer		Pensioner		Other		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
	18	64	14	82	6	35	0	0	7	54	65	51
	28		21		9		0		11		100	
	2	7	0	0	0	0	0	0	1	8	8	6
	25		0		0		0		12		100	
	20	71	14	82	6	35	0	0	8	62	73	57
	27		19		8		0		11		100	
	7	25	3	18	11	65	0	0	5	38	34	27
	20		9		32		0		15		100	
	1	4	0	0	0	0	5	100	0	0	20	16
	5		0		0		25		0		100	
	28	100	17	100	17	100	5	100	13	100	127	100
	22		13		13		4		11		100	

If the data presented in Table 2-II are re-examined, it becomes clear that the tenants accounting for nearly half the sample of cultivators were 100% landless in respect of paddy land and 31% in respect of both lowland and highland; 52% had less than ½ acre of highland, a holding incapable of giving any reasonable income. Of the tenant-owners, 50% had less than 1 acre of paddy (36% less than ½ acre) and 50% less than ½ acre of highland. Nearly 22% of the tenant-owners had less than 1 acre of both lowland and highland taken together.

2.12 Occupation of Landlords

Landlords belong to several occupational categories. As Table 2-XI shows 22% of them are landowners (some referred to as planters). Those with salaried or white-collar employment account for 20% and those with non-salaried professions 6%. These categories taken together account for 26% of all landlords which makes them the most predominant landlord group. A fairly high proportion of landlords are priests (13%) whereas the traders constitute 11%. Only 13% of the landlords are classed as farmers which points to the fact that a great majority of landlords are those without direct invovlement in farming. *Even after excluding the landowner class and the pensioners, in addition to peasant landlords, still a little over 60% of the landlords are those who have no direct involvement in agriculture.*

The occupational structure of the landlords points out to certain salient features of the ownership and control of the paddy lands and also the importance of absentee landlordism in the paddy sector of the district.

Of the 25 landlords with salaried employment, 28% are teachers, 48% clerks, and other government servants, and 24% those with other white collar employment as grama sevakas, co-operative managers etc. Of the 8 landlords with non-salaried professions, 5 were advocates and proctors, 1 a notary and 2 were ayurvedic physicians. The control of paddy lands by different landlord categories could be ascertained only in respect of lands cultivated by tenants and this may not give a precise picture of the ownership and control pattern of the paddy sector of the district. The information pertains only to landlords of the tenant cultivators of the sample.[1] However, the data available for the tenanted lands highlight certain important features of the control of tenanted paddy lands by the different landlord categories (Table 2-XII).

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1 115 tenant cultivators had 127 landlords.

Table 2-XII: Distribution of Tenanted Paddy Land according to occupation of Landlords

	Salaried employment	Non-salaried professions	Traders	Land owners	Priests	Others	Total
Number of cases	25	8	14	28	17	35	127
%	*20*	*6*	*11*	*22*	*13*	*28*	*100*
Paddy acreage	115.36	32.98	44.50	110.66	19.83	165.84	491.42
%	*23*	*7*	*9*	*23*	*4*	*34*	*100*
Average size in acres	4.62	4.12	3.17	3.60	1.17	4.74	3.87

From the above table it is evident that the percentage area controlled by those in salaried employment and non-salaried professions is higher than the proportionate frequency of occurrence among all landlords. Those classed under 'other' too control a high percentage area. Thus a large area is controlled by those whose occupation the tenant did not know. It is possible that they are absentee landlords living in far off places. Though the priests (temple lands) account for 13% of landlords, the area they control is only 4% of the total tenanted lands. The land owners too control a slightly larger percentage area than their proportionate frequency of occurrence among all landlords.

2.13 Residence of Landlords

Information available on this aspect reveals that absentee landlordism is an important element in the tenurial structure of the Hambantota district. When all landlord categories are taken together the general situation that prevails is as follows (Table 2-XIII).

Table 2-XIII: Residence of Landlord

Place of Residence	All landlords	Landlords of Tenants Paying 1/4 rent	Paying fixed rent
Same village	*35%*	*21%*	*15%*
Same district	*42%*	*45%*	*39%*
Outside district	*24%*	*40%*	*46%*

About 66% of the landlords live outside the village in which the lands given on ande are located. 24% live entirely outside the

district. Absentee landlordism is more important for lands cultivated by pure tenants whose number is double that of the other tenants taken together. As pointed out by the Table, only 21% of landlords receiving 1/4 share and 15% of those receiving fixed rent live in the same village. In both cases 40% of the landlords live in another district. *This shows that large areas of paddy-lands in Hambantota are controlled by outsiders.*

Many absentee landlords are resident in the main urban centres of the coastal Southwest. About 18% are resident in distant main urban centres as Colombo, Panadura, Negombo etc. while the rest (19%) live in closer urben centres as Galle and Matara. Most landlords classed as landowners come from the same district while over 50% of the traders are from urban centres outside the district, the majority, being from Colombo. The bulk of the landlords with salaried employment also live in urban centres outside the district. The above data, limited though they are, suggest nonetheless the magnitude of a problem which is already known in respect of this district.

2.14 Relationship of Landlords to Tenants

The relationship of the landlord to the tenant is another significant aspect which has a bearing on the tenant particularly with reference to the rent paid to and the collateral help he receives from the landlord.

The different categories of landlords, who give their lands on ande are also differently related to the tenants. The details of this relationship are found in Table 2-XI and the general picture is presented below:

Table 2-XIV: Relationship of Tenant to Landlord

	Number	Percentage
Friend	65	51
Neighbour	8	6
Relative	34	27
Other	20	16
Total	127	100

84% of the landlords are either friends, neighbours, or relatives, while 16% have no specific relationship. Landlords who are family relatives account for only 27% while friends and neighbours together constitute 58% of the total.

Certain important features of this relationship emerge from Table 2- XI referred to earlier. Only landlords who are farmers (peasant landlords) and therefore living in the village or closer to it are in a majority relatives (65%). The percentage of relatives is lower than 25% for all other landlord categories, the lowest being for landlords with salaried employment, pointing out the importance of the control of paddy lands by outsiders. One

has also to bear in mind the ambiguity of the relationship referred to as friends and neighbours, for these two categories, as far as the tenant is concerned, may not in a majority of the cases, differ basically to any other landlord category.

2.15 Landlords Contribution to Tenants

Tables 2-XV and 2-XVI indicate that very few landlords offer collateral help to their tenants. No owner-tenants received any collateral help from their landlords while only one tenant-owner against 9 (12%) tenants received such contribution. *Of the total tenant population less than 10% received any form of collateral help from their landlords.*

Considering the collateral help offered by the landlord on the basis of rent paid by the tenant, it appears from Table 2-XV that there is a direct relationship between rent paid and collateral help offered by the landord. No tenants paying fixed rent got any help while only 5% paying 1/4 share and 14% paying 1/3 share received such help, whereas all those who pay ½ share and more were offered collateral help by their landlords. The inputs provided and other costs borne by the landlord are shown in Tabe 2-XVI.

Table 2-XV: Landlords' Contribution to Tenant

	Tenant	Owner-Tenant	Tenant-Owner	Total
Total no. of farms	77	16	22	115
No. of tenants receiving collateral help	9	-	1	10
%	*12*	-	*5*	*9*

Table 2-XVI: Landlords' Contribution to Tenant according to Share of Crop Paid as Rent

Landlord' Contribution	Share of Crop Paid as Land Rent 1/4(79)* No.	1/3(7)* No.	½(2)* + 2/3(3)*+ No.	No.
Seed and Fertilizer	-	1	1	-
Seed and other	2	-	-	-
Seed, fertilizer, agro-chemicals and other	1	-	1	3
Fertilizer, agro-chemicals and other	1	-	-	-
Total	4	1	2	3

* The total number of tenants of all categories is shown within brackets.

\+ Out of 3 paying 1/2 share and 4 paying 2/3 share only 2 and 3 respectively had responded.

2.16 Land Rent paid by Tenants

A noteworthy feature emerging from the pattern of rents paid by the tenants to their landlords is the near absence of the ½ crop share. 84% of tenants of all categories pay 1/4 of the harvest or a fixed rent[1] or whichever is less (Table 2-XVII). Only 12% of tenants paid 1/3 or above and another 3% paid cash rents[2] while 1 had a mortgage.

Among the tenants of different categories who pay 1/4 share or fixed rent or whichever is less of the two, the tenants account for 88%, tenant-owners 77% and owner-tenants 76%.

The broad picture of rents paid suggests that the bulk of the tenants are paying 1/4 of the crop. However, only 4% of tenants are in a position to pay whichever is less of 1/4 or the fixed rent, as stipulated by the Paddy Lands Act. The data available do not permit us to comment on the efficiency of the Paddy Lands Act at this juncture. However, a few comments would be made elsewhere (section 2.17) on this aspect on the basis of what emerges from the attitudes of tenants to different rental arrangements.

The rents paid by tenants also indicate certain relationships to the category of landlords. 1/3 or ½ share of the harvest is paid to landlords who are relatives and resident in the village. The 3 landlords who receive a 2/3 share are land owners who provided 2/3 of the inputs and tractor cost. They are mentioned as friends. Fixed rent is paid mostly in respect of lands received from temples (priests) and traders. Those landlords receiving 1/4 share are mostly mentioned as friends and neighbours.

Table 2-XVII: Land Rent Paid by Tenants

	1/4	Fixed	1/4 or fixed	1/3	1/2	2/3	Cash	Other	Total
Tenants	54	10	4	3	2	4	-	-	77
%	*70*	*13*	*5*	*4*	*3*	*5*	-	-	*100*
Owner-Tenants	11	1	-	1	1	-	1	1	16
%	*70*	*6*	-	*6*	*6*	-	*6*	*6*	*100*
Tenant Owners	14	3	-	3	-	-	2	-	22
%	*63*	*14*	-	*14*	-	-	*9*	-	*100*
All tenurial categories	79	14	4	7	3	4	3	1	115
%	*69*	*12*	*3*	*6*	*3*	*3*	*3*	*1*	*100*

1 Only 1 case paid 6 Bu/acre. All others paid 12 Bu/acre

2. Rs.700/- (3 acres on ande); Rs.1,600/-(3 acres on ande) and Rs.300/- (2½ acres on ande).

2.17 Attitudes of Tenants to Rents Paid

The opinion of the tenants who pay different types of rent does not show any regularity. Nearly 80% of the tenants reported that 1/4 share is reasonable while only 20% said it is excessive. Such tenants are certainly at an advantage during periods of poor crops or crop failure. However during periods of good crops, the tenant who receives no collateral help loses when he has to pay 1/4 as rent.

Of the 10 tenants who pay a fixed rent 40% said it is excessive. Considering the fact that no tenants paying fixed rent receive any collateral help from the landlord, it is evident that those whose lands are prone to frequent crop failures are placed at a disadvantageous position during poor crops when they have to part with 12 bu/acre which could well exceed 1/4 crop share. When we consider the yield of paddy for 1972 Yala which stood at 23.48 bushels/acre, the tenant who had to pay 12.12 bu/acre was certainly at a disadvantage than one who paid 1/4 the harvest.

When the risk element is high, the fixed rent per se as in this case could constitute very often a disadvantage to the tenant. All the 4 tenants who reported that the fixed rent is excessive belonged to minor irrigation schemes which often do not guarantee an assured supply of water. The tenants paying 2/3 share, in spite of the fact that 2/3 of the inputs are provided by the landlord, complained of their inability to even cover the expenses after paying 2/3 as land rent to the landlord.

2.18 Security of Tenure

Although a detailed study on the question of security of tenure was not attempted in the survey, some comment could be made on the subject from the data available.

Almost all tenants feel that they enjoy permanent tenancy rights[1]. Whether this security is in fact a reality is open to doubt when one considers the fact that 20% of those tenants paying 1/4 rent and 40% paying fixed rent felt that the rent they pay is excessive. *The bulk of the tenants are still not in a position to pay whichever is less of 1/4 share or fixed rent as stipulated in the Paddy Lands Act and this in spite of the fact that a large number of landlords are outsiders and that in a large part of the Hambantota district there is yet no great pressure for land among tenants.* As we have shown earlier both tenant categories who pay 1/4 and fixed rent are at a distinct disadvantage particularly since they are working in an environment of uncertainty.

Those tenants who pay 2/3 share indicated that they are not in a position to act according to the Paddy Lands Act due to fear of eviction.

1 No tenant reported a lesser acreage on ande for 1971-72 than he held during the previous year. Hoever information in respect of previous evictions does not emerge from the data.

2.19 Need for More Land to Cultivate on Ande°

Nearly 82% of the tenants (paying]/4 or fixed rent) indicated their desire to cultivate more land on ande. The need is highest (93%) for the 2 smaller size classes,(80%) for the3rd and only 50% for the largest holding size.

Table 2-XVIII: Tenants Willing to Cultivate more Land on Ande

Size of Holding (Acres)	Paying 1/4 Share			Paying Fixed Rent		
	Total No.of Cult.	Cult.Req. more land No.	%	Total No.of Cult.	Cult.Req. more land No.	%
Upto 2.00	5	5	*100*	-		
2.00-4.00	19	17	*90*	5	5	*100*
4.00-6.00	23	19	*83*	2	1	*50*
Over 6.00	7	3	*43*	3	2	*67*
All size classes	54	44	*82*	10	8	*86*

The trend is very clear and the reason more or less obvious. Smaller the operational holding, greater the desire to cultivate more land. *The majority of such tenants (65%) needed the cultivation of extra lands primarily to meet family subsistence needs and to increase the already inadequate incomes (cf 7.12). For 25% of the tenants who required additional land needed to do so to enable them to give work to excess family labour.*The tenants who did not want to cultivate any extra land on ande (19%), said so for several reasons, among which the more important being lack of capital (30%), lack of sufficient family labour (30%), or lack of draught power (20%).

Certain differences could also be noted with reference to different categories of tenants on the desire on their part to own land. *Only 19 (25%) tenants felt that they would become owners of land in the near future.* Only 22% of tenants paying 1/4 rent could aspire to this. Of the 10 paying a fixed rent 50% said that they hoped to own land in the future.

How those who wished to own land proposed to obtain it reveals a surprising picture, in the sense that]4 (82%) out of the]7 respondents paying]/4 and fixed rent aspired to do so by obtaining crown land, and not by purchasing land from any savings or from a loan. Only 2 cases wished to secure land from savings and only one case by borrowing. The majority of those who gave negative responses said that they are too poor to aspire to own any land. This clearly indicates that the bulk of the tenants are living at the margin of subsistence.

The situation is rather different with regard to owner-tenant and tenant-owner categories. The following is the picture presented by the responding farmers of each category.

Table 2-XIX: Desire to Own Land Among Owner-Tenants and Tenant-Owners.

	Total No. responding	Wish to own land	Do not wish to own land
Owner-tenants	16	11	5
%	*100*	*69*	*31*
Tenant-Owners	17	13	4
%	*100*	*77*	*23*

Nearly 75% of the respondents wanted to own more land especially to meet family subsistence needs and to increase incomes and the bulk of them wished to do so by purchasing land from their savings or by obtaining loans.

The above picture suggests certain significant features of the economic conditions of the tenant.

The tenants who rent in all the land they cultivate are placed at the bottom of the scale in their economic conditions among all tenant categories. Their incomes are too low to effect any savings and landlessness makes them less credit worthy to secure loans for investment on land. The owner-tenants and tenant-owners, on the other hand, who have at their disposal some paddy land and also more highland than the tenants (Table 2-II) are in a better position to save and also are more credit worthy.

Chapter 3

CO-OPERATIVES AND CREDIT

3·1 Membership in Co-operative

Data collected on co-operative membership indicates that about 87% of the respondents were members of the Co-operative. Of the reasons given for not becoming members by the remainder the most important was the inability to pay membership fees owing to financial difficulties. Such a statement by the respondents raises the question as to whether the payment of a very small membership fee (Rs.1.00 or so), actually puts financial hardship on them to become co-operative members or whether there are other reasons such as lack of discipline to fulfil the obligations of the co-operatives, sense of detachment about the co-operatives etc. Ignorance of the Co-operative, another member of the family having Co-operative membership and being a new resident of the area were among the other reasons mentioned for non-membership (Table 3-I). A noteworthy feature about non-members is that most of them belong to poor,small tenant class.

Table 3-I Reasons for not being a Member of the Co-operative

Reasons for not becoming a co-operative member	No.
Unable to pay membership fees due to financial difficulties ..	6
Does not know about the Co-operative	4
Mother is a member of the Co-operative	3
Became resident of the area very recently	3
No benefits from the Co-operative	1
Clash with the Co-operative ..	1
Corruption in the Co-operative ..	1
	19

3·2 Provision and Utilization of Co-op Services

Respondents were asked a general question as to whether they were aware of the types of services usually provided by the co-operatives and whether they really make use of them. This has been examined with reference to their (respondents) tenurial status and size of land holding.

Table 3-II Number of Respondents giving Information about the Services Provided by the Co-operatives and making Use of Them (Classified by Size of Lowland Holdings).

Type of Services	Up to 2.00 acres		2.00-4.00 acres		4.00-6.00 acres		Over 6.00 acres		Total	
	Provided	Utilized	Provided	Utilized	Provided	Utilized	Provided	Utilized	Provided	Utilized
Cultivation loans	17	8	39	24	41	25	24	17	121	74
%	*47*		*62*		*61*		*71*		*61*	
Certified seed paddy	8	3	21	9	15	6	9	3	53	21
%	*38*		*43*		*40*		*33*		*40*	
Subsidised fertilizer	21	17	48	43	45	41	24	21	138	122
%	*81*		*90*		*91*		*88*		*88*	
Agro-chemicals	19	19	46	39	43	33	20	18	128	109
%	*100*		*85*		*77*		*90*		*86*	
Marketing of paddy	21	18	48	40	44	44	25	20	138	122
%	*86*		*83*		*100*		*80*		*88*	
Other facilities	6	6	12	9	6	6	5	4	29	25
%	*100*		*75*		*100*		*80*		*86*	

Table 3-III Number of Respondents giving Information about the Services Provided by the Co-operative and making Use of Them (Classified by Tenurial Categories)

Types of Services	Tenants		Owners		Tenant-owners		Owner-tenants		Total	
	Provided	Utilized	Provided	Utilized	Provided	Utilized	Provided	Utilized	Provided	Utilized
Cultivation loans	70	44	21	13	16	12	14	5	121	74
%	*63*		*62*		*75*		*36*		*61*	
Certified seed paddy	38	17	8	2	6	2	3	-	55	21
%	*45*		*25*		*33*		-		*40*	
Subsidised fertilizer	77	65	26	23	20	19	15	15	138	122
%	*84*		*89*		*95*		*100*		*88*	
Agro-chemicals	73	56	26	24	16	16	13	13	128	109
%	*77*		*92*		*100*		*100*		*86*	
Marketing of Paddy	76	64	27	23	19	15	16	14	138	116
%	*84*		*85*		*79*		*88*		*84*	
Other facilities	12	11	7	6	4	4	6	5	29	26
%	*92*		*86*		*100*		*83*		*86*	

It appears from both Tables 3-II and 3-III that there exists a difference particularly in respect of cultivation loans and certified seed paddy between the number of respondents giving information about the services made available by the co-operatives and between those actually making use of the services. However, this difference is not so conspicuous in the case of fertilizer and agro-chemicals. *Only 47% of the smallest cultivators (2.0 acres and less) utilize cultivation loans compared to 71% of the largest cultivators (over 6.0 acres). The smallest cultivators make least use of subsidised fertilizer; only 81% using it compared to 91% by cultivators with 4.01-6.0 acre holdings.* It is very significant that the class of cultivator who needs these services most makes least use of them.

With respect to the utilization of cultivation loans by tenurial category, 75% of the tenant-owners use this facility. There is little difference between the owners and tenants (63% and 62%). Owner-tenants are noteworthy in that only 36% of them use cultivation loans.

Tables 3-II and 3-III also reveal that a considerable number of the respondents under each category (both tenurial and land size) did not mention the types of services provided by the co-operatives. Among various types of services, scores for certified seed paddy made by all types of respondents are very small.

3.3 Indebtedness

59% of a total number of 147 respondents were in debt during 1971-72 Maha. While 70% of the tenants were indebted (the highest for any group) the owner-tenants with 38% in debt ranked the lowest (Table 3-IV) It was also clear from Table 3-IV that more tenants were indebted than owners, and more tenant-owners than owner-tenants. *The tenants and tenant-owners have less access to co-operative credit with 26% and 11% respectively obtaining co-operative credit as compared to owners and owner-tenants with 35% and 33% respectively.*

Table 3-IV Number of Sources from which Cultivators Borrow according to Tenurial Category - Maha 1971/72

Tenure category	Total No.of Operators	Total No. of Borrowers		Borrowed from coop only		Borrowed from one private source only		Borrowed from coop and one private source only		Borrowed from more than one private source	
		No.	% of Total	No.	% Borrowers	No.	% Borrowers	No.	% Borrowers.	No.	% Borrowers
Owners	32	17	*53*	6	*35*	7	*40*	4	*25*	-	-
Tenants	77	54	*70*	14	*26*	26	*48*	9	*17*	5	*9*
Owner-Tenants	16	6	*38*	2	*33*	3	*50*	-	-	1	*17*
Tenant-Owners	22	9	*41*	1	*11*	7	*78*	1	*11*	-	
Total	147	86	*59*	23	*27*	43	*50*	14	*16*	6	*7*

Note: There were two cases who borrowed from co-operative as well as from People's Bank.
There was one case of borrowing from the Mortgage Bank. These were included with the total borrowings from Co-operative.

Of the borrowing respondents, a high proportion of tenants (48%) and a still higher proportion of tenant-owners borrowed from one private source only and among owners and owner-tenants the proportion of such borrowers was small. Only a few cultivators(20) borrowed from more than one source. Owner cultivators borrowed from the Co-operatives as well as from private sources. Some tenant cultivators borrowed from more than one private source and others from Co-operatives and more than one private source.

Out of a total of Rs.52,168/- reported as borrowed, Rs.24,984 or 48% was borrowed from the co-operatives during 1971-72 Maha. This constituted the highest proportion of loans obtained from any one source. If, however, other sources are collectively considered as non-institutional, it is noteworthy that they provide the majority of the credit utilized by cultivators (52%).

The average size of loan per borrower from all sources for owners, tenants, owner-tenants and tenant-owners worked out to Rs.484/-, Rs.682/-, Rs.494/-, and Rs.460/- respectively. Taking all tenurial categories together, the average size of loan per borrower is Rs.607/-.

Among owners and owner-tenants, borrowers from Co-operatives besides forming a large percentage of all borrowers, obtained a large share of all loans; their loans from Co-operatives amounting to 74% and 70% respectively of the total loans obtained by these tenurial groups. The Co-operative loans obtained by tenants and tenant-owners were only 42% and 30% respectively of all loans (Appendix I).

Thus it is evident that tenants and tenant-owners make less use of institutional credit facilities and rely more on private credit. Given the difference in rates of interest discussed later in this section,it implies higher cost for cultivators in those tenurial categories.

There is a close relationship between the average size of loans from all sources and the size of land holdings irrespective of different tenurial groups (Appendix II). *The average amount of loan increases with the increasing size of land holdings.* However, in respect of co-operative credit, an exception is found for the land size class 4-6 acres which accounted for 40% of the total loans borrowed from various sources, whereas the land size classes 2-4 acres and above 6 acres accounted for 53% and 52% respectively.

The average amount of co-operative loans per borrower ranges from Rs.517/- to Rs.1,059/- according to the increasing size of land holdings. Taking all land size classes together the average co-operative loan per borrower is Rs.727/- (Appendix III). Besides this, the outstanding co-operative loans amounted to more than what was borrowed during 1971-72 Maha, i.e. Rs.31,022/- as against Rs.24,984/-. A large number of respondents who had not settled their loans could not obtain co-operative loans during 1971-72 Maha. The average amount outstanding per borrower was Rs.654/-.

There were a few respondents whose loans were outstanding who had borrowed from the co-operative during 1971-72 Maha also. The average amount of all such loans per borrower worked out to Rs.961/-.

It should be mentioned here that whereas the average loan per borrower from all sources during 1971-72 Maha was Rs.607/- the average amount of all loans from co-operatives stood at Rs.709/-.

The information also revealed that a larger proportion of the total number of respondents had outstanding co-operative loans (29%) compared to those who received co-operative loans during 1971-72 Maha (20%) and those who had both outstanding and current loans (5%). (Appendix IV).

Only about 29% of the cultivators had not been able to borrow from the co-operative during Maha 1971/72 due to non-repayment of an outstanding loan. *It is, therefore, surprising that as much as 52% of the credit had been obtained from non-institutional sources although their rates of interest were several times higher.*

3.4 Reasons for not Borrowing from Co-operatives

Nearly 73% of the respondents did not borrow from co-operatives for the 1971 Maha cultivation season. Of the various reasons given for not obtaining loans from co-operatives, outstanding loans to the co-operatives constituted the most important reason with 27% of non-borrowing respondents having outstanding loans. About 24% of non-borrowing respondents indicated that they did not require co-operative loans, 16% mentioned that there was no organization for providing loans while another 6% of the non-borrowers had no knowledge of co-operative credit. Of the 17% of the reasons classified under others, the most important was non-membership in the co-operative society. (Table 3-V).

