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GOVERNMENT OF NAGALAND

REPORT
ON
EVALUATION STUDY OF
MEDIUM-SIZE SEED FARM AT MERAPANI

EVALUATION UNIT
(PLANNING & COORDINATION DEPARTMENT)
GOVERNMENT OF NAGALAND
KOHIMA

PREFACE

The recent breakthrough in agricultural production, popularly known as the Green Revolution, has confirmed our faith in the high yielding propensity of improved seeds. In India the Central and State Governments have, therefore, taken massive drives towards evolving, multiplying and propagating improved seeds under the successive Five Year Plans. The Government of Nagaland have also initiated programmes for the multiplication and distribution of improved seeds. With a view to achieving self-sufficiency in this field the Medium-size Seed Farm at Merapani in Mokokchung district came to be established by the end of 1968-69. But even after a few years of its working this 542 acre farm could not get well into strides although it was poised for an ambitious career. It is in this context that the present case study of Merapani Seed Farm was taken up by the Evaluation Unit at the instance of the Planning & Co-ordination Department. Government of Nagaland.

The present study aims at a realistic appraisal of the progress and problems of Merapani Seed Farm. Its production is still lagging far behind the physical target of 200 M/Tons of improved seeds per annum as envisaged in the Fourth Five Year Plan. Moreover, from the qualitative standpoint this farm is yet to improve and diversify its activities. Hence some positive measures have been suggested for enabling this farm to function effectively.

It is encouraging to find that the subsequent developments in agricultural research catering to the needs of North Eastern Hills Region have proved the practical validity of some suggestions already put forward in this report. Quite recently the Indian Council of Agricultural Research has taken up a programme of establishing Agricultural Research Stations in the various North Eastern States including Nagaland with a view to finding out alternative farming systems in place of Jhum cultivation as well as ensuring more food production and more income for the rural poor. The ICAR Research Complex intends to undertake detailed survey, experiment and demonstration on land use, soil fertility, cropping pattern scientific seed production etc. It is expected that the Directorate of Agriculture, Government of Nagaland may be able to utilise the technical know-how available from the ICAR Research Complex especially with regard to the implementation of our recommendation for a special study on developing river lift irrigation and scientific crop rotation in the Merapani area. While acting upon the other suggestion for testing and selecting HYV strains suitable for high altitude farming the necessary technical assistance may be obtained from the ICAR Research Complex which is going to launch crop improvement projects concentrating on identification of suitable varieties for different altitudes.

The Evaluation Unit gratefully acknowledges the co-operation and assistance extended by the Directorate of Agriculture, Government of Nagaland, Manager of Merapani Seed Farm and others in making this study a success. The considered comments • received from the Agriculture Department (presented briefly in chapter-VIII) have given us a sense of gratification by showing their accord with our major findings and recommendations. Thanks are due to Shri N.N. Banerjee, former Evaluation Officer,

Nagaland for conducting the first phase of the field enquiry. The research assistance rendered by S/Shri N. Zeliang and P. Sema, Investigators in carrying out this study, deserves appreciation. It is hoped that the study report would prove useful to all concerned.

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Dated, Kohima,
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Chapter-1
INTRODUCTION

General Background :

I. 1 Comprising of hilly terrains with varying altitudes and undulated topography Nagaland, a small state at the north eastern fringe of India, is marked by peculiar physiographical conditions. Its natural landscape presents a medley of hills, gorges and valleys intercepted by a few streams and rivers flowing down to the plains. The annual rainfall ranging between 118 cm. and 254 cm. is spread more or less over a period of six months. Gracious monsoon, equable climate and fertile soil have all combined to enrich the State with evergreen forests and luxuriant vegetation.

1. 2 The people of Nagaland commonly known as the Nagas are sub-divided into as many as 14 tribes each with distinctive dialect and cultural features. Living in a bracing climate they are relatively healthy and inspite of limited contact with the outside world they have developed interest in education created by the pioneering efforts of the Christian missionaries. Nevertheless they are wedded to the socio-economic traditions of tribal communities thriving on agriculture as the mainstay of economic life.

1. 3 The age-old farming practice of "Jhuming (i.e. a kind of shifting cultivation following a cyclical routine) is an extensive system occupying a dominant place in the States land us; pattern whereas " terrace cultivation " is practised mostly in some southern and western regions of the State. A rough estimate of land use pattern shows that out of the total cultivated area of 1,01,600 hectares the area under Jhuming or shifting cultivation accounts for 76,500 hectares. To all intents and purposes, shifting cultivation which is rather the way of life for the majority of Nagas, has been responsible for considerable wastage and undcrutilisa-tion of land resources. Hence gradual conversion of Jhum lands into areas of permanent and terrace cultivation is considered as the 'sine qua non' for rapid agricultural development in Naga-land. Concerted efforts in this field have recorded tangible improvement in as much as the area under permanent cultivation which formed about 19% of the total cultivated area at the beginning of the Fourth Plan has now increased to about 25% at the beginning of the Fifth Plan.

1.4 Over the different parts of the State, cultivation is found to yield a variety of crops such as paddy, maize, millets, pulses, oilseeds, sugarcane, vegetables and fruits. The favourable agro-climatic conditions hold out considerable prospects for the development of numerous crops, vegetables and fruits of temperate and sub-tropical species. During the Fifth Plan period the agricultural policy of the State lays edequate emphasis on the development of cash crops and horticulture with a view to improving the economic conditions of smalt and marginal farmers. The High Yielding Varieties and Multiple Cropping Programmes initiated at the foot-hills areas are now being extended to more and more Community Development Blocks. Thus, the recent strategy of agrarian planning in Nagaland has been largely shaped by the crying need for increasing exploitation of the State's all-round agricultural potentialities.

1. 5 But inspite of considerable potentialities agricultural development in Nagaland could not get well into strides prior to the attainment of statehood in December, 1963 mainly because of political instability and organisational lacuna. It was during the Third Five Year Plan that systematic and integrated planning started gaining momentum in promoting social, economic and cultural development of the people. Having pivotal importance in development planning, agricultural programmes are expected to achieve a

breakthrough in productivity paving thereby the way to self-sufficiency in food. Obiously this challenging task calls for adequate progress of intensive cultivation in which improved seeds have a crucial role to play.

Meaning and Significance of Improved Seeds :

1. 6 Empirical evidences in India show that improved seeds alone can account for at least 10% to 15% increase in productivity and as one of the easier and relatively less costly of the improved practices, can meet with ready response and adoption by the farmers. Scientific research and experimentation have gone a long way in establishing that improved seeds of requisite purity can not only raise the yield rates but also ensure a number *of* other advantages such as superior quality, early maturity, resistance to pests and diseases, adaptability to varying conditions of cultivation etc. The definition and interpretation of the term 'improved seeds' are found to vary among the different Stale Governments mainly because of the relative importance attached to one or more of the quantitative and qualitative characteristics of such seeds as indicated above. But inspite of this diversity of interpretation there is a general consensus regarding the high yielding propensity of improved seeds. 1. 7 In our country it is the Royal Commission on Agriculture (1926) that made the first systematic attempt at reviewing the oroblems and porspects of scientific plant breeding and crop improvement. Regarding the multiplication and. propagation of improved seeds their detailed recommendation provided useful guidelines for the formulation of programmes and policies in this particular field. Here we may recall their suggestion regarding the development of seed farms. “A considerable increase in the number of seeds farms is desirable in all provinces and such farms should be established as rapidly as funds and staff permit. The establishment of seed farms for crops such as millets, pulses and oilseeds must proceed 'pavi pasu' with the evolution of pure or improved strains”.*

I. 8 Realising the importance of improved seeds the Commission predicted that "for a long lime to come seed distribution must continue to form one of the most important branches of the work of the agricultural department. Subsequently, several committees

** Extracted from the Report on Study of the Multiplication And Distribution Programme For Improved Seed. Programme Evaluation Organise*

as well as teams of evaluation experts have studied the question of improved seeds both at the central and state levels. The advent of Five Year Plans provided the physical and financial stimulus for the development of seed farms, seed stores and seed testing stations all over the country. With a view to spreading the consciousness about the significance of seed inputs in agricultural production the Food And Agricultural Organisation of the United Nations designated 1961 as the "World Seed Year".

Seed Programmes Under The Five Year Plans :

1. 9 Though the First Five Year Plan stressed the effectiveness of improved seeds in raising agricultural productivity the concrete framework of a dynamic seed programme was yet to be shaped. The second Five Year Plan envisaged that the seed multiplication and distribution programme should be geared to the full requirements of the National Extension Service Blocks each of which would be served by a seed farm and a seed store. The ancillary support to the programme was to be provided by the proposed co-operative seed stores and seed testing stations. The period covered by the Third Plan and three

successive Annual Plans witnessed the emergence of new agricultural strategy aiming at higher yield and greater intensity of cropping through the 'package' programmes and concentration of efforts in selected areas. But until the introduction of high yielding strains in the early sixties the Intensive Agricultural District and Intensive Agricultural Area Programmes could not overcome the limitations set by the existing crop varieties which showed relatively low response to fertilisers. An important landmark in this field was the establishment, in 1963, of National Seeds Corporation with the responsibilities for seed production, especially the foundation stock of high yielding varieties.

1. 10 Apart from aiming at ihc adequacy of seed supply the Fourth Five Year Plan emphasises the need for ensuring the quality of seeds on a priority basis. Under the Fourth Plan the production of sufficient breeders seeds was to be achieved with the help of Indian Council of Agricultural Research and National Seeds Corporation. Besides, the foundation seeds of high yielding varieties were to be produced by the National Seeds Corporation and some agricultural universities whereas the production of certified seeds was entrusted to the various agencies such as the State Seed Farms, Central Government Seed Farms, private seed producers and seed producers' co-operatives. The Fourth Plan also made provisions for the improvement and rationalisation of State Government Seed Farms with a view to removing their deficiencies in respect of size, irrigation facilities and storage arrangements which had been pointed out in the report of the Seed Review Team presented in 1968. Further, the completion of Terai Seed Development Project in 1973 was expected to enable the annual production of about 56000 tonnes of HYV wheat, rice, maize, sorghum and pearl millets.

1.11 Substantial progress in seed technological research, additional institutional facilities for the production of high equality breeder seeds and considerable increase in the capacity of seed processing plants within the public and cooperative sectors constitute the major dimensions of the seed programme under the Fifth Five Year Plan. Moreover, the two new proposals for streamlining the seed programme at the State level are : (a) the establishment of State Seeds Corporations in which the National Seeds Corporation might hold shares ; and (b) the building up of buffer stock of seeds to draw upon in the event of natural calamity.

Multiplication And Distribution Of Seeds In Nagaiand :

1. 12 With the introduction of improved farming techniques and intensive operations in permanent areas of cultivation the Government of Nagaiand felt the imperative need for the regular supply of improved seeds. Consequently, the Slate's programme of multiplication and distribution of improved seeds had to make adequate provisions for starting Government seed farms which would multiply foundation seeds as a necessary step towards their distribution among the intending adopters.

1.13 As. some political and administrative circumstances did not allow Nagatand to take proper advantage of the first two five year plans, the beginning of almost all new schemes of agricultural progress can be traced back to the Third Five Year Plan. Thus, the dawn of seed multiplication was also heralded by the Third Plan which witnessed the opening of 5 out of 9 existing seed farms in the State. The remaining 4 seed farms were set up during the period covered by the Annual Plans up to 1968-69. The year 1968-69 virtually set the deadline lo the process of establishment of Government seed farms and since then the State Governments

policy has been mainly directed towards strengthening and consolidation of the existing farms. Obviously, this policy aims at increasing the production of improved seeds within the State so that the level of seed imports might dwindle to insignificance. These ideas are borne out by the basic particulars regarding Government seed farms presented in Table-I of Appendix.

3.14 The aggregate production of all the seed farms established during the Third Five Year Plan fell far short of the State's total requirement of improved seeds which was extended further by the introduction of High Yielding Varieties Programme. Hence the Fourth Plan objective of attaining self-sufficiency in the supply of improved seeds called for the setting up of more production-oriented seed farms. With this end in view the Medium-Size Seed Farm at Merapani was set up in 1968-69 according to the recommendations of the Deputy Hill Development Adviser to the Government of India. Covering an area of 219.34 hectares in the foot-hills region of Mokokchung district bordering Assam this Government Seed Farm started functioning with a total sanctioned amount of Rs. 2.11 lakhs out *of* which a sum of Rs. 79,550 was spent exclusively for the payment of land compensation in 1968-69. At this initial stage the progress of farm operations was seriously handicapped by the non-availability of required personnel. The stop-gap arrangement for tackling this problem by the temporary posting of staff drawn from the General Extension Pool could not enable the farm to avoid poor performance in production.

1.15 As the yearwise progress and performance of the Merapani Seed Farm have been analysed in Chapter lir, we may mention here only its role in the seed multiplication programme under the Five Year Plans. With a likely expenditure of Rs. 12.04 lakhs this seed farm has reclaimed about 142 hectares of land by the end of 1973-74 and prqduced only 98M/Tons of seed as against the Fourth Plan target of exploiting a production potential of 200M,Tons per annum. A rough estimate of the requirement of improved seeds in the State by the end of the Fourth Plan puts it at a level of 220 M/Tons. Of course, the aggregate production of seeds within the State is estimated at 175 M/Tons per annum by the end of 1973-74. Because of the need for bridging the gap between the total requirements of seed distribution and total production of seeds within the State, substantial imports of seeds from outside have still to be continued every year.

1.16 With a view to meeting the increasing requirements of improved seeds by boosting up production within the State the Draft Fifth Five Year Plan envisages the raising *of* annual production potential to 400 M/Tons by the end of 1978-79. For this phenomenal increase in production the Draft Fifth Plan proposes the continuation of the scheme of developing the seed farms at Merapani. Tijit, Yisemyong, Aghunato etc. so that the target production of 320 M/Tons of oaddy seeds and 80/Tons of potato seeds can be accomplished in 1978-79 at the total cost of Rs. 33.00 lakhs. The relevant details of this scheme have been given in Table-II and Table-Ill of Appendix.

1.17 Some form of financial incentive has got to be forged as an essential instrument for popularising the use of improved seeds among the poor and tradition-bound cultivators of Nagaland. The Draft Third Five Year Plan prepared under the erstwhile Naga Hills and Tuensang Area Administration contained a suggestion for supplying improved seeds even free of cost to the farmers in relatively more backward regions of the NHTA territory.

Realising the need for concession the State Government has still to carry out the distribution of improved seeds under a continuing scheme which offers 50% subsidy with regard to prices. Considerable amounts of money are, thus, spent every year on procurement of seeds as well as their distribution among the farmers at subsidised rates. A quantitative idea about the proposed and actual supplies of improved seeds since the Third Five Year Plan can be formed from the factual account given below :-

Supply of Improved Seeds under the Five Year Plans.

Five Years Plans (Periods)	Targets Supply of Seed		Achievements of Seed Supply	
	Quantity (M/Tons)	Value Rs. lakhs	Quantity (M/Tons)	Value Rs. lakhs
(1)	(2)	(3)	(4)	I (5)
Third Plan (1961-1966)	187	2.24	170	1.77
Annual Plans (1966-1969)	172	1.38	68	1.06
Fourth Plan (1966-1974)	250	3.50	470*	5.86*
Fifth Plan (1974-1979)	421	7.00		
			—	—

*Figures indicate likely achievements.

Source : Plan documents of the Government o Nagaland]

1.18 The above figures reveal that the achievements in respect of seed supply lagged behind the targets envisaged by the Third Plan and subsequent Annual Plans while during the Fourth Plan period the supply of improved seeds far exceeded the targets. This is mainly due to the fact that under the Fourth Plan more accelerated implementation of various schemes for stimulating agricultural production resulted in extending the aggregate seed requirements much beyond the anticipated level. This increasing emphasis on crop-oriented programmes seems to have provided the basis for setting the Fifth Plan Plan target as high as double that of the Fourth Plan in terms of the cost of seeds (including transport charges). However, the yearwise and crop-wise break-up of the State's Fifth Plan target of distributing 421 M Tons of improved seeds is furnished below

Physical And Financial Targets of Seeds Distribution under the Fifth Five Year Pan.

Year	Potato Seeds		Paddy Seeds		Others Seeds		TPT Charges
	Quantity (M/Tons)	Value (Rs. Lakhs)	Quantity (M/Tons)	Value (Rs. Lakhs)	Quantity (M/Tons)	Value (Rs. Lakhs)	Rs. lakhs
1	2	3	4	5	6	7	8
1974-75	70	1.05	12	0.18	7	0.19	0.08
1975-76	95	1.42	15	0.23	9	0.24	0.11
3976-77	75	1.13	12	0.18	4	0.11	0.08
1977-78	80	0.90	9	0.14	4	0.11	0.05
1978-79	40	0.60	6	0.09	3	0.08	0.03
Total : (Fifth Plan)	340	5.10	54	0.82	27	0.73	0.35

(Source: Draft Fifth Five-Year Plan. Govt. of Nagaland)

* According to the Revised Fourth Plan document of Govt. of Nagaland the area under improved/High Yielding Varieties of crops recorded a phenomenal increase from only 80 hectares in 1968-69 to 1041 hectares in 1973-74 (anticipated). The HYV Programme and the Horticultural Development Programme together envisage a target of 8025 hectares under the Fifth Plan.

1.19 From the above figures it is evident that potato and paddy seeds together constitute the bulk (i.e. about 94%) of the total quantity of improved seeds to be distributed during the Fifth Plan. The yearwise break-up shows that during the last two years of the Fifth Plan both the quantity and value of seeds proposed to be distributed would undergo a steep decline. This phasing of seed distribution programme might have been based on the assumption that the gradual propagation of improved seeds will be associated with the development of internal sources of seed multiplication.

Chapter - II
OBJECTIVE, SCOPE AND METHODOLOGY

Objectives Of The Study :

2.1 A gradual switch-over from Jhuming to permanent cultivation as part of a massive drive towards increasing production forms the crux of the State Government's agricultural policy. Successful implementation of this policy calls for intensive agricultural operations depending mainly on the improvement of farm-inputs such as seeds, fertilisers and irrigation. In the previous chapter it has been shown how the network of Government seed farms came to be set up as a result of the growing need for multiplication of improved seeds within the State.

2.2 Within the framework of the seed multiplication programme envisaged by the Five Year Plans, the Medium Size Seed. Farm at Merapani has completed about six years of its existence; but still it has not been able to cross even the initial hurdles to the achievement of physical targets. The farm's annual reports and proforma accounts reflect the dismal picture of a losing enterprise despite the increasing amounts of funds spent year to year. It, therefore, came to be strongly felt that an evaluation study of this biggest seed farm in Nagaland should be conducted with the following objectives in view :-

(i) To make an appraisal of the physical and financial performance of the seed farm since its inception ;

(ii) To analyse the problems and bottlenecks that adversely affect the progress of the farm ;

(iii) To suggest effective measures for enabling the farm to achieve the desired level of production and economic viability.

Scope:

2.3 Being essentially a case study the present effort to evaluate the Merapani Seed Farm has been confined mainly to its organisation and working especially with respect to production of improved seeds and profitability of capital investment. The growth potential of the farm as an economically viable enterprise has also been indicated keeping in view its ancillary functions of experimentation and demonstration as a service organisation . Though the main focus of the study is on the actual and potential performance of this particular seed farm, certain inter-connected issues of wider implications have also been taken into account. For example, the State's programme for the multiplication and distribution of improved seeds over a number of years has been analysed while indicating the positive role of Merapani Seed Farm as envisaged by the Five Year Plans. Moreover, a rough assessment of the farmers reaction towards the superiority of improved seeds as well as their awareness to the utility of seed farm, has also been made through a quick study of the representative cross-section of local farmers.

2.4 At the time of undertaking this evaluation study in June, 1971 it was intended that it should refer to the period
from the year of inception (i.e. 1968-69) to the year 1972-73. But in view of the subsequent decision to update the data already collected in the first phase of field investigation the reference period has been extended upto 1973-74.

2.5 On the basis of available statistical material collected from the records of the seed farm and the Directorate of Agriculture, Nagaland, an attempt has been made to carry out an internal cost and returns analysis with a view to indicating the economics of the farm. As regards the intangible benefits, the quick study on farmer's reaction has revealed that the activities of the farm are yet to make a sizeable impact on the farmers interested in improved seeds.

An insignificant number of adopters and a relatively higher proportion of farmers having neutral reaction towards the seed farm tend to show a rather discouraging picture of benefits. In view of these facts as well as the non-availability of required statistics it has not been feasible to attempt a cost-benefit analysis of the seed farm on any scientific basis.

Methodology :

2.6 The study has been carried out in two distinct parts— (i) collection of background materials from the concerned > Government Departments and available literature ; and (ii) collection of primary data through field investigation. In the first part no specific schedule was used and the various items of secondary information including those on programmes, policies, views and impressions were obtained from - the knowledgeable sources through personal interviews and discussions. In the second part of the study (he following two .schedules have been used :—

(a) A detailed Farm Schedule which helped the systematic collection of specific information on the various aspects of Merapani Seed Farm ; and

(b) A brief Respondents' Schedule meant for a quick study on the reaction of Merapani farmers towards the superiority of improved seeds as well as the benefits of Government Seed Farm.

2.7 Further, field investigation was also split up into two phases by an intervening lapse of time due to some unforeseen circumstances that affected the organisational set-up of the Evaluation Unit. However, in the first phase of field investigation the canvassing and filling of the Farm Schedule provided opportunities for its pretesting while in the second phase its deficiencies could be made good by collecting supplementary information through listing out the statistical requirements and not through any fresh questionnaire. Moreover, in this second stage respondents' reaction, as mentioned above, was studied by having recourse to random sampling to the extent of 25 of the farmers households including institutional farmers in Merapani village. In the absence of necessary statistical frame the stratification of farmers in terms of income or size of holdings has not been possible although the data collected have enabled a broad classification of the farmers into three categories viz. big, medium and small. This has been considered enough for a quick study of respondents' reaction which is just an ancillary part of the main enquiry. In view of Merapani Seed Farm being still in its infancy a study of its impact on the farmers living beyond its neighbourhood seems to be too farfetched to be meaningful.

Limitations :

2.8 Paucity of adequate data and gaps in the farm records proved to be serious limitations to attempting a detailed analysis on a sound objective basis. Deficiencies on several accounts have, therefore, been made good by some subjective elements emerging from specific discussions and on-the-spot observations. It has not been possible to study in detail some related issues such as long-terra perspective of the farm's growth, impact of the expanding irrigated area on productivity of improved seeds, scientific distinction of improved strains and maintenance of their purity, crop rotation etc. because of the lack of requisite information and. statistics. Besides, the limitation of manpower resources available with the Evaluation Unit has compelled the study to be confined to the mainstream of enquiry.

2:9 In view of the administrative and operative arrangements remaining incomplete at the time of the enquiry it has not been possible to show the district-wise break-up of data on the basis of 7 districts inaugurated in February, 1974. Adherence to the erstwhile set-up of three districts has, therefore, been forced by sheer circumstances. Further, inspite of the reference period being 1968-69 to 1973-74 the presentation of statistics in the tables

relating to Merapani Seed Farm has uniformly excluded the year of inception i.e. 1968-69; since in this first year the farm merely started the initial spadework and the farm records were scrappy.

Chapter-III
PHYSICAL PERFORMANCE OF MERAPANI SEED FARM

3.1 The realistic appraisal of a production-oriented seed farm must necessarily take the available infra-structural advantages into account before measuring the achievements against the targets of production. Following this approach an attempt has been made in this chapter to examine the farm's activities relating to multiplication and disposal of seeds keeping in view the nature and extent of exploitation of the, production potential as determined primarily by land development and productivity of major crops.

Infra-Structure For Agricultural Growth :

3.2 From the standpoint of location and agricultural infrastructure, the Merapani Seed Farm enjoys some distinct advantages. Being situated in the district of Mokokchung it is connected by road with the central part of Nagaland, the capital town of Kohima and the commercial centre of Dimapur which serves as the gateway to both the States of Nagaland and Manipur. Besides, Merapani being just adjoining the borderline between Assam- and Nagaland it is easy for this seed farm to avail itself of direct transport and communication links with the neighbouring State- The nearest railhead of Furkating Jn. (in Assam) being at a distance of 23 Km. and the nearest bus point at Merapani being just 5 Km. away this seed farm can conveniently utilise both motor and rail transport facilities. The sub-divisional headquarters at Wokha is about 70 Km. off from the farm while the Block headquarters at Baghti is at a distance of 23 Km. Apart from the limited marketing facilities available at Merapani (4 Km.) and Furkating (23 Km.) it is connected by all-weather road with the marketing centre of Golaghat, an important sub-division town of Assam located at a distance of 30 Km. from the farm.*

3.3 The foot hills areas where the seed farm is situated, provides considerable stretch of flat arable land which is rather a rarity in the hilly state of Nagaland. The sandy loam soil rich in organic matters as well as hot monsoon climate of this area are quite congenial for the cultivation of various food and cash crops. In fact, the acquired area of the seed farm holds out excellent prospects for an economic scale of seed production as well as experimentation and demonstration on the effectiveness oi improved seeds.

3.4 The river Yangru flowing by the southern side of Merapani Seed Farm provides an important source of irrigation. By cutting channels at convenient points and by constructing water-reservoir it has been possible to develop perennial facilities for irrigating the entire area (33.61 hectares) currently brought under cultivation. Thus, there is considerable scope for the development of multiple cropping which is so essential for the economic operation of the seed farm. Here it may be mentioned that these channel irrigation facilities are effective so long as there is at least average rainfall. When there is inadequate and irregular rainfall the channels cannot carry enough river water to irrigate the farm lands. This

problem can be tackled by constructing water-reservoirs or using pumps instead of depending entirely on the natural level and flow of river water. Another point which might be stressed is that the present source of irrigation may serve the entire cultivable

- *Of course, the above-noted infra-structural advantages are not without practical limitations arising out of the questions concerning inter-State jurisdictions. For instance, the recent restrictions regarding inter-State movement of foodgrains as well as the difficulties experienced by the farm in obtaining road permits from the Government of Assam have been pointed out as serious problems. But these problems are amenable to solution on the basis of a mutually agreed settlement through negotiations at appropriate levels of the two concerned State Governments.*

area (44.52 hectares) currently available to the farm even if it brought under cultivation.

Land Development And Utilisation :

3.5 The Merapani Farm started functioning towards the end of 1968-69; but in the first year its limited resources could be mobilised mainly for land acquisition, surveying, jungle clearance, fencing etc. whereas the multipiication of seeds had to be deferred until the land was developed for this purpose at a later stage. The farm records show that it was established with a total approved area of 542 acres (or 219.34 hectares) and its objective was to multiply a variety of improved seeds in order to achieve self-sufficiency in the supply of seeds. Despite the fact that the total area acquired and fenced up till now is measured at 928 acres (375.55 hectares) the total farm area in which the production of seeds is intended to be taken up, still remains to be officially fixed at 542 acres; presumably because this particular area is considered to be the best for this specific purpose.

3.6 The area statistics presented below give an idea about the farm's yearwise progress in regard to reclamation, development of land for permanent cultivaiton and expansion of the area under cultivation:-

Yearwise Statistics Regarding Land Reclamation and Cultivated area.

(Figures in acres)

	1969-70	1970-71	1971-72	1972-73	1973-74
Total area	110	170	220	320	350
reclaimed	(44.52)	(68.80)	(89.03)	(129.50)	(141.64)
Total developed	64	74	87	100	110
area	(25.90)	(29.95)	(35.21)	(40.47)	(44.52)
Total area under	60	27	47	75	83.06
cultivation	(24.28)	(10.93)	(19.02)	(30.35)	(33.61)

(Figures in brackets indicate areas in hectares)

(Source : Soil Survey Wing, Directorate of Agriculture, Kohima.)

It is evident that the progress of land reclamation during the period under study has not been very remarkable, as it has been possible to reclaim so far about 64.587- of the total approved area of the farm. Now, it may be stressed that land reclamation needs to be followed up quickly by the efforts to develop land with a view to rendering more and

more of it suitable for permanent cultivation. In view of the non-availability of necessary mechanical devices* it requires considerable time and efforts to complete manually the processes like the removal of stumps of felled tress, earth work for covering up depressions or facilitating irrigation etc.