Table 3-V Reasons for not Borrowing from Co-operatives according to Tenurial Categories

Tenurial Categories	Co-op Loans		Reasons for not Obtaining Co-operative Loans							
	Obtained	Not Obtained	No organization for loans	No knowledge about loans	Too difficult procedure	Not applied in time	Outstanding loans to Coop	Not interested in HYVs etc	Loans not needed	Others
Tenants	24	53	7	3	3	3	21	-	5	19
%	*31*	*69*	*13*	*6*	*6*	*6*	*40*	-	*9*	*36*
Owners	12	20	5	1	-	-	3	-	8	6
%	*38*	*62*	*25*	*5*	-	-	*15*	-	*40*	*30*
Tenant-owners	2	20	1	1	-	3	5	1	7	8
%	*9*	*91*	*25*	*5*	-	*15*	*25*	*5*	*35*	*40*
Owner-tenants	2	14	3	1	-	-	-	-	6	6
%	*13*	*87*	*21*	*7*	-	-	-	-	*43*	*43*
Total	40	107	16	6	3	6	29	1	26	39
%	*27*	*73*	*16*	*6*	*3*	*6*	*27*	*1*	*24*	*36*

Note: Some of the respondents gave more than one answer.

The table shows clearly that from among non-borrowing respondents, *a larger proportion of tenants were not in a position to obtain co-operative credit owing to outstanding loans - 40% as against 15% for owners.*

3-5 Rates of Interest

The rate of interest charged by non-institutional sources varied from 20% to 150% per annum, the average annual rate of interest varying from 50% to 60%. Among non-institutional sources, friends and relatives charged interest rates comparatively lower than others. The traders on the other hand, besides charging higher rates of interest from borrowers, had also the advantage of buying produce from borrowers at cheaper prices.

The interest rate on loans from People's Bank and Co-operatives was 7½% and 9% per annum respectively.

3·6 Repayment of Loans

65% of those who borrowed from co-operatives did not repay their loans in full. The defaulters consisted of 83% and 33% respectively of the borrowers among tenants and owners.

The repayment rate in respect of loans obtained from private sources seems to be almost 100%. For instance in the case of loans obtained from money lenders, traders, friends and relatives, even if the loans were not settled in full (the number in this case is any way very small) the interest due on the loans was paid. (Table 3-VI).

Table 3-VI Repayment of Loans according to Tenurial Category and Source

Tenurial Category	Co-operative		Friends and Relatives		Money Lenders		Land-lords		Traders		Total	
	Re-payment	Non-Re-payment	Re-payment	Non-Re-payment	Re-payment	Non-Re-payment	Re-payment	Non-Re-payment	Re-payment	Non-Re-payment	Re-payment	Non Re-payment
Tenants	4	20	18	8	8	1	10	-	8	4	48	33
%	*17*	*83*	*69*	*31*	*89*	*11*	*100*	-	*67*	*33*	*59*	*41*
Owners	8	4	9	-	2	1	-	-	1	-	20	5
%	*67*	*33*	*100*	-	*67*	*33*	-	-	*100*	-	*80*	*20*
Tenant-Owners	1	1	4	1	1	-	1	-	1	-	8	2
%	*50*	*50*	*80*	*20*	*100*	-	*100*	-	*100*	-	*80*	*20*
Owner-Tenants	1	1	4	-	-	-	-	-	1	-	6	1
%	*50*	*50*	*100*	-	-	-	-	-	*100*	-	*86*	*14*
Total	14	26	35	9	11	2	11	-	11	4	82	41
%	*35*	*65*	*50*	*20*	*85*	*15*	*100*	-	*73*	*37*	*67*	*33*

Table 3-VII Reasons for Non-Repayment of Loans

(a) Reasons for non repayment of Co-op Loan	Tenants	Owners	Tenant-owners	Owner-tenants	Total
1.Crop failure	11	2	3	2	18
2.Government loan, debtors not pressed to repay	2	2	1	-	5
3.Had to settle other debts first	7	2	1	1	11
4.Had to incur unavoidable expenses, sickness, funerals, etc.	4	-	-	-	4
Total	24	6	5	3	38
(b) Reasons for non-repayment of non-institutional loans					
1.Crop failure	-	1	-	-	-
2.Unavoidable expenses such as sickness, funerals, etc.	-	1	-	-	-
3.Settlement of loans from Co-operative stores	-	1	-	-	-
Total	-	3	-	-	-
(c) Most important reason given for non-repayment					
1.Crop failure	7	2	3	2	14
2.Had to settle other debts first	6	1	1	-	8
3.Government loan, debtors not pressed to repay	1	1	-	-	2
Total	14	4	4	2	24

Several reasons were given for the non-repayment of co-operative loans of which crop failure accounts for 47%, settlement of other debts 28.95% no pressure for collection of loans by the co-operatives 13% and unavoidable family expenses, like sickness 11%. *About 58% of the respondents gave crop failure as the most important reason for non-repayment of co-operative loans.*

After investigation it was discovered that the respondents who mentioned crop failure as the most important reason for non-repayment of co-operative loans, either lost the crop completely or had a poor crop during Yala. However, during Maha 1971 the data do not indicate such crop failure. *It therefore, raises several questions:*

1. *Whether farmers gave greater preference to repaying loans taken from private sources than from the co-operative when it came to disbursing the income from Maha?*

2. *Whether they were uncertain about obtaining a loan from the co-operative even if they settled what was outstanding?*

3. *Whether crop failure or poor yield was due to drought or lack of funds (credit) to finance cultivation costs (including fertilizer, agro-chemicals, ploughing, labour, etc.,)*

or

4. *Whether there was a lack of supervision or interest among co-operative officials in their handling of loan applicants?*

These are the questions which need further investigation.

Chapter 4

AGRICULTURAL INFORMATION AND EXTENSION

4.1 Extension Organization and Activity in the District

The Extension Organization in the District is headed by an Agricultural Officer who is based in Hambantota. He is assisted by a team of Technical Officers both at Headquarters and in the field.

At the district level the technical staff consists of:

A District Agricultural Extension Officer
An Additional District Agricultural Extension Officer
An Agricultural Instructor (Headquarters)
An agricultural Instructor (Paddy), and
An Agricultural Instructor (Plant Protection).

The technical staff in the field comprises 7 Agricultural Instructors and 53 village-level extension officers (Krushikarma Viyapthi Sevaka) deployed as indicated in Table 4-I.

Table 4-I: Distribution of Agricultural Extention Staff at Divisional Level.

Extension Centre	Agricultural Instructors	Krushikarma Viyapthi Sevaka in office	Krushikarma Viyapthi Sevaka in the field	Paddy Acreage
Walasmulla	1	1	9	9355
Beliatte	1	1	7	10106
Hungama	1	1	7	6921
Ambalantota Walawe left bank	1	1	5	5395
Ambalantota Walawe right bank	1	1	6	4993
Pannegamuwa	1	1	6	5395
Deberawewa	1	1	6	7079
Total	7	7	46	49244

The Department of Agriculture through its Extension Service uses a number of methods to diffuse farm information. Some of the methods are, individual - visits of extension personnel to farms and contact with farmers, group methods - farmer training classes; mass media techniques - advisory leaflets, radio broadcasts and film shows. Other methods through which farm information is disseminated include demonstrations in farmers' fields and farmer

visits to Extension Centres. Farm neighbours are also a source of influencing other farmers.

4.2 Sources and Agents of Aricultural Information

Table 4-II: Area of Coverage of the Several Sources/ Agents of Agricultural Information

Source/ Agent	General Agricultural Information No.of farmers reporting=140 No	% *	Adoption of New High Yielding Varities No.of farmers reporting=70 No	% *	Fertilizer recommendations for New High Yielding Varieties No of farmers reporting = 57 No	% *
Extension personnel visiting farmer	108	79	41	59	31	54
Farmer visitin Extension Centre	48	34	20	29	7	12
Farm neighbours	49	35	34	49	10	18
Farmer Training classes	34	24	24	34	11	19
Demonstration plots	36	26	28	40	1	2
Advisory leaflets	50	36	27	39	7	12
Radio Programmes	42	30	19	27	1	2
Agricultural film shows	34	24	15	21	-	-
Newspaper article	-	-	12	17	-	-
Other sources (Cultivation Committees, landlords etc.	13	9	13	19	5	9

* Percentages are not additive to 100 as farmers reported receiving information from several sources.

As seen from Table 4-II, *the single information agency with the greatest impact on the farmer was the agricultural extension service through visits of its staff to farmsteads.* From this source, 79% of the farmers got their general information on agriculture, 54% their information on fertilizer use, while the extension service has also been responsible for influencing 59% of the farmers to adopt new high-yielding varieties. Next in order of coverage for general information came advisory leaflets, farmer visits to extension centres and farm neighbours. Approximately 35% of the farmers had their general information from these sources. Lower down in the Table coverage-wise were radio broadcasts, demonstration plots, farmer-training classes and agricultural film shows.

In effecting the change to new high-yielding varieties, farm neighbours (49% as against extension personnel 59%) emerged as the second most influential source. This points to the possibility of using progressive farmers to aid the extension effort in accelerating the adoption of new practices. Demonstration plots 40%, advisory leaflets 39% and farmer-training classes 34% are followed by, in descending order of effectiveness, farmer visits to extension centres, radio programmes and agricultural film shows.

A new farm practice is most effectively 'sold' if carried out on a farmer's field at an accessible spot and under good management. The farmer who successfully adopts a new variety performs a useful service by introducing a new practice to the neighbourhood. As seen from Table 4-II, farm neighbours are the second most important agent in influencing other farmers to adopt new varieties. Accordingly 'Minikit' and 'Production kit' programmes of the Department of Agriculture could be particularly useful in bringing a large number of farmers in contact with the new varieties in a relatively short period of time. Demonstration plots were rated as a third most important source that made for the adoption of new varieties.

In making farmers aware of fertilizer recommendations for new high yielding varieties, personal visits of the extension staff were by far the most effective. The other effective sources were farmer training classes, farm neighbours, extension centres visited by farmers, and advisory leaflets. All these situations, with the exception of advisory leaflets, involve inter-personal communication between the extension agent and the farmer. *In the dissemination of information of a technical nature like fertilizer recommendation, the most effective method of communication appears to be a direct and personal contact between the Extension Officer and the farmer.* The present practice of concentrating on technical aspects of farming at farmer training classes, such as the use of agro-chemicals, identification of pests and diseases, water management and so on, rather than dealing with matters of general interest, is a sound one.

Agricultural information was next classified in terms of media and audience and are presented in Table 4-III.

Table 4-III: Media Effectiveness in Relation to Different Types of Agricultural Information

Type of Information	Personal %	Impersonal %	Individual %	Group %	Mass %
General Agricultural Information	43	29	49	25	30
Information in relation to adoption of NHYV	43	32	45	37	29
Fertilizer recommendations for NHYV	25	4	28	11	5

The data indicates how the usefulness of personal[1] *and impersonal methods varies with the type of message conveyed.* Personal methods are preferred to impersonal ones in the case of all three types of information - general agricultural information, the adoption of new varieties and fertilizer recommendations-and the difference between the two approaches is least in the change to the new varieties.

Verner and Gubbles[2] in a study of the Fraser Valley found that the influence of information media varies with the stages in the adoption process. The adoption process was divided into 5 stages, awareness, interest, evaluation, trial and adoption. Impersonal media were found to be more effective at the initial stages of awareness and interest but began to loose their influence when it came to the later stages of interest and evaluation. In contrast, the preference for personal methods increased progressively as the stages developed from awareness to adoption. The available data in the present study does not enable a comparison of the effectiveness of information media at the different stages in the adoption process. As seen in Table 5-III, both personal and impersonal methods are important in making farmers change over to new seeds. However, as information becomes more technical impersonal methods became correspondingly of less value.

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1. Extension contact methods may be classified into personal and impersonal types. Personal contacts are those entailing direct communication between a farmer and the extension agent, while impersonal contacts include printed material or use of mass media.

2. Verncer C and Gubbles Peter H. THE ADOPTION OR REJECTION OF INNOVATIONS BY DAIRY FARM OPERATORS IN THE LOWER FRASER VALLEY - Agricultural Economics Research Council of Canada.

4.3 Extension Contact Score

An extension contact score was used to measure the number of contacts between the farmer and the extension services. For this purpose the following types of contacts with the extension services in 1972 Yala season were used. The score refers to the number of sources with which a farmer had contact during the season.

Types of Contact

1. Visits to Extension Centre
2. Visits by Extension personnel
3. Farmer training classes
4. Demonstration Plots
5. Advisory lealfets (Farmers who reported reading advisory leaflets were included)
6. Radio programmes (Farmers listening to radio programmes were included)
7. Agricultural Filmshows.

Table 4-IV: Extension Contact Score - Yala 1972

Level of Contact	Contact Score	No. of farmers	%
Low	0	12	*8*
	1	19	*13*
	2	20	*14*
	3	28	*19*
Medium	4	21	*15*
High	5	24	*16*
	6	20	*14*
	7	2	*1*
Total		146	*100*

Average Contact Score = 3.24

As seen in Table 4- IV 8% of the farmers reported no contact of any kind with the extension services during the season, while 1% of farmers had all seven types of contact. *Respondents reported an average of 3.24 contacts.* A contact score of 0-3 was described as low, 4 as medium and 5-7 as high. 54% of the respondents were in the low group with an average contact score of 1.6; 15% were in the medium group; and 31% of the farmers fell into the high contact class with an average score of 5.7.

Table 4-V shows the distribution of farmers in terms of extension contacts during the season. Among the several contact methods, personal visits of extension staff had the highest frequency of use with 62% of the farmers reporting this type of contact; 41% visited the extension centre and 24% attended farmer training classes in the same season. Among impersonal contacts, radio programmes had the highest frequency of use. In descending order of use were demonstration plots, advisory leaflets and agricultural film shows. In this classification respondents were more frequently

exposed to or had a greater contact with impersonal rather than personal sources. The average use of personal contact was 42% while the average for impersonal contacts was 50%.

Table 4-V: Distribution of Respondents by Use of Contact Methods - Yala 1972

Method	No.	%	N = 146 = 100%
Personal:			
Visited Extention Centre	60	*41*	Average for personal contacts - 42
Visited by Extension personnel	90	*62*	
Attended Farmer Training Classes	35	*24*	
Impersonal			
Seen demonstration plots	84	*58*	Average for impersonal contacts - 50
Read advisory leaflets	78	*53*	
Listened to radio programmes	87	*60*	
Seen agricultural film shows	44	*30*	

Table 4-VI: Relationship Between Extension Contact Score and Adoption of New High Yielding Varieties - 1972

Contact Score	No. of farmers	No. of adopters	Percentage adoption
0	12	3	*25*
1	19	7	*37*
2	20	7	*35*
3	28	12	*43*
4	21	10	*48*
5	24	16	*67*
6	20	14	*70*
7	2	1	*50*

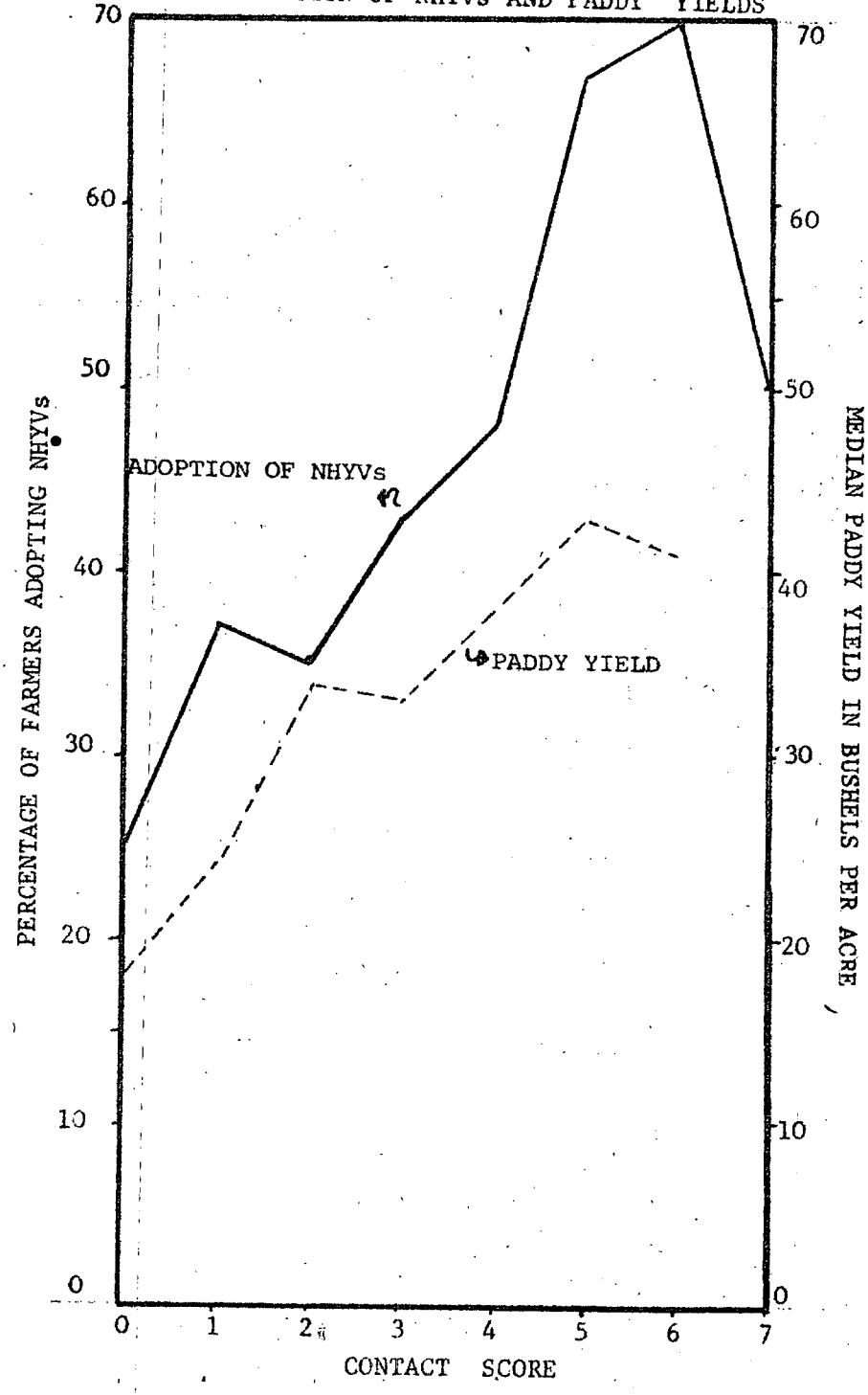
Table 4-VII: Relationship Between Extension Contact Score and Paddy Yields*- Yala 1972

Contact Score	No. of farmers	Median Yield (bu/acre)
0	11	18.00
1	19	24.00
2	19	34.29
3	27	33.33
4	19	38.00
5	23	43.20
6	19	41.70
7	1	

* Farmers who experienced complete crop failure were excluded from this classification.

Fig: V

RELATIONSHIP BETWEEN EXTENSION CONTACT AND ADOPTION OF NHYVs AND PADDY YIELDS



An attempt was made to relate the extension contact score with the adoption of a new high yielding varieties and paddy yields. In Yala 1972, the Hambantota district had an unfavourable season resulting in a situation where the yields were not only low but highly variable. Accordingly, the extension contact score for Yala 1972 was examined in relation to the adoption of new high yielding varieties in Maha 71/72 and the median yields of the same season. As the contact scores would not have varied much between the seasons it was not thought objectionable to relate the extension contact score in Yala with the adoption rates for new high yield varieties and yields for the Maha 1971/72 season. *The rate of adoption of new yieldings varieties as well as paddy yeilds showed a progressive rise with increased extension contact.* Farmers who had had no contact with the extension services during the season registered a midian yield of 18.00 bushels/acre and their rate of adoption of new high yielding varieties was 25%, while farmers who had a contact score of 6 recorded 41.70 bushels/acre and an adoption rate of 70%. The class with a contact score of 7 cannot be considered representative as only 2 farmers were in this category. Although the relationship between adoption of new high yielding varieties and the degree of extension contact is direct the relationship between yields and extension contact is less so. Just as greater contact with the extension services could help farmers to increase their yields, farmers with higher yields are likely to receive more attention from extension personnel. It is therefore difficult in the latter case to distinguish between dependent and independent variable. Although the adoption of new high yielding varieties could be due to the influence of extension, yield is the result of numbers of factors of which extension is one.

4.4 Farmer Contacts with Extension Services.

Although there is a need to visit extension centres for a number of reasons, only 41% of the farmers in the sample had done so in Yala 1972.

Table 4-VIII: Farmer Contact with the Extension Centres.

A. Awareness of and visits made to Extension Centres:	No.	% (146=100)
Farmers who knew the location of Extension Centres	88	*60*
Farmers who visited it in Yala 1972	60	*41*
B. Reasons for visiting Extension Centres:		
To buy seed paddy	24	*41*
To buy other planting material	2	*3*
For general advice	8	*14*
For advice on a specific problem	5	*9*
To buy fertilizer, agro-chemicals, mammoties or to hire a sprayer	9	*16*
To attend farmer training classes	3	*5*
Other reasons	7	*12*
Total number of farmers who gave reasons for visiting	58	*100*

As shown in Table 4-VIII 60% of the farmers knew the location of the Extension Centre and 68% of them (41% of total) had visited it in Yala 1972 season. *60% of those visits had been made to purchase some input of which the most important was seed paddy.* Since the issue of certified seed paddy of new high yielding varieties is exclusively handled through the extension services, the staff at these centres get many opportunities to establish contact with farmers during these visits, and the officers at these centres could make use of these opportunities to impart useful technical information to farmers in addition to providing the inputs. With the new agricultural service centres that are being set up under the Agricultural Productivity Law, the tendency for farmers to visit these centres is bound to increase in the future.

Table 4-IX: Farmers' Relationships with Extension Personnel

Contact with Extension Personnel	No.	% (146=100%)
Farmers visited by extension personnel in Yala 1972	90	*62.*
Farmers who preferred more visits	134	*92.*
Farmers who knew how to contact the Krushikarma Viyapthi Sevaka if necessary	116	*79.*
Farmers who knew him by name	49	*34.*

It is seen that 90 farmers had been visited by extension personnel in Yala 1972 season. This constitute 62% of the sample. A total of 101 visits had been made by the extension staff of which 87 were on their own initiative and the rest on requests made by the farmers. More than 90% of the farmers desired that extension personnel should visit them more frequently. This preference for more individual visits by extension staff involves two difficulties.

(a) the area that an extension worker has to cover or in other words the number of farm families that he has to serve, and

(b) the problem of transport particularly in rural areas.

According to the present extension organisation of the Department of Agriculture, an Agricultural Instructor covers about 7500 acres of paddy land and has to deal with around 3000 - 6000 farm families. On the average each Krushikarma Viyapthi Sevaka has to deal with 700 - 1000 farmers.[1] Considering the large size of the range and poor public transport in rural area, it will be difficult for the extension staff to increase visits to individual farmers in the present situation.

1 Draft Agricultural Development Plan - 1971 - 1977. Agricultural Research Education Extension and Training.

Table 4-X Farmers' Relationship with Extension Services According to Supply of Water and Tenurial Category and Size of Holding

	Major Irrigation		Minor Irrigation		Rainfed		Tenant		Tenant Owner		Owner Tenant		Owner		Up to 2.00 acres		2.00-5.00 acres		5.00-10.00 acres		Above 10.00 acres		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total No.of farmers	83	-	46	-	17	-	76	-	22	-	16	-	32	-	26	-	83	-	30	-	7	-	146	-
Know the location of the Extension Centre	58	70	23	50	7	41	43	57	17	77	8	50	20	63	14	54	51	62	17	57	6	86	88	60
Visited Estension Centre in 1972 Yala	37	45	17	37	6	35	27	36	15	68	8	50	10	31	12	46	33	40	10	33	5	71	60	41
Visited by the Extension personnel in 1972 Yala	50	60	32	70	8	47	48	63	12	55	11	69	19	59	15	58	47	57	23	77	5	71	90	62
Knew the name of Krushikarme Viyapti Sevaka (KVS)	33	40	12	26	4	23	24	32	9	41	7	44	9	28	8	31	24	29	12	40	5	71	49	34
Knew how to contacts (KVS)	69	83	36	78	11	65	63	83	18	82	12	75	23	72	17	65	68	80	24	80	7	100	116	80
Attended farmer training classes in 1972 Yala	26	31	8	17	1	6	19	25	5	23	3	19	8	25	8	31	20	24	4	13	3	43	35	24
Had seen demonstration plots	54	65	25	54	5	29	47	62	11	50	8	50	18	56	12	46	49	59	19	63	4	57	84	58
Read ing advisory leaflets	50	61	24	52	4	24	36	49	12	55	8	50	22	59	15	58	46	55	13	43	4	57	78	53
Listening to Radio Programmes	59	71	24	52	4	24	45	59	12	55	10	63	20	63	13	50	49	59	18	60	7	100	87	60
Seen Agri.Film Shows in 1972 Yala	27	33	13	28	4	24	17	22	4	18	8	50	15	47	6	23	25	30	8	27	5	71	44	30

An attempt was made to relate farmer contact with the extension services in terms of size of holding, the supply of water and tenurial conditions. In the below 2.00 acre group, the number of farmers visited by extension workers was 58%, in the 2 - 5 acre group 57%, in the 5 - 10 acre group 77% and in the group above 10 acres 71%. It was apparent that the bigger farmers were served better either because their farms were more accessible or there was a better response and co-operation from them. In similar manner, the number of farmers who knew how to contact the Krushikarma Viyapthi Sevaka reduced with a decrease in the size of holding. In the below 2 acre category those who knew him by name formed 31%, in the 2 -5 acre category 29%, in the 5-10 acre category 40% and in the category above 10 acres 71%.

A similar relationship was noticed in regard to water supply conditions. 83% of the farmers in major schemes knew how to contact the Krushikarma Viyapthi Sevaka when necessary. This figure reduced to 78% under minor-irrigation and 65% in the rain fed areas. Those who knew the Krushikarma Viyapthi Sevaka by name dropped from 40% in major irrigation schemes 26% in minor scheme and to 23% in rainfed areas.

There was no clear relationship between tenancy and extension contact.

Farmers with larger holdings and particularly those in areas under major irrigation were financially better able to undertake the investment which the new technology required. In their case, a dependable supply of water reduced the margin of risk and there was greater assurance of a return on their investment. The above discussion reflects a tendency to pay greater attention extensionvice to larger farmers and to those operating in major irrigation area. The situation arose from the emphasis placed on increasing paddy production, which logically lead the extension staff to pay more attention to farmers with a better yield potential.

Table 4-XI: Farmer Attendance at Training Classes

Farmer Training Classes	No	% (146=100%)
Farmers attended farmer training classes in Yala 1972	35	*24*
Those attended and indicated usefulness	32	*22*
Reasons for not attending		
Place was too far	3	*3*
Did not know about them	68	*73*
Too much work in the farm	9	*10*
Household problems	9	*10*
Not convinced of its benefits	4	*4*
Farmers who gave reasons for not attending	93	*100*
Total not attended	111	

24% of the farmers had attended farmer training classes and almost all of them indicated their usefulness. Of the 111 who had not attended them 93 were able to give specific reasons. *It is very significant that 73% of the farmers who gave some reason for not attending these classes indicated that they had not known about them.* The remainder knew about the classes but could not attend for one reason or another. It is seen that there is a fair degree of interest among farmers in these training classes. It would be desirable to give more publicity about training classes and also to arrange the topics according to the cropping pattern of the area at the appropriate time.

84 farmers (58%) had seen demonstratinn plots in their Cultivation Committee areas. Of these farmers 71 had indicated that they were useful. 78 farmers read advisory leaflets and nearly all of them found these useful. 13 of them were able to name a recent publication they had read.

Table 4-XII: Farmers' Acquaintance with Agricultural Literature

		No	% (146=100%)
Farmers reading advisory leaflets		78	53
Farmers reading advisory leaflets and indicated usefulness		76	52
Farmers who gave the name of a document read on			
Paddy	4)		
Subsidiary food crops	3)		
Govikam Sangara	2)	13	9
Others	4)		

Of the 87 farmers listening to radio programmes, 54 listened to them at home, 15 in neighbouring houses and 15 in nearby boutiques. There appears to be no listening at Community Centres. 44 farmers had seen agricultural film shows in Yala 1972 season.

Table 4-XIII: Farmers' Exposure to Radio Programmes and Agricultural Films

	No	% (146-100)
No of farmers listening to radio programmes	87	60
Listending to the radio at home	54	40
At the Community Centre	-	-
Village Boutique	15	10
Neighbours houses	15	10
Farmers indicating usefulness of these programmes	78	53
Farmers who could give the name of recent broadcast on:		
Paddy 13) Subsidiary food crops 6) Others 5)	24	16
Farmers who had seen agricultural film shows	44	30

Most of the information received through advisory leaflets and radio programme seemed to have been on paddy cultivation with less information on subsidiary food crops. This is understandable as until recently extension efforts of the Department of Agriculture were mostly directed towards paddy.

Chapter 5

MANAGEMENT PRACTICES

In farming, management is primarily concerned with the organization of production at the micro or individual farm level in order to increase the productivity of resources available to the farmer. The main resource that is available to a large proportion of paddy cultivators in Hambantota, as in other parts of Sri Lanka, is their own labour that has to be combined with other factors of production such as land and working capital. Land which is influenced by a host of factors such as soil types, water supply and climate, is often not owned by them. In addition there are other factors external to the farm such as tenure, credit, prices and marketing of produce that have a direct impact on management practices and production. Some of these have already been discussed and a few of the others more specific to the farm itself will be discussed in this section.

5.1 Time of Sowing

To increase the efficiency of management practices, not only the increased use of different inputs, but also the proper timing of various cultivation operations becomes necessary. In paddy cultivation, where production is normally scheduled according to seasons, timeliness of operations is extremely important if maximum production is to be achieved. In order to ascertain the timeliness of cultivation, data on the time of sowing paddy for Maha 1971/72 was examined. Of the 156 farmers interviewed only 117 were able to indicate the exact months of sowing, the particulars of which are given below:

Table 5-I Distribution of Farmers According to Time of Sowing and Water Supply - Maha 1971/72

Month	Number of Farmers				
	Major	Minor	Rainfed	Total	%
August	4	1	-	5	*4*
September	3	7	6	16	*14*
October	11	9	1	21	*18*
November	20	9	4	33	*28*
December	19	7	2	28	*24*
January	6	6	-	12	*10*
February	2	-	-	2	*2*
Total	65	39	13	117	*100*

This data highlights the magnitude of the spread of the sowing period, which in fact, has covered almost seven months. The peak sowing period tends to fall during the months of November and December, when 52% of the farmers reporting had sown their fields. The tendency to allow the period of sowing to stretch out unduly is most marked, particularly under major irrigation schemes, where 55% of them had their fields. It is also seen that in rainfed areas (Giruwa Pattu North and South) sowing has been completed in a relatively shorter period. As the ready availability of water under some of the major schemes, e.g. Walawe, appear to give a greater latitude to farmers to prolong the sowing season, the 65 farmers under major schemes were grouped according to different irrigation schemes and time of sowing.

Table 5-II Distribution of Farmers under Major Schemes According to Time of Sowing - Maha 1971/72

Month	Kirindi Oya Scheme (Magam Pattu)	Walawe Left & Right Bank (Giruwa Pattu East)	Urubokke Oya Kirama Oya (Giruwa Pattu North)	Urubokke Oya Kirama Oya (Giruwa Pattu South)
August	-	2	-	2
September	-	2	-	1
October	3	2	2	3
November	6	4	9	-
December	12	3	3	3
January	2	3	-	-
February	1	-	-	-
Total	24	16	14	9

Under the Kirindi Oya scheme, located in the drier part of the district, cultivation generally commences with the onset of the North East monsoon rains in October, and this fits with the general pattern of paddy cultivation in Maha in many of the dry zone districts. However, under the Walawe scheme which has a regular supply of water from Walawe Ganga almost throughout the year, the sowing period appears to drag along unduly. In this particular Maha season, sowing has extended from August to January under this scheme. Under Urubokke and Kirama schemes, which are of relatively minor importance, sowing period has been considerably shorter. In Giruwa Pattu South sowing undertaken in August and September is confined to longer aged varieties of 5½ months duration.

5·2 Untimely Sowing and Its Repercussions

The Department of Agrarian Services has specified the undermentioned cultivation periods for Maha and Yala seasons in Hambantota district under the Crop Insurance Act No.13 of 1961.[1]

Revenue Division	Date of commencement of sowing : Maha	Yala
Magam Pattu	October 15	March 20
Giruwa Pattu East	October 15	March 20
Giruwa Pattu South	July 1	March 20
Giruwa Pattu North	July 1	March 1

Under the provisions of the Irrigation Ordinance Chapter 435 section 11, 5(c) and 6, it is customary to fix a cultivation calendar for every season in respect of each of the major schemes, to ensure adequate supply of water for both Maha and Yala seasons to all farmers irrespective of the distance of their fields from the supply channels and also to provide for a closed season to undertake maintenance and repair of irrigation channels. *However, generally in Hambantota district, the actual sowing operations do not appear to conform to any agreed pattern.* On the other hand, under the Irrigation Ordinance, definite sowing dates are fixed with the consent of the cultivators for every irrigation scheme each season, and on the other, the irrigation authorities are faced with a situation in which farmers honour the stipulated sowing dates more in the breach.

If the data given in Tables 5-I and 5-II is in some way indicative of the general pattern of sowing under major schemes, it is not unrealistic to assume that there is considerable overlapping of seasons, particularly under the Walawe scheme. When Maha and Yala seasons overlap each other in this manner, it is difficult to ascribe any fixed period for any one season, and such a pattern of cultivation is generally called 'staggered cultivation'. Staggered cultivation has been defined as the practice whereby farmers within a particular area delay their cultivation operations, contrary to dates of operations agreed upon earlier resulting in the plots in one continuous yaya being at different stages of growth during the season.[2] The data presented earlier shows that a substantial section of the farmers do not realise, that the time of sowing is a critical factor in

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1. The Crop Insurance Act No.13 of 1961 (Extract from the "Gazette of the Republic of Sri Lanka No.29 of October 1972).

2. Staggered Cultivation of Paddy - A Case Study of Amparai District, Ministry of Agriculture and Lands, November 1972.

paddy cultivation. According to agronomists 'timely cultivation' by itself increases the potential for higher yields. Besides application of inputs such as fertilizer tend to give optimum results when seeds are sown at the correct time. The pattern of sowing particularly under Walawe scheme that irrigates over 12,000 acres in Giruwa Pattu East, , points to the widespread occurence of staggered cultivation (Table 5-II).

We have analysed the information on time of sowing for farmers under major schemes to illustrate its magnitude (Table 5-III). Only the farmers cultivating 5 acres or less have been considered here as they formed 93% of the respondents in this category. This data shows the prevalence of staggered cultivation particularly with reference to the 4-4½ month varieties which are cultivated by a majority of farmers. The widespread practice of staggered cultivation poses an important problem because of its influence on yield. Table 5-IV shows the yields obtained by farmers who had sown their crops during different months in the Maha season.

Table 5-III Distribution of Farmers under Major Schemes According to Time of Sowing and Age Groups of Paddy - Maha 1971/72

Month	No. of farmers who cultivated up to 5.00 acres	Number who cultivated varieties			
		5½ - 6 months	4 - 4½ months	3 - 3½ months	Did not specify
August	4	1	3	-	-
September	2	-	2	-	-
October	11	-	10	-	1
November	19	-	16	2	1
December	19	-	18	1	-
January	6	-	6	-	-
February	2	-	2	-	-
Total	63	1	57	3	2

Table 5-IV Distribution of Farmers under Major Schemes According to Time of Sowing and Yields - Maha 1971/72

	No.of farmers who cultivated up to 5.00 acres	Bushels per acre for all varieties cultivated	No.of farmers who cultivated only NHYV	Bushels per acre reported for NHYV
August	4	24.80	-	-
September	2	18.89	-	-
October	11	43.89	5	68.75
November	19	56.82	8	63.65
December	19	48.78	4	87.31
January	6	30.48	1	24.00
Total	61		18	

The yield data was available only in respect of 61 of the farmers. The yield per acre obtained by them in respect of all varieties grown as well as NHYV are given in columns 2 and 4 respectively. Since the number who sowed their fields in different months vary considerably, and also as those who grew NHYV is relatively small, it is not intended to draw any general conclusions with regard to the influence of time of sowing on paddy yields. *However, this data indicates a relationship between yield and time of sowing and from the point of view of productivity, it appears that November-December is the best period to sow paddy under major schemes in Hambantota.*

Ultimately sowing raises two main issues. Firstly, the yield per acre appears to decline as sowing seasons gets spread out. Secondly, due to overlapping of seasons particularly under the Walawe Scheme, the farmers invarably miss one cultivation season, generally once in two or three years. Although water is not a major problem, under the Walawe Scheme, most farmers miss one season of cultivation in every two or three years. As a direct consequence of overlapping of seasons there was no Yala cultivation in 1972 in Walawe left bank covering an area of 6,000 acres (approx.). *As some of the most productive paddy lands in Sri Lanka are located under Walawe, it is unfortunate to allow highly productive lands to miss cultivation seasons, particularly when Walawe Ganga brings in adequate supplies of water during most parts of the year.*

5-3 Factors Contributing to Staggered Cultivation

a) Varieties: Until the introduction of the variety H-4 around

1958, Hambantota farmers traditionally grew 3½-3 month varieties both in Maha and Yala. Pure line varieties recommended for Hambantota by the Department of Agriculture at the time, also fell into the above two age groups [1]. With the release of H-4 by the extension services in 1959/60, farmers readily switched over to this new hybrid, as its productivity, disease resistance, and adaptability were remarkably superior to the older pure lines that they were accustomed to.

The variety H-4 was primarily intended for Maha cultivation in dry zone districts as it belonged to the 4-4½ month age group. However, when farmers found that the performance of this new variety was far beyond their expectations, the majority of them who normally grew 3 month varieties in Yala under major schemes hurridly changed over to H-4. Thus in a matter of a few seasons, farmers under major schemes who for generations grew shorter aged varieties in Yala season, changed almost completely over to H-4. With the release of NHYV of the 4-4½ month age group such as BG 11-11, LD 66, and MI 273, in 1970/71, the cultivation of 4 - 4½ month age group varieties in both seasons have become still more popular, as these varieties have been found to be vastly superior to H-4. With the introduction of a second crop of a 4-4½ month variety in Yala, the cultivation schedules becomes very tight leaving inadequate time between seasons for post-harvest operations and field preparation. *Delays in water distribution, adverse weather conditions, inadequate draught power or personal problems invariably cause delays in cultivation over 3 or 4 seasons on a scale large enough to prevent cultivation of one season every 2 or 3 years. This problem is most acute in areas with major irrigation such as Walawe where access to irrigation water is available throughout the year.*

From the point of view of the individual farmer, higher productivity of the 4-4½ month varieties apparently compensate him adequately for this loss. Such an attitude on the part of the individual farmer is understandable as he neither incurs any variable costs on production nor fixed costs on account of land rent in respect of the season he misses. But from a national point of view, missing a cultivation season under major schemes due to reasons other than lack of water needs consideration. However, with the recent release of new high yielding varieties of shorter aged groups such as BG 34-8 (3 months) and BG 34-6 (3½ months), a new opportunity has been provided to the authorities concerned to persuade the farmers in this district to switch back to cultivation of new shorter aged varieties that have a much higher yield potential than H-4. *Initially it is desirable to make an attempt to get the farmers to switch over to a 3 month variety such as BG 34-8 during the Yala season. Such an approach would no doubt help to solve this problem of overlapping of seasons at least partly.*

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1. A Report on Paddy Statistics. Monograph No.9 (1956) p.33, Department of Census and Statistics.

b) Draught power for land preparation: There is general agreement that timeliness of paddy cultivation operations is generaly dependent on the availability of water and draught power for field operations. Since staggered cultivation was rather widespread under irrigation schemes, the data pertaining to use of draught power was arranged on the basis of water supply.

(i) Pattern of draught power use

Table 5-V Type of Draught Power Used for Preparation of Land

Water Conditions	No. of farmers reporting	Extent	(a) Mamoty only %	(b) Buffaloes only %	(c) 2-wheel tractors only %	(d) 4-wheel tractors only %	(e) Combination of a,b,c,d %	Total %
Major) Irrigation) A	86	-	1	18	45	14	22	100
B	-	390.00	1	13	43	17	27	100
Minor) Irrigation) A	53	-	10	13	26	25	26	100
B	-	159.53	3	14	27	32	24	100
Rainfed A	15	-	27	13	40	-	20	100
B	-	27.81	6	21	51	-	22	100
Total A	154	-	7	16	38	16	23	100
B	-	577.34	2	14	39	20	25	100

A - Farmers B - Extent

It is seen that 59% of the farmers under major and 51% under minor irrigation schemes had used only tractors for land preparation. Under rainfed conditions the only mechanical power that had been used had been 2-wheel tractors and 40% of them had used these machines. It is also seen that 2-wheel tractors had been used widely in the district irrespective of the source of water supply. 51% of the land in the rainfed group and 59% under major irrigation schemes had been prepared entirely with tractor power.

Use of buffaloes for tillage is relatively of lesser importance in this district, as only a small proportion of farmers depend entirely on animal power. 18% of the farmers in major schemes and 13% under rainfed conditions had used only buffaloes in preparing their fields.

It is of interest to point out that of those who had used buffaloes, 63% had resortedto only mudding their fields. Field preparation with mammoties is confined mostly to rainfed areas in Giruwa Pattu South and North where the size of holdings are also relatively small. 27% of the farmers in the rainfed group had used mammoties, but the extent tilled with hand tools was only 6% of the extent cultivated by them. Besides the above groupings, there is yet another group as indicated in the table that had used tractors, buffaloes and mammoties at some stage or another in field preparation. This group consistuted 23% of the total number of farmers interviewed.

Generally, this data illustrates the relative importance of tractors in land preparation. Since 54% of the farmers are entirely dependent on mechanical power and another 23% are partly dependent on machines for tillage, it is clearly seen that the availability of sufficient tractors is a key factor for timely cultivation in this district. With only 16% of the farmers being dependent exclusively on animal power, buffaloes figure in a relatively minor role in field preparation in this district. In view of the very important role that tractors play in paddy cultivation in Hambantota, we give below the principal reasons indicated by farmers for their preference for 4-wheel and 2-wheel tractors.

Table 5-VI Reasons for using 4-wheel tractors

Reasons	Percentage of farmers reporting
Speedier and timely preparation of fields	33
Non-availability of 2wwheel tractors ..	19
Landlord provided 4-wheel tractors ..	17

Altogether 57 farmers had used 4-wheel tractors at some stage in field preparation and 69% of them had given the above as the most important reason.

Table 5-VII Reasons for using 2-wheel tractors

Reasons	Percentage of farmers reporting
Readily available	26
Soils are boggy	24
Quality of work superior..	19
Tractors used were owned by them ..	14

A total of 92 farmers had used 2-wheel tractors exclusively or in combination with other forms of draught power. 80% of the users of these machines had indicated the above reasons as the most important. It was also noteworthy to point out that out of those who had used 4-wheel tractors, 19% had used them due to their inability to obtain 2-wheel tractors.

The ready availability of these machines and their suitability for work in boggy soils as reported by the farmers, highlights the relative importance of the 2-wheel tractors for paddy cultivation in Hambantota.

For purposes of comparison, reasons for the use of buffaloes in field preparation was also ascertained.

Table 5- VIII Reasons for using Buffaloes

Reasons	Percentage of farmers reporting
Cheaper to use them in land preparation ..	21
Tractors were not available	21
Buffaloes are easily available	14
Quality of work better	12

57 of the farmers interviewed had used buffaloes exclusively or in combination with other forms of draught power. 60% of these users of buffaloes had given the above reasons for their use. *It was of interest to note that 21% of them had used buffaloes due to their inability to get tractors thus indicating their preference for mechanical power. This again confirms the earlier view that use of buffalo power in Hambantota is of relatively minor importance.*

(ii) Availability of draught power: In view of the vital role that tractors play in the field preparation in this district, the availability of tractors was next examined.

Table 5-IX Use of Tractors - Maha 1971/72

	2-wheel tractors			4-wheel tractors		
	Owned	Hired	Total	Owned	Hired	Total
Number of farmers who used tractors exclusively or with animal power ..	11	81	92	3	54	57
% ..	*12*	*88*	*100*	*5*	*95*	*100*

This data illustrates the degree of dependence of farmers on hired machines for tillage. As mentioned earlier there are only 275 4-wheel tractors and 625 2-wheel tractors in the entire district. There is no accurate information as to the number of tractors that are in working order. Besides many of the 4-wheel tractors are used solely or largely for haulage and transport. Another factor that has a bearing on availability of tractors for tillage is the ownership of the machines. Since many of the tractor owners are non farmers, they prefer to hire out their machines for transport and threshing as compared to ploughing. This tendency is particularly marked when the threshing of the previous season's crop coincides with ploughing of the next season, a feature common under staggered cultivation. Thus, the number of tractors actually available for paddy cultivation will be considerably less than the official figures indicated earlier.

In Hambantota, generally about 40,000 acres are cultivated in a Maha season. Based on percentages of land prepared with tractors as indicated in table 5-V it is reasonable to assume that about 24,000 acres entirely and another 10,000 acres partly, are dependent on tractor power. Generally the duration from first issues of water to time of sowing under major schemes in the dry zone is about 40 days. Consequently there is a very heavy demand for tractors during a peak period of about 30 days. As tractors are used more by the farmers with larger holdings estimates relating to the extent of tractor usage may tend to be over estimated. We do not think however, that this over-estimation is important enough to reduce the seriousness of draught power situation in this district. *Since about 90% of the farmers appear to depend on hired tractors, a large majority of them have no choice but to stagger their sowing owing to their inability to get their requirements of machinery at the proper time.*

As pointed out earlier, use of buffaloes in paddy cultivation is of minor importance in this district. Based on data in Table 5-V the area tilled with animal power is estimated between 5,000 - 6,000 acres. *The 156 farmers interviewed, had only a total of 144 animals among 13 of them.* In consequence 70% of the 56 farmers who had used buffaloes for field preparation during Maha 1971/72 season had depended on hired animals. In this district the problem pertaining to buffaloes appears to be more of non-use of even the animals available. Generally, buffaloes are maintained in large herds in scrub jungle areas by a relatively small number of persons primarily not for paddy cultivation. Production of curd, sale for illicit slaughter and hiring out for mudding, appear to be some of the main reasons for maintaining large herds. *Many of the individual cultivators do not own buffaloes now, as they have had access to tractor power for well over a decade at very economical rates.* [1] Encroachments on land reservations, such as

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1. When tractors were imported at over valued exchange rates and also as government departments provided tractor hiring services to farmers at subsidised rates.

lands, channel and road reservations also had compelled the individual farmers to give up even rearing a few animals due to difficulties of finding pasture particularly in the dry season.

According to data collected by the Statistics Unit at Hambantota Kachcheri in 1972, there is an estimated buffalo population of over 25,000 animals in the district. *Considering the number of animals available in the area, there appears to be sufficient buffaloes to undertake field preparation in a larger area than they are accustomed to at present. But one problem seems to be to get the farmers to shift back to animal power from relatively cheaper mechanical power to which they had got used to during the last decade.*

It is a matter for regret that sufficient efforts have not been made to harness the available animal power. Hundreds of stray buffaloes that are found in scrub jungles are potential sources of power. To exploit the full potential of animal power available, development of indigenous implements suitable for paddy field work with buffaloes also has to receive priority. Currently buffaloes are used mostly in Hambantota district for mudding of fields which is a very primitive form of field preparation. If more farmers could be encouraged to use available buffaloes for paddy field work, rather than wait till hired tractors become available it would help to meet at least partly the draught power shortage in the district due to scarcity of tractors. Such an approach would also help to reduce staggered cultivation by more timely land preparation.

(iii) Supply of Water and Associated Problems: Irrigation water is a vital input that is essential, if maximum production is the aim. Availability of water not only affects competition from weeds, and utilization of nutrients, but also very often influences the farmer's decisions with regard to the level of care and attention that he is prepared to provide for his crop.

In a district with about 90% of the paddy acreage located under major and minor irrigation schemes, normally a higher intensity of land use is expected. In order to get a clearer picture of the intensity of paddy land use, the extent of paddy land sown during the last four years was examined. The area sown during nine seasons expressed as a percentage of the asweddumized land is given in Table 5-X.

Table 5-X Extents of Asweddumized Paddy Lands Cultivated according to Supply of Water

Season	Maj.Irrigation* Extent aswed-dumized	Extent sown (% of asw. Extent)	Min.Irrigation* Extent aswed-dumized	Extent sown (% of asw. Extent)	Rainfed* Extent aswed-dumized	Extent sown (% of asw. Extent)
Maha						
1967-68	32,688	*75*	9,372	*96*	4,525	*88*
1968-69	32,688	*95*	9,372	*66*	4,585	*92*
1969-70	32,031	*55*	10,032	*72*	4,585	*94*
1970-71	33,609	*88*	10,541	*69*	4,748	*93*
Yala						
1967	32,688	*65*	9,372	*30*	4,525	*51*
1968	32,688	*63*	9,372	*40*	4,525	*63*
1969	32,688	*65*	9,372	*29*	4,525	*51*
1970	32,031	*69*	10,032	*32*	4,585	*70*
1971	33,606	*67*	10,541	*32*	4,748	*78*

* Provisional figures supplied by the Department of Census and Statistics

Discounting the fact that drought conditions affected the high potential irrigation rice growing areas of the dry zone in two of the seasons during the above period, this data does not indicate a very encouraging picture of the intensity of land use in irrigated areas in the district. *The year 1968 is considered as one of the best years in the history of rice production in this country.*[1] *Even in that year the intensity of paddy land use in Hambantota has not been spectacularly high. The marked fluctuations in the sown extents during the last 4 years points out that even in most of the irrigated areas, the availability of water is not as assured as generally assumed.* This is partly due to the fact that major irrigation schemes in Magam Pattu which provides water for over 9,000 acres from Kirindi Oya receive water from upland catchments that are in the dry zone.[2] Consequently, the water supply in the river is reduced to stagnant pools during dry periods. Another factor that has a bearing on low intensity of land use is the non-cultivation of one season in every three or four under the Walawe Scheme which was discussed earlier.

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1. Draft Agricultural Development Plan 1971-77, Ministry of Agriculture and Lands, Annual Crops, Paragraph 17.

2. South East Ceylon, Trends and Problems in Agricultural Settlement, p.49. R. Wickramatileke.

Table 5-XI Extents of Asweddumized Paddy Lands Cultivated in Maha 1971/72 and Yala 1972 According to Supply of Water

Water supply conditions	No.of farms	Maha 1971/72 Area available for cultivation Acres	Area cultivated Acres	%	Yala 1972 Area cultivated Acres	%
Major irrigation	84	462	419	*91*	282	*61*
Minor irrigation	53	223	185	*83*	113	*51*
Rainfed	17	38	34	*90*	31	*81*
Total	154	723	638	*88*	426	*59*

The percentage of the area cultivated in Maha 1971/72 was fairly uniform for all three categories of water supply. It is noteworthy that 9% of the land under major irrigation and 17% under minor irrigation had not been cultivated during that season. In Yala 1972 the extent of uncultivated paddy lands have been considerably higher, the relevant figures being 39% and 49% of the asweddumized extents under major and minor irrigation schemes respectively.