3.7 Here, it is worthwhile to examine the existing land utilisation pattern of the farm from the standpoint of its economic viability. In the absence of detailed facts only and overall idea can be formed on the basis of the following figures : -

Land Utilisation Pattern of Merapani Seed Farm

		(As in 1973-74)
(a)	Total area reclaimed but not cultivated	: 95.07 hectares
(b)	Total area under cultivation	: 33.61 ,,
(c)	Total area under roads, buildings etc.	: 4.05 ,,
(d)	Total area under waste land, forests etc.	: 8.91 ,,
	Total area reclaimed	141.64 hectares

The above figures show that the total cultivated area at present forms about 24% of the total reclaimed area of the farm. However, with a view to running the farm on

- *Though one bull-dozer has been placed at the disposal of Merapani Seed Farm in 1973 it has not been possible to get the services of an Operator on a regular basis as indicated in the Annual Progress Report for 1972-73.*

an economic scale it is required to bring the remaining 61% of the reclaimed area under cultivation assuming that 15% of the reclaimed area will be set apart for roads, buildings, forests etc. As has already been indicated, the existing source of irrigation may be exploited further rendering the entire farm area suitable for raising various crops both in the khariff and rabi seasons.

Seed Procurement—A Chance Factor :

3.8 Production of mainly three crops viz. paddy, mustard and maize was undertaken by Merapani Seed Farm just after its inception. But these agricultural activities in the first three years were not directed towards the fulfillment of the major objective i.e. multiplication of improved seeds. Seeds were procured mostly from the local market without considerations of improved quality. This is evident from the available information on seed procurement as shown in Table-IV of statistical appendix.

3.9 The small quantities of seeds purchased annually from the easily available sources indicate that neither the productive operations were organised on a sizeable scale nor there was any definite perspective regarding the procurement of improved/HYV seeds. The initial position does not seem to have undergone any noticeable improvement in the subsequent years except the fact that during 1971-72 some conscious efforts were made to stimulate the production of a few selected items of HYV paddy. In 1973-74 some composite maize seeds (Protina)

were purchased from M/s. Assam Pesticides and Agro-Chemicals, Gauhati.* The preference for the composite maize seeds to the hybrid seeds is based on the notion that the former variety is more amenable to continuous multiplication than the latter.

- *Authorised distributors of seeds from Terai Seed Development Corporation Ltd., Pantnagar*

3.10 With respect to the improved seeds the present policy of the farm is to procure foundation seeds from the approved sources and get the stock renewed every three years. From the available seed procurement data it cannot be established that this policy is strictly followed in practice although this is an essential pre-requisite for maintaining the effectiveness of foundation seeds at the farm level.

3.11 The improved seeds were procured from the Government sources within the State (e.g. Directorate of Agriculture and Government Seed Farm, Jharnapani) as well as the private dealers outside the State viz. Sinha Agricultural Enterprise, Calcutta and Assam Pesticides & Agro-Chemicals, Gauhati. But as revealed by the Farm Manager, his subsequent attempts to procure more HYV paddy seeds did not prove successful; since these private dealers at Calcutta and Gauhati did not supply the specified seeds which were required for testing their adaptability to local conditions of wet cultivation. Similarly, the Annual Progress Report of the farm for 1972-73 shows that due to the non-availability of improved seeds the proposed trial of improved varieties of groundnut, mustard, maize etc. had to be dropped. In the same year the failure of Assam Seed Corporation to supply the expected types of improved seeds led this farm to fall back upon purchases from local cultivators.

3.12. It is, therefore, felt that the problem of availability of improved seeds can be tackled better by the Directorate of Agriculture with adequate advance planning for the purchase of improved seeds as part of the regular seeds programme. Sporadic attempts by individual farms to purchase improved seeds in small quantities from outside the State are likely to meet with occasional failures rendering seed procurement a chance factor in the multiplication of improved seeds. Uncertainties in the procurement of seeds will not only impair the effectiveness of foundation seeds but also hinder the progress of experimentation with new varieties, of improved seeds.

Performance on the Production Front:

3.13 With no production in the year of inception the Merapani Farm started nominal cultivation of a few selected crops in the following year i.e. 1969-70. In the initial period neither the nature of production nor its quantum could conform to the objective with which the seed farm was established. No doubt, the paucity of staff, organisational lacuna and slow mobilisation of resources stood in the way of quick progress. But the wide divergence between the Fourth Plan targets of seeds production and the humble records of actual production, lead one to believe that. perhaps there has been no conscious effort towards the achievement of Plan targets. Rather the farm records reveal a sluggish tendency towards gearing production to some low-pitched programmes (included in the farm's annual reports) which seem to bear no relation to the yearwise production programmes contained in the State's Revised Fourth Plan document. This idea is borne out by the factual account; given below :-

Yearwise Plan Targets And Actual Production of Seeds By Merapani Farm—1971-72 To 1973-74

Year	Production target tinder Forth Plan	Production target in Farm's Annual Report	Quantity of Seeds produced
(1)	(2)	(3)	(4)
1971-72	90.00 M/Tons	N.A	10.40 M/Tons
1972-73	40.00 M/Tons	33.37 M/Tons	50.40 M/Tons
1973-74	200.00 M/Tons	75.00 M/Tons	98.20 M/Tons

3.14 This peculiar phenomenon of depressing the scale production while drawing up annual programmes at farm, level is largely responsible for the tardy physical progress as well as gross under-utilisation of the farm's production capacity. It is really confusing to find that in the same year the farm has two sets of targets before it—one having no relation with the other. This confusion needs to be avoided by rationalising the process of setting the physical targets every year. Within the broad technical and operational limitations the farm's annual production programmes should be formulated at the appropriate level by paying due consideration to the physical targets fixed under the concerned Five Year Plan. The divergence between Plan targets and physical achievements should be narrowed down substantially by petting the targets on a more realistic basis as well as mobilising recources for production on a bigger scale. Otherwise, organisational weakness and operational inefficiency might continue to drag the farm to eventual failure despite the ambitious programmes of seed production fondly nurtured under the Five Year Plans.

3.15 From the production statistics presented in Table-V it is found that from 1972-73 there has been a noticeable increase in the farm's agricultural operations although the rise in production is more marked in case of paddy than in case of other crops. The output of paddy recorded an increase of about 385% from 1971-72 to 1972-73 and an increase of about 73% between 1972-73 and 1973-74. But it still requires a massive drive towards raising production so as to bridge the gap between the farm's production capacity and actual production. The annual production of 98.2 M/Tons of seeds in 1973-74 is evidently much below the existing production capacity which may be estimated roughly at 200 M/Tons per annum on the basis of the present developed area of 44.52 hectares and the existing pattern of production as well as the average yield rates for 1973-74.

3.16 Apart from the question of under-utilisation of capacity there is another important consideration which relates to the augmentation of the farm's production potential. That there is still scope for raising the production potential is clearly indicated by the facts that so far about 65-'. of the farm's total approved area has been reclaimed whereas the actual area under cultivation forms only about 24' . of the reclaimed area. But both fuller utilisation of the production capacity and the raising of production potential call for the much needed improvement in the methods of cultivation and introduction of multiple cropping and scientific crop-rotation. The significance of all these measures

needs hardly to be stressed insofar as they are the essential prerequisites for the achievement of economic viability.

3.17 By studying the pattern of production as shown by the figures presented in Table-V it is found that paddy is the largest single item of production accounting for 92.14./. of the aggregate output (on the basis of a 5-year average). Next in importance is mustard having an average share of 4.11./. in the aggregate output. Though started relatively late the cultivation of maize is also growing fast in importance. The cultivation of potato which was taken up. on an experimental basis in 1972-73 came to be discontinued in 1973-74. The production of sesamum is too small and erratic to be of significance. Therefore, judged by the magnitude and trend of output paddy, mustard and maize may be regarded as the major items of production. Besides, from the standpoint of production of improved seeds paddy is the only crop which seems to have been receiving increasing emphasis since 1972-73.

3.18 In view of the towering importance of paddy in the production programme of the farm it is worthwhile to study the growth of its output in further details. The figures in Table-V! reflect a definite switch-over from the cultivation of local varieties of paddy to the HYV paddy cultivation which was initiated in 1970-71. After this humble beginning the next year recorded no production of HYV paddy. But from the year 1972-73 the pace of progress in this regard became quite remarkable inasmuch as the share of HYV paddy in the aggregate paddy output increased from only 9.88./. in 1970-71 to 93.53./. in 1972-73 and 93-73./- in 1973-74. This trend of paddy cultivation augurs well for the future growth of the farm although there is yet considerable scope for enhancing the total volume of paddy output along w$_t$th the development of more HYV strains through carefu] experimentation. Despite the limitations of technical know-how and uncertainty about the availability of HYV seeds the farm has been able to initiate the process of sleeting some locally adaptable HYV seeds in respect of paddy. Similar attempts in regard to mustard and maize should also receive due attention. Thus, by gradually extending the coverage of crops the farm will be capable of meeting the varied requirements of improved seeds for dry and wet farming in both the Khariff and rabi seasons.

3.19 As productivity is a cruicial question in agricultural progress, it JS necessary to examine the high-yielding propensity of improved seeds in comparison with the yield rates of local varieties. But in the absence of accurate statistics of production and damage of crops* it is not possible to build up very sound estimates of yield per hectare. Nonetheless, the rough calculations of yield rates presented in Table-VII broadly indicate the superiority of HYV improved seeds in regard to productivity. In view of the drought which adversely affected the production of crops in 1971-72 it is not advisable lo compare the abnormally low yield rates relating to this year with those of the high yielding varieties of paddy raised in the successive years. However, the following statistics show

- *The quantitative ideas of production measured in a crude way and the occassional crop damage (by elephants and birds) measured through eye estimation do not permit any sound calculation of yield rates.*

the comparative position of the yield rates of local and HYV paddy harvested by the Merapani Seed Farm in two successive years:-

Comparative Yield Rates of Paddy Harvested By Merapani Seed Farm

Sl. No.	Main Crop/Varieties	Yield per hectares (In quintals)	
		1972-73	1973-74
1.	I.R.—8 Paddy (HYV)	32.33	36.75
2.	Padma Paddy (HYV)	2S.82	35.08
3.	Jaya Paddy (HYV)	22.50	36.98
4.	Changbem Paddy (Local)	12.52	-
5.	Phoungang Paddy (Local)	-	14.77

Disposal Of Farm Produce :

3. 20 A study of the disposal of farm produce does not show any concern about the expected beneficiaries or any regular effort to contribute towards the State's seed distribution programme. Apart from consuming every year a portion of its own output the Merapani Farm disposes of its farm produce mainly in two ways ÷ (i) selling of seeds in the local market and (ii) retaining a portion of the produce to be used as seed-input for its own cultivation. But the most important lacuna in this scheme of disposal is that the farm has neither any regular programme for distributing seeds to the farmers nor is it participating in any scheme of subsidized distribution of improved seeds implemented by the concerned District/Sub-Divisional Agricultural Officer or the Directorate of Agriculture, Kohima. Of course, at the initial stage it procured some improved seeds from the Government Seed Farm at Jharnapani but ŧ itself has not yet supplied seeds to any of its sister organisations in the State. Thus, it is obvious that the cultivation of crops by this farm is not consciously oriented towards the main objective of multiplying improved seeds for distribution among the farmers. That is to say, its effective role as the seed multiplication farm in the true sense of the term, is yet to start.

3.21 The factual account given in Table-VIH leads one to the conclusion that with substantial increase in the annual output of crops since 1972-73 there has been remarkable increase in the proportion of farm produce retained as closing stock at the end of each successive year. This might have been caused partly by the increase in the farm's own requirement of seed-inputs and partly by the difficulty involved in disposing of greater quantities of annual output. It is clearly observed that up to 1971-72 almost the entire opening stock of annual farm produce used to be disposed of and at the end of every year the closing stock showed either nil balance or an insignificant balance. The recent increase in this opening stock as well as closing balance in every year has a practical implication with regard to the storage problem; since it calls for corresponding improvement in the storage facilities currently available to the farm.

3.22 Another important consideration that deserves serious attention is that without adequate arrangements for disposing of farm produce the gradual increase in farm production might lead to the embarassing problems regarding the disposal of farm produce. By and by the local market might prove to be quite insufficient for selling the progressively bigger volumes of output raised by the farm while selling seeds outside the

local market bristles with too many difficulties to be overcome by ths farm individually. Hence it may be necessary for the
ment Blocks might be of considerable assistance to the District and Sub-Divisional Agricultural Officers in their attempts or popularise and distribute the improved seeds among the ultimate beneficiaries i.e. the farmers.

Chapter—IV
FINANCIAL PERFORMANCE AND ECONOMIC VIABILITY

4.1 In the first few years the financial performance of Merapani Seed Farm was mainly confined to initial spade-work for organising agricultural operations. At this stage^ the economics of the farm was of secondary importance. But with the recent efforts to boost up production and the. Government decision to treat' the farm as a semi-commercial venture, the question of economic viability has acquired considerable significance. In this context it is not merely the availability of funds but also the nature and extent of their mobilisation that need to be examined carefully within the framework of plan allocations.

Plan Allocation And Mobilisation Of Financial Resources :

4.2 The financial resources of the farm are obtained from, two sources (i) Directorate of Agriculture and (ii) sale of farm produce. Obviously, the Government funds placed at its disposal provide the main support to the farm's activities ; since the revenue earned from the sale of farm out-, put forms a very small part of its total financial resources.. Hence it is worthwhile to study the yearwise provision and mobilisation of funds, in the first year (i. e. 1968-69) an amount of Rs. 2.11 lakhs was sanctioned for the farm, out of which about Rs. 0.80 lakh were spent for the payment-of land compensation as the largest single item of expen-diture. As against the sanctioned amount of Rs. 1.00 lakh a sum of Rs. 0.96 lakh was spent on 'Other Charges' in 1969-70. In this year the farm could not appoint any staff of its own and so it had no expenditure under the head 'Establishmenl Charges'.

4.3 During the Fourth Five Year Plan a total amount of Rs. 10.90 lakhs was provided for the development of this farm. The yearwise phasing of this financial programme is furnished below :-

Yearwise Phasing of Fourth Plan Outlay
(Figures in Rs. lakhs)

Year	Establishment Charges	Other Charges	Buildings	Total
(1)	(2)	(3)	(4)	(5)
1969-70	-	0.96	0.39	1.35
1970-71	0.22	1.48	0.53	2.23
1971-72	0.76	1.54	0.70	3.00
1972-73	0.98	0.86	0.52	2.36
1973-74	1.06	0.72	0.18	1.96
Total	3.02	5.56	2.32	10.90

[Source : Revised Fourth Five Year Plan (1969-74), Government of Nagaland]

The important activities such as jungle clearance, land development, purchase of tractors and implements etc. being included under 'Other Charges' this single item of expenditure has accounted for 51*/. of the aggregate Fourth Plan outlay as shown above. After reaching its peak in 1971-72 the plan outlay on this item has undergone a steep decline, since the need for the relevant activities like jungle clearance, land development etc. is supposed to decrease at subsequent stages.

4.4 During the Fifth Plan the growth of Merapani Farm is proposed to be taken care of under the continuing scheme on development of Government Seed Farms at Merapani, Tijit, Yisemyong etc. This integrated scheme envisages a total outlay of Rs. 35.00 lakhs for the entire Fifth Plan period. The yearwise break-up of this outlay has been given in Table II.

Pattern And Growth Of Investment:

4.5 The financial performance of the farm may be studied by examining the pattern and growth of investment before analyzing [30]

the economic viability in the light of available data on costs and returns. The total investment made by the Merapani Seed Farm may be divided into two broad categories viz. fixed investment and other investment. In the category of 'fixed investment' the principal items are land reclamation, development and compensation, construction of buildings, sheds, roads, dams and irrigation channels etc. The items included in the category of 'other investment' are machinery, tools and implements, livestock, furniture etc. The detailed break-up of total investment over the period under study has been furnished in Table IX.

4.6 The relative importance of 'fixed investment' and other investment can be judged from the factual account given below: -

Type of Investment	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74
1	2	3	4	5	6	7
Fixed Investment	126720 (99.60)	83950 (84.95)	63235 (54.50)	59886 (52.65)	110365 (92.98)	75425 (99.17)
Other Investment	500 (0.400	14877 (15.05)	52786 (45.50)	53859 (47.35)	8327 (7.02)	632 (0.83)
Total investment	127220 (1oo.oo)	98827 (loo.oo)	116o21 (loo.oo)	113745 (loo.oo)	118692 (loo.oo)	76o57 (loo.oo)

[Figures in brackets indicate percentage shares in the total]

The above figures reveal an erratic growth of both fixed investment and other investment. By and large, fixed investment forms the bulk of total investment while other investment still remains an insignificant proportion of it. The category of other investment shows an over-all declining tendency although in the two years—1970-71 and 1971-72 some improvement could be noticed as a quite temporary phase. These were the years when farm production experienced some attempts at quantitative and qualitative improvements.

Hence in these two years some boosting up of other investment was caused by the purchase *of* a few expensive items such as tractors, furniture etc. Nonethless, the overwhelming importance of fixed investment again showed itself in the following years (i. e. 1972-73 and 1973-74). At the initial stage this might be regarded as a natural tendency in view of the needs for land reclamation, development and compensation involving big chunks of investment.

4.7 Here it is important to remember that this seed farm is still in a nascent stage and as such it is yet to utilise its existing production capacity to the fullest possible extent. In such a case it is quite natural that the initial volumes of investment on fixed assets such as land and building should go on declining after a certain stage when a rise in the working expenses is required to synchronise with the increasing tempo of agricultural production.

4.8 At this stage, it is rather advisable to consolidate the existing position and enhance production to the expected level of at least 200 M/Tons per annum'. For this purpose the farm may slow down the pace of fixed investment by withholding temporarily its efforts to reclaim any further area beyond the present level of 141.64 hectares until the existing production capacity is fully utilised. This post-ponement of investment on land reclamation will enable the firm to transfer more funds towards meeting the increasing working expenses so as to match the rising tempo of seed production. This is necessary not only from the economic point of view but also from the point of view of toning up the quality of seed production through a gradual switch-over to the high yielding strains.

Components Of Production Cost And Their Relative Importance:

4.9 The analysis of working expenses may now be attempted as a step towards measuring the costs against the revenue. On the cost side all the components

** Production of 200 M/Tons of seeds per annum was fixed as the physical target under the Fourth Five Year Plan: but it has not been achieved so far. .*

of total production cost can be grouped under two broad categories: cost of inputs and overhead cost. The cost of inputs includes those items which have direct bearing on production such as wages and perquisites, cost of materials (e.g. cost of seeds, P.P. chemicals etc.), cost of P.O.L., value of standing crops, goods in store head cost which has includes the items like est of fencing, cost of gunshots, cost of stationery and contin-gencies etc. The detailed break-up of these components of total cost has been presented in Table-X.*

4.10 An idea about the relative shares of various cost components in the total cost of production may be obtained from the data presented in Table-XI It is found that labour cost which currently accounts for above 70'/. of the total cost has been claiming the lion's share of working expenses since 1970-71. Even admitting that the existing method of farm production is much labour-intensive, this importance of labour as a single item of cost seems to be disproportionately high. In absolute terms the labour cost has so far shown a steadily rising tendency ; since between 1970-71 and 1971-72 it increased by 355.3'/., between 1971-72 and 1972-73 by 22.1./- and between 1972-73 and 1973-74 by 31.2-/. revealing thereby an average annual growth rate of 136.2./'. Of course, the share of labour cost in the total cost of production has been found to very roughly between 57V. and 74V. during the period from 1970-71 to 1973-74.

4.11 . In 1973-74 the item of labour cost together with establishment cost have been found to account for about 98'/. of the production cost. If such a big share of the total cost goes only to wages and salaries then very little (in this case only 2% of total cost)

** Depreciation cost has been excluded from the cost-structure because of the non-availability of data.*

remains for defraying the cost of material inputs. This is not very much desirable when there is an urgent need for organising production of improved seeds by utilising the existing production capacity to the fullest possible extent. The position may also be examined in terms of the relative shares of labour cost and material cost in the total input cost during the last three years under study. In this regard the following statistics deserve our attention :-

Relative Shares of Labour Cost And Material In Total In put Cost.

Figures in %

		1971-72	1972-73	1973-74
Labour	Cost	92.63	93.91	97.12
Material	Cost	7.37	6.09	2.88
Total Input Cost		100.00	100.00	100.00

4.12 From the above figures we find that between 1971-72 and 1973-74 the proportion of labour cost has risen from 92.637- to 97.12% showing a slow but steady increase in its overwhelming importance. But during the same period the relatively insignificant proportion of material cost has shown a steep decline from 7.377. in 1971-72 to 2.887. in 1973-74. This situation can hardly be a healthy sign for a production oriented farm even allowing for some possible mix-up of labour cost incurred for road construction, jungle clearance etc. with the labour cost for cultivation of crops.*

4.13 Normally, in a rational allocation of cost items the share of labour cost should preferably be within the limit of 507. to 6O7. of the total input cost so that sizeable allocation of cost can be channelised to the material inputs. After all, the

** In the farm records the item shown as 'cultivation charges' involves considerable amounts spent on labour; but is likely (though not specifically mentioned) that this broad item might include some unidentifiable labour cost incurred on land reclamation, jungle clearance etc. although the major portion of cultivation charges is evidently related to cultivation of crops.*

'raison de'etre' of the seed farm rests on its efficiency in the production of improved seeds in the expected quantities and qualities. It is in this way that economic viability as well as service to the beneficiaries can be ensured reasonably. The fantastically low level of current expenditure on material inputs gives an impression that farm production is still organised in a haphazard and uneconomic manner,

4.14 In Table-X the 'establishment cost' has been shown as nil in the years 1969-70 and 1970-71, because at that time the farm did not have its own staff. Of course, judged by any standard the 'establishment cost' and 'other overhead cost' do not seem to be much on the high side and as such do not call for any economy at present. Rather, in some respects the farm is not adequately staffed so as to shoulder the

necessary technical responsibilities. This particular aspect of personnel' requirement will be dealt with in Chapter-V.

Cost And Return Per Unit Of Cropped Area :

4.15 From the figures of cost per unit of cropped area as presented in Table-XII it is found that with the gradual increase in the cropped area as well as output the total cost per hectare has shown a slow but steady decline over the last three years under study. This decline in the total cost is primarily due to the fall in the labour cost and establishment cost per unit of area. Though establishment cost offers very little scope for further prunning there is still considerable scope for slashing down the labour cost causing thereby a reasonable fall in the total costs of production. This is an important clue for further attempts at cost reduction. Even allowing for some sizeable increase in the material cost the over-all reduction in the total cost can be effected substantially, because material cost per hectare is found to be a very insigificant portion of total cost.

4.16 Coming next to the question of revenue from the sale of farm produce we may analyse the year to year position on the basis of the figures presented in Table-XIII. On the revenue side, the only item which has been taken into account is the sale of farm produce, as it is the only regular source of revenue to the farm. As compared to the previous years, the year 1972-73 may be regarded as a turning point of revenue earning, because in this year the rise in revenue far outpaced the increase in the cropped area. Between 1971-72 and 1972-73 revenue showed an outstanding rise of 293.2% whiie cropped area increased only by 59.6%. This rising tendency could maintain itself in the next year, i.e. 1973-74 although the marginal rate of increase came down to a moderate level. The same buoyant tendency is reflected also by the data on revenue per unit of area. On this realistic basis it is possible to strike a note of optimism about the future prospects of the farm's growth as an economic unit.

4.17 An approximate idea about the economics of the farm may now be formed from the available figures as already mentioned above. The following estimates of net return would help us to arrive at reasonably valid conclusions regarding profit and loss :

Estimates Of Net Return Per Unit Cropped Area

(Figures in Rs.)

Year	Cost per hectare of cropped area.	Revenue per hectare of cropped area.	Net Return per hectare of cropped area. (Col. 3—Col. 2)
(1)	(2)	(3)	(4)
1969-70	166	314	+ 148
1970-71	999	546	- 453
1971-72	22,737	322	- 2415
1972-73	2,553	793	- 1760
1973-74	2,359	1,128	- 1231

Only once in the first year when agricultural production was just initiated on a small area and the establishment cost was not borne from its own budget, the farm opened its account with a record of small profit. But from the next year it started showing a uniform

record of annual losses every year. The farm's Annual Proforma Accounts bear out the truth of this statement although the Proforma Accounts for 1973-74 were not finalised till the time of completion of this, study.

4.18 The picture of recurring losses as indicated above* might appear to be depressing enough to raise doubts about the future growth of this farm. But in this regard there are certain important considerations that deserve our serious attention. Firstly, we should consider the fact that at the initial stage it is quite natural for any farm to lose, because it usually takes some time to utilise its production capacity to the maximum possible extent. Secondly, various evaluation studies conducted in the different parts of the country have revealed that most of the Government Seed Farms are running at a loss, since the production of foundation seeds is an expensive proposition. Thirdly, during the last three years of the reference period when farm production started gaining some momentum, revenue per hectare showed a rising tendency whereas annual losses per hectare showed a gradual decline. In this context it is reasonable to expect that with better planning, organisation and management it is quite possible to bring down the losses, if not entirely eliminate them. Here it may also be emphasised that this is a short-period expectation without particular reference to any long-period perspective. The detailed suggestions as to how this short-period expectation can be fulfilled, have been offered in Chapter-VI.

Input-Output Analysis :

4.19 From the above discussions on the economics of Merapani Seed Farm one is driven to the broad conclusion that the operational efficiency of the farm is yet to be improved. Though it need not function as a profit-earning concern in the strictly commercial sense of the term it should not also prove to be a regular burden on the public exchequer, Hence it is necessary to organise and manage it on a sound economic basis keeping the losses at least to the negligible level so that the benefits accruing from the production of improved seeds can outweigh the costs involved. In this regard it is worthwhile to study the following input-output ratios as a rough measure of operational efficiency: -

Input-Output Ratios in Respect of Merapani Seed Farm

Year	Total cropped area (in heactares)	Input cost per hectare of cropped area (In Rs.)	Value of output per hectare of cropped area (in Rs)	Inout-Output Ratios Col3 / Col4
1	2	3	4	5
1969-70	24.28	124	314	0.39
1970-71	10.93	768	546	1.41
1971-72	19.02	1,904	322	5.91
1972-73	30.35	1,539	793	1.94
1973-74	33.61	1,764	1,128	1.56

4.20 Broadly speaking, when the input-output ratio is unity or very close to unity it may be inferred that the farm is operating on 'no loss-basis' or is at the break-even point. Thus, when the input-output ratio is greater than unity the farm will be running at a loss and when the ratio is less than unity it will be running with profit. Except the first year i. e. 1969-70 all other successive years have a record of high input-output ratios (much greater than unity). Of course, the exceptionally high ratio in case of the year— 1971-72 was due to some abnormal crop failure caused by drought. Anyway, for the last two years some improvement in the operational efficiency is reflected by the gradually declining ratios. Even assuming that the present rate of decline will continue, it will take some more years for the input-output ratio to fall below the unity. So there is an urgent need for conscious efforts to raise the current levels of organisation and management-Chapter-V

MAJOR PROBLEMS CONFRONTED BY THE FARM

5.1 The major problems and bottlenecks inhibiting the progress of Merapani Seed Farm may be studied in three broad groups viz. (a) organisational (b) operational and (c) miscellaneous. These problems, though ignored at the initial stage, can no longer be left unattended if the farm is to function effectively in order to achieve its goals and targets.

The Organisational Problem And Its Implications:

5.2 The present organisational set-up of the farm can. hardly be considered adequate for the purpose with which the farm has been set-up. The non-availability of qualified and experienced staff is a serious hicuna which has crippled the growth of the farm insofar as it is normally expected to undertake experimentation and demonstration apart from the multiplication of foundation seeds for a number of crops. But with the existing organisational set-up, the farm is too ill-equipped to achieve this objective even on a very moderate scale. This aspect seems to have received due attention at the stage of formulation of the scheme under the Fourth Five Year Plan. The following lines extracted from the State's Revised Plan document will clarify the point :-

"In view of the size of the farm and the large content of initial works and with a view to efficient running of the farm, it has been proposed that this farm should be put in charge of an experienced Farm Superintendent under the overall control and euidance of an Agronomist at the State level.*

5.3 That the Fifth Plan has proposed a more broad-based organisational set-up is evident from the factual account given in Table-II. As compared to all these proposals the existing organisation will naturally appear to be of ramshackle type.