A good measure of the intensity of land use is the "Cropping Intensity Index". It is the total acreage of land cultivated during the year expressed as a percentage of the physical area of land available. The extents of land cultivated by 154 of the farmers interviewed were classified on the basis of water supply and "cropping intensity indices" were computed.

Table 5-XII Index of Paddy Cropping Intensity

Water supply conditions	Average size of farm Acres	Average extent cultivated during the year Acres	Index of cropping Intensity [1] %
Major irrigation	5.37	8.15	152
Minor irrigation	4.19	5.60	133
Rainfed	2.23	3.81	171

[1]Cropping Intensity Index:

$$\frac{\text{Average acreage cultivated under paddy during the year}}{\text{Average size of Lowland holdings}} \times 100$$

These cropping intensies (Table 5-XII) show that the acreage cultivated is 152% of the total physical acreage available in major schemes. This figure is relatively low for major scheemes which are normally expected to have an assured supply of water. A low cropping intensity index in major schemes indicates the inadequate water supply particularly in Yala season. The very low figure of 133% in minor schemes is primarily due to the fact that the minor schemes located in the drier parts of the district in Magam Pattu and Giruwa Pattu East normally do not receive sufficient South West monsoon rains to provide adequate water for Yala cultivation. Contrary to normal expectations, the cropping intensity index in rainfed areas in this district is relatively higher. This is mainly due to the fact that rainfed paddy cultivation is undertaken in the western sector of the district in Giruwa Pattu North and South, which receive an appreciable amount of rain from the South West monsoon.

Of the 154 farmers, only 120 had cultivated their fields during Yala 1972. Of those who missed the Yala season completely, 20 of them were from irrigated areas and 75% of them indicated that the reason for non-cultivation was lack of water. Even out of the 120 farmers who did Yala 1972 cultivation, 21 of them had cultivated lesser extents than in Maha 1971/72 due to difficulties of obtaining sufficient water. *Better climatic conditions for growth of paddy plants exists more in the Yala season, but unfortunately paddy farmers face much uncertainty during Yala due to difficulties of obtaining irrigation water.*

The influence of water supply conditions that existed during different stages of growth was examined by grouping the yields obtained by 153 farmers into four distinct yield groups. (Table 5- XIII) According to the data presented in this table, a very close relationship is found between the yield of paddy and the availability of water during two crucial stages of production, i.e. the land preparation - sowing stage and the flowering stage of paddy. The availability of adequate supplies of water during the flowering stage of paddy is clearly associated with yields of paddy. It is seen that 50% of the cultivators in the lowest yield group had experienced inadequate water supplies during the flowering stage, whilst 78% of those who obtained highest yields have had adequate water during this critical stage of growth.

Though 90% of the asweddumized paddy area is classified as having irrigation facilities, only about 65% of the area is cultivated with paddy in Yala due to inadequate supplies of water, and deficencies in the irrigation systems, particularly of the distribution channels. *As the cropping intensity index is relatively low even in major schemes, there is sufficient justification to embark on a crop diversification programme especially in irrigated areas in Yala with a view to maximise the utilization of the available land and water resources. This would mean a movement away from a rice monoculture to a range of crops that need much less water than paddy. The choice of 'other field crops' of course has to be*

governed primarily by the type of soil, availability of water, climate and profitability of the crops concerned. Such a programme could also help to reduce at least partly the problem of staggered cultivation of paddy in the district.

Table 5-XIII Distribution of Farmers according to Yields and Water Supply Conditions at Different Stages of Cultivation - Maha 1971/72

Yield Bush/ Acre	Farmers		Avg. Yield	Stages of Cultivation: Land Preparation and Sowing								Flowering Stage							
				Good		Fair		Poor		Total		Good		Fair		Poor		Total	
	No.	%	Bush/ per Ac.	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Up to 20	47	*31*	8.39	29	*62*	10	*21*	8	*17*	47	*100*	15	*32*	7	*15*	25	*53*	47	*100*
20-40	53	*35*	31.29	37	*70*	11	*21*	5	*9*	53	*100*	29	*55*	11	*21*	13	*24*	53	*100*
40-60	30	*19*	55.77	24	*80*	3	*10*	3	*10*	30	*100*	20	*67*	6	*20*	4	*13*	30	*100*
Over 60	23	*15*	81.34	17	*74*	5	*22*	1	*4*	23	*100*	18	*78*	3	*13*	2	*9*	23	*100*
Overall	153	*100*	32.80	107	*70*	29	*19*	17	*11*	153	*100*	82	*54*	27	*17*	44	*29*	153	*100*

5.4 Use of Improved Seed

From the point of view of individual farmers, use of improved varieties in place of traditional varieties that they are normally accustomed to is an economical way of deriving the benefits of new technology as the cost of seed is the same, irrespective of the variety cultivated. The classification of varieties used in this discussion is as described in the Introduction.

Distribution of farmers according to varieties cultivated during Maha 1971/72 and Yala 1972 are given in Table 5-XIV

Table 5-XIV Distribution of Farmers according to Varieties Cultivated - 1971/72

Season	NHYV only	OHYV only	TV only	NHYV and OHYV	NHYV and TV	OHYV and TV	NHYV OHYV & TV	Total
Maha 1971/72	49	61	10	19	-	4	2	145
%	*34*	*42*	*7*	*13*	-	*3*	*1*	*100*
Yala 1972	61	29	10	7	3	3	3	116
%	*52*	*25*	*8*	*6*	*3*	*3*	*3*	*100*

Of the farmers who responded 34% in Maha and 52% in Yala had grown exclusively new high yielding varieties , the most popular being BG 11-11. However, it is seen that the old high yielding varieties, such as H-4, yet occupy an important place in Hambantota; 42% of the farmers in Maha and 25% in Yala had grown mostly these. The number of farmers growing traditional varieties was insignificant in either season.

5·5 Use of Improved Seed According to Seasons

The extents cultivated under different varieties during Maha 1971/72 and Yala 1972 classified according to size of holding are given in Tables 5-XV and 5-XVI respectively.

Table 5-XV Extents under Different Varieties according to Size of Holding - Maha 1971/72

Size of Holding (acres)	NHYV (acres)	OHYV (acres)	TV (acres)	Total (acres)
Up to 2.00	8.63	30.70	2.75	42.08
%	*20*	*73*	*7*	*100*
2.00 - 4.00	65.40	51.39	10.31	127.10
%	*52*	*40*	*8*	*100*
4.00 - 6.00	109.00	111.81	10.00	230.81
%	*47*	*48*	*5*	*100*
Over 6.00	76.00	94.13	27.25	197.38
%	*38*	*48*	*14*	*100*
Total	259.03	288.03	50.31	597.37
%	*43*	*48*	*9*	*100*

Table 5-XVI Extents under Different Varieties according to Size of Holding - Yala 1972

Size of Holding (acres)	NHYV (acres)	OHYV (acres)	TV (acres)	Total (acres)
Up to 2.00	15.00	15.64	2.18	32.82
%	*46*	*48*	*6*	*100*
2.00 - 4.00	58.13	23.13	21.40	102.66
%	*56*	*23*	*21*	*100*
4.00 - 6.00	120.06	33.50	16.00	169.56
%	*71*	*20*	*9*	*100*
Over 6.00	71.50	34.63	8.00	114.13
%	*63*	*30*	*7*	*100*
Total	264.69	106.90	47.58	419.17
%	*63*	*26*	*11*	*100*

The data in above tables show that 43% of the extent cultivated during Maha 1971/72 and 63% in Yala 1972 had been under new high yielding varieties. The higher proportion in Yala was due to the relatively smaller extent cultivated under the older HYVs. The total extent under the new HYVs was about the same in both Maha and Yala. *Considering the fact that the new high yielding varieties were introduced to farmers for general cultivation only in 1970/71, it is gratifying to note the rapid progress made in extending the area under these varieties during a relatively short period of two seasons. The older hybrids such as H-4 and H-8 which covered over 80% of the paddy area in Hambantota until the advent of these new high yielding varieties had been replaced rapidly by the new varieties such as BG 11-11, LD-66 and IR-8.* As pointed out earlier the traditional varieties occupy a relatively insignificant position in this district.

5·6 Use of Improved Seed according to Size of Holding

Farmers cultivating 2.00 acres or less had the lowest proportion under NHYV in Maha as well as in Yala. This proportion was highest among cultivators with 2.00-4.00 acres in Maha and those with 4.00-6.00 acres in Yala. This tendency seems to indicate a greater willingness or ability for the medium sized holding operators to adopt the newer varieties than the cultivators of either the smallest or largest sized holdings. Such an attitude on the part of farmers in small sized holdings is understandable,

as they may be reluctant to take risks involved in trying out new varieties until they are able to see for themselves the performance of these varieties in their own surroundings. It is interesting to note that the proportion under traditional varieties was highest in Maha for operators of the largest holdings and in Yala for operators of the 2.00 - 4.00 acre holdings. Among the latter group the extent cultivated under traditional varieties is greater in Yala than in Maha.

Distribution of varieties according to water supply during Maha 1971/72 and Yala 1972 are given in Tables 5-XVII and 5-XVIII respectively.

Table 5-XVII Extent under Different Varieties according to Supply of Water - Maha 1971/72

Water Supply	NHYV (acres)	OHYV (acres)	TV (acres)	Total (acres)
Major irrigation	180.40	179.44	35.75	395.59
%	*46*	*45*	*9*	*100*
Minor irrigation	69.13	90.45	8.13	167.71
%	*41*	*54*	*5*	*100*
Rainfed	9.50	18.14	6.43	34.07
%	*28*	*53*	*19*	*100*
Total	259.03	288.03	50.31	597.37
%	*43*	*48*	*9*	*100*

5·7 Use of Improved Seed according to Supply of Water

Table 5-XVIII Extents under Different Varieties according to Supply of Water - Yala 1972

Water Supply	NHYV (acres)	OHYV (acres)	TV (acres)	Total (acres)
Major irrigation	182.56	68.13	21.90	272.59
%	*67*	*25*	*8*	*100*
Minor irrigation	63.63	29.51	22.68	115.82
%	*55*	*25*	*20*	*100*
Rainfed	18.50	9.26	3.00	30.76
%	*60*	*30*	*10*	*100*
Total	264.69	106.90	47.58	419.17
%	*63*	*26*	*11*	*100*

It is seen that the greatest spread of new high yielding varieties has been made in areas under major irrigation schemes. In Maha 1971/72 46 of the area in major and 41% in minor irrigation schemes had been cultivated with these varieties whereas the extent under them in rainfed areas was only 28 . In rainfed areas, during Maha, farmers had depended more on the older hybrids and traditional varieties with which they were more familiar. This may be partly due to the reluctance on the part of the farmers to adopt new varieties with which they are rather unfamiliar due to the risks involved particularly when water supply is not assured. The popularity of new varieties under rainfed conditions during Yala 1972 season could be attributed to two main reasons. Firstly, new high yielding varieties of shorter duration such as BG 34-6, and BG 34-8 had been released well in time to fit in with the Yala 1972 sowing season in Hambantota. The other being that the rainfed areas in this district are located in Giruwa Pattu North and South which normally receive sufficient rain during the South West monsoon. Consequently, most of the rainfed fields have had a relatively more assured supply of water during the Yala season, than some of the irrigated areas located in the Magam Pattu.

5·8 Use of Improved Seed according to Tenurial Category

Cultivation of high yielding varieties was also examined on the basis of tenurial status of the farmers. The total number of cultivators in the four tenurial categories who cultivated all high yielding varieties was 134. Of them only 69 had grown new high yielding varieties.

Table 5-XIX Distribution of High Yielding Varieties according to Tenurial Categories - Maha 1971/72

Tenurial Category	All operators	Operators Cultivating All High Yielding Varieties [1]				Operators Cultivating New High Yielding Varieties			
		Farmers		Cultivated Extent		Farmers		Cultivated Extent	
		No.	%	Acres	%	No.	%	Acres	%
Owners	32	28	*90*	79.80	*94*	12	*39*	36.00	*42*
Tenants	77	71	*95*	307.96	*88*	43	*57*	158.83	*45*
Owner-tenants	16	14	*88*	52.20	*87*	5	*31*	12.50	*21*
Tenant-owners	22	21	*96*	95.14	*88*	9	*41*	47.50	*44*
Total	147	134	*92*	535.10	*89*	69	*48*	254.83	*42*

1. Includes Old high Yielding Varieties such as H-4 and New High Yielding Varieties

The above data does not show very striking differences in respect of the area cultivated under all high yielding varieties by different tenurial groups. This could be due to the fact that some of the older varieties such as H-4 had been under cultivation for over 10 years. It is seen that the lowest proportion of farmers who have cultivated all high yielding varieties is among owner tenants (87%) and highest among tenant owners (95%). The proportion among tenants was higher than among owners although the difference was only 5%. It is of interest to note, however, that the owners had more of their land under these varieties than the other tenurial groups.

On the other hand more marked variations were seen when the data pertaining to adoption of new high yielding varieties was examined. Only 31% of owner tenants had cultivated them on 21% of their land, whereas 57% of the tenants had cultivated them on 45% of their holdings. The other categories were intermediate with respect to the proportion of farmers, but similar to the tenants in proportion of land.

5·9 Non-Cultivation of Improved Seed

In Maha 1971/72 season 75 of the farmers in the sample had not cultivated any of the new high yielding varieties. The main reasons for not growing these varieties, as indicated by them are given in descending order of importance.

Table 5-XX Reasons for Non-Cultivation of New High Yielding Varieties - Maha 1971/72

Reasons reported by Farmers	Farmers not cultivating NHYVs	
	No.	% *
Difficulties in getting seed paddy	22	29
Problems of Water	12	16
Lack of knowledge about these varieties ..	9	12
High cost of cultivation	8	11
Following neighbours	8	11
Not convinced of benefits	8	11
Prefers Traditional Varieties	5	7
Poor palatability	5	7

*Percentages are not additive, as a few farmers have been classified under more than one reason.

29% of the farmers had not grown new varieties due to difficulties of obtaining seeds, whereas 16% had indicated problems of obtaining water as the main reason. 12% did not have any knowledge of the benefits of these varieties. However, considering all aspects of the spread of new high yielding varieties, it was significant to note that in a matter of two seasons, 48% of the cultivators in the sample had taken up to the varieties.

5·10 Methods of Planting

Productivity is greatly dependent on the improved cultivation practices adopted and application of various inputs at the appropriate time. The extent to which improved planting methods such as transplanting and row sowing had been adopted is now examined.

Distribution of farmers according to methods of planting adopted during Maha 1971/72 and Yala 1972 are presented below.

Table 5-XXI Distribution of Farmers according to Planting Methods - 1971/72

Season	Trans-planting	Row-Sowing	Broad-casting	Combi-nations	Total
Maha 1971/72 ..	24	4	101	15	144
% ..	*17*	*3*	*70*	*10*	*100*
Yala 1972 ..	11	2	97	6	116
% ..	*9*	*2*	*84*	*5*	*100*

Information was available only in respect of 144 farmers in Maha and 116 in Yala and it is seen that 70% of them in Maha and 83% in Yala had adopted the traditional method of broadcast sowing in their fields. The number who had transplanted the full extent of their fields was relatively small being only 17% in Maha and 9% in Yala.

5.11 Methods of Planting according to Seasons, Size of Holding and Tenurial Category

Data pertaining to planting methods classified according to size of holding in the two seasons are given in table 5-XXII

Table 5-XXII Extent under Different Planting Methods according to Size of Holding - Maha 1971/72

Size of Holding (acres)	Trans-planting	Row-sowing	Broad-casting	Total
Up to 2.00	7.74	-	30.75	38.49
%	*20*	-	*80*	*100*
2.00 - 4.00	30.75	12.00	82.71	125.46
%	*24*	*10*	*66*	*100*
4.00 - 6.00	32.50	3.25	187.25	223.00
%	*15*	*1*	*84*	*100*
Over 6.00	37.00	6.00	161.37	204.37
%	*18*	*3*	*79*	*100*
Total	107.99	21.25	462.08	591.32
%	*18*	*4*	*78*	*100*

Table 5-XXIII Extent under Different Planting Methods according to Size of Holding - Yala 1972

Size of Holding (acres)	Trans-planting	Row-Sowing	Broad-casting	Total
Up to 2.00	6.13	1.75	22.45	30.33
%	*20*	*6*	*74*	*100*
2.00 - 4.00	10.50	2.75	93.53	106.78
%	*10*	*3*	*87*	*100*
4.00 - 6.00	22.00	1.00	162.06	185.06
%	*12*	*1*	*87*	*100*
Over 6.00	10.00	0.50	77.63	88.13
%	*11*	*1*	*88*	*100*
Total	48.63	6.00	355.67	410.30
%	*11*	*2*	*87*	*100*

It is seen that the extents transplanted has been only 18% in Maha and 12% in Yala. This data does not show any appreciable variation in the area transplanted according to size of holding.

However, In maha season the percentage extent transplanted as well as row sown had been highest in the 2.00-4.00 size group, but in Yala this group has had the lowest extent under transplanting. During Maha in larger sized holdings of over 6.00 acres, transplanting is as popular as in the smaller sized groups of 2.00 acres or less. But in Yala the percentage extent transplanted in the largest holdings is almost half that of smallest size group.

Broadcast sowing is the most popular method of sowing irrespective of the size of holding. The total extents under this method of sowing in Maha and Yala were 78% and 86% respectively. In spite of efforts made by the extension services to popularise row sowing over a decade, the area under this practice was negligible in both seasons.

The data pertaining to transplanting was also arranged on the basis of the 4 main tenurial groups and are presented below.

Table 5-XXIV Adoption of Transplanting according to Tenurial Categories - Maha 1971/72

Tenurial Category	No.of farmers reporting	Farmers who transplanted		Extent cultivated	Extent transplanted	Extent transplanted as % of extent Cultivated
		No.	%	acres	acres	
Tenants	75	18	*24*	336.58	40.55	*12*
Owners	31	7	*23*	88.50	20.75	*24*
Owner-tenants	16	3	*19*	53.99	6.44	*12*
Tenant-owners	22	7	*35*	105.25	40.25	*38*
Total	144	35	*24*	584.32	107.99	*19*

24% of the farmers in the sample had transplanted their fields, the proportion being highest among tenant owners (35%). Similarly extent transplanted was also highest among this group (38%) and followed by owners (24%). Though 24% of the tenants had transplanted their fields the extents under this practice was relatively less being only 12% of their land.

5·12 Methods of Planting according to Supply of Water

Since the availability of water is a factor that influences farmers decisions to adopt improved methods of cultivation, the available data was classified on the basis of water supply.

Table 5-XXV Extent under Different Planting Methods according to Supply of Water - Maha 1971/72

Water Supply	Trans-planting	Row-sowing	Broad-casting	Total
Major irrigation	98.00	12.50	286.27	396.77
%	*25*	*3*	*72*	*100*
Minor irrigation	9.99	6.75	146.12	162.86
%	*6*	*4*	*90*	*100*
Rainfed	-	2.00	29.69	31.69
%	-	*6*	*94*	*100*
Total	107.99	21.25	462.08	591.32
%	*18*	*4*	*78*	*100*

Table 5-XXVI Extent under Different Planting Methods according to Supply of Water - Yala 1972

Water Supply	Trans-planting	Row-sowing	Broad-casting	Total
Major irrigation	37.50	3.25	229.34	270.09
%	*14*	*1*	*85*	*100*
Minor irrigation	6.13	2.75	100.57	109.45
%	*6*	*2*	*92*	*100*
Rainfed	5.00	-	25.76	30.76
%	*16*	-	*84*	*100*
Total	48.63	6.00	355.67	410.30
%	*11*	*2*	*87*	*100*

During Maha 25% of the extent cultivated by farmers under major schemes had been transplanted while not a single acre has been transplanted under rainfed conditions. On the other hand in

Yala, the extent transplanted in major schemes has dropped to 14% while in rainfed areas the extent under this practice increased to 16% These variations could be attributed to the reason that a number of major schemes in Hambantota do not have an assured supply of water in Yala, while the rainfed areas mostly located in the western sector of the district have a more assured supply of water from rains during this season.

5.13 Reasons for Not Transplanting

Although transplanting has been advocated by the extension services as a method of increasing yields by intensifying the input of labour, it is obvious that most farmers in this district do not practice it. An attempt was made to find out the reasons. Of the 120 who had not adopted this practice, only 110 farmers were able to give any definite reasons and are indicated below in the descending order of importance.

Table 5-XXVII Reasons for Not Transplanting - Maha 1971/72

Reasons reported by Farmers	Farmers who did not transplant *	
	No.	%
Lack of funds	44	40
Undependable water supply	33	30
Irksome	24	22
Shortage of labour	18	16
Followed the general cultivation practices adopted in the area ..	12	11
Lack of knowledge	7	6
Uneconomical	7	6
Not convinced of benefits	5	5
Has to share benefits with the landlord	4	4
Other reasons (boggy fields, busy with chenas or highlands, etc.) ..	6	6

* The percentages are not additive as some farmers had given more than one reason.

The two most important reasons given by the farmers were the inability to incur the extra expense due to lack of funds and the uncertainty of the water supply. Shortage of labour was another important factor that farmers had indicated for not adopting this practice.

5·14 Application of Fertilizer according to Season

Judicious fertilizer use constitutes one of the chief methods of increasing acre-yields of paddy. Information in respect of fertilizer use was available only in respect of 136 farmers in Maha and 110 in Yala. The relevant data pertaining to these two seasons are given below in Tables 5-XXVIII and XXIX. During Maha season, 95% of those reporting had used fertilizer. Considering the fact that mixed fertilizer such as V_1 and V_2 were made available to farmers for the first time during Maha 1971/72 season, it was gratifying to note that 62% of them had used 1.05 cwts per acre (117 pounds) of the basal mixture which was only 51 pounds less than the recommended quantity. *In a district where a large majority of farmers had got used to application of mostly nitrogenous fertilizer over the years the spread of the practice of using mixed fertilizer could make a significant contribution to step up rice production particularly as new high yielding varieties already occupy an important place in Hambantota.*

Table 5-XXVIII Application of Fertilizer - Maha 1971/72

No.of Farmers Reporting 136

Type of Fertilizer	Farmers reporting use of fertilizer		Quantity per acre (cwts)
	No.	%	
Urea	124	91	1.24
V_1 / V_2	84	62	1.05
TDM	11	8	1.03
Ammonium Sulphate	4	3	0.82
Pellet Fertilizer	9	7	0.82
Super Phosphate	2	2	0.89
Murate of Potash	3	2	0.46
Overall	129	95	2.11

Urea is the main recommendation for top dressing and it is seen that 91% of the farmers had top dressed their crop in Maha at the rate of 1.24 cwt per acre which is equivalent to the recommended dosage. In Giruwa Pattu North and South where TDM is the recommendation for top dressing along with Urea only 8% of the farmers had used TDM according to the recommendations.

In Yala 1972 season 90% of them had used fertilizer. With regard to basal fertilizer, 53% of them had used V_1 or V_2 at 1.06 cwt per acre, whereas 82% of them had top dressed with Urea and 10% with TDM, the quantities top dressed being 1.18 and 1.05 cwts per acre.

Table 5-XXIX Application of Fertilizer - Yala 1972

No.of Farmers reporting 110

Type of fertilizer	Farmers reporting use of fertilizer		
	No.	%	Quantity per acre (cwts)
Urea	90	82	1.18
V_1 / V_2	58	53	1.06
TDM	11	10	1.05
Ammonium Sulphate	3	3	0.61
Pellet Fertilizer	5	5	0.69
Super Phospate	1	1	0.80
Murate of Potash	1	1	0.40
Overall	99	90	1.98

These figures reach almost the level of Department of Agriculture recommendations. The average quantity applied per acre of different types of fertilizer during Maha 1971 being 2.11 cwt and in Yala 1972 - 1.98 cwts.[1]

5·15 Application of Fertilizer according to Supply of Water

As farmers decision to use fertilizer is largely influenced by the availability of water, the data pertaining to fertilizer use was arranged on the basis of water supply.

1. These average quantities, we are inclined to believe, are higher than the average amounts of fertilizer actually applied. This point of view is supported by the low costs reported for cash inputs (cf.7·11). The discrepancy is probably due to recall lapse as well as the farmer's desire to show that he uses a lot of fertilizer.

Table 5-XXX Application of Fertilizer according to Supply of Water - Maha 1971/72

	Major Irrigation	Minor Irrigation	Rainfed	Major Irrigation	Minor Irrigation	Rain fed
No.of farmers reporting	76	43	17			
Type of fertilizer	Percentage of farmers Reporting			Quantity per acre (cwts)		
Urea	91	100	77	1.25	1.31	0.77
V_1 /V_2	67	67	29	1.08	0.98	0.97
TDM	12	5	-	1.07	0.79	-
Ammonium Sulphate	5	-	-	0.82	-	-
Pellet Fertilizer	4	7	18	0.32	1.17	0.84
Super Phospate	-	5	-	-	0.89	-
Murate of Potash	-	10	-	-	0.46	-
Overall	96	100	77	2.18	2.08	1.49

Under irrigated conditions, almost all the farmers reporting had applied some fertilizer whereas under rainfed conditions the percentage of those who had applied fertilizer in Maha season was only 77. *The number of farmers applying basal mixtures such as V_1 and V_2 show a marked variation according to water supply conditions. In rainfed areas only 29% had applied basal fertilizer whereas in the irrigated areas the corresponding figure was 67%.* The percentage of farmers who had top dressing with Urea under rainfed conditions was relatively high, being 76. Besides, 18% of those under rainfed conditions mainly in Giruwa Pattu South adjoining Matara had used pelleted fertilizer which is really a recommendation for Matara district. In this area the climatic conditions are almost identical to those obtaining in Matara.