5.4 An examination of the existing staff position presented in Table-XIV reveals the gross deficiency regarding technical and supervisory personnel as well as their knowledge and experience in the respective fields. It is found that the sanctioned post of Farm Superintendent (Class-II) who is to work ,as the head of the farm, is still lying vacant. This has created a void in respect of the long-felt need for adequate technical and supervisory know-how which is so essential for the farm, since it is required to carry out specific jobs such as selection, testing, multiplication and storing of improved seeds ensuring their purity and effectiveness. In the absence of Farm Superintendent the Farm

Manager (Class-III) has shouldered the responsibilities of guiding and steering the course of farm operations despite obvious limitations of his qualification and experience. The technical competence of other subordinate staff such as Assistant Farm Manager and Fieldman is also inadequate for specific purposes.

5.5 Consequently, this farm is just dragging on its existence by showing some quantitative progress of farm output much of which has virtually no concern with the production and supply of improved seeds. As has already been mentioned in Chapter-Ill, the disposal of farm output is carried out partly through the farm's own consumption and partly through sale in the local market where it satisfies the demand for consumption rather than that of seed-inputs. This process of drifting away from the main objective has been caused by a number of bottlenecks such as the farm's inability to procure improved seeds from outside the State, absence of requisite arrangements for seed treatment and scientific storage and lack of proper outlets for the disposal of farm output to the farmers interested in improved seed-inputs.

5.6 At present the organisational weakness of the farm is sought to be overcome by the occasional visits of financial and technical experts from the Directorate of Agriculture. The District Agricultural Officer and the Sub-Divisional Agricultural Officer also seem to have very remote control on the farm's recurring expenses on establishment and disposal of output rather than production of foundation seeds. The Senior Soil Survey Officer at the Directorate of Agriculture is practically the officer exercising overall control on the farm's land utilisation and agricultural operations. This arrangement is hardly sufficient especially when there is a dearth of knowledge and experience at the farm level. It is not physically possible for the Senior Soil Survey Officer to devote full-time attention to the Seed Farm in view of his preoccupations as the head of the Soil Survey Wing. This deficiency has adversely affected the organisational efficiency of the farm which needs regular and whole time care.

The Operational Problem:

5.7 The operational weakness of the farm is mainly the product of organisational lacuna as well as the absence of some necessary arrangements which are usually expected in a seed multiplication farm. The various aspects of operational problem may be studied by enumerating them in the following way :—

(i) Deficiency of land development operation for permanent cultivation ;
(ii) Deficiency of irrigation facilities for both Khariff and Rabi crops ;
(iii) Absence of regular programmes for scientific crop-rotation and multiple cropping ;
(iv) Least reliance on manures and fertilisers ;
(v) Dearth of improved agricultural tools and implements
(vi) Inadequacy of crop protection arrangements ;
(vii) Deficiency of threshing floor ;
(viii) Paucity of appropriate storage facilities ;
(ix) Lack of arrangements for seed treatment; and
(x) Absence of proper outlets for disposal of farm produce.

5.8 In view of all these deficiencies and lacunae the present way of operations gives an impression that the farm authorities are least bothered about the improved methods of cultivation as well as adequate steps for plant protection. This conservative adherence to the traditional agricultural practices tones down the operational efficiency of the farm, slackens the pace of productivity and creates problems for the economic functioning of the farm.

5.9 The fact that so far only 31% of the total reclaimed area of the farm has been developed as cultivable area shows that the progress of land development for permanent cultivation is very slow. This deficiency is caused more by the lack of dynamism in farm operations than by the lack of financial resources. It may, therefore, be regarded as a basic operational problem having direct bearing on the policy and programme of the farm.

5.10 Though the river Yangru provides considerable scope for developing irrigation facilities the farm's present arrangements are hardly sufficient for irrigating the total cropped area throughout the year. Under the existing arrangements insufficient rainfall and occasional drought conditions can damage the farm's crop prospects in a big way. In 1971-72 the production of its main crops suffered a serious setback due to drought and in 1972-73 both the mustard and maize crops dried up due to excessive heat and drought. Experience of the last few years shows that almost every year either in the Khariff season or in the Rabi season some crop or the other becomes the victim of nature's niggardliness with regard to rainfall. Just the opposite situation was found in 1973-74 when due to continuous rain paddy field was flooded causing damage to the harvests. In the same year not less than 20 maunds of sesamum crop were damaged by the excessive rain. Thus, we are driven to the conclusion that both irrigation and drainage facilities need to be adequately improved so as to tackle these problems of natural vagaries.

5.11 As it has already been indicated, some of the well-known methods of improved cultivation are not regularly practised by this farm. For instance, it does not have any regular programme for scientific crop rotation, which is essential for making rational use of the limited land resources without facing soil starvation. Besides, regarding manures and fertilisers the farm authorities do not seem to show much eagerness, as they are now contented with the natural fertility of the soil. But with the increasing reliance on intensive cultivation this present day contentment will have to give way to some eagerness to utilise manures and fertilizers with a view to increasing productivity and checking soil starvation. Similarly, the farm's existing bias towards the use of traditional tools instead of improved tools and implements (e.g. mouldboard ploughs, seed drills, disc harrows, harvesting machines etc.) has added to the slowness of operations. If there is a dynamic production programme (which is a natural expectation) this problem of bias towards traditional cultivation will seriously retard the pace of progress.

5.12 Crop damage by elephants and birds being a common experience for Merapani Seed Farm the problem of protecting the crops calls for early solution. In the absence of any accurate assessment of such loss, mere eye estimates put it anywhere between the range of 15% to 50% of the aggregate output of the concerned crop. During 1972-73 the elephants damaged I.R.-8 and Padma Paddy to the extent of about 15% to 20% of their total yield whereas such loss in respect of sesamum was

estimated at about 30*/-to 407-. In 1973-74 roughly 50-/. of the total output of maize crop was estimated to be damaged by elephants, and parrots. The existing arrangements for crop protection include the reliance on only one 12-Bore gun presently available to the farm and the attempts made by the 'malis' to scare away the elephants by lighting fire. Many times these measures prove ineffective in driving away the elephant herds. In fact, the problem of watch and ward for protecting the crops acquires special importance for a period of eight months from May to December every year. It is found that the uninhabited eastern side of the farm is the most vulnerable point which needs more permanent watchposts as well as watchmen.

5.13 Lack of cemented threshing floors of ' requisite sizes is another problem that cannot be overlooked for long. The threshing floor at present available to the farm is too inadequate for the gradually increasing farm harvests. Besides, in the absence of sufficient threshing floors there is the possibility of undesireable mixing up c*f different varieties of seeds affecting the purity of respective strains. The proposal for a cemented thresing floor to be constructed near the proposed seed store needs early implementation.

5.14 One of the most serious problems confronting the seed farm is the lack of adequate storage facilities separately for the seeds obtained form outside as well as those of local origin. Besides, 'the farm also needs storage space for the seeds meant for consumption purposes.. The existing arrangements for storage are not only insufficient but also unsatisfactory. Under the pressing needs, quite a good deal of seeds have to be stored in the -office-cum-godown and the garage built with C. I. Sheet walls which are positively harmful to the effectiveness of the seeds stored. At present the farm has storage facilities of the following description: -

No. of shed	size	No. of rooms	Approx. storage capacity.
1	15'x 15'	2	24M/Tons.
1	30'x 15'	2	5M/Tons.

5.15 It is gathered that there is a proposal for constructing I two more storage sheds of 45 ft. x 2] ft. size with four rooms j each during 1974-75. But the farm authorities feel that under the present circumstances, there is the need for another two storage sheds of 50' x 16' size which will add 4 more rooms in all. Judged by the requirements of improved/HYV seeds as per current production programme, this assessment of the additional requirement of storage space seems to justified.

5.16 Moreover, the farm is not having any arrangement for seed treatment and this is to be considered another lacuna that deserves proper attention. However, it is a problem which amenable to solution if the necessary facilities for seed, treatment such as seed dressing drums and chemicals are made available to the farm, it is understood that the Farm Manager has already contacted the Plant Pathologist of the Stat Government for this purpose.

5.17 Absence of adequate outlets for the disposal of farm produce is another operational problem that has various; implications as already indicated in Chapter-III After all piling up of unsold stocks should not be allowed to become a growing burden on the available storage facilities. Moreover, prolonged as well as haphazard storage of undisposed seeds may also damage their effectiveness and purity. With further growth and diversification of farm production, this problem

of disposal will go on increasing in magnitude and! dimension if proper action is not taken to tackle it in time.) Miscellaneous Problems And Bottlenecks :

5.18 Though finance is not a serious problem for the farm its non-availability in time may be regarded bottleneck. As is well-known, agricultural operations are strictly time-bound and the seasons are more or less fixed-For efficient farming the necessary funds need to be made available to the farm promptly according to definite time schedule. But very often the sanctioning of the required expenditure for specific purposes involves procedural delay which has adverse effects on the agricultural operations to be carried out by the farm. It is gathered that every year the sanctions for maintenance of farm operations are received very late—sometimes in November and sometimes evert as late as January of the next calendar year. Besiders as the farm has to engage a number of casual laboures, for land reclamation, cultivation and other maintenance work, the absence of some advance contingency funds for weekly payments to these labourers compels the Farm Manager to fall back upon the sale proceeds of the farm.

5.19 In order that all these financial bottlenecks might be removed it is necessary to take the following lines of action :-

(a) Adequate advance action needs to be taken every year regarding the technical scrutiny of the farm's production plan and its phasing of implementation ;

(b) Adequate financial planning ensuring both timely and rational allocation of resources needs to be geared properly to the farm's annual production programe ;

(c) The administrative procedure for issuing expenditure sanctions needs to be streamlined so as to ensure utmost expedition.

5.20 Lack of proper co-ordination among the concerned Government agencies is another serious bottleneck that inhibits the progress of farm operations concerning both cultivation and disposal of crops. In the formulation of annual production programme neither the District Agricultural Officer nor the Sub-Divisional Agricultural Officer shows any active interest. No idea about the nature and extent of seed requirements relating to the district, sub-division or block is available to the farm so that the fixation of targets for land development and cultivation may be given a practical shape. We have already seen that the farm is unable to tackle the problem of procuring HYV seeds from outside the State and have already suggested that the Directorate of Agriculture needs to come forward to shoulder this responsibility regularly in a big way. Similarly, a distressing situation is found in the case of disposal of seeds which is also left to the farm's own capacity to deal with the problem individually. For instance, in 1973 the Farm Manager's attempts to induce the D. A. O. and S. D. A. O. to place indents on the farm for the supply of improved seeds, met with total failure. After that when the Farm Manager approached the Directorate of Agriculture he was advised to sell the stocks of seeds in the open market without bothering the least as to whether they would be used as seed-inputs or not. Here, it is important to note that the question of assessing the need for seed-inputs or kindling up the interest of progressive farmers in HYV seeds was, thus, lost in virtual apathy.

5.21 Another bottleneck arises out of the indifference to the technical questions connected with the testing and selection of HYV seeds which are suitable for varied physical conditions of cultivation. For instance, one such question relates to the proper selection of HYV seeds which may be suitable for dry cultivation and those which are

suitable for wet cultivation. The areas neighbouring the seed farm are found to have lands fit for both wet and dry farming. Moreover, another question centres round the issue of finding out whether the HYV seeds are suitable for cultivation in altitudes of 2000 ft. m. s. 1. and above. Specific trials in this regard need to be conducted by the experts of the State Directorate of Agriculture and the results communicated to the farm, since the farm does not have any technically competent staff for this purpose.

5.22 Further, it becomes really difficult for this seed farm to tackle the problem of obtaining road permits for the movement of seeds through the State of Assam. In 1973 M/s. Nagaland Co-operative Marketing Society at Dimapur wanted to purchase sizeable quantities of seeds from the Merapani Seed Farm, but because of the latter's failure to obtain road permit from the Sub-Divisional Officer, Golaghat it was not possible to make the deal a succes. Hence the issue of road permit should preferably be thrashed out at appropriate levels between the two State Governments so as to enable this farm to avail of road transport facilities through Assam.

Inter-linked Tssues of Ancillary Interest :

5.23 The impact of seed farm's activities on the local farmers in respect of improvet! seeds may be regarded as an inter-linked issue of ancillary interest. The reaction of expected beneficiaries and the results of utilising improved seeds supplied by the farm might prove to be of mutual benefit to the seed farm and the farmers especially in making the right selection of seeds suitable for local conditions and extending technical know-how through practical demonstrations. As no such trial or demonstration has been carried out so far, the evaluation team had to conduct a quick study on the basis of 25% random sampling of farmers' households in Merapani village. The statistical findings of this ancillary study have been presented in Table XV and Table -XVT.

5.24 The quick study on the utilisation of local and improved seeds by the farmers of Merapani village was confined to paddy which figured as the most important crop. From the data given in Table—XV it is found that the use of improved seeds is totally absent among the first two lower size-groups of farmers (with individual holdings from 0 hectare to 4 hectares *)* which together constitute about 56% of total fanners' households covered by the survey. Even the farmers in the higher size-group (with individual holdings of above 4 hectares) constituting 44% of total farmers' households are found to use improved paddy seeds in very small quantities. Only 7.82% of all the paddy seeds sown by these comparatively well-to-do farmers, happen to be HYV seeds of Padma and I. R.— 8 varieties. This poor response of farmers to the propagation of improved seeds is not due to lack of awareness but rather due to non-availability of HYV seeds from easily accessible sources and lack of facilities for technical guidance, irrigation etc. The factual accounts presented in Table—XVI amply demonstrate the truth of this statement.

5.25 The three important conclusions emerging from an analysis of data presented in Table—-XVI are :

(i) Roughly 75% of all the respondents are awarej of the high-yielding propensity of improved seeds| The lowest and highest size-groups have show still higher percentage of awareness.

(ii) Quite a dismal picture is reflected by the data collected on the respondents' contact with Government extension agents from Block Development Office, Department of Agriculture or the like. The relatively poorer farmers had virtual no contact while the richer farmers themselves had to take initiative to build such contacts if 5 out of 8 cases.

(iii) In general the respondents are broadly divide! into two extremes, so far as their reaction the G overnment seed farm is concerned. The majority of them (i. e. more than 62%) consider the seed farm to be helpful. It is interesting note that negative reaction being negligible, neutral reaction is found mostly among the farmers of lower size-groups. The implication of this finding is that by organising practical demonstrations on improved seeds the Government seed farm will be able to carry conviction to the poorer farmers about the services it can render in propagating improved seeds.