In respect of quantities of basal fertilizer applied during Maha season there is little variation according to water supply conditions. However, in top dressing with Urea, farmers in major and minor schemes had used considerably higher quantities, - 1.25 and 1.31 cwt per acre compared to 0.77 under rainfed conditions. The average quantity of all fertilizers applied per acre under irrigated conditions was about 2 cwts compared to 1.5 cwts under rainfed conditions.

Table 5-XXXI Application of Fertilizer according to Supply of Water - Yala 1972

	Major Irrigation	Minor Irrigation	Rainfed	Major Irrigation	Minor Irrigation	Rainfed
No.of farmers reporting	60	35	15			
Type of fertilizer	Percentage of farmers Reporting			Quantity per Acre (cwts)		
Urea	80	94	60	1.19	1.20	0.87
V1 / V2	60	46	40	1.09	0.99	1.03
Amm.Sulphate	5	-	-	0.61	-	-
TDM	17	3	-	1.06	1.00	-
Pellet Fertilizer	-	11	7	-	1.13	0.44
Super Phosphate	-	3	-	-	0.80	-
Murate of Potash	-	3	-	-	0.40	-
Overall	90	-	-	2.09	1.95	1.30

In Yala season, the percentage of farmers who had applied basal fertilizer was similar to the percentage indicated for Maha in major schemes, but in the case of minor schemes there was a drop of 21% and under rainfed conditions, an increase of 11%. This is understandable as most minor schemes in Hambantota district have an undependable water supply in Yala whilst the rainfed areas which are mostly located in the western sector of the district have a more assured water supply for the South West monsoon. It is also seen that top dressing with Urea is less popular during Yala than in Maha irrespective of the water supply conditions. The average quantity of all fertilizers applied per acre during Yala shows a similar variation as was the case in Maha under different water supply conditions.

5.16 Timeliness of Fertilizer Application

Since proper timing of fertilizer application is vital to obtain satisfactory responses, the time of application of various types of fertilizer was also examined. Altogether 129 farmers reported having applied fertilizer either as basal application or as top dressing. Of these the following numbers reported applying fertilizer at the appropriate time:

Basal application	84
First top dressing	113
Second top dressing	101
Other applications	17

As the information about the number who applied fertilizer at the various stages is not adequate it is not possible to ascertain the proportion of farmers who did not apply fertilizer at the correct time.

5.17 Application of Fertilizer according to Tenurial Category and Size of Holding

In order to ascertain whether there are noteworthy variations in the pattern of fertilizer use among the major tenurial groups and holding size classes the available data in respect of Maha season was examined in this context. Since the discussion here is restricted only to the number of fertilizer applications and the extents fertilized, all the 147 farmers that fell into the 4 major tenurial groups were used in computing the tables given below. In the earlier discussions on fertilizer based on different types and quantities applied, the number of farmers considered was only 136, as relevant data was available only in respect of that number.

Table 5-XXXII Pattern of Fertilizer Application according to Tenurial Status - Maha 1971/72

Tenurial Category	Number of Applications					
	At least once				Three times	
	Farmers		Extent		Farmers	
	No.	%	(acres)	%	No.	%
Owners	28	*80*	79.45	*93*	19	*61*
Tenants	71	*95*	312.65	*89*	42	*56*
Owner-tenants	16	*100*	43.75	*73*	7	*44*
Tenant-owners	20	*91*	95.45	*88*	4	*18*
Total	135	*95*	531.30	*88*	72	*50*

Table 5-XXXIII Pattern of Fertilizer Application according to Size of Holding - Maha 1971/72

Size of Holding (acres)	Number of Applications					
	At least once				Three times	
	Farmers		Extent		Farmers	
	No.	%	(acres)	%	No.	%
Up to 2.00	24	*89*	29.26	*93*	10	*37*
2.00 - 4.00	45	*98*	121.74	*91*	25	*54*
4.00 - 6.00	47	*98*	207.30	*89*	27	*56*
Over 6.00	19	*86*	173.00	*84*	10	*46*
Total	135	*95*	531.30	*88*	72	*50*

These figures show that 95% of the cultivators had applied some fertilizer in 88% of the land cultivated by them. It is seen that only 80% of the owners had applied fertilizer compared to 95% of the tenants and 100% of the owner-tenants. However, the largest proportion of the cultivated land had been fertilized by the owners. This group had fertilized 93% as against only 73% by owner-tenants.

The proportion of farmers who had applied fertilizer was lowest (86%) in the largest size class. The proportion was slightly higher for the smallest size class. About 98% of the farmers in the intermediate size classes had applied fertilizer in the Maha season. A comparison was made of the number of farmers who had applied fertilizer at least once with those who made 3 applications. It is seen that the number who had applied 3 applications was 45% less than those who made only one application. *It was noteworthy to find that the proportion of those who made all the three fertilizer applications was highest among owners (61%) and lowest among tenant-owners (18%). With regard to size classes, this proportion was lowest (37%) in the smallest size class and highest in the size class 4.00-6.00 acres.*

5.18 Application of Fertilizer - General

Generally, the pattern of fertilizer use as practised by the farmers in the sample presents rather an encouraging picture. Quantitatively farmers had applied 247 pounds in Maha and 221 pounds per acre in Yala whereas the recommended dosage for new improved varieties for Hambantota is 308 and 364 pounds per acre for 3½ and 4½ month varieties respectively. *Although the above figures fall short of the recommended dosage, particularly for the 4½ month varieties which are most popular, it is encouraging to note that the farmers appreciate the importance of fertilizer use, but it is pertinent to point out that less than 50% of the farmers apply 3 or more doses as recommended. However, when the above pattern of fertilizer use is examined, in the context of widespread staggered cultivation and erratic water supply conditions often experienced by farmers even in irrigated areas, it is doubtful whether majority of those who invest on fertilizers are able to obtain optimum responses from this vital input.*

5.19 Weed Control

Weeds compete with paddy crops for nutrients and light and tend to reduce yields. Hence adoption of proper control measures is vital to obtain high yields in paddy production. This practice is particularly important in the context of new high yielding varieties, as they are of intermediate height and could be easily smothered by weeds. *Weed control as practiced in this district is also of special interest, as chemicals are used widely and this directly competes with hand labour.*

5·20 Method of Weed Control according to Size of Holding

Generally in Maha 1971/72 season all the 154 farmers had adopted at least some weed control measures in 98% of the area cultivated. In Yala 1971, 90% of the 121 farmers who had cultivated had adopted complete or partial weed control in 89% of cultivated land.

The data pertaining to different types of control measures adopted by the reporting farmers were arranged on the basis of size of holding and conditions of water supply and are presented in Table 5-XXXIV.

Table 5-XXXIV Adoption of Different Methods of Weed Control according to Size of Holding - Maha 1971/72

Size of Holding (acres)		Reported No/ Extent in acres	Hand-Weeding only (1) %	Rotary Weeding Only (2) %	Chemical Weeding Only (3) %	Combinations of Methods (1+3) %	Others %
Up to 2.00	a)	28	21	-	21	40	18
	b)	38.8	17	-	20	41	22
2.00-4.00	a)	50	10	-	38	42	10
	b)	134.8	8	-	40	42	10
4.00-6.00	a)	49	2	2	55	37	4
	b)	228.8	3	2	54	38	3
Over 6.00	a)	27	4	-	54	35	7
	b)	224.2	4	-	50	38	8
All Sizes	a)	154	8	1	43	39	9
	b)	626.6	5	1	47	40	7

a) Farmers
b) Extent

According to the above data, it is clearly seen that the farmers had a marked preference for use of chemicals irrespective of size of holding and conditions of water supply. However, in larger sized holdings the percentage of farmers using only chemicals was greater. In holdings of over 4 acres in size, over 50% of those who adopted control measures had depended exclusively on chemicals and less than 4% of them had practiced hand weeding as the sole weed control

measure. On the other hand in smaller holdings particularly of 2 acres and less, the use of both chemicals as well as hand weeding appear to be equally popular. Rotary weeding as a weed control measure is insignificant. This agrees with the earlier statement that the practice of row-weeding is of minor importance in this district. In addition to the above two groups, who had depended either on chemicals or on hand weeding there is yet another group that had adopted a combination of both these practices. The percentage distribution of farmers in this group is relatively uniform. Irrespective of the size of holding about 35-40% of all the farmers who had adopted weed control measures fall into this category.

5·21 Methods of Weed Control according to Supply of Water

Chemical control of weeds was the most popular method irrespective of water supply conditions (Table 5-XXXV). This data shows that generally 42% of the farmers had used chemicals under irrigated conditions and 36% under rainfed conditions. The percentage extents under different water supply conditions sprayed with weedicides do not vary much. The number of farmers who had hand-weeded was significantly higher under rainfed conditions being 29% as against 7% (major) and 4% (minor). This is understandable as the majority of the rainfed fields are located in the densely populated western sector of the district, Giruwa Pattu North and South, where the holding size is also relatively small. This reflects the higher proportion of hand-weeding for holdings of 2.00 acres and less in Table 5-XXXIV.

Table 5-XXXV Adoption of Different Methods of Weed Control according to Water Supply - Maha 1971/72.

Water Supply	Reported No/Extent in acres		Hand-Weeding only (1) %	Rotary Weeding only (2) %	Chemical Weeding only (3) %	Combinations of Methods (1+3) %	Others %
Major Irrigation	a)	84	*7*	*1*	*42*	*39*	*11*
	b)	413.1	*6*	*1*	*43*	*41*	*9*
Minor Irrigation	a)	53	*4*	-	*47*	*42*	*7*
		180.2	*1*	-	*57*	*38*	*4*
Rainfed	a)	17	*29*	-	*36*	*29*	*6*
	b)	33.3	*16*	-	*45*	*30*	*9*
All Classes	a)	154	*8*	*1*	*43*	*39*	*9*
	b)	626.6	*5*	*1*	*47*	*39*	*8*

a) Farmers
b) Extent

Figures in Table 5-XXXV highlight the important role chemicals play in weed control in this district, both from the point of view of the number of farmers using chemicals and extents sprayed with weedicides.

Table 5-XXXVI Relationship of Land Tenure to Management Practices

Practice	Tenurial Category and size of Holding (acres)	Major Irrigation Cultivators No.	%	Minor Irrigation Cultivators No.	%	Rain-fed Conditions Cultivators No.	%	Major Irrigation Extent Cultivated Ext.	%	Minor Irrigation Extent Cultivated Ext.	%	Rain-fed Conditions Extent Cultivated (acres) Ext	%
New High Yielding Varieties	Owners	6	43	5	42	1	17	18.50	39	12.50	53	5.00	37
	Tenants	27	55	15	68	2	33	110.90	45	47.13	76	4.50	34
	Owner-Tenants	2	29	3	50	0	0	7.00	22	5.50	23	0	0
	Tenant-Owners	7	54	3	50	0	0	43.50	53	5.25	18	0	0
	Up to 2.00	1	17	6	50	0	0	1.75	17	6.88	46	0	0
	2.00 - 4.00	16	62	8	47	1	25	42.15	61	22.75	50	0.50	4
	4.00 - 6.00	16	53	10	59	2	67	67.00	43	34.25	48	9.00	67
	Over 6.00	9	50	2	33	*	*	69.00	40	6.50	20	*	*
Transplanting	Owners	5	36	2	17	0	0	19.50	41	1.25	5	0	0
	Tenants	13	27	5	23	0	0	34.25	14	6.30	10	0	0
	Owner-Tenants	2	29	1	17	0	0	5.00	16	1.44	6	0	0
	Tenant-Owners	6	46	1	17	0	0	39.25	81	1.00	3	0	0
	Up to 2.00	2	33	4	33	0	0	3.75	36	3.99	38	0	0
	2.00 - 4.00	12	46	4	24	0	0	25.75	37	5.00	11	0	0
	4.00 - 6.00	7	23	1	6	0	0	31.50	20	1.00	1	0	0
	Over 6.00	5	28	0	0	*	*	37.00	27	0	0	*	*
3 applications of fertilizer	Owners	6	43	7	52	1	17						
	Tenants	31	63	9	41	1	17						
	Owner-Tenants	3	43	3	50	0	0						
	Tenant-Owners	7	54	4	67	1	33						
	Up to 2.00	5	83	7	50	0	0						
	2.00 - 4.00	13	50	8	17	2	50						
	4.00 - 6.00	19	64	7	41	1	33						
	Over 6.00	10	56	1	17	*	*						

Not available

Not available

* Total number and Total Extent in these Groups were Nil

5·22 Tenure and Management Practices

Before concluding this section on management practices, it was thought useful to examine whether the different tenurial categories and size classes respond differently under varying conditions of water supply. The relevant information is summarised in Table 5-XXXVI.

For purposes of the discussion on response differentials, three important practices - use of new high yielding varieties, transplanting, and fertilizer application, all of which are sensitive to availability of water, were considered. With regard to adoption of new high yielding varieties there was no clear pattern to be seen between areas with major and minor irrigation. *The adoption rates for the different classes had varied, but this variation did not give any indication of a pattern of differential response. With regard to the other two practices the marked fall off in the proportion as the water supply became less assured, appeared to be uniform for the different categories considered.* Although these figures indicate a differential response under varying conditions it is difficult to identify any pattern in it. The small numbers in the subsets add to the difficulty of using this information for such an identification.

Chapter 6

PRODUCTIVITY

Yields reported by the farmers in the sample in respect of Maha 1971/72 and Yala 1972 were examined in relation to tenurial status, size of holdings, water supply conditions, and varieties of paddy grown during the two seasons. According to rainfall data, Maha 1971/72 season had experienced normal water conditions in most parts of the district. However, in Yala 1972 there had been widespread crop failure due to adverse water conditions experienced particularly in Magam Pattu which has over 12,000 acres under paddy. Farmers who were interviewed were of the view that Yala 1972 was one of the worst seasons they had experienced during the last few years.

6.1 Land Tenure and Yields

In the discussion that follows, the nature of our sample would tend to bias the yields towards those of the largest holdings. As these have been lower among the two largest size classes (4.00-6.00 and over 6.00 acres) the overall figure would be depressed. The average yield for the district would be affected; also the level of production in Yala as compared to Maha. The yield is expressed in bushels/acre.

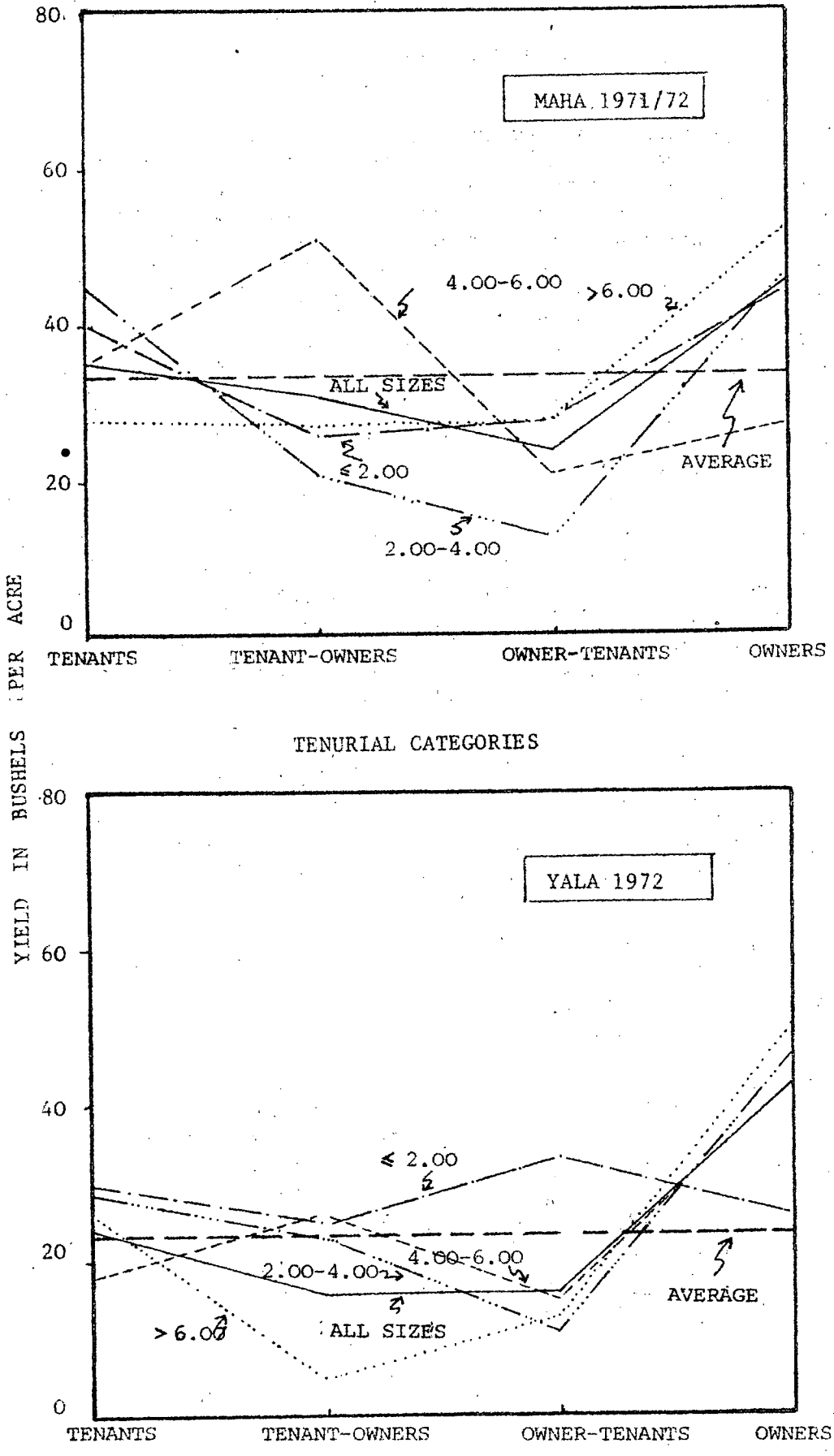
The overall yield for the 147 cultivators classified as owners, tenants, owner-tenants, and tenant-owners was 33.8 for Maha and 23.5 for Yala. The Yala yield was only 70% of the Maha yield. As the extent cultivated was only 56% of that in Maha, the level of production in Yala was only 40% of Maha. The yields by tenurial category and size class are given in Table 6-I and 6-II and the yield curves are shown in figures VI & VII.

Table 6-I Paddy Yields According to Tenurial Category and Size of Holding - Maha 1971/72 (Bushels/Acre)

Tenurial Category	Size of Holdings (Acres) Up to 2.00	2.00-4.00	4.00-6.00	Over 6.00	Overall
Owners	44.2	46.1	26.7	51.9	44.5
Tenants	39.6	44.5	34.8	27.6	34.7
Owner-Tenants	27.9	13.4	20.9	27.9	24.1
Tenant-Owners	25.8	21.2	50.7	26.7	31.2
Overall	37.3	39.5	34.7	29.1	33.8

Fig.VI

PADDY YIELD OF DIFFERENT SIZE
HOLDINGS ACCORDING TO TENURIAL CATEGORIES



The tenurial category which reported the highest yield was the owner-cultivators whose yield was highest in both Maha (44.5) and Yala (43.4). Their yield was 31% above the average for Maha and 85% for Yala. The owner-tenants reported the lowest yield in Maha; it was only 24.1 which was 22% below the average and 46% below the yield obtained by the owner-cultivators for that season. In Yala too the owner-tenants reported the lowest yield; the tenant-owners also reported an equally low yield. Their yield was 33% below the average yield and 64% below the yield reported by owners in that season. *The tenants obtained higher yields than either the tenant-owners or the owner-tenants in both seasons.* Their yield was 34.7 in Maha and 22.0 in Yala which was just above the average in Maha and just below the average in Yala. Their yield, however, was lower than that reported by owners by 22% in Maha and 49% in Yala. As seen from Figure VI the tenants and owners reported yields higher than the average in Maha as well as in Yala. The yields of most owner-tenants and tenant-owners were lower than the average in both Maha and Yala although more of them had yields above average in Yala than in Maha.

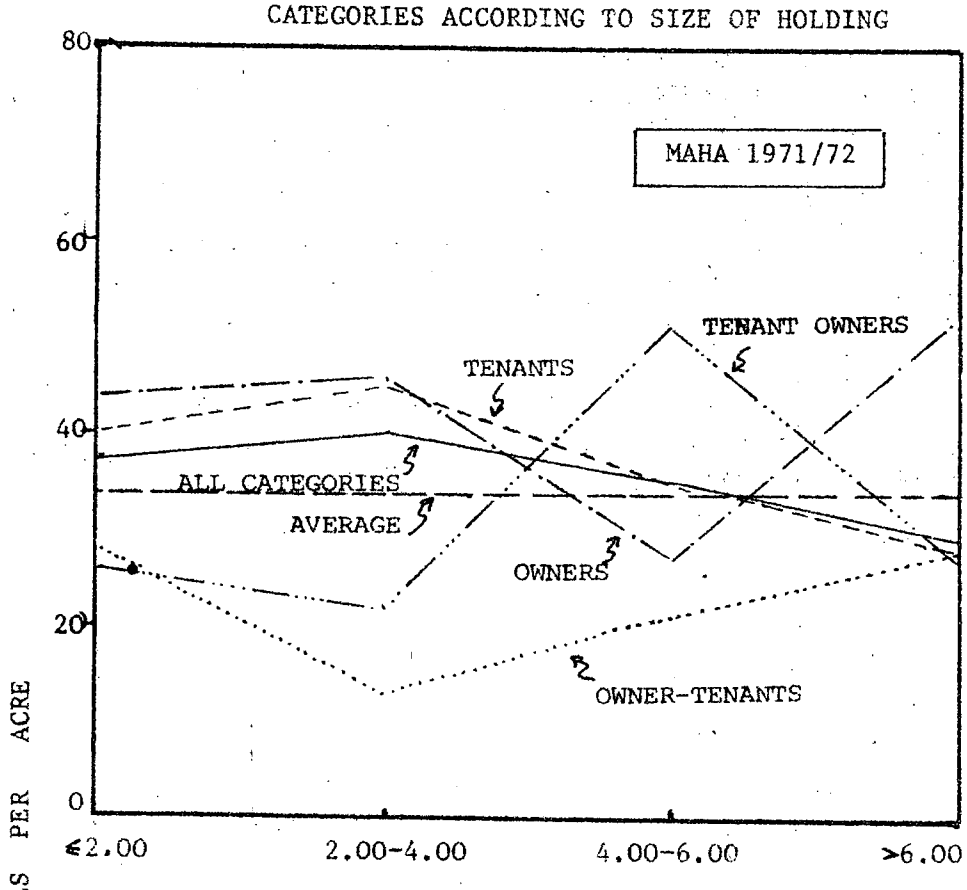
Table 6-II Paddy Yields according to Tenurial Category and Size of Holding - Yala 1972 (Bushels/Acre)

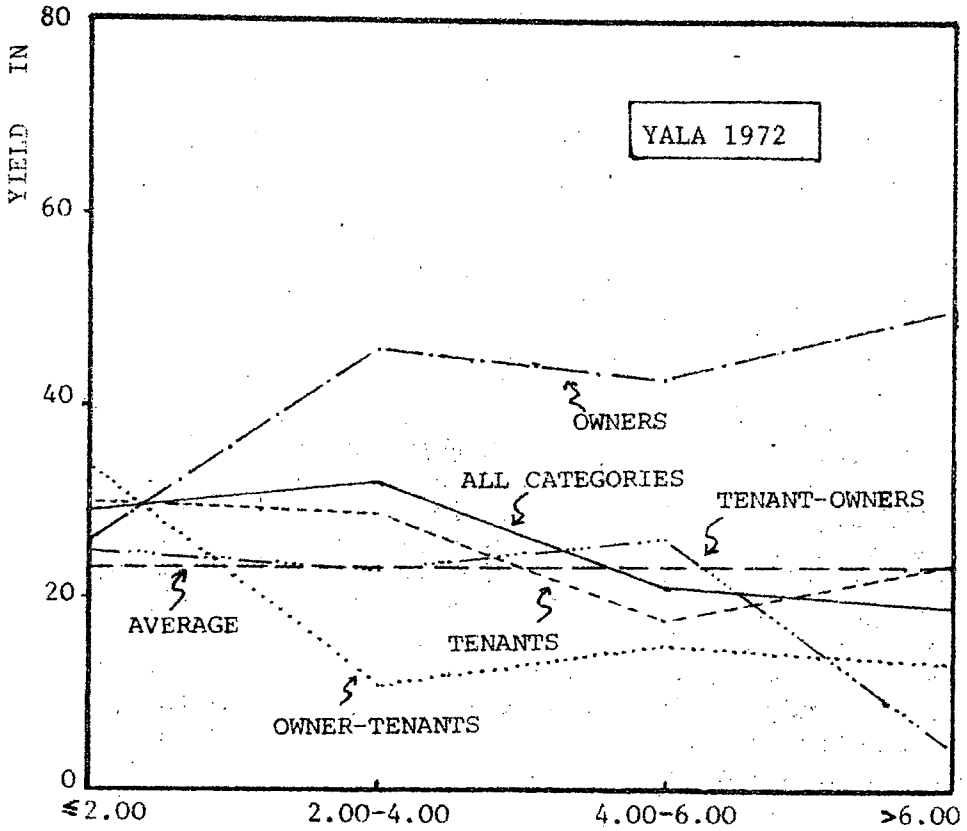
Tenurial Category	Size of Holding (Acres)				
	Up to 2.00	2.00-4.00	4.00-6.00	Over 6.00	Overall
Owners	26.1	45.9	43.4	49.8	43.4
Tenants	29.8	29.2	17.6	23.7	22.0
Owner-Tenants	33.5	10.8	14.9	12.9	15.9
Tenant-Owners	25.4	22.7	26.0	4.4	15.6
Overall	28.9	32.2	20.7	19.2	23.5

The size class which reported the highest yield was the 2.00-4.00 acre group which had the highest yield in both Maha (39.5) and Yala (32.2). Their yield was higher than the average by 17% in Maha and 28% in Yala. There were 50 cultivators in the sample with holdings in that size class. Cultivators with 2.00 acres or less had higher yields than those in 4.00-6.00 or over 6.00 acre size classes. Their yields were 10% and 23% higher than the average yield in Maha and Yala respectively and only 6% and 10% lower than the yields in the 2.00-4.00 acre size class in those two seasons. *This indicated that holdings of 4.00 acres or less obtained higher yields in general than those of over 4.00 acres. The lowest yield in both seasons was reported by cultivators with holdings of over 6.00 acres.* Owner-cultivators reported higher yields than others except in the 4.00-6.00 acre size class in Maha and 2.00 acres or less size class in Yala.

Fig.VII

PADDY YIELD OF TENURIAL CATEGORIES ACCORDING TO SIZE OF HOLDING





There was more variation in the yields reported by the different tenurial categories in each size class than by the different size classes in each tenurial category. The greater vertical interval between the yield curves in Figure VII than in Figure VI suggests this. *This appears to indicate that yields are more influenced by tenurial status than by size of holding.* Further evidence for this is the variation in cash inputs and net farm operating income among the tenurial categories (cf.7·11). It is, however, not possible to state that it is either the only variable related to yields or even the most important because of the influence of water supply on management practices and yields (cf.5·3(b) iii, 6·2 and 6·11). The wider variation among tenurial groups in each size class could be due to variations in the supply of water because the supply was not uniform for all in our sample. The yields reported by owner-cultivators and tenants under major irrigation, minor irrigation and rainfed conditions show the influence of water supply on yields. For owners they were 46.5, 37.4 and 17.2 in Maha and 55.7, 33·3 and 15.1 in Yala. For tenants they were 38.1, 28.1 and 23.7 in Maha and 21.6, 19.5 and 14.3 in Yala. Although these figures show that the areas under a more assured supply of water had higher yields, they also show that owners had reported generally higher yields than tenants under the same conditions of water supply. It must, however, be noted that there was no uniformity in water supply even under the broad categories of water supply mentioned here. As the number of tenants and the extent cultivated by them was much greater than owner-cultivators, their yields reflect a wider range of water supply conditions. The yield reported by owners under major irrigation in Maha related to 50 acres; in contrast the yield reported by tenants under major irrigation related to 245 acres. Similarly the respective extents under minor irrigation in Maha were 22 acres and 99 acres. Although the higher yields reported by the owner-cultivators may be indicative of some influence tenancy has on productivity, it is difficult to assess the importance of this influence. There is also a possibility that tenants might have understated the yields they obtained as the land rent paid by them is in most cases a one-fourth share of the crop.

6.2 Yields in Relation to Varieties Grown

Yield data of 116 farmers who cultivated either improved or traditional varieties exclusively in Maha 1971/72 are shown in Table 6-III. The yield data for new high yielding varieties show considerable variation according to water supply conditions. The average yield in major schemes as reported by the farmers was 57 bushels per acre compared to 38 bushels/acre in minor schemes. On the other hand, the older high yielding varieties such as H-4 do not show an appreciable variation according to water supply conditions. The average yields of these varieties as reported by farmers in major and minor schemes show only a difference of 6 bushels/acre. Under rainfed conditions, these older varieties had faired equally well; in fact, better than under irrigation schemes.

The performance of these varieties under varying water supply

conditions demonstrates not only their wider adaptability but also their ability to perform reasonably well under lower levels of management which are normally experienced in areas without an assured water supply. *Comparison of the yields of new and old high yielding varieties show a marked superiority of new varieties both under major as well as minor schemes. However, the yield differences between the two groups become relatively less evident as the water supply conditions become less stable.* Though the total number of farmers growing only traditional varieties is very small yet there is a sizeable number under major schemes and their yields are relatively low when compared with other groups. *Reasons for the cultivation of traditional varieties by some of the farmers in major schemes particularly in Maha are not clear and it is desirable for the extension personnel to probe this matter further.*

Table 6-III Paddy Yields according to Supply of Water, Size of Holding and Varieties of Paddy - Maha 1971/72

Water Supply	Size of Holding (acres)	NHYV only Bush. per acre	NHYV only No.of farmers reporting	OHYV only Bush per acre	OHYV only No.of farmers reporting	TV only Bush per acre	TV only No.of farmers reporting
Major Irrigation	Up to 2.00	100.00	1	32.00	3	24.00	1
	2.00 - 4.00	59.46	15	33.25	7	46.26	3
	4.00 - 6.00	59.83	9	32.19	14	18.89	1
	Over 6.00	50.00	4	22.78	5	12.00	2
All Size Groups		56.93	29	29.08	29	19.87	7
Minor Irrigation	Up to 2.00	55.94	4	19.63	6	-	-
	2.00 - 4.00	39.64	6	32.47	6	-	-
	4.00 - 6.00	39.44	6	25.06	4	-	-
	Over 6.00	6.00	1	16.55	3	-	-
All Size Groups		37.71	17	23.62	19	-	-
Rainfed	Up to 2.00	-	-	21.79	8	-	-
	2.00 - 4.00	-	-	34.66	4	41.45	1
	4.00 - 6.00	6.00	1 *	-	-	18.67	1
	Over 6.00	-	-	-	-	-	-
All Size Groups		6.00	1	26.33	12	25.51	2

* Crop failure

Classification of farmers reporting on the basis of size of holding shows rather uniform yields in the size groups 2.00-4.00 and 4.00-6.00 acres, in respect of both new and old high yielding varieties in major as well as minor schemes. This tendency makes us suggest that the farmers in these size groups appear to be able to give getter care and attention to their paddy crops. Farmers in the smaller size groups (2.00 acres or less) cultivating new high yielding varieties had obtained substantially higher yields, but the number involved are too small for any comparison. Generally it is also seen that in the holdingsof over 6.00 acres there is a drop in yield of the reporting farmers, presumably due to their inability to adopt intensive practices in view of the holding size being relatively large. Since the number of farmers in several of the sub-groups is very small, these conclusions may be treated with caution.

Only 120 had cultivated their fields in Yala 1972, of whom 22 farmers had reported crop failure. The yield data available in respect of 95 farmers who had grown exclusively either improved or traditional varieties are presented below:

Table 6-IV Paddy Yields according to Supply of Water, Size of Holding and Varieties of Paddy - Yala 1972

Water Supply	Size of Holding (acres)	NHYV only		OHYV only		TV only	
		Bush per acre	No.of farmers reporting	Bush per acre	No.of farmers reporting	Bush per acre	No.of farmers reporting
Major Irrigation	Up to 2.00	29.87	2	40.74	4	12.35	6
	2.00 - 4.00	45.18	12	21.20	4	35.71	1
	4.00 - 6.00	25.55	18	30.72	4	-	-
	Over 6.00	19.03	6	16.73	3	-	-
All Size Groups		27.09	38	24.04	15	17.66	7
Minor Irrigation	Up to 2.00	25.36	5	12.13	3	28.32	1
	2.00 - 4.00	32.87	6	27.63	2	-	-
	4.00 6.00	10.12	4	33.67	2	-	-
	Over 6.00	-	-	-	-	-	-
All Size Groups		23.56	15	26.63	7	28.32	1
Rainfed	Up to 2.00	29.14	2	38.98	4	-	-
	2.00 - 4.00	13.44	2	17.55	1	8.00	1
	4.00 - 6.00	6.32	2	-	-	-	-
	Over 6.00	-	-	-	-	-	-
All Size Groups		11.14	6	32.28	5	8.00	1

As stated earlier, during this season, farmers had experienced many difficulties due to scarcity of water even in major schemes, particularly in Magam Pattu. Viewing the reported yields in this background it is clearly seen that the yields of new high yielding varieties are considerably lower when the water supply conditions are not favourable. Compared with Maha season the overall average yields reported for these varieties are extremely low, irrespective of the source of water supply.

It is seen that in a season of adverse weather conditions, as in Yala 1972, the old high yielding varieties such as H-4 had in fact performed reasonably well both under minor as well as rainfed conditions. The above tendency tends to illustrate an important virtue of H-4, particularly with regard to its ability to perform reasonably well both under adverse weather conditions as well as at lower levels of management. *Since the successful production of paddy in this district is so much dependent on the timely arrival of rains, despite the fact that 68% of the paddy acreage is under major schemes, it is thought that the widely adaptable varieties such as H-4 should continue to find a place in the Seed Production programmes to meet unforeseen contingencies due to adverse weather conditions.*

6.3 Yield in Relation to Cultural Practices

The environmental factors that limit production could be changed only over a long period of time. Until such long term programmes are undertaken, productivity itself need not lag behind, if farmers adopt improved cultural practices particularly in areas with assured supplies of water. The importance of 'timely cultivation' and its influence on yields was discussed at length in the section dealing with problems of staggered cultivation. Similarly the performance of new improved varieties in relation to tenure, size of holding, and water supply conditions were dealt with in the preceding paragraphs. In addition to sowing of new high yielding varieties at the proper time, there are many other cultural practices that farmers could adopt to increase productivity, viz. transplanting, fertilizer use, weed and pest control measures.

We next examine yield data in respect of the farmers who had transplanted. Of the 24 farmers who had adopted transplanting in Maha 1971/72, 19 of them under major schemes had transplanted the full extents of their holdings. Of them, 17 (89%) had used new improved varieties for planting. On the other hand, of 49 farmers who had broadcast their crops only 16 (32%) had used new improved varieties. The yield data in respect of different planting methods adopted and in relation to varieties used is given in Table 6-V.

Table 6-V Comparisons of Yields under Different Planting Methods under Major Irrigation - Maha 1971/72

	No. of farmers reporting	Avg. Yield for all varieties (Bu/Acre)	Farmers adopting NHYVs No.	%	Average Yield of those cultivating NHYVs (Bu/Acre)
Transplanting	19	61.8	17	89.4	60.71
Broadcasting	49	30.9	16	32.6	42.18

As seen from the above table, the farmers who had transplanted in major schemes had obtained considerably higher yields than those who had broadcast their crops. Comparison of yields per acre for all varieties shows that those who had transplanted had obtained 61.8 bushels per acre which is really double the average yield of those who had broadcast their crops.

This large difference in yield, however, cannot be attributed solely to transplanting. It is safe to assume that these yield increases were due to the combined effect of new high yielding varieties, transplanting, fertiliser use, weed and pest control measures adopted. Due to non-availability of data pertaining to fertilizer use, and weed control measures adopted by these two groups of farmers, it was possible to examine only the use of new improved varieties with regard to yield differences. The average difference between those who had transplanted and broadcast new high yielding varieties was found to be an increase of 18.5 bushels/acre for transplanting. Such a yield increase would mean an extra gross earning of Rs.333/- per acre. We cannot, however, ascribe these extra earnings entirely to transplanting in the absence of comparative data about the level of inputs used by those who adopted the different methods of planting.

With regard to fertilizer use, it was not attempted to evaluate the benefits derived in terms of yield as the pattern of fertilizer use of the 129 farmers reporting had varied considerably in terms of nutrient components, quantum and time of application both in Maha and Yala. Similarly in respect of weed control measures adopted, it was not possible to assess the impact of this cultural practice on yields as all the reporting farmers had adopted some weed control measure at least in a portion of their holdings.

6.4 Disposal of Paddy

Cash farm income is dependent on sale of paddy produced. The amount of paddy available for sale is dependent on a number

of factors such as yield per acre, size of holding, tenurial arrangements and family size, etc. The data in respect of disposal of paddy in Maha 1971/72 and Yala 1972 are presented in Tables 6-VI and 6-VII.

Table 6-VI Disposal of Paddy according to Size of Holding - Maha 1971/72

Size of Holding (acres)	No. of farms culti-vated	Sales per acre sown (Bushels)	Sales as a % of total production	Sales to Co-op as a % of total sales	Yield (Bushels/ acre)
Up to 2.00	28	14.71	41	83	37.25
2.00 - 4.00	48	19.73	44	65	39.45
4.00 - 6.00	47	20.16	58	65	34.74
Over 6.00	22	14.42	42	63	29.06
Total	145	17.76	48	66	33.82

Table 6-VII Disposal of Paddy according to Size of Holding - Yala 1972

Size of Holding (acres)	No.of farms culti-vated	Sales per acre sown (Bushels)	Sales as a % of total production	Sales to Co-op as a % of total sales	Yield (Bushels/ acre)
Up to 2.00	25	5.49	19	95	28.98
2.00 - 4.00	40	13.67	45	90	32.24
4.00 - 6.00	37	8.03	40	69	20.66
Over 6.00	14	9.43	41	45	19.20
Total	116	9.61	40	71	23.48

During Maha the number of bushels sold per acre sown had progressively increased from 14 to 20 as the holding size increased from 2.00 acres or less to 4.00-6.00 acres. However, in the over 6.00 acre size category the sales per acre had dropped, apparently due to the lower yields as reported by the farmers in this group. Average sales per acre for all farmers in the sample had been 17 bushels. Sales as a percentage of total production had also shown a similar trend in that the proportion of sales had increased from 41% to 58% with increase in holding size. Once again in holdings of over 6.00 acres the sales had dropped to 42% of the total quantity produced. The overall average sales had been 48% of the total production.

With regard to sales to Co-operatives it was seen that farmers in the smallest size group of 2.00 acres or less had sold a

higher proportion of their sales to Co-operatives, the relevant figure being 83%. In the other size groups the sales to Co-operatives had been relatively uniform, the proportion being around 64% of the total sales.

During Yala 1972, the per acre sales had been lowest in the group falling into the category 2.00 acres or less and highest in the 2.00-4,00 acre size group, the difference being 8 bushels per acre. In larger sized holdings of over 4.00 acres, quantities sold had averaged around 9 bushels per acre, where the yields too had been relatively low during this season. Classification of the proportion of paddy sold according to size of holding shows a uniform pattern in holdings of over 2.00 acres which had ranged from 41% to 45% of total production. It was significant to note that in the smallest sized holdings, the sales had dropped to 19% during this season when yields per acre too were relatively low when compared to Maha. With regard to sales to Co-operatives a similar tendency is shown as was observed in Maha. Farmers in smaller sized holdings of less than 4.00 acres had made over 90% of their sales to Co-operatives whilst those in holdings over 6.00 acres had made only 45% of their sales to these institutions.

The picture presented by these figures is contrary to the opinion expressed sometimes that the small farmers sell to traders even at a disadvantage because they are compelled to do so through indebtedness. The sample we have studied indicates that the larger farmers are more likely to sell to traders whilst the smaller farmers sell to the Co-operatives.

Table 6-VIII Disposal of Paddy according to Supply of Water and Tenurial Status - Maha 1971/72

	No.of farms cultivated	Sales per acre sown (Bushels)	Sales as a % of production
Tenants in major schemes	48	15.74	*39*
Tenants in minor schemes	24	9.13	*33*
Tenants in rainfed areas	5	2.34	*13*
Owners in major schemes	14	35.91	*66*
Owners in minor schemes	12	16.28	*42*
Owners in rainfed areas	6	1.79	*14*

Table 6-IX Disposal of Paddy according to Supply of Water and Tenurial Status - Yala 1972

Category	No.of farms culti-vated	Sales per acre sown (Bushels)	Sales as a % of production
Tenants in major schemes	34	8.06	34
Tenants in minor schemes	15	9.41	42
Tenants in rainfed areas	4	0.72	12
Owners in major schemes	12	32.22	55
Owners in minor schemes	10	9.65	29
Owners in rainfed areas	5	2.71	14

The amount of paddy sold by farmers in the two major tenurial groups, viz. tenants and owners, shows marked variations particularly under major schemes, both in Maha and Yala seasons. In major schemes during Maha, owner farmers had sold 20 bushels more per acre than tenants, whilst in Yala the difference had been still greater, the relevant figure being 24 bushels/acre. This variation is understandable as tenants had to pay part of their crop as land rent. Consequently this group has had much less paddy for sale. Sales as a percentage of total production in Maha show that owners in major schemes sold 66% of their production compared to 39% in the case of tenants. It is also seen that farmers in rainfed areas, irrespective of the tenancy conditions, had disposed of relatively lesser quantities of paddy per ac Both owners as well as tenants had been able to sell only about 14% of their production during Maha. A similar tenden is also seen in respect of the quantity sold per acre.

Chapter 7

LABOUR UTILIZATION AND INCOME

This chapter will discuss principally the situation relating to labour use, off farm work and family farm earnings of the households surveyed. A brief discussion on family size and labour force is also given at the beginning as background information. We have taken into consideration here only 147 families classified as owners, tenants, owner-tenants and tenant-owners. The total number of persons in these families amounted to 1,073 of whom 465 were 14 years and over.

7.1 Family Size

The average size of family [1] for the total sample of farmers is 7.3. The owner operators have the smallest family size with 6.5 members and the tenants the biggest with 7.5 members. Both owner-tenant and tenant-owner categories have nearly as big an average family as the tenants.

Of the total sample of famers belonging to the four tenurial categories, about 33% have a family of 9 persons or more whereas only 12% have families of 4 members or less. A majority of households (55%) have families varying from 5-8 members.

The tenure-wise variation in the family size between owners and tenants is clearly demonstrated by the data presented in Table 7-I. The owners have relatively smaller families than the tenants. The percentage number of households with 4 members and less is 28 for the owners and only 8 for the tenants whereas those with 9 members and over is 25% and 36% respectively for each category. Both owner-tenant and tenant-owner categories are closer to tenants in this respect.

The picture presented by Fig.VIII showing the distribution of family members per farm for all tenure categories taken together and analysed according to size of holding, also indicates certain significant tendencies. The modal class for size of family is 7-8 for 2.00 acres or less and 2.00-4.00 acre size classes, and 9-10 for the larger size classes. Of the smaller families (i.e. 4 members or less) 39% were small farmers with 2.00 acres or less and 33% farmers with 2.00-4.00 acres. Of the larger families with 9 or more members 33% were farmers with 4.00-6.00 acres, 27% were farmers with 2.00-4.00 acres.

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1. 'Family' as defined here includes all persons belonging to the household.

Fig: VIII

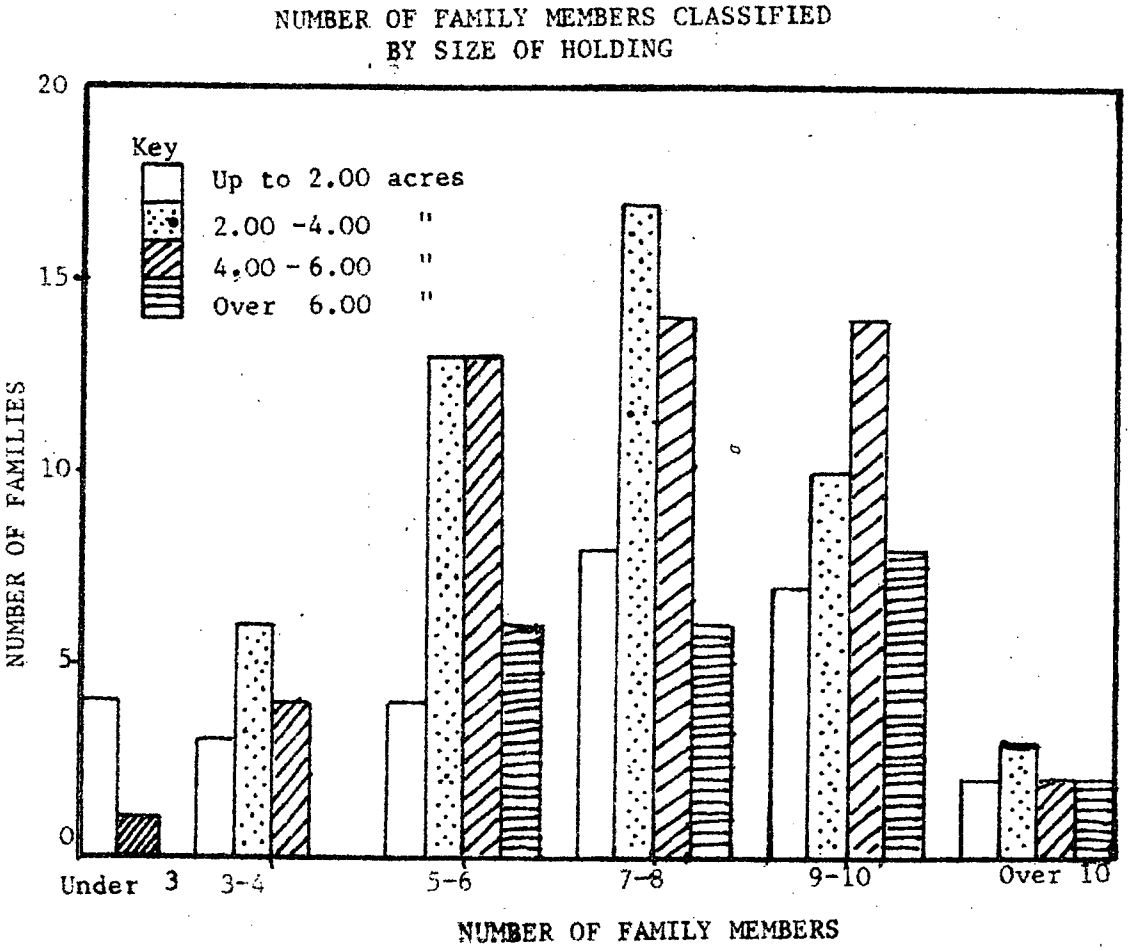
NUMBER OF FAMILY MEMBERS CLASSIFIED
BY SIZE OF HOLDING
Key
Up to 2.00 acres
2.00 -4.00 "
4.00 - 6.00 "
Over 6.00 "
NUMBER OF FAMILIES
20
15
10
5
0
Under 3
3-4
5-6
7-8
9-10
Over 10
NUMBER OF FAMILY MEMBERS

Table 7-1 Family Size according to Size of Holding and Tenurial Category

No. of family Members	For all size classes Tenurial Category: Owner No	%	Tenant No.	%	Owner Tenant No.	%	Tenant Owner No.	%	Total No.	%	For all tenurial categories Size of Holding (Acres): Up to 2.00 No.	%	2.00 to 4.00 No.	%	4.00 to 6.00 No.	%	Over 6.00 No.	%
Less than 3	4	13	1	1	-	-	-	-	5	3	4	14	-	-	1	2	-	-
3 - 4	5	16	5	7	1	6	2	9	13	9	3	11	6	12	4	8	-	-
5 - 6	6	19	18	23	4	25	8	36	36	25	4	14	13	27	13	28	6	27
7 - 8	9	28	26	34	6	38	4	18	45	31	8	29	17	35	14	29	6	27
9 -10	7	21	21	27	4	25	7	32	39	26	7	25	10	20	14	29	8	37
More than 10	1	3	6	8	1	6	1	5	9	6	2	7	3	6	2	4	2	9
Total	32	100	77	100	16	100	22	100	147	100	28	100	49	100	48	100	22	100

The position of households with 5 and more members and 7 and more members in respect of different size classes for all tenure categories is given in Table 7-II.

Table 7-II Distribution of Family Size by Size of Holding

Size of Holding (acres)	5 and above %	7 and above %
Up to 2.00	75	61
2.00 - 4.00	87	60
4.00 - 6.00	89	63
Over 6.00	100	73

The above figures too illustrate that the larger families are concentrated more in larger holding size classes.

That the tenants generally have larger families than the owners is shown by the fact that the percentage share of each family size class for the larger holding size classes (above 4.00 acres) is higher for the tenants than for owners (Table 7-III), and vice versa for the land holdings below 4.00 acres.

Table 7-III Family Size of Owners and Tenants according to Size of Holding

No. of family members	Owners						Tenants					
	Size of Holding						Size of Holding					
	Less than 4 acres		More than 4 acres		Total		Less than 4 acres		More than 4 acres		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
4 & less	8	32	1	14	9	28	2	6	4	9	6	8
5 - 8	11	44	4	57	15	47	23	70	21	48	44	57
9 & above	6	24	2	29	8	25	8	24	19	43	27	35
Total	25	100	7	100	32	100	33	100	44	100	77	100

7.2 Family Labour Force

For this purpose we have assumed that persons of 14 years and above are available for agricultural work in measuring the size of the available family labour force. The relevant data are presented in Table 7-IV.

The average size of family labour force for all tenure categories is 4.41 persons, the smallest being for the tenants and the highest for the owner-tenants. A little below 50% of the total number of farms of all tenurial categories have 5 or more family members of 14 years and above, the owners and owner-tenants having a larger percentage share of such families than the tenants and tenant-owners. The table also shows that for all tenurial categories taken together, nearly half the families have a family labour force of 5 or more and another one-fifth has a family labour force of 4. Families with a family labour force of 2 members make up only 14% of the total.