Chapter—VI
RECOMMENDATIONS

6.1 The recommended measures for overcoming practical difficulties and achieving quick but efficient working of this farm may be presented systematically into two broad categories viz. (a) General recommendations and (b) Specific recommendations. The general recommendations relate to the conditions for better organisation, production planning and economic status whereas the specific recommendations are meant for tackling particular problems that inhibit the progress of production and disposal of improved seeds.

(a) General Recommendations :

The general recommendations may be presented as follows :-

(i) Production Planning

6.2 Lack of proper production planning at the competent level is found to be one of the basic maladies that this production-oriented farm is suffering from In Chapter-Ill it has been explained how this has resulted in a tendency to depress the scale of production much below the levels envisaged by the Fourth Plan causing thereby considerable under-utilisation of production capacity, The sooner the farm can avoid this divergence between the targets of its arbitrarily fixed production programme and the targets set by the concerned Five Year Plan the better it will be for its economic functioning. For this purpose, it is advisable to take immediate measures (such as switch-over to improved cultivation involving the use of better inputs) to achieve the full utilisation of existing production capacity about 51 of which still remains unutilised. Simultaneously efforts should also be directed towards raising the farm's production potential by developing more land for permanent cultivation so

as to extend cultivation to major portion of 95 hectares which is currently the 'total area reclaimed bat not cultivated. It is suggested that this minimum target of land development should be reached roughly within a period of 5 years.

6.3 Further, the farm's annual production programme should explore all the possibilities of raising productivity of crops by choosing the right types of improved/HYV seeds and adopting practicable methods of scientific crop-rotation involving the selection of some crop-varieties with shorter gestation period, different rooting patterns and reasonably high degree of disease-resistance as well as response to fertilisers. This will naturally require a gradual diversification of production covering more crops stage by stage. For the present, this can be achieved by increasing the production of mustard, maize and sesamum along with further increase in the cultivation of those types of HYV paddy which will be required more as seed-inputs than as mere food crops for consumption.

6.4 Procurement of seeds for multiplication by the farm should also be covered within the purview of production planning. Tn Chapter-Ill it has already been pointed out that sporadic attempts by the individual farm to purchase improved seeds in small quantities from sources outside the State are likely to meet with failures rendering seed procurement a chance factor in the multiplication of improved seeds. Hence the need lor tackling this problem at appropriate level through adequate advance planning can hardly be ignored. With the growing requirements for experimentation with new varieties of HYV strains, the problem of timely seed procurement is becoming more serious than ever before. Moreover, the foundation seeds procured by the farm need to be replaced after every three years in order that the requisite purity and potency of the seeds may be maintained. In view of the crucial importance of seed procurement, production planning should incorporate adequate provisions for it and the Directorate of Agriculture should take the responsibilities for timely-supply of foundation seeds to the various seed farms in the State.

6.5 The difficult tasks involved in production planning as outlined above cannot be entrusted entirely to the farm authorities, since individually it will not be possible for the farm to bring about the necessary co-ordination by sorting out the administrative tangles. It is, therefore, suggested that a Seeds Advisory Committee may be set up for handling properly the farm's production plans and reviewing the progress of implementation at least bi-annually. This Committee may function under the chairmanship of the Director of Agriculture and its members may preferably include the Farm Superintendent (assuming that the proposed post will be filled as early as possible), Senior Soil Survey Officer,,, District Agricultural Officer, Sub-Divisional Agricultural Officer, Wokha, Block Development Officer, Baghti and Project Officer, HYV Project. The association of all these officers with the programme and performance of the seed farm will ensure the required co-ordination among them and will enable the farm to base its activities on practical ideas regarding the nature and trend of seed requirements at district /block levels, response of progressive farmers to improved seeds etc.

6.6 Co-ordination among the concerned officers is necessary also with regard to the disposal of farm produce. In paragraphs 3.21 and 3.22 it has already been explained how with increasing production the problem of gradually accumulating stocks will increase the pressure on insufficient storage facilities if timely action is not taken

to dispose of the farm output. Here it may be emphasised that the farm should explore the possibilities of participating in the State's programme for subsidized distribution of improved seeds among the intending j farmers and supplying improved seeds to other sister organisations in the State. For this purpose the Directorate of Agriculture may take advance action in collecting the indents for improved seeds from the various concerned agencies such as D.A.O.s'B.D.O.s, HYV Project and SMFDA Project and channelise them to the seed farms for prompt supply of the requisite seeds.

(ii) Financial Planning

6.7 The suggested advisory committee may also initiate and guide the dovetailing of a counterpart financial plan to the farm's production plan so that timely and adequate mobilisation of resources might prove effective in steering the course of production on economic basis. In concrete terms this will involve the sanctioning of necessary funds in time, rational allocation of resources among the fixed and recurring items of expenditure, measures for cost-reduction and increase of revenue etc. as the main cornerstones of financial programme. As has already been indicated in earlier sections, the temporary withholding of investment on further land reclamation will enable the farm to save, considerable funds which might be diverted towards meeting the growing requirements of working expenses for enhanced production. Besides, a reduction in the labour cost from 97% to about 75% of total input cost can be achieved by the introduction of improved tools and techniques of cultivation such as line sowing with seed drills and use of disc harrows, weeders, harvesters etc. and by more intensive use of machinery like the bulldozers and tractors for land development-Propsr supervision and guidance in rationalising the use of manpower can also bring down the labour cost.

6.8 That there is considerable scope for raising the farm's revenue from the sale of its produce is clearly indicated by the steadily rising trend of sale proceeds during the last three years. The introduction of multiple cropping through a suitable system of crop rotation (which is quite possible if the irrigation facilities are improved) will definitely lead to a marked rise in the aggregate production which will correspondingly increase the revenue. As a supplementary source of income the farm may also develop orchards on some of its cultivable land now lying as fallow. With additional efforts it can supplement its revenue by producing fruits like bananas, pineapples, and guavas.

(iii) Organisational improvement

6.9 The organisational lacuna has been explained in detail in the previous chapter where it has been observed that at present the farm is too ill-equipped to handle all the necessary technical and supervisory jobs deserving immediate attention- It is, therefore, felt that further delay in the appointment of Farm Superintendent will act as a virtual setback to the growth in the desired manner. Special efforts (e.g. offer of higher emoluments and perquisites) need to be made *to* fill this proposed post with an agricultural graduate having some knowledge in the field of seed multiplication. Similarly, steps may also be taken to appoint the proposed Deputy Director at the Directorate of Agriculture to look after and co-ordinate activities relating to the production and supply of improved seeds in the State. Another important measure

for raising the organisational efficiency of the farm is to offer more in-service training facilities including some arrangements for peripatetic training for the benefit of staff such as Farm Manager, Assistant Farm Manager and Fieldmen.

(b) Specific Recommendations

(i) Improvement Of Irrigation And Cropping Pattern

6.10 Being situated just beside the river Yangru this farm has a lot of potentialities for developing irrigation. By cutting channels, constructing water reservoirs and using centrifugal pumps it is quite possible to extend the facilities for irrigation to the cultivation of crops in both khariff and rabi seasons. It is, therefore, necessary to conduct a special study on the possibilities of developing river-lift irrigation and also evolving a suitable system of crop rotation with adequate stress on multiple cropping. This study may be sponsored and carried out by the Directorate of Agriculture in technical collaboration with the Indian Council of Agricultural Research, if necessary. The results of this study will immensely benefit Merapani Seed Farm and at the same time open up avenues for extensive irrigation in the neighbouring foot-hills area having scope for wet cultivation. With the improvement of irrigation it will be possible for Merapani farm to extend the area under double cropping. Such extension of double cropping area to at least 50% of the farm's gross cropped area is quite necessary for the attainment of economic viability.

(ii) Seed Treatment And Testing

6.11 The question of seed treatment and testing is of vital importance to any seed multiplication farm. For this purpose, seed dressing drums and necessary chemicals may be provided to Merapani Seed Farm and initial steps for practical demonstration may also be taken by the Directorate of Agriculture. As no seed testing facilities are presently available to the farm, it is suggested that some arrangement for testing may be made with the Regional Laboratory at Jorhat. In this connection, another important step that should be taken is the use of seed bins to prevent undesirable mixing up of different varieties of seeds which are stored together in the inadequate storage space. Once in the year 1972-73 some quantities of 1.R.-8 and Padma seeds actually got mixed up.

(iii) Seed Storage

6.12 The problem of proper storage facilities for the seeds produced by the farm as well as those procured from external sources has been explained in paragraphs 5.14.

5.15. Early steps need to be taken for the construction of another two storage sheds (each of 50ft. X 16ft size) adding 4 more rooms in all. The proposed storage sheds should be built with wooden walls and floors to ensure scientific storage. With the gradual increase in production more storage facilities may be necessary at subsequent stages and as such the entire position should be reviewed periodically in the context of growing requirements.

(iv) Improvement Of Roads.

6.13 The condition of the approach road from Merapani Forest Range Office to the Government Seed Farm (Measuring about 3 km.) becomes terribly bad for about 6 months in a year. In the rainy season no motor vehicle can venture a journey along

this extremely muddy and waterlogged road. It presents a vivid example of utter neglect to the farm's basic requirement for transport and communication. During the rains even the road from Merapani bus stop to the Forest Range Office turns out to be extremely difficult because of mud, water-logging and depressions, No attempt to maintain this road is made from, any quarter. The local people are of opinion that border conflict has made this area a victim of Government apathy. Whatever may be the cause, the result is a positive bottleneck to transport and communication which are so essential for the farm. The construction and repair of these roads along with building of culverts here and there are of immediate importance. It has been observed that the movement of : tractors is also obstructed by some ditches existing in the I farm area- Moreover, construction of log-bridge to facilitate movement of harvested paddy as well as construction of water reservoirs to facilitate irrigation, needs to be taken up on a priority basis.

(v) Introduction Of Metric Weights And Measures

6.14 It is really surprising to find a Government seed farm still weighing its produce in measures of 'tins'. This primitive system of weighing crops in too crude to give any accurate idea about production or crop-damage by birds and beasts; because a tinful of paddy seeds is found to weigh 12 kg. when the seeds are relatively dry whereas in the raw stage a tinful of them may weigh 13 kg. This is rather confusing, ft is, therefore, suggested that Merapani Seed Farm should immediately adopt the metric system of weights and measures and get rid of crude measurement.

(vi) Extension Of Power Facilities

6.15 The introduction of electric power will open up new vistas of technological development in the farm. The use of power tillers, winnowers, threshers and pumping sets can prove to be much less expensive if electricity is available to the farm. This suggestion for extending power facilities to this seed farm may be considered in the broad perspective of its long-term development.

(vii) Improvement Of Basic Amenities

6.16 Tt is well-known that increasing the efficiency of human capital is an important consideration for boosting up production. Therefore, the improvement in the basic amenities like roads, housing and drinking water facilities, medical facilities etc. for the benefit of the farm's staff requires special attention in a backward place like Merapani. As this area has a relatively high incidence of malaria, it is a deserving case fpr opening a small dispensary.

6.17 Any impartial observer will come to a conclusion that the performance of Merapani Seed Farm hardly leaves room for a gloomy prognosis. Usually a Government seed farm, in the craddle of its career, is prone to some initial slippages and recurring losses which call for timely remedial measures. Despite all the practical limitations and lack of adequate fostering care the Merapani farm has started showing some improvement since 1972-73. With a pragmatical conviction about the latent potentialities of a budding enterprise, some forward looking recommendations have been presented for careful consideration at appropriate levels. Anyway, a good deal of importance needs to be attached on timely action, since 'a stitch in time saves nine.

Chapter-VII
SUMMARY OF FINDINGS AND RECOMMENDATIONS

7.1 An attempt may now be made to present a bird's eye view of the major findings and recommendations. To avoid repetitions of the details already available in the earlier chapters, only references to the relevant paragraphs have been provided wherever deemed necessary.

Main Findings :

7.2 With a total approved area of 219.34 hectares the Merapani Seed Farm has been able to reclaim a total area of 141.64 hectares by 1973-74. Out of this 141.64 hectares the total developed area is 44.52 hectares which, again, includes 33.61 hectares as the total cultivated area. Moreover the area under roads, buildings etc. is 4.05 hectares and the area under waste land, forests etc. is 8.91 hectares. From these figures, it is evident that the total cultivated area of the farm at present forms about 24% of its total reclaimed, area. Assuming that 15% of the reclaimed area will have to be set apart for roads, buildings, forests etc., it is necessary to bring the remaining 63% of the reclaimed area under the plough in order to enable the farm to function economically (Paragraphs *3.5, 3.6 and 3.7).

7.3 In the context of the State's seed development programme aiming at self-sufficiency in improved seeds the Merapani Seed Farm, being the biggest _ of its kind in Nagaland, has got to play a crucial role. It should gear up its production to the level of 200 M/Tons of seeds per annum which has already been envisaged by the Fourth Plan. Arbitrary formulation of annual production programmes at the farm-level should be avoided (paragraphs 3.13, 3.14 and 3.15). f 60]

7.4 Paddy, on the average, accounts for about 92% of the farm's total annual production whereas mustard, sesamum and maize together account for anothers 8% (paragraph 3.17). Even assuming the towering importance of paddy it is felt that the production of other crops such as maize, mustard and pulses should be increased substantially.

7.5 As regards qualitative improvement in cultivation the progress is slow and lopsided. Except paddy no other crop has experienced any noticeable effort towards a progressive switch-over to RYV improved varieties (paragraphs 3.18). Even ir. respect of HYV paddy the encouraging progress of cultivation recorded since 1972-73 has been more or less confined to three varieties viz. I.R.-8, Jaya and Padma-Hence there is need for testing and experimentation with new varieties.

7.6 . At present the farm has neither any concern with the expected beneficiaries nor any responsibility for contributing towards the State's seed distribution programme. Such indifference can hardly augur well for the future of a farm which is faced with the problem of growing accumulation of unsold outputs (paragraph 3.21). With the appreciable increase in production since 1972-73, excessive reliance on the local market is .no longer sufficient for the disposal of farm produce. Hence ' the need for propagation of improved seeds which may be facilitated if practical demonstrations are organised by the farm (paragraph 5. 25).

7.7 The. overwhelming importance of fixed investment on land, buildings etc. (accounting for about 99 of total investment in 1973-74) needs to be scaled down considerably so as to make increasing provision for other investment

items required for the expected increase and diversification of production. Hence the need for withholding temporarily the colossal expenditure on land reclamation (paragraphs 4.6, 4.7 and 4.8). [61]

7.8 As shown in paragraphs 4.11, 4.12 and 4.13, this production-oriented farm has considerable scope for over-all cost-reduction by prunning down labour cost which now accounts for a disproportionately high share (about 97) in the total input cost leaving an insignificant share (only about 3%) to the material cost. However, a steadily rising tendency in the revenue and a progressive decline in the input-output ratio since 1971-72 lead one to the conclusion that with better organisation and management the attainment of economic viability can be expedited.

7.9 The existing organisational set-up of the farm is too ill-equipped to undertake properly the technical responsibilities of multiplying foundation seeds and experimenting with new HYV strains (paragraphs 5.2, 5.3 and 5.4). The gross deficiency regarding technical and supervisory personnel is found to inhibit the growth of this seed farm as well as the adoption of improved farming practices-

7.10 Crop damage by wild elephants and birds has been found to be a common experience and according to eye estimates the extent of such loss varies between 15% and 50% of the output of crops. It needs to be prevented by arranging more permanent watchposts as well as watchmen especially in the uninhabited eastern side of the farm (paragraph 5.12).

Recommendations :

7.11 The suggestions for improving the working of Merapani Seed Farm have been classified broadly into two groups viz. General Recommendations and Specific Recommendations.

A. General Recommendations :-

7.12 (i) There is an imperative need for initiating the efforts to attain economic viability. Under proper production planning at the competent level this farm should take immediate measures like adoption of improved farming techniques so as to achieve the full utilisation of existing production capacity which is now estimated 'at about 200 M/Tons. of seeds per annum (about 51% of this capacity is at- present lying unutilised). Simultaneously, in the next five- years the farm's production potential should also be raised, by extending cultivation to the bulk, of 95 hectares which is now found to be the total area reclaimed but not cultivated (paragraph 3.7), With a view to raising productivity it is advisable to choose the right types of HYV seeds under a suitable system of crop-rotation. For diversification of production it is neqessary to increase the production of crops other- than paddy such as mustard, maize and sesamum (paragraphs 6-15 and 6.16).

7.13 (ii) In the context of the growing requirements for' experimentation with new HYV strains and the routine requirement of replacing the stocks of foundation seeds every three years, procurement of seeds by the farm should no longer be left- to it alone (paragraphs 3.l0 3,11, 3.12 and 6.4).- Individually it is hardly possible for the Merapani Seed Farm to perform all the necessary tasks involved in production planning. It is, therefore, suggested] that a Seeds Advisory Committee may be set up for handling properly the farm's production plans and reviewing the progress of their implementation. This Committee may. function under the chairmanship of the Director of Agriculture and

its members may preferably include the Farm Superintendent (assuming the vacancy to be filled shortly), District Agricultural Officer, Mokokchung, Sub-Divisional Agricultural Officer, Wokha, Block Development Officer, Baghti, Senior Soil Survey Officer and Project Officer, HYV Programme. Thus, co-ordination among ' these officials will ensure realistic formulation of production plans on the basis of practical requirements of seed-inputs and also enable the Directorate of Agriculture to take advance action in pooling together the indents for improved seeds and channelising them to the Government Seed Farms (paragraph 6.6).

7.14 (iii) The suggested Seeds Advisory Committee may also initiate and guide the dovetailing of a suitable financial plan to the farm's production plan. The main aspects of the financial programme should include timely sanction of funds, rational allocation of resources and adoption of methods for cost reduction as well as increase of revenue. Overall cost-reduction can be achieved . by cutting down the exceedingly high labour cost to a much lower level (paragraph 6-7). Simultaneously the farm should try to raise its revenue from the sale of produce and also supplement its source of income by developing orchards for growing fruits like pineapple, mangoes and guavas on some of its cultivable land now lying as fallow (paragraph 6.8.)

7.15 (iv) With a view to removing the organisational lacuna regarding technical and supervisory functions, the vacant post Farm Superintendent should be filled preferably with an agricultural graduate having some knowledge of seed multiplication. Besides, the appointment of the proposed Deputy Director at the Directorate of Agriculture to look after and co-ordinate activities in the field of production and supply of improved seeds, is also considered necessary (paragraph 6.9).

B. Specific Recommendations :

7.16 (i) Being situated just beside the river Yangru, this farm is in a position to develop irrigation facilities for cultivation of crops in both the Kharif and Rabi seasons. It is, therefore, suggested that a special study might be conducted on the possibilities for developing river-lift irrigation and evolving suitable system of crop rotation with adequate stress on multiple cropping. Such a study may be conducted by the Directorate of Agriculture and it is expected that it will benefit not only the Seed Farm but also the neighbouring foot-hills area which has good scope for wet cultivation (poragragh 6.10).

7.17 (ii) In order that the farm may carry out the much needed operation of seed treatment the required seed dressing drums and chemicals should be provided along with the facilities for practical demonstration to be arranged by the Directorate of Agriculture. In order to meet the requirement of seed testing the Regional Loboratory at Jorhat may be contacted. Besides, the use of seed bins is also advisable in order to prevent any undesirable mixing up of different varieties of seeds (paragraph 6-11).

7.18 (iii) As the Merapani Seed Farm does not have adequate storage facilities for the seeds grown in the farm as well as improved seeds obtained from outside, it is suggested that two more storage sheds (each of 50ft. X 16ft. size)

adding 4 rooms should be constructed prefarably with wooden walls and floor (paragraphs 5.14, 5.15 and 6.12).

7.19 (iv) Having regard to the miserable condition of the road from Merapani bus stop to Forest Range Office at Merapani as well as the road from Forest Range Office to the Government Seed Farm which becomes inaccessible to motor vehicles in the rainy season, it is suggested that immediate steps should be taken to improve these important roads for providing all-weather transport and communication facilities to the farm (paragraph 6.13).

7.20 (v) This Government Seed Farm should take early steps to switch-over to the metric system of weights and measures, since its present system of weighing crops in measures of' tins' is too crude to give any quantitative idea with reasonable accuracy (paragraph 6.14).

7.21 (vi) From the stand-point of increasing the efficiency of human capital another important matter that calls for; careful consideration is the need for improvement of basic amenities like housing and drinking water facilities, medical facilities etc. for the benefit of the farm's staff (paragraph 6.16).

7.22 (vii) In the broad perspective of its long-term development, this farm should get the benefit of electrification which will facilitate the use of power tillers, winnowers, threshers, pumping sets etc. at much lower costs than ever before (paragraph 6.15).

Chapter-VIII
EXTRACTS FROM THE COMMENTS GIVEN BY DIRECTORATE OF AGRICULTURE, GOVERNMENT OF NAGALAND

Comments On Main Findings Of The Report : ,

The Agriculture Department has decided to develop; the areas already reclaimed by the Merapani Seed Farm that by the end of the Fifth Plan 140 hectares can be utilised for farm production.

(cf. paragraph 6.2 of the Report).

In order to enable the Merapani Seed Farm to carry out advance planning and inter-linking of seed production; programme with the demand of the farmers the Department has proposed to fill up the vacant post of Farm Superintendent (Class-II, Gazetted) and also create a seed production and distribution cell at the State level under the charge of a Deputy Director of Agriculture (Farms). All these will require whole-time jobs such as constant supervision, technical guidance etc. as well as streamlining of seed distribution programme which will be done by the self-contained cell proposed to be created within the Department.* (cf. paragraphs 6.5, 6.6 and 6.9).

The quantum of capital expenditure will be automatically scaled down once the minimum infrastructure for production is built up.

(cf. paragraph 7.7).

** Setting up a Seeds Advisory Committee or creating a Seed Production and Distribution Cell within the Department are but t alternative ways of doing the same job viz. improving the arrangements for production and distribution of seeds, regarding which there is hardly any controversy. Once the objective is decided, the choice between the alternative ways of achieving it rests on the particular situation and operational convenience.*

There is scope for developing the farm as an economically viable enterprise provided the basic infrastructure is improved.

(cf. paragraph 7,8).

Actions are being taken for [he prevention of crop damage by elephants and birds.

Comments On Recommendations :

The Agriculture Department is trying to build up the necessary infra-structure for Merapani Seed Farm and has decided to consolidate production for utilising the production potential already created.

(cf. paragraph 7. *2)*.

With the increase in operational efficiency of Merapani Seed Farm lift irrigation will be required for raising rabi crop so as to increase cropping intensity. The Department has already taken this aspect into consideration and once the consolidation of farm holding is done a thorough contour survey will be conducted and benefit-cost ratio will be worked out.

(cf. paragraph 7.16).

The recommendation for seed treatment and seed testing facilities is agreed to.

(cf. paragraph 7.17).

The Department is trying to build up the urgently needed seed godowns with cement floor, brick walls and wooden dunnage for the floor.

(cf. paragraph 7.18).

The recommendation for a switch-over to metric system of weights and measures is agreed to.

(cf. paragraph 7. 20).

The improvement of basic amenities for the benefit of farm's staff is urgently needed for improving the management of Merapani Seed Farm.

(cf. paragraph 7. 23).

APPENDIX STATISTICAL TABLES—NO. 1 TO NO. 16

TABLE-1
Basic Particulars Regarding Existing Seed Farms in Nagaland.

SI. No.	District/Name of Farm	Total area of the Farm (In hectares)	Area under cultivation (En hectares)	Year of Establishment	Varieties of Crops covered.
1	2	3	4	5	6
KOHIMA DISTRICT					
1	Paddy fed Farm, Jharnapani	25.00	15.18	1963—64	Paddy main crops. Maize, Wheat & Pulses are under trial.
2	Seed Farm, Pfutsero	11.59	3.32	1961-62	Potato & other vegetables & Banana.
MOKOKCHUNG DISTRICT:					
3	Seed-Cum-Demonstration Farm, Yesemyong	50.28	14.89	1964-65	Paddy, Potato & Vegetables
4	Seed Farm, Aghunato	12.14	4.04	1966-67	Potato
5	Medium-Size Seed Farm, Merapani	219.34	33.61	1968-69	Paddy main crop, Maize, Pulses etc.
TUENSANG DISTRICT:					
6	Seed Fam, Tijit	27.81	[4.16	1963-64	Paddy.
7	Potato Seed Farm, Kuthur	8.17	7.28;	1965-66	Potato & Vegetables.
8	Paddy Seed Farm, Kiphire	2.43	2.02	1966-67	Paddy.
9	Potato Seed Farm, Pungro	8.09	3,64	*1966-61*	Potato,

.

[Source: Directorate of Agriculture, Nagaland]

TABLE II

Item-wise Break-up of Fifth Plan Outlays for the Scheme on Development of See Farm

(In Rs. lakhs)

Items of Expenditure 1	1974-75	1975-76	1976-77	1977-78	1978-79	Total (Fifth Plan)
	2	3	4	5	6	7
Tractors 3 Nos.	0.45	0.45	0.45	-	-	1.35
Tillers 3 Nos.	0.24	0.12	---	-	-	0.36
Tractor trailers 2 Nos.	-	0.15			-	0.15
Implements for trac-						
tors/tillers.	0.20	0.30	0.40	0.05	0.05	1.00
Small tools/implements 0.03		0.02	0.01	—	---	0.06
Animal power 5 pair	0.02	0,02	0.02	0.02	0.02	0.10
Feeds for animal	0.02	0.03	0.04	0.05	0.05	0.19
P. P. Equipments	0.05	0.05	---	---	----	0.10
P. P. Chemicals	0.05	0.05	0.05	0.05	0.05	0.25
Jungle clearance 500						
acres.	0.20	0.20	0.20	0.20	0.20	1.00
Land Dev. & Widening						
of Terraces 700 acres.	0.40	0.40	0.40	0.40	0.40	2.00
One truck and two Jeep	---	0.30	0.30	0.70		1.30
Irrigation inch P/Sets,						
Wells and laying of low						
pressure pipes.	0.50	1.00	0.50	----	---	2.00
Fencing 2500 metres	0.36	0.13		---	---	0.49
Farm roads	0.20	0.20	0.15	0.15	0.15	0.85
POL/Repair & Replace-						
ment of machinery etc.	0.10	0.30	0.40	0.40	0.40	1.60
Chemical fertilisers	0.15	0.20	0.25	0.30	0.35	1.25
Seeds/Seedlings	0.03	0.03	0.03	0.03	0.03	0.15
Cultivation charges,	0.50	0.70	0.90	1.20	1.30	4.60
Other contingencies	0.10	0.10	0.10	0.10	0.10	0.50
Pay of Staff (New.)	0.10	0.60	0.75	0.85	1.00	3.30
Deptl. constn.	0.20	0.40	0.40	—	—	1.00
PWD Works	1.00	2.00	2.50	2.00	1.00	8.50
Expansion of Yisemyong,						
Merapani and Tijlt.						
Seed Farm.	0.50	0.80	1.00	0.30	0.30	2.90
Total :-	5.40	8.55	8.85	6.80	5.40	35.00

[Source :- Draft Fifth Five Year Plan-1974-1979 vol. II, Govt. of Nagaland]

TABLE—III

Required For the Development of Seed Far us under Fifth Plan

Sl. No.	Type of Staff proposed	Number of required staff					
		1974-75	1975-76	1976-77	1977-78	1978-79	Total (Fifth Plan)
1	2	3	4	5	6	7	8
1	Deputy Director of Agriculture (Farms)	1	-	-	-	-	1
2	Plant Breeder	-	-	1	-	-	1
3	Farm Manager	1	1	1	-	-	3
4	Assistant Farm Manager	1	1	1	-	-	3
5	Tractor Driver	1	1	1	-	-	3
6	Fieldraan	2	3	2	1	-	8
7	Helper	-	2	-	-	-	2
8	Fourth grade	3	-	-	-	-	3
9	Driver	-	1	1	1	-	3
10	Handyman for truck	-	-	1	-	-	1

[Source: Draft Fifth Five Year Plan- 1974-79, Government of Nagaland]

TABLE- IV

Annual Procurement of Seeds by Merapani Seed Farm

Year	Crop/Variety	Whether H.Y.V/Improved or Local	Qty. procured (Quintals)	Source from where procured
(1)	(2)	(3)	(4)	(5)
1968-69	Paddy (Ahu)	Local	2.60	Local Market
	Maize	Local	1.44	Do
1969-70	Paddy (Kukimalin)	Do	5.00	Do
	Potato	Do	5.00	Do
	Mustard Seed	Do	0.40	Do
1970-71	Paddy (Kukimalin)	Do	1.12	Do
	Paddy (Poddomony)	H.Y.V	3.00	Do
	Paddy (I.R.-8)	H.Y.V	0.93	Dept of Agriculture
1971-72	Paddy (I.R.-8)	H.Y.V	1.50	Jharpani Govt. Seed Farm
	Paddy (Padma)	H.Y.V	1.50	Do
	Paddy (Jaya)	Local	2.04	Private dealers outside the state
	Paddy (Kolchang)	Local	0.75	Local market
	Paddy (Phoungang & Chang bem)	Local	3.00	Do
1972-73	Maize	Local	0.60	Do
	Potato	Improved	3.20	Do
1973-74	Maize (Portina Composite)	Improved	2.00	Pvt. Dealers outside State

[Source: Field Investigation]

TABLE—V

Output of Crops Harvested By the Merapani Seed Farm During the Fourth Plan period.