Table 7-IV Family Labour according to Tenurial Categories

Tenurial Category		No. of family members 14 years and above					Average size of labour force
		2	3	4	5 and over	Total	
Owners	No.of farms	5	3	6	18	32	4.53
	%	*16*	*9*	*19*	*56*	*100*	
Tenants	No.of farms	13	12	17	35	77	4.18
	%	*17*	*16*	*22*	*45*	*100*	
Owner-tenants	No.of farms	2	2	2	10	16	5.00
	%	*12*	*12*	*12*	*64*	*100*	
Tenant-owners	No. of farms	-	5	8	9	22	4.59
	%	-	*23*	*36*	*41*	*100*	
	Total	20	22	33	72	147	4.41
	%	*14*	*15*	*22*	*49*	*100*	

The size of family labour force in relation to different holding size classes for owners and tenants is shown in Table 7-V. In the holding size classes above 2 acres, the general tendency noted is an increase in the percentage of families with a bigger labour force in both tenurial categories. However, the percentage of families with a larger labour force in each holding size class is higher for owners in most cases than for tenants. If a family labour force of 4 or more is considered, the percentage of families is always higher for owners than for tenants and the vice versa for smaller labour force size. Even in the size class 2 acres and less, a similar tendency could be noted.

Table 7-V Family Labour among Owners and Tenants according to Size of Holding

Size of Holding (acres)		Owners: No.of family members of 14 years and above 2	3	4	5 & over	Total	Tenants: No.of family members of 14 years and above 2	3	4	5 & over	Total
Up to 2.00	No.of farms	4	1	1	6	12	3	1	2	1	7
	%	*34*	*8*	*8*	*50*	*100*	*43*	*14*	*29*	*14*	*100*
2.00 - 4.00	No.of farms	1	1	4	7	13	4	5	2	15	26
	%	*8*	*8*	*31*	*53*	*100*	*16*	*19*	*8*	*57*	*100*
4.00 - 6.00	No.of farms	0	1	1	3	5	5	6	10	11	32
	%	-	*20*	*20*	*60*	*100*	*15*	*19*	*31*	*35*	*100*
Over 6.00	No.of farms	-	-	-	2	2	1	-	3	8	12
	%	-	-	-	*100*	*100*	*8*	-	*25*	*67*	*100*
	Total	5	3	6	18	32	13	12	17	35	77
	%	*16*	*9*	*19*	*56*	*100*	*17*	*16*	*22*	*45*	*100*

How could one explain this difference in family labour force between the owners and tenants?

One explanation could be the difference in age of the head of household - the older he is the more grown up children he is likely to have,

Though not very big, there is a difference in the average age of the owner and the tenant - the former 51 years of age and the latter 48 years. Besides, in every size class, the average age of the owners is higher than that of the corresponding size class of the tenants. The owners with larger holding are relatively older (63 years) than those with smaller holdings, which is not the case with regard to the tenants. Thus, the tenants in all categories are younger in age, although the difference in age seems inadequate to explain the difference in family labour force.

The other explanation may be that a large number of tenants are recent migrants from other areas. [1]

1.Landless from wet zone parts of the district mostly.

The following may be considered as the more important characteristics of family size and family labour force:

a) the percentage of owner cultivators with smaller families is higher than for tenants.
b) for both owners and tenants the percentage of bigger families tend to increase, in general, with the increasing size of holding.
c) in both tenurial categories, the percentage of bigger family labour force tends to increase with the increasing size of holding.
d) the percentage of families with a larger labour force is higher for owners than for tenants.

7.3 Pattern of Labour Use

In this section we have examined the general pattern of labour use with particular reference to the use of family, hired and attan labour. Since the average size of holding in the sample was 4.5 acres with 4.4 persons being available per family for farm work, it is reasonable to assume that a large proportion of farmers would have to depend on hired labour for most of the cultivation operations.

The data on percentage distribution of farms according to pattern of labour use during Maha 1971/72 is indicated in Table 7-VI.

Table 7-VI: Pattern of Labour Use according to Field Operations

Field Operation	Farmers Reporting	Percentage of Farmers using various types of labour: Family labour only	Hired labour only	Attan labour only	Contract only	Family and hired	Hired and attan	Family and attan	Family hired and attan
		%	%	%	%	%	%	%	%
Land preparation	146	12	24	1	-	58	4	1	-
Transplanting	41	5	36	5	5	49	-	-	-
Weeding	133	40	27	2	--	25	-	5	1
Harvesting	145	1	45	-	8	42	-	-	4
Threshing	146	2	47	2	12	33	-	1	3

Comparison of number of farms that had used family or hired labour exclusively for major field operations as given in the above table shows that a substantial proportion of the farmers had depended exclusively on hired labour for important field operations. The percentage of farms using exclusively hired labour has ranged from 24% for land preparation to as much as 47% in the case of threshing.

Besides, the figures in Table 7-VI show that only a negligible proportion of farmers had performed different field operations exclusively with family labour; the only exception being weeding. This is due to large scale use of chemicals for weed control, and in most instances farmers themselves have done their own spraying. Heavy dependence on hired labour by an appreciable proportion of farmers could be due to a number of reasons:

a) *large scale use of machinery for land preparation and threshing which are invariably owned by landlords and/or merchants.*
b) *relatively larger size of holdings in relation to man-power available for farm work as pointed out earlier.*
c) *Limited time duration available for land preparation from first issue of water to time of sowing under irrigated conditions which is about 30 -40 days.*

The number of farmers using attan and contract labour was found to be negligible.

Since it was thought that the heavy dependence on hired labour was partly due to relatively large size of holdings in the district, the pattern of labour use for different field operations was also examined in relation to holding size. The relevant data are presented in Table 7-VII.

Table 7-VII Pattern of Labour Use for Different Field Operations according to Size of Holding- Maha 1971/72

		Family Labour only %	Hired labour only %	Attan labour only %	Contract only %	Family and Hired %	Hired and Attan %	Family and Attan %	Family Hired & attan %	Total No.
Up to 2.00 acres	Land Prep.	24	21	4	-	43	4	4	-	28
	Transplant	17	33	33	-	17	-	-	-	16
	Weeding	59	22	-	-	8	-	11	-	27
	Harvesting	7	41	-	15	30	-	-	7	27
	Threshing	4	40	4	18	30	-	-	4	27
2.00-4.00 acres	Land Prep.	13	24	-	-	59	2	2	-	46
	Transplant	5	37	-	5	53	-	-	-	19
	Weeding	42	24	5	-	20	-	7	2	45
	Harvesting	-	46	-	8	44	-	-	2	48
	Threshing	4	52	2	4	32	-	2	4	48
4.00-6.00 acres	Land Prep.	9	24	2	-	63	2	-	-	46
	Transplant	-	33	-	-	67	-	-	-	8
	Weeding	28	36	-	-	36	-	-	-	34
	Harvesting	-	40	-	7	49	-	-	4	45
	Threshing	-	47	-	20	32	-	-	2	45
Over 6.00 acres	Land Prep.	-	28	-	-	64	8	-	-	25
	Transplant	-	43	-	14	43	-	-	-	7
	Weeding	32	27	-	-	41	-	-	-	22
	Harvesting	-	54	-	4	38	-	-	4	26
	Threshing	-	50	-	4	42	-	-	4	26

Classification of patternof labour use on the basis of holding size shows that in smaller size groups of 2.00 acres or less a higher proportion of farmers (24%) had used only family labour for land preparation; whereas with with increasing size the proportion of farmers who had used only family labour for this operation had decreased sharply. The relevant figures being 13% (2.00-4.00 acres), 9% (4.00-6.00 acres) and none in the over 6.00 acre size group. Even in the case of transplanting a similar trend is shown with regard to those who had used family labour. In respect of weeding family labour had been used by farmers of all size groups but the intensity has been greater in the 2.00 acres or less size group where 60% of the farmers had used exclusively family labour for this operation. With regard to harvesting and threshing, the proportion who had depended only on family labour has been very small even in holdings of 2.00 acres or less. In holdings of over 4.00 acres none of the farmers had been able to perform these operations exclusively with their family labour.

Generally, the pattern of hired labour used does not show an appreciable variation in respect of different operations as the holding size increases. The proportion of farmers who had used hired labour only for operations such as land preparation, transplanting, harvesting and threshing shows a uniform pattern irrespective of the holding size. This proportion had ranged from 21% to 28% for land preparation, 33% to 42% for transplanting and 40% to 53% for harvesting and threshing in the different size groups. Only in the smallest size group 2.00 acres or less had attan labour been used for transplanting, the relevant figure being 33%.

A substantial proportion of farmers had used both family and hired labour for all operations. The proportion of farmers falling into this category also shows an appreciable increase as the holding size increases particularly for operations such as land preparation, transplanting, harvesting and threshing *The pattern of labour use shows that more than 80% of farmers had depended on hired labour either exclusively or in combination with family labour for important field operations other than weeding for all size groups except for the smallest. The widespread use of hired machinery for land preparation and threshing as well as heavy dependence on hired labour for other field operations would tend to reduce family farm earnings.*

7.4 Employment Situation

It was not intended in this survey to collect detailed information on the employment situation of the sample of households surveyed. What is presented below is only the general picture of the employment situation emerging from the data with reference only to extent and nature of off farm work.

Taking all tenurial categories together the average household has about 3.05 persons engaged exclusively in family farm work and the per family number of farm workers do not show any relationship to tenurial category, although the owner-tenants reported a number below the average. However, taking into account both categories, i.e. those who work only in own farm and outside, what emerges from the table seems to be somewhat different (Table 7-IX)

The owners have a larger number of persons engaged in farm work. The per acre number of persons engaged in family farm work is also higher for this category. The position with regard to other tenurial categories is not very different in terms of total family labour engaged in farm work, though the tenant-owners are placed at the bottom in respect of per acre family workers calculated on the basis of the average holding size (Table 7-VIII). The owners thus have a larger total family labour force and a larger number of farm workers per acre. The difference between the other three categories is, however, not very clear. The fact that the owners have more highland enables a larger number of family members to find work in the farm.

Table 7-VIII Farm Labour Force according to Tenurial Category

Tenurial Category	Average size of holding Acres	Employed in own farm only and in own farm and outside		No. per acre (on average holding)
		No.	Avg. per family	
Owners	2.99	130	4.06	1.36
Tenants	4.76	196	3.84	0.81
Owner-Tenants	4.98	56	3.50	0.70
Tenant-Owners	5.69	83	3.77	0.66

All the members of the farm household are not engaged exclusively in farm work. Some households have one or more members working in the farm and at the same time engaged in some kind of off farm work, whereas fewer households have employment of family members only outside. Table 7-IX *indicates that only 25% of farm households have at least one family farm worker with some off farm employment. The owners account for the highest percentage (28%) of such households and the tenants the lowest (23%).* This applies equally well in respect of the average number of persons with such off farm work, thus indicating that the owners are marginally better off in respect of off farm employment.

The number of farms with certain members working entirely outside the farm (Table 7-IX) is not very high. However, the owner-tenants and tenant-owners have a large percentage of households having some members with only outside employment, and the percentage is lower for both owners and tenants. *But the tenants account for twice as high a percentage of families with off farm workers as compared to owners.* The number of such persons per farm reporting

is, however, equal in both categories. More owner-tenants and tenant-owners have a larger number of family members with off farm work. In fact, for both these categories, the difference between per family labour force and the labour force engaged in farm work is about 1.16 persons whereas the difference for owners and tenants is only 0.40.

The overall picture of the employment situation in respect of off farm work points out to certain characteristics of the pattern of rural employment (Table 7-X). *Over 45% of the off farm work consists of non-agricultural labour which, in fact, is unskilled labour. Agricultural labour is relatively unimportant.* [1] Both agricultural labour and non-agricultural labour taken together account for 51% of off farm work. 30% of outside work is in white collar employment and only about 12% in trade and in skilled jobs. Tenure-wise distribution of off farm work makes much clearer the picture of the employment situation among different types of households. Tenants and tenant-owners are engaged in a wide variety of outside employment compared to the other two categories. *A little less than 60% of the tenants engaged in off farm work are mostly unskilled labourers and some agricultural labourers.* Other tenurial categories have more or less the same percentage of such labourers, the percentage being around 40%. The owners and owner-tenants have more salaried or white collar workers, whereas the tenant and tenant-owner households account for a lower percentage of such workers. *Since the tenants are economically weaker than the owners, they are found to augment their earnings from outside work especially because their earnings from highland too, are very small or at times non-existent. However, given their lower economic status and therefore lower educational standards, they have to be content only with unskilled work.*

The situation is somewhat different for those engaged only in outside work. As the table shows here, it is in the larger holding size classes of above 4.00 acres that there are more family members engaged entirely in outside work. This is clearly indicated for all tenurial categories except the owners who account for only 2 cases. It is possible that in larger holdings with larger family labour force,some members could engage themselves fully in outside work for in any case during peak periods such farms need to work with hired labour (cf 7·3)

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1. Since all the households surveyed are those engaged in paddy cultivation, it is natural that agricultural labour (in paddy cultivation) does not figure prominently in off farm work of the households. During peak periods all family members are fully occupied in farm work and in fact in a majority of the cases, as was shown earlier under labour use, the farmer has to rely on paid labour from outside for successful completion of peak season operations. Hence farmers in major paddy growing areas cannot obtain work as agricultural labourers except in the western sector of the district which falls in the wet zone where upland crops are grown.

Table 7-IX Employment Situation among
according to

Tenurial Category	No.of farms reporting	Employed in own farm only: Total Number	Employed in own farm only: Average per farm	Employed in own farm: Total Number	Employed in own farm: No.of farms reporting	Employed in own farm: 5 as a % of total number of farms	Employed in own farm: Average per farm reporting
	1	2	3	4	5	6	7
Owner	32	101	3.16	30	16	50	1.86
Tenant	77	234	3.04	62	33	43	1.88
Owner tenants	16	42	2.63	14	7	44	2.00
Tenant owners	22	71	3.23	12	8	36	1.50
All Categories	147	448	3.05	118	64	44	1.84

Family Members of 14 years and above
Tenurial Category

and outside Excluding Students				Employed only outside			
Total Number	No.of farms	9 as a % of total No.of farms	Average per farm reporting	Total Number	No.of farms Reporting	13 as a % of total No.of farms	Average per farm reporting
8	9	10	11	12	13	14	15
15	9	28	1.67	2	2	6	1.00
27	18	23	1.50	9	9	12	1.00
5	4	25	1.25	7	4	25	1.75
6	6	27	1.00	7	3	14	2.33
53	37	25	1.43	25	18	12	1.38

7.5 Income Distribution according to Tenurial Status

Land tenure arrangements determine to a large extent, the pattern of income distribution in the farm sector, for they determine the ability of the individual to gain access to production opportunities on the land as well as work opportunities elsewhere.

Table 7-X Nature of Outside Employment *

Employment	Tenural Category: Owners		Tenants		Owner-Tenants		Tenant-Owners		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Salaried or white collar workers [1]	7	41	8	22	5	42	3	23	23	30
Non-salaried professions [2]	-	-	-	-	-	-	2	15	2	3
Trade and commerce [3]	2	12	1	3	-	-	1	8	4	5
Skilled workers [4]	-	-	3	8	-	-	2	15	5	6
Agricultural labour Plantation [5a]	-	-	3	8	-	-	-	-	3	4
Agricultural labour Other [5b]	-	-	-	-	-	-	1	8	1	1
Non-agricultural labour [6]	7	41	20	56	5	42	4	31	36	45
Not Specified	1	6	1	3	2	16	-	-	4	6
	17	100	36	100	12	100	13	100	78	100

* Excludes full-time students

1. Employees of Government, State Corporations, or non Government institutions working for monthly payment - Teachers, Clerks, Grama Sevakas, Co-operative Managers, etc.

2. Mostly self-employed not drawing fixed salaries, - Proctors, Ayurvedic Physicians (Native Doctors), etc. (continued)

Table 7-XI Pattern of Outside Employment according to Tenurial Category and Size of Holding

Tenurial Category	Size of Holding (acres)	Total No.of farms reporting	Employed in own farm and outside		Employed only outside	
			No.	Per farm	No.	Per farm
Owners	Up to 2.00	12	5	0.42	1	0.08
	2.00 - 4.00	13	8	0.62	0	-
	4.00- 6.00	5	2	0.40	0	-
	Over 6.00	2	0	-	1	0.50
Total		32	15	0.47	2	0.03
Tenants	Up to 2.00	7	3	0.43	0	-
	2.00 - 4.00	26	12	0.46	2	0.07
	4.00 - 6.00	32	8	0.25	3	0.09
	Over 6.00	12	4	0.33	4	0.33
Total		77	27	0.35	9	0.12
Owner-	Up to 2.00	5	2	0.40	1	0.20
Tenants	2.00 - 4.00	3	0	-	0	-
	4.00 - 6.00	5	1	0.20	5	0.10
	Over 6.00	3	2	0.66	1	0.33
Total		16	5	0.31	7	0.44
Tenant-	Up to 2.00	3	1	0.33	0	-
Owners	2.00 - 4.00	8	3	0.38	0	-
	4.00 - 6.00	6	2	0.33	3	0.50
	Over 6.00	5	0	-	4	0.80
Total		22	6	0.27	7	0.32

Table 7-X notes continued.

3.Those engaged in buying and selling of goods.

4.Those who possess a mechanical or manual skill in the work they perform - Mechanics, Carpenters, Drivers, etc.

5.Agricultural labourers -

(5a) Plantation - refers to estate labour
(5b) Others - include all agricultural work other than estate work

6.Refers mostly to unskilled labour outside agriculture

We are not in a postion to work out the net farm family incomes from the data available as figures for expenditure were collected only in relation to paddy cultivation in Yala 1972. We have, however, figures for gross receipts for farm families based on gross value of the amount of paddy produced in Maha and Yala, the cash proceeds from the sale of highland and livestock produce and earnings from off-farm employment. These figures are a crude measure of the levels of income. We shall discuss these as indicators of the income levels in the rural sector. In considering these figures we must remember -

1. that the figures are only crudely indicative of the income position in the rural areas;

2. that in comparing rural income with urban income persons in rural areas enjoy benefits such as rent-free housing, home produce or cheap agricultural products cultivated locally, negligible cost of travel to work, etc.

and

3. that expenses connected with production of paddy, highland and livestock produce have not been deducted.

7.6 Gross Farm Family Receipts

The relevant data are presented in Table 7-XII For the total sample of all tenurial categories, about 17% of the households obtained Rs.1,000 or less as gross receipts for 1971-72. This works out to about less than Rs.100 per family for a month. Only about 15% of the households accounted for receipts ranging between Rs.1,000 and Rs.2,000 while 37% obtained between Rs.2,000 to Rs.4,000. Only 30% of the farms had receipts over Rs.4,000 for the period. *Thus 70% of the families receiving receipts of Rs.4,000 or less, earned in fact less than Rs.335 per month.* When the family receipts are examined on a holding size class basis, those obtaining over Rs.4,000 show an increase with the increasing size of holding whereas those earning below Rs.2,000 show an increase with the decreasing size of holding. On a tenure-wise basis, all the tenurial groups other than the owner-tenant category had had the largest percentage number of farms with receipts between Rs.2,000 and Rs.4,000. 35% of tenants and 50% of owner-tenants get Rs.2,000 and less as their family receipts. The percentages for owners and tenants of similar low family receipts are 25% and 23% respectively

7.7 Receipts from Sources other than Paddy

The data presented in Table 7-XIII when compared with those of Table 7-XII *points out that the majority of the households in the sample depend on paddy for a larger part of their family receipts, and that substantial receipts from sources other than paddy are lacking.*

Table 7-XII Distribution of Farm Families According to Total Family Receipts * for 1971-72

Receipts in Rupees	Distribution according to Size of Holding								Distribution according to Tenurial Categories											
	Up to 2.00		2.00-4.00		4.00-6.00		Over 6.00		All size Classes		Owner		Tenant		Owner Tenant		Tenant Owner		All tenure classes	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
000 - 500	3	11	1	2	3	6	2	9	9	6	3	9	5	7	1	6	0	0	9	6
501 - 1000	8	30	6	12	2	4	0	0	16	11	4	13	10	13	0	0	2	9	16	11
1000 - 2000	6	22	10	21	5	11	1	5	22	15	1	3	11	15	7	44	3	14	22	15
2001 - 4000	7	26	23	47	19	41	5	23	54	37	12	38	28	37	5	31	9	41	54	37
4000 - 8000	3	11	6	12	15	32	8	36	32	22	9	28	15	20	2	13	6	27	32	22
More than 8000	0	0	3	6	3	6	6	27	12	9	3	9	6	8	1	6	2	9	12	9
Total	27	100	49	100	47	100	22	100	145	100	32	100	75	100	16	100	22	100	145	100

* Made up of gross value of total production of paddy, cash proceeds for sale of highland and livestock produce and earnings from

Table 7-XIII Distribution of Farm Families according to Receipts from Sources other than Paddy Produced by Operators

Receipts in Rupees	Distribution according to Size of Holding										Distribution according to Tenurial Categories									
	Up to 2.00		2.00-4.00		4.00-6.00		Over 6.00		Total		Owner		Tenants		Owner Tenant		Tenant Owner		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1 - 500	14	63	21	61	24	70	5	31	64	61	12	42	33	71	8	62	11	57	64	61
501 - 1000	4	18	6	18	7	21	4	25	21	20	7	25	9	20	2	15	3	16	21	20
1001 - 2000	1	5	1	12	4	3	4	25	10	9	3	11	3	7	2	15	2	11	10	9
2001 - 4000	3	14	2	6	2	6	3	19	10	9	5	18	1	2	1	8	3	16	10	9
4001 - 8000	0	0	1	3	0	0	0	0	1	1	1	4	0	0	0	0	0	0	1	1
Total	22	100	31	100	37	100	16	100	106	100	28	100	46	100	13	100	19	100	106	100

The percentage number of households of all tenurial categories whose receipts from such sources is Rs.500/- or less accounts for about 60%, while the percentage number of families with receipts of Rs. 1,000 or less is about 80%.

The holding-wise distribution of receipts from sources other than paddy indicates that 80% or more of farms in size classes, except that above 6.00 acres, earn less than Rs. 1,000 per family. The percentage of such farms account for only 56% in the case of the holding size class above 6.00 acres.

The tenure-wise distribution of farms with receipts from sources other than paddy indicates a clearer picture of the difference between tenant and owner cultivators. *Only 60% of the total number of tenants had receipts from sources other than paddy compared to the owners who accounted for 91%.* Owner-tenants and tenant-owners accounting for 81% and 86% of farms respectively were relatively better off than the tenant group. Of those who got such receipts 71% of the tenants received Rs.500 or less per family, whereas the percentage number of owner farms which receive the same amount is only 43%. Owner-tenant and tenant-owner groups did not show a marked difference though they too are less favoured than the owners. Although the overall proportion of farmers with receipts from sources other than paddy appears large, this conveys a misleading picture as most of them (60%) get Rs. 500 or less per annum from such sources. The owners are better off than other types of farmers in this respect as the proportion who receive over Rs. 500/- per annum is greater. *The relative poverty of tenants is also indicated by the lower average receipts per farm from sources other than paddy and also by the lower percentage of farms reporting such receipts, as shown below:*

Table 7-XIV: Average Receipts from Sources other than Paddy

Tenurial Category	Total No.of farms	No of farms reporting outside earnings	% of total farms	Average off-farm receipts per farm Reporting farms Rs.	All Farms Rs.
Owners	32	28	*91*	1115.72	967.26
Tenants	77	46	*60*	417.17	249.22
Owner-Tenants	16	13	*81*	1053.31	855.82
Tenant-Owners	22	19	*86*	568.25	599.89

The lower level of receipts among tenants is primarily due to two reasons. Firstly, the tenant has less highland than the owner and therefore less receipts from highland crops and livestock. Secondly, owing to the lower social and education status he is at best capable of securing lower paid jobs mostly as labourers.

7.8 Gross Value of Paddy Production

It was shown earlier that paddy yields show a close relationship

to the source of water, major schemes accounting for relatively higher yields. The estimated value of paddy for the 1971/72 total production shows the difference better in money terms. (Table 7-XV). The per farm value of paddy is highest (Rs.3032/-) for major schemes and lowest (Rs.668/-) for rainfed areas. This can be explained only partly by the difference in the size of holding under major irrigation and under rainfed conditions. The size of holding under rainfed conditions expressed as a proportion of the size of holding under major irrigation is as much as 62% for owners and 50% for tenants. The value of paddy produced per family under rainfed conditions however, is only 22% of what is

Table 7-XV: Value of Paddy Produced by Operators after Deducting Land Rent for Tenanted Land according to Supply of Water - 1971/72 (Maha and Yala)

Water Supply	Average Size of(1) Holding (Acres)		Average Value of paddy produced per family (2)
	Owners	Tenants	
Major Irrigation	3.89	5.17	3031.92
Minor Irrigation	2.22	4.47	1831.10
Rainfed	2.42	2.60	667.52

(1) Average size of holding under different conditions of water supply for owner-tenants, tenant-owners and overall sample could not be worked out due to variation in the supply of water to owned and rented in portions of the holdings.

(2) refers to value of paddy produced by all operators under each water supply condition.

produced under major irrigation. This indicates the much higher potential for production under irrigated conditions. Though the average paddy holding size in the major schemes is larger than that of the rainfed ares, the percentage difference of the holding is only 38% for owners and 50% for tenants.