Names of Crops	Year-wise production of Crops (Figures in quintals)				
	1969-70	1970-71	1971-72	1972-73	1973-74
(1)	(2)	(3)	(4)	(5)	(6)
1. Paddy	100.75	105.30	99.45	470.47	936.91
2. Mustard	13.18	2.08	3.65	10.16	27.37
3. Sesamum	4.20	—	1.29	7.60	1.20
4. Maize	—		—	14.89	16.68
5. Potato	10.00	—	—	0.99	—
TOTAL :-	128.13	107.38	104.39	504.11	982.16

[Source: Records of Merapani Seed Farm]

TABLE-V1

Production of Local And HYV Paddy By Merapani Seed Farm.

Year	Quantity of local varieties of paddy produced (Kg.)					Quantity of HYV paddy Produced (Kg.)						% share of output of HYV to total paddy output.
	Ahu Paddy	Podo-mony	Chang-ben	Phou-ngang	Total	I.R.-8	I.R.-8& Padma	Padma	Jaya	Total	% share of output of local Varieties to total paddy output.	
(1)	(2)	(3)	(4)	(5)	**(6)**	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1969-70	10075	—	—	—	10075	—	—	—	—	—	100%	Nil
1970-71	3380	6110	—	—	9490	1040	—	—	—	1040	90.12%	9.88%
1971-72	650	9295	—	—	9945	—	—	—	—	—	100%	Nil
1972-73	—	—	3042	—	3042	9828	1742	8762	23673	44005	6.47%	93.53%
1973-74	—	—	—	1196	1196	31200	—	28379	32916	92495	1.27%	98.73%

[Source : Field Investigation]

TABLE—VII

Yield Rates of Major Crops Raised By Merapani Seed Farm. (1971-72 — 1973-74)

SI. No.	Main Crops/Varietes	Whether HYVor Local	1971-72			1972-73			1973-74		
			Area under the crop (In hecta-res)	Total yield of the crop (In quin-tals)	Yield per hectare. (In quin-tals)	Area Under the crop. (In hec-tares)	Total yield of The crop. (In quin-tals)	Yield per hectare. (In quin-tals)	Area Under the crop. (In hec-tares)	Total yieid Of the crop. (In quin-tals)	Yield per hectare (In quin-tals)
	2	3	4	5	6	7	8	9	10	11	12
1.	I.R.-8 (Paddy)	HYV	.—	__	__	3.04	98.28	32.33	8.49	312.00	36.75
2.	Padma Paddy	HYV	—	—	—	3.04	87.62	28.82	8.09	283.79	35.08
3.	Jaya Paddy	HYV	—	.—.	—	10.52	236.73	22.50	8.90	329.16	36.98
4.	Ahu Paddy (Kukimalin)	Local	2.02	6.50	3.22	__	__	__	—-	.—	.—
5.	Podomony Paddy	Local	8.90	92.95	10.44	---	---	—	—	—	—
6.	Changbem Paddy	Local	—	—	—	2.43	30.42	12.52	—	—	—
7.	Phoungang Paddy	Local	—	—	—	—	—	.—	0.81	11.96	14.77
8.	Mustard	Local	3.24	3.55	1.10	6.07	10.16	1.67	8.09	27.37	3.38
9.	Maize	Local	—	—	—	4.05	14.89	- 3.68	4.05	13.05	3.22

[Source: Field Investigation]

Notes:— In 1971-72 the output of all crops recorded considerable decline due to drought whereas in 1972-73 output of Mustard was low due to excessive heat and inadequate rainfall

TABLE—VIII

Disposal of Farm produce by Merapani Seed Farm

(Figures in Quintal)

:op/ ariety	1969-70			1970-71			1971-72			1972-73			1973-74		
	Seeds in Store	Seeds dispo-sed of	Seeds retai-ned	Seeds in Store	Seeds dispo-sed of	Seeds retai-ned	Seeds in Store	Seeds dispo-sed of	Seeds retai-ned	Seeds in Store	Seeds dispose d of	Seeds retai-ned	Seeds in Store	Seeds dispo-sed of	Seeds retai-ned
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
ıddy (HYV)			—	10.40	10.40				—	442.09	343.81	98.28	1015.30	546.40	458.90
			—	(9.46)	(9.70)				—	(73.21)	(68.40)	(97.10)	(94.58)	(91.67)	(98.36)
ıddy (Local)	91.26	91.26	—	97.50	94.90	2.60	99.45	99.45	—	123.24	122.59	0.65	11.96	5.34	6.33
	(76.84)	(76.84)	—	(88.69)	(88.48) (	97.01)	(95.36)	(95.36)	—	(20.41)	(24.39)	(0.64)	(1.11)	(0.88)	(1.42)
ustard	4.50	4.50	—	2.03	1.95	0.08	3.55	3.55	—	13.71	13.31	0.40	27.37	26.57	0.80
	(3.79)	(3.79)	—	(1.85)	(1.82)	(2.99)	(3.40)	(3.40)	—	(2.27)	(2.65)	(0.40)	(2.55)	(4.38)	(0.17)
esamum	13.00	13.00	—	—	—	— •	1.29	1.29	—	7.70	7.20	0.50	1.20	1.00	0.20
	(10.95)	(10.95)	—	—			(1.24)	(1.24)	—	(1.28)	(1.43)	(0.49)	(0.11)	(0.16)	(0.04)
otato	10.00	10.00	—	—	—	—	—	—	—	0.99	—	0.99	0.99	0.99	
	(8.42)	(8.42)	—	—					—	(0.16)		(0.98)	(0.09)	(0.16)	—
aize			—	—	—	—	—	—	—	16.11	15.71	0.40	16 68	16.68	
			—	—					—	(2.67)	(3.13)	(0.40)	(1.55)	(2.75)	—
otal :-	118.76	118.76	—	109.93	107.25	2.68	104.29	104.29	—	603.84	502.62	01.22	1073.50	606.98	466.53
	(100)	(100)	—	(100)	(100)	(100)	(100)	(100)	—	(100)	(100)	(100)	(100)	(100)	(100)

Notes: - Figures in brackets indicate percentage shares in the total.

[Source: Field Investigation]

TABLE-IX
Item-wise Break-up of Total Investment By Merapani Seed Farm
(From 1968-69 to 1973-74)

	Capital outlay (Figures in Rs.)					
Items of Investment	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Fixed Investment :						
Land Reclamation Land Development Land Compensation Construction of Buildings, sheds and threshing floor. Construction of Roads and dam, irrigation channel etc.	20,000 79,550 - 9,170 18,000	19,999 19,999 - 16,778 27,174	- - - 39,235 24,000	19,989 12,987 - 12,913 13,997	19,999 16,038 29,450 36,875 8,003	- 30,001 - 41,923 3,501
Total Fixed Investment :	1,26,720	83,950	63,235	59,886	1,10,365	75,425
Other Investment :						
Machinery, tools and equipment. Animal power Furniture and others **Total Other Investment** :	500 - - 500	10,907 3,000 970 14,877	49,786 2,000 1,000 52,786	51,279 - 2,580 53,859	2,502 3,740 2,085 8,327	632 - - 632
Total :-	1,27,220	98,827	1,16,021	1,13,745	1,18,692	76,057

[Source: Field Investigation]

TABLE—X

Details Regarding Total Cost of Production in Merapani Seed Farm

Components of Cost	1969-70	1970-71	1971-72	1972-73	1973-74
.)	(2)	(3)	(4)	(5)	(6)
ost of Inputs:					
) Labour cost on cultivation charges —		7,893	8,606	10,895	25,902
/ages of malis	—	—	27,328	32,973	31,663
) Material cost for Seeds & Seedling —	3,000	497	1,000	1,024	764
. P. Chemicals—	—	—	1,858	1,816	943
otal Cost of Inputs:	3,000	8,390	38,792	46,708	59,272
verhead Costs:					
) Establishment cost (Pay of staff)	—	—	14,716	23,432	16,548
) Others (Stationery, contingencies,					
ooks Liveries, gunshots etc.)	1,030	2,525	1,115	7,340	2,439 .
otal Overhead Cost :	1,030	2,525	15,831	30,772	18,987
otal Cost of Production :	4,030	10,915	54,623	77,480	78,259

[Source Field Investigation]

TABLE—XI

Percentage Distribution of Cost Components in the Total Cost of Production.

		Percentage Shares in the Total		Cost of Production	
Components of cost	1969-70	1970-71	1971-72	1972-73	1973-74
(1)	(2)	(3)	(4)	(5)	(6)
Labour Cost	-	72.31	65.79	56.62	73.56
Material Cost	74.44	4.55	5.23	3.67	2.18
Total Cost of Inputs:	74.44	76.86	71.02	60.29	75.74
Establishmet Cost	-	—	26.94	30.24	21.15
Other Overhead Cost	25.56	23.14	2.04	9.47	3.11
Total Overhead Cost :	25.56	23.14	28.98	39.71	24.26
Total Cost of Production :	100.00	100.00	100.00	100.00	100.00

[Source: Field Investigation]

TABLE-XII
Break-up of Cost Per Unit of Cropped Area

Year	Total Cropped Area, (In hectares)	Cost of Inputs per Unit of cropped area (In Rs.)			Overhead cost per unit of (In Rs.) cropped area			Total cost per unit of cropped area. (In Rs.)
		Labour cost per unit of croppe d area.	Materia l cost per unit of cropped area.	T o t ail input cost per unit of croppe d area.	Establis hment cost per unit o f croppe d area.	Other over-head cost per unit of cropped area.	T o t a 1 over-head cost per unit of cropped area.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1969-70	24.28	Nil	124	124	Nil	42	42	166
1970-71	10.93	722	46	768	Nil	231	231	999
1971-72	19.02	1,889	15	1,904	774	59	833	2,737
1972-73	30.35	1,445	94	1,539	772	242	1,014	2,553
1973-74	33.61	1,713	51	1,764	522	73	595	2,359
		[Source : Field Investigation]						

TABLE—XIII
Annual Revenue From Sale of Crops By Merapani Seed Farm.

Year	Cropped Area (In hectares)	Revenue from sale of output. (In Rs.)	Revenue per unit of cropped area. (In Rs.)
(1)	(2)	(3)	(4)
1969-70	24.28	7,617	314
1970-71	10.93	5,971	546
1971-72	19.02	6,118	322
1972-73	30.35	24,058	793
1973-74	33.61	37,904	1,128

[Source: Field Investigation]

TABLE—XIV

Staff Position of Merapani Seed Farm

(As in 1973-44)

Designation/Category.	Scale of Pay	No. of posts sanctioned	No. of posts filled.	Educational/Technical qualification of the incumbent.
1)	(2)	(3)	(4)	(5)
Farm Superintendent (Class II)	385-1020	1	Vacant	
Farm Manager (Class - III)	275-775	1	1	Passed class VI. Vocational Agri.
				Training, Gauhati.
Asstt. Farm Manager (Class - III)	N.A.	1	1	NA.
Fieldman (Class - III)	140-220	3	2	Read up to Class X, G.S. Training
				Pasighat, NEFA.
Tractor Driver (Class - III)	140-220	2	2	Read upto Class IX, Tractor Training
H.A.-Cum-Accountant (Class - III)	305-415	1		in M.P. State.
			1	N.A.
L.D.A.-Cum-Typist (Class - III)	140-220	1	1	Matriculate.
Mali (Class-IV)	90-145	10	8	—
Chowkidar (Class - IV)	90-145	2	2	—
Ploughman (Class - IV)	90-145	2	2	—
Peon (Class - IV)	90-145	1	1	—
Tractor Handyman (Class - IV)	90-145	1	1	—

[Source : Farm Records]

TABLE-XV

Utilisation of Paddy Seeds By the Sample Fanners in Merapani Village.
(Reference Year—1973-74)

ize-Groups of armers.		Production of paddy		Estimated quantity of paddy seeds used (Quintals)	Names of Improved/HYV seeds used.	Quantity of	
	No. of farmers surveyed.	Quantity (Quintals)	Estimated price (Rs.)			Improved/HYV seeds used (Quintals)	Percentage of Colmn. (7) tc Colmn. (5)
.)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
to 2 Hectares.	5	30.50	3324.50	3.64	Nil	Nil	Nil
ibove 2 to 4 lectares.	4	84.50	9210.50	6.77	Nil	Nil	Nil
ibove 4 Hecta- es and more.	7	2608.40	284315.60	55.48	Padma IR-8	1.83	7.82

[Source: Field Investigation]

TABLE –XVI

Respondents' Reaction Towards Improved Seeds/Government Seed Farm

(Based on 25% Sampling of farmers' households in Merapani Village)

Size-Group of Framers (by size Of holding)	Numbers of farmers surveyed	Respondent's awareness to improved seeds		Respondent's contact with extension agents (e.g. V.L.W., A.E.O. etc.)		Respondent's reaction towards Govt. Seeds Farm. @		
		Number having awareness	Number having no awareness	Number that contacted extension agents.	Number contacted by extension agents.	Number showing positive reaction	Number showing negative reaction,	Number show-ing neutral reaction.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
0 to 2 Heactares	5	4	1	1	-	2	-	3
Above 2 Hect. To 4 Hect.	4	2	2	-	-	2	1	1
Above 4 Hect. And more	7	6	1	5	3	6	-	1

Clarifying notes: @ Positive reaction = Respondents consider the Govt. seed farm to be beneficial.

Negative reaction = Respondents consider it to be of no benefit.

Neutral reaction = Respondents showing indifference to Govt. seed farm.

[Source: Field Investigation]