The comparison of the value of paddy by farms of different tenurial status too, points out to the unfavourable economic situation of the tenant (Table 7-XVI). *The per family gross value of paddy does not show a wide disparity between different tenurial categories, but once land rent is deducted for tenanted land, owners are placed at the top (Rs.3095/-) with owner-tenants next (Rs. 2709/-). Tenants and tenant-ownersearn less (Rs.2253/- and Rs. 2021/- respectively). The average per acre value for owners (Rs.1035/-) is also twice as high as that of other categories (Rs.355/- to Rs.544/-).*

It is also important to note that the percentage difference in the gross value of paddy between owners and tenants is very small, the tenants' value being lower only by 3.28% over that of the owners,

whereas after deduction of land rent, the difference works out to about 30% in spite of the fact that the tenant has a holding which is 47% larger than that of the owner. *However, the difference in per acre value of paddy between owners and tenants is as much as 54%. This situation is a direct consequence of the fact that the tenant obtains a lower yield.*

Table 7-XVI: Gross Value of Paddy Produced by Operators according to Tenurial Category 1971/72 (Maha and Yala)

Tenurial Category	Average size of holding (Acres)	Average per family (Gross) Rs.	Average after deducting land rent	
			Per Family Rs.	Per Acre Rs.
Owners	2.99	3094.87	3094.87	1035.07
Tenants	4.76	2993.46	2252.52	473.21
Owner-Tenants	4.98	3616.45	2709.16	544.00
Tenant-Owners	5.69	2714.00	2020.68	355.13

Table 7-XVII Gross Value of Paddy Produced by Owners and Tenants according to Size of Holding 1971-72

Size of Holding (acres)	Owners		*	Tenants		*
	Per family Rs.	Per head Rs.		Per family Rs.	Per head Rs.	
Up to 2.00	1,641.50	437.73		918.73	292.58	
2.00 - 4.00	3,388.00	773.51		1,499.43	382.51	
4.00 - 6.00	3,125.00	710.34	(1)	1,941.52	490.28	
Over 6.00	11,396.00	2,279.00	(1)	3,766.62	837.03	

* Average per head has been calculated taking into account only persons of 14 years and above.

(1) relates to two operators.

Table 7-XVII shows that the per head gross value for owners in all classes of holding size is about twice as high as that of tenants in each corresponding size class. It was shown earlier in this discussion that there exists a difference in gross value of paddy for farms served by different irrigation schemes. Whether this difference between the owners and the tenants is due to a difference in the availability of water should, therefore, be examined. Table 7-XVIII *shows that the difference in value between the owners and tenants is found even within the same irrigation scheme, in spite of the fact that the tenants cultivated a higher area.*

In both minor and rainfed areas the gross value for tenants before deducting land rent is higher than for the owners. However, the

Table 7-XVIII Gross Value of Paddy Produced by and Water Supply 1971-72

Water Supply	Average size of holding (acres)		Average per farm (Rupees)	Average per acre (Rupees)	Average per * head (Rupees)
			O w n e r s		
Major Irrigation	3.89	A	5,060.00	1,300.77	1,263.34
		B	5,060.00	1,300.77	1,263.34
Minor Irrigation	2.22	A	2,192.27	987.50	528.18
		B	2,192.27	987.50	528.18
Rainfed	2.42	A	528.18	219.26	163.60
		B	528.18	219.26	163.60

Note A - Gross value of paddy produced

B - Value of paddy produced after deducting land rent for tenanted lands

C - Average per head/member of 14 years and above

Operators according to Tenurial Category

Tenants			
Average size of holding (acres)	Average per farm	Average per acre	Average per * head
	(Rupees)		
5.17	3,381.80	673.78	980.78
	2,661.00	514.70	735.70
4.47	2,450.91	548.30	690.39
	1,848.21	413.46	520.62
2.60	703.50	270.57	198.17
	510.82	196.46	143.89

value after deducting land rent is lower in both cases for the tenants. In the major schemes, in spite of the fact that the tenant cultivates a larger area, the estimated value of paddy after deducting land rent is only half that of the owners. The per acre value testifies better to the disadvantageous economic position of the tenant in both major and minor schemes. The value of paddy for tenants is less than half that for the owners when land rent is deducted for tenanted lands. In rainfed schemes the gap is not so wide, but yet the tenant earns less. As shown in column 3 of the same table, the per head value for family members of 14 years and above for farms served by different sources of water supply is always lower for the tenants than for the other categories.

Table 7-XIX: Value of Paddy Produced by Tenants with Different Rental Arrangements - 1971-72.

Source Water Supply	Tenant Group	Size of holding (acres)	Gross Value of total paddy produced per farm Rs.	per head [1] Rs.	Value of Paddy produced after deducting land rent per farm Rs.	per acre Rs.	per head [1] Rs.
Major Irrigation	1/4th rent	5.10	3,002.11	845.66	2,251.58	411.49	634.27
	Fixed rent	6.50	5,690.00	1,602.81	4,633.55	712.85	1,305.22
Minor Irrigation	1/4th rent	4.92	2,228.72	627.80	1,671.54	339.74	470.85
	Fixed rent	4.50	4,232.66	1,192.29	3,588.66	797.48	1,010.89
Rainfed	1/4th rent	2.16	627.37	176.72	470.53	217.84	132.54
	Fixed rent	-	-	-	-	-	-

1/ Value per head has been calculated for family members of 14 years and above

7.9 Gross Value of Paddy Production Under Different Rental Arrangements

Table 7-XIX shows that the value of paddy for tenants paying 1/4th share of the crop to the land, in both major and minor irrigation schemes, is lower by nearly half compared to those paying fixed rent. The size of paddy holding does not seem to affect the total picture as the size is more in one case and less in the other for the two types of tenants under different irrigation schemes. *This clearly indicates that the tenant paying 1/4th share is at a greater disadvantage than the tenant paying fixed rent; tenants paying a fixed rent too, as was shown earlier, could often be at a disadvantage*

compared to the tenants who could pay either 1/4th share or fixed rent, whichever is less.

Although the available data is suggestive, it does not permit us to make a detailed analysis of the economics of different rental arrangements. This is an aspect which needs further investigation before reaching any firm conclusions.

7.10 Production Expenses and Income from Paddy - Yala 1972

As the 'recall lapse' among farmers is generally high, the collection of quantative data with regard to production expenses was restricted to Yala 1972 season which immediately preceded the survey period. *However, this season was rather unfavourable for paddy production in Hambantota district due to adverse weather conditions experienced particularly in Magam Pattu where even irrigated areas suffered severe damage due to scarcity of water. Of the 154 farmers in the sample, only 120 have had cultivated paddy in Yala. But only 97 were able to provide information on cash expenses incurred on paddy cultivation in Yala 1972. Accordingly, the data on income and expenses, and the discussions based on them have to be viewed in this context.*

As mentioned earlier, paddy is a small holders' crop. The major resources available to these small holders are labour and land. However, very often, majority of them do not even own the land they cultivate. In such a socio-economic background the expense-income concept is thought to be an appropriate measure of assessing profitability of production.

7.11 Cash Operating Expenses

In farming, expenses incurred generally fall into a number of categories; however, for the purpose of this study, only cash operating expenses are considered. Cash operating expenses represent an important aspect in farm management analysis. *This category of expenses is partly dependent on the income structure of the farm family and also availability of credit. Thus the general tendency is for farms with low income levels to keep their cash expenses also at a relatively lower level, not so much by choice but due to circumstances beyond their control. From the point of view of productivity, however, such a tendency raises an important issue in that to increase productivity higher expenses are necessary for purchase of varied types of inputs, particularly in the context of the new technology.*

In order to assess the situation relating to cash operating expenses, data in respect of 97 farmers who were able to harvest Yala 1972 crops was collected. This information is given in Appendices V - VII. Using this data, the average cash outlay per acre was calculated. In addition, cash operating expenses were also examined in relation to water supply conditions and land tenure patterns. It was not possible to calculate the actual number of man days used for various operatinns as a large number of farmers had carried out some of the major field operations such as transplanting, harvesting and threshing on a contract basis. In instances where payments had been in kind for ande

and use of draught power, cash expenses were computed on the basis of the guaranteed price of paddy.

Table 7- XX Cash Expenses for Paddy Production - Yala 1972
Summary of Cash Outlay per Acre.

Particulars of cash expenses	Amount Rs.	%
Draught power	81.00	23
Hired labour	102.30	29
Food bought for hired labour	42.60	12
Purchased Inputs	58.50	17
Land rent, acreage tax, ande	64.90	18
Transport	2.70	1
Total	352.00	100

It is seen that the average cash outlay per acre had been Rs.352.00. *Hired labour had been the major component of cash expenses incurred by the farmers, and has amounted to 41% of the total cash outlay. The data obtained from record keeping farmers in Hambantota district during the same season showed that expenses on hired labour amounted to 43% of the total cost per acre.*[1] *Comparison of this figure with the payments made to hired labour given in the above table confirms hired labour as the major item of expense in paddy cultivation in Hambantota district. The next important item of expense had been for hiring of draught power which had amounted to Rs.81 of which Rs.71 had been spent for payment of tractor charges.* Expenses on hired burfaloes had been negligible, the amount being only Rs.10. With regard to purchased input materials, cost of fertilizer had been a major item of expense which had amounted to 47% of the total expenses incurred for this purpose. Agro-chemicals is another important purchased input item which had cost 27% of the total value of supplies purchased. *This data shows that the total expense on input materials on which productivity is so much dependent, is relatively low, when compared with expenses incurred on hired labour and draught power.* Expenses on ande, acreage tax, and land rent together had cost Rs.65 per acre, which had amounted to 18% of the total cash outlay.

Table 7-XXI Summary of Cash Outlay Per Acre for Paddy Cultivation according to Supply of Water - Yala 1972

	Supply of Water					
	Major Irrigation		Minor Irrigation		Rainfed	
No.of farmers	54		32		11	
Area	225.8		96.3		18.1	
Item	Amount Rs.cts	%	Amount Rs.cts	%	Amount Rs.cts	%
Field operations	246.50	65	190.50	61	150.34	71
Cost of Inputs	66.00	17	46.75	15	27.60	13
Ande,Acreage Tax & Land Rent	63.40	17	74.20	23	33.40	16
Transport	2.80	1	2.90	1	.60	-
Total	378.70	100	314.35	100	211.94	100

1. Izumi and Ranatunga - Cost of Production of Paddy - Yala 1972, ARTI Research Study Series, No.1, July 1973.

Comparison of cash expenses incurred under different water supply conditions showed marked variations particularly between major schemes and rainfed areas. Farmers in major schemes had spent Rs.166 more per acre than those in rainfed areas. The difference in expenses incurred by these two groups for field operations had been Rs.96 per acre. This is particularly due to higher expenses incurred on hired tractors and labour by farmers in major schemes compared to those in rainfed areas, the relevant figures being Rs.42 and Rs.47 per acre respectively. Generally, expenses on buffaloes had been relatively small under all conditions of water supply. Even in rainfed areas where more animal power had been used, the expenses on this item had been only 5% of the total expenses. Though the expenses on hired labour and tractors in major schemes had been considerably higher than those incurred under rainfed conditions, on a percentage basis these two items had consumed a similar proportion of the total cash outlay irrespective of the sources of water.

With regard to cost of inputs a very clear trend is seen. The expenses on this account in rainfed areas had amounted to only Rs.27 whereas in major schemes the relevant figure had been Rs.66, an increase of Rs.35 per acre. *This data indicates that farmers incur relatively less expenses both on field operations as well as on purchased inputs when water uspply is not assured.*

Table 7-XXII Summary of Cash Outlay for Paddy Cultivation according to Tenurial Category - Yala 1972

Item	Tenurial Category							
	Owners		Tenants		Owner-Tenants		Tenant-Owners	
	Rs.	%	Rs.	%	Rs.	%	Rs.	%
Field Operations	287.45	75	246.55	60	191.50	76	171.80	58
Cost of Inputs	89.50	23	50.10	12	37.80	15	66.80	22
Ande, Acreage Tax and Land Rent	5.10	1	114.00	27	20.50	8	58.20	19
Transport	3.40	1	2.90	1	3.80	1	.70	1
Total	385.45	100	413.55	100	253.60	100	297.50	100

Classification of cash expenses in terms of the four major tenurial groups shows that tenants had incurred the highest cash expenses and the owner tenants the lowest. A detailed scrutiny of the expenses incurred by these tenurial groups shows that the high cash operating expenses incurred by tenants is primarily due to payment of land rent/crop share (ande), the amount being Rs. 114 per acre. This item had accounted for 27% of the total cash expenses incurred by tenants. In contrast, owners had spent only Rs.5 per acre for acreage tax. The other two tenurial groups, tenant-owners and owner-tenants had also

incurred relatively less expenses on this account, the relevant figures being Rs. 58 and Rs. 20 per acre respectively.

For field operations both the owners as well as tenants had incurred considerably higher cash expenses than tenant-owners and owner-tenants With regard to use of inputs, owners and tenants had spent Rs. 90 and Rs. 50 per acre respectively. The lowest expense on this account had been incurred by owner-tenants, the amount being Rs.38 per acre.

Of the 97 farmers in respect of whom cash operating expenses were calculated, 64% of them had holdings of less than 4 acres and 30% less than 2 acres. Looking at the overall position in regard to cash operating expenses reported in respect of Yala 1972, it is seen that expenses on hired labour and tractors had been the major components of average cash expenses incurred per acre. *As pointed out earlier, 41% of the cash expenses had been incurred on hired labour and 23% on draught power, of which tractor hire alone had accounted for 21% . On the other hand total expenses on purchased inputs such as improved seeds, fertilizer, and agro-chemcials on which productivity is so much dependent had been extremely low. The relevant figure being Rs. 58 which amounted to only 16% of the total cash outlay per acre. This pattern of cash expenses highlights a number of important aspects with regard to paddy cultivation in this district, viz. (a) high proportion of hired labour used in various field operations in relation to total labour application (even in small holdings farmers are heavily dependent on hire labour for cultivation purposes) (b) heavy dependence on machinery for tillage as well as for threshing, (c) relatively low quantity of purchased inputs used in production.* Heavy dependence on hired labour and tractors for cultivation operations even in relatively small size holdings has a number of implications. *One direct outcome of this pattern of labour and machinery use is less family farm earnings due to the higher costs of cultivation that have to be incurred by the farmers.*

Relatively low expenses incurred on purchased inputs would naturally have a direct influence on productivity. With regard to use of inputs it is pertinent to point out that the cost of a single input item such as recommended dose of fertilizer alone at 50% subsidy amounts to Rs. 85 per acre whereas the total cost incurred for all inputs had been only Rs. 58 per acre in this instance. Considering the unfavourable weather conditions experienced during this Yala season, the relatively low cash expenditure incurred on purchased inputs by the farmers could be considered as rational allocation of resources. However, it has to be pointed out that use of adequate quantities of purchased inputs becomes very relevant in the context of NHYVs that are being popularised in the district if productivity is to be maintained at a high level. In paddy cultivation, particularly in small size holdings where there is also an abundance of labour, the aim should be to obtain the greatest output per acre and not per worker. This could be achieved if the present pattern of using cash resources is changed so as to divert at least a portion of the expenses incurred on hired labour and tractors to important inputs such as fertilisers, agro-chemcials and improved seed.

7.12 Income from Paddy - Yala 1972

Gross value of paddy consisting of cash farm incomes from sales and the value of farm retained paddy is dependent on the paddy yields obtained. The 97 farmers who were able to provide information on cash expenses in respect of Yala cultivation had obtained an average yield of 31.03 bushels per acre. *As explained earlier this was a relatively low yield for Hambantota due to adverse weather conditions experienced during this season.*

The following data shows the average income and cash operating expenses per acre relating to paddy cultivation in Yala 1972.

Gross value of paddy produced in Yala[1]	Rs. 434.40
Cash operating expenses for Yala paddy[2]	352.00
Net farm operating income from Yala paddy[3]	82.40

Net Farm Operating Income is a very important measure of farm income. *The average Net Farm Operating Income from paddy in Yala 1972 in respect of the farmers in the sample had been extremely low mainly due to low yields recorded.*

Farm incomes and cash expenses were also classified in relation to tenurial pattern and water supply conditions and the relevant data are presented in Tables 7- XXIII and XIV

Table 7- XXIII Net Farm Operating Income from Paddy according to Tenurial Category - Yala 1972.

	Tenurial Category			
	Tenants	Owners	Tenant-Owners	Owner-Tenants
Gross value of paddy produced	Rs. 424	638	341	352
Cash operating expenses	Rs 413	385	297	253
Net Farm Operating Income	Rs 11	253	44	99

Net Farm operating Income among the different tenurial groups shows that owners have obtained Rs. 253 per acre compared to Rs. 11 earned by tenants. The high Net Farm income earned by owners could be partly attributed to two reasons:

(a) Higher yields per acre obtained by owners
(b) Low cash operating expenses incurred due to their not having to pay any land rent 'ande'

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1 Equals cash farm incomes from sales and value of home retained paddy.
2 Cash operating expenses inclusive of food provided for the hired labourers.
3 Equals gross farm income minus cash operating expenses.

Generally the tenants have obtained lower yields and also have incurred higher cash operating expenses for cultivation as pointed out in the preceding section. However, a high proportion of these cash operating expenses incurred by tenants have not made any direct contribution to production as nearly 28% of these expenses have been incurred for payment of land rent.

Income and expenses in respect of Yala 1972 season were also classified according to water supply conditions (Table 7- XXIV)

Table 7-XXIV Net Farm Operating Income from Paddy according to Water Supply - Yala 1972

	Water Supply		
	Major	Minor	Rainfed
Gross value of paddy produced	Rs. 469	373	335
Cash operating expenses for paddy	Rs. 379	314	212
Net farm Operating Income from paddy	Rs. 90	59	123

Contrary to expectations the net operating income obtained by farmers cultivating under rainfed conditions was higher than those in major schemes. This needs some explanation. As shown in preceding sections, farmers in major schemes tend to use more inputs in anticipation of the higher yields under assured water supply conditions. In Yala 1972, however, due to unusually adverse weather conditions experienced particularly in Magam Pattu many of the farmers even under major schemes suffered severe crop losses. As a result farmers in major schemes were able to harvest considerably lower yields than were expected, but due to higher expenses already incurred on cultivation operations, the net operating income realised from paddy has been very low.

On the other hand, farmers in rainfed areas have not only obtained lower yields resulting in low gross value of paddy produced per acre but also have incurred relatively much less cash operating expenses per acre than those in the major schemes. Consequently, these farmers had been able to obtain higher net farm operating income per acre during this particular season.

APPENDICES

APPENDIX I

Amount of Loan According

Tenurial Category	Co-operative Actual Amount Rs	%	Friends and Relatives Actual Amount Rs	%	Money Lenders Actual Amount Rs	%
Owners	6,073[a]	74	1,450	18	600	7
Tenants	15,601[b]	43	5,652	15	4,390	12
Owner-tenants	2,075	70	738	25	-	-
Tenant-owners	1,235	30	1,177	28	150	4
Total	24,984	48	9,017	17	5,140	10

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[a] Also include 2 cases of borrowing from People's Bank amounting to Rs.485.00

[b] Also include 1 case of borrowing from Mortgage Bank amounting to Rs.500.00

NB. Loan in kind (paddy) received mostly from friends, relatives and traders, has been converted into cash at the rate of Rs 14.00 per bushel.

to Tenurial Category and Source - Maha 1971-72

Traders		Landlords		Total			Average per Borrower Rs
Actual Amount Rs	%	Actual Amount Rs	%	Actual Amount Rs	%	No.of Cases	
100	1	-	-	8,223	100	17	484
4,850	13	6,347	17	36,840	100	54	682
150	5	-	-	2,963	100	6	494
80	2	1,500	36	4,142	100	9	460
5,180	10	7,847	15	52,168	100	86	607

APPENDIX II

Amount of Loan According to

Size of Holding in acres	Co-operative Actual Amount Rs	%	Friends and Relatives Actual Amount Rs	%	Money Lenders Actual Amount Rs	%
Up to 2.00	1,034	40	1,034	40	265	10
2.00-4.00	9,497[a]	53	2,537	14	1,575	9
4.00-6.00	7,093[b]	41	4,274	24	2,350	13
Over 6.00	7,360	52	1,172	8	950	7
Total	24,984	48	9,017	17	5,140	10

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[a] Including 2 cases of borrowing from People's Bank which amounted to Rs.435.00

[b] Excluding 1 case of borrowing from Mortgage Bank which amounted to Rs.500.00

Size of Holding and Source - Maha 1971-72

Traders		Landlords		Total		No.of Cases	Average loan per Borrower Rs
Actual Amount Rs	%	Actual Amount Rs	%	Actual Amount Rs	%		
150	6	100	4	2,583	100	12	215.25
2,750	16	1,479	8	17,838	100	32	557.44
1,600	9	2.268	13	17,585	100	25	703.40
680	5	4,000	28	14,162	100	17	833.05
5,180	10	7,847	15	52,168	100	86	607.00

APPENDIX III

Members Borrowing from Co-operative according to Size of Holding

Size of Holding (acres)	Total Respondents	Those who received co-op loans during 1971/72 Maha		Those who could not get co-op loans during 1971/72 Maha, but had outstanding co-op loans		Had both outstanding co-op loans and also got co-op loans during 1971/72 Maha		Total Number of Borrowers	
		No.	%	No.	%	No.	%	No.	%
Up to2.00	27	2	7	4	15	-	-	6	4
2.00-4.00	51	14	27	11	22	4	8	29	20
4.00-6.00	47	7	15	20	43	3	6	30	20
Over 6.00	22	7	32	7	32	-	-	14	10
Total	147	30	20	42	29	7	5	79	54

APPENDIX IV

Total Amount Borrowed from Co-operatives according to Size of Holding (Rupees)

	Up to 2.00 acres	2.00-4,00 acres	4.00-6.00 acres	Over 6.00 acres	Total
Current Loans					
Total loans borrowed during 1971-72,Maha	1,034	7,521	5,856	7,410	21,821
Average loan per borrower	517	537	837	1,059	727
Old Loans					
Total outstanding loan not borrowed during 1971-72,Maha	1,289	3,387	12,287	10,497	27,460
Average loan per borrower	322	308	614	1,500	654
Current and Old Loans					
Total loans borrowed during 1971-72, Maha as well as old loans carried over	-	2,800	3,925	-	6,725
Average loan per borrower	-	700	1,308	-	961
Total	2,323	13,708	22,068	17,907	56,006
Average per borrower	387	473	736	1,279	709

APPENDIX V

Cash Outlay Per Acre for Paddy Production
Yala 1972

Number of farmers 97

Sown area (acres) 340.2

	Cost of Hiring			
	Tractor Rs	Buffalo Rs	Labour Rs	Total Rs
1. Land preparation	53.70	9.80	27.10	90.60
2. Planting and sowing	-	-	23.80	23.80
3. Weeding	-	-	5.40	5.40
4. Irrigation and top dressing	-	-	3.60	3.60
5. Harvesting	-	-	21.10	21.10
6. Threshing	17.50	-	21.30	38.80
Sub total				183.30
7. Material Inputs				
a) Seed	-	-	-	11.30
b) Fertilizer	-	-	-	27.60
c) Agro-chemicals	-	-	-	15.60
d) Fuel	-	-	-	4.00
				58.50
8. Food for hired labourers	-	-	-	42.60
9. Transport	-	-	-	2.70
10. Land Rent	-	-	-	3.60
11. Ande cultivation	-	-	-	57.70
12. Acreage tax	-	-	-	3.60
Sub total				110.20
Total expenditure				352.00

APPENDIX VI

Cash Outlay per Acre for Paddy Production according to Tenurial Category - Yala 72.

	Tenurial Category			
	Tenants	Owners	Tenant-Owners	Owner-Tenants
No. of farmers	39	23	16	15
Extent cultivated (Acres)	114.5	64.7	54.2	57.1

Item	Amount Rs.	%	Amount Rs.	%	Amount Rs.	%	Amount Rs.	%
1. Field Operations								
a) Tractor	80.60	*19*	76.00	*20*	60.10	*20*	53.40	*21*
b) Buffalo	9.10	*2*	21.40	*6*	12.50	*4*	16.90	*7*
c) Hired labour								
i) Wages	114.15	*28*	137.50	*35*	64.20	*22*	79.90	*30*
ii) Food	42.70	*10*	52.75	*14*	35.00	*12*	45.30	*18*
2. Inputs	50.10	*12*	89.50	*23*	66.80	*22*	37.80	*15*
3. Miscellaneous								
a) Ande acreage tax, land rent	114.00	*28*	5.10	*1*	58.20	*20*	20.50	*8*
b) Transport	2.90	*1*	3.40	*1*	0.70	-	3.80	*1*
TOTAL	413.55	*100*	385.45	*100*	297.50	*100*	253.60	*100*

APPENDIX VII

Cash Outlay per Acre for Paddy Production according to supply of Water - Yala 1972

	SUPPLY OF WATER		
	Major Irrigation	Minor Irrigation	Rainfed
Number of farmer	54	32	11
Extent cultivated (acres)	225.8	96.3	18.1

Item	Amount Rs.	%	Amount Rs.	%	Amount Rs.	%
1.Field operations						
a) Tractors	81.80	22	52.50	17	39.50	18
b) Buffalor	7.20	2	15.60	5	11.80	6
c) Hired labou						
i.Wages	113.80	30	80.50	25	65.94	31
ii.Food	43.70	11	41.90	13	33.10	16
2. Inputs	66.00	17	46.75	15	27.60	13
3. Miscellaneous						
a)Ande,Acreage Tax,land rent	63.40	17	74.20	24	33.40	16
b)Trans-port	2.80	1	2.90	1	.60	-
Total	378.70	100	314.35	100	211.94	100