# AN EVALUATION OF THE WORKING OF SEED FARMS IN KERALA

A. I. U. REPORT No. 2

July 1964

BUREAU OF ECONOMICS AND STATISTICS

PRINTED BY THE S.G.P. AT THE GOVERNMENT PRESS
TRIVANDRUM, 1965.

# PREFACE

One of the important methods by whic yield of paddy per acre in the State is increased is the introduction of improved s It has been estimated that improved seed v the average yield of rice per acre by about 1/20 ton. This would mean that if the entire area under rice in the State (about 20 lakhs acres) is covered by improved strains of seed, there would be an increase of about 1 lakh tons in the total production of rice in the State.

The target fixed for the Third Plan is to bring about 12 lakh acres under improved strains of paddy. No objective study has been conducted in the State to assess the area actually brought under improved seeds so far; but the Agricultural Department believes that the target fixed for the Third Plan would be achieved.

The scheme works in two stages, viz. (i) production of the requisite quantity of foundation seeds in the seed farms and (ii) multiplication of the seed by registered growers, its procurement and distribution to cultivators.

The present study is an envaluation of the first stage of work. All the existing 31 seed farms are not covered in this study. Instead, the seed farms are classified into three groups, namely,

(i) the better type of farms
(ii) the average farms; and
(iii) the below average farms

and one farm from each group was selected in consultation with the Director of Agriculture and studied.

Only two major aspects have been studied, viz., the production of foundation seeds in relation to the targets fixed and the general economy of the working of the farms.

It is hoped that the results obtained will be useful in improving the efficiency of the working of the seed farms in general.

N. GOPALAKRISHNAN NAIR,
*Additional Director,*
*Bureau of Economic and Statistics.*

Trivandrum,
3-7-1964.

~~3600~~

# AN EVALUATION OF THE WORKING OF SEED FARMS IN KERALA

## CONTENTS



———

# AN EVALUATION OF THE WORKING OF SEED FARMS IN KERALA

## I. GENERAL

### 1.1 Introduction.

Improved seed is an important requisite for stepping up Agricultural production. The programme for raising the quality of paddy seeds has been in operation in Kerala during the three Five Year Plans. According to the programme, improved strains of paddy called nucleus seeds are produced at the various Research stations in the State. These seeds are released to the Departmental Seed Farms for multiplication. Seeds produced at this level are called 'Foundation Seeds'. The foundation seeds are distributed among registered growers for further multiplication. The seeds produced by registered growers which are known as 'Registered seeds' are procured and distributed among cultivators. By the end of the Second Five Year Plan period there were 21 seed farms in the State covering an area of 311.88 acres. At present there are 31 seed farms with a total seed farm area of 697.51 acres.

### Target for Coverage

The paddy crop area sought to be brought under improved seeds by end of the Third Five Year Plan during the three crop seasons is as follows.

| | | |
|---|---|---|
| 1 | Virippu | 5.27 Lakh acres. |
| 2 | Mundakan | 6.15 „ |
| 3 | Puncha | 0.86 „ |
| | Total | 12.28 „ |

It has been estimated that for achieving the above target it is necessary to have a seed farm area of 800 acres. These 800 acres of seed farm area would be able to produce foundation seeds sufficient for 5.27 lakh acres of Virippu area with a three-year replacement of seeds if each acre of farm area produces 1600 lbs. of foundation seeds for the Virippu crop. Three year replacement of seeds is necessary because improved seeds would retain their qualities only for three generations. The target of

production of foundation seed fixed for one acre of Mundakan crop is 2400 lb.

From the reports of the Agriculture Department it is seen that 5 lakhs of acres under paddy were brought under improved seeds by the end of the Second Plan. During the Third Plan an additional acreage of about 7 lakhs under paddy is sought to be covered. The yardstick adopted for additional production due to improved seeds is 1/20 ton of rice per acre. On this basis an additional production of 35000 tons of rice is to be achieved by the end of the Third Plan period over the production level at the end of the 2nd Plan due to improved seeds alone.

## 2. Progress of the Scheme for the Establishment of Seed Farms.

During the Second Five Year Plan, provision was made for the establishment of 24 seed farms in the State. But only 21 seed farms could be started during the period, of which only 18 could start production. The Third Plan aims at the establishment of 15 seed farms of which upto the end of March 1964, 10 seed farms have been established. Thus 31 seed farms have been established in the State with a total area of 697·51 acres. The seed farm area targeted to be achieved by the end of the Third Five Year Plan is 800 acres. Thus the total achievement reached so far is 87 percent of the target. The district-wise break-up of the number of seed farms and their area are given below:

TABLE 1

**District-wise break-up of seed farms and their area**

| *District* | *Number of seed farms* | *Total area* |
|---|---|---|
| Trivandrum | 2 | 31.52 |
| Quilon | 3 | 43.34 |
| Alleppey | 3 | 94.18 |
| Kottayam | 3 | 113.04 |
| Ernakulam | 2 | 37.27 |
| Trichur | 5 | 116.68 |
| Palghat | 5 | 77.37 |
| Kozhikode | 5 | 126.05 |
| Cannanore | 3 | 58.06 |
| State | 31 | 697.51 |

The financial outlay on seed multiplication and distribution schemes during the Second and Third Five Year Plans and the expenditure during the Second Plan and the first three years of the Third Plan are given in Table-2.

TABLE 2

**Outlay and expenditure on seed multiplication schemes during Second and Third Plans**

| Scheme | 2nd Five Year Plan | | | 3rd Five Year Plan | | |
|---|---|---|---|---|---|---|
| | Outlay in lakhs | Expenditure in lakhs | Percentage of expenditure to outlay | Outlay in lakhs | Approximate expenditure for 3 years | Percentage of expenditure to tlay |
| | Rs. | Rs. | | Rs. | Rs. | |
| 1. Establishment of seed farms | 14.00 | 18.98 | 135.57 | 32.00 | 39.28 | 122.75 |
| 2. Distribution of improved seeds | 8.25 | 5.27 | 63.88 | 18.00 | 5.91 | 32.83 |
| Total | 22.25 | 24.25 | 108.99 | 50.00 | 45.19 | 80.04 |

It may be seen from the table that during the Second Plan the expenditure for the establishment of seed farms has exceeded the outlay by 36%. During the Third Plan period also the expenditure on this item has already exceeded the target. But the expenditure on the scheme of distribution of improved seeds is far below the provision. Only 64% of the provision under the scheme was spent during the Second Plan Period and only about 33% of the provision has been spent during the first three years of the Third Plan period.

## 3. Objects of the Present Study

A pilot study to assess the working of the seed farms in the State has been conducted by the Bureau of Economics and Statistics to study the following:

(1) Yield rates of improved strains of paddy in the seed farm.

(2) The extent to which the targets have been achieved in the production and distribution of improved seeds.

(3) The financial side of the working the seed farms.

## 4. Method of Study

**4.1 Selection of Farms**: As already stated there are 31 seed farms in the State with a total seed farm area of 697.51 acres. From among these, three seed farms are purposively selected in consultation with the Agriculture Department so that one represents the better type of working farms, another the average type and the third the below average type. The following farms were selected.

| | | (Area 0.00 acres) |
|---|---|---|
| 1. | Kodassery (Trichur District) relatively better | 21.71 |
| 2. | Chengamanad (Ernakulam District) average | 23.71 |
| 3. | Karunagappally (Quilon District) below average | 11.38 |

The data were collected in the schedule prepared for the study. The schedules were forwarded to the seed farms for being filled-up by them. An Officer of this Department was then deputed to discuss the doubtful points and clarify them. The data in the schedules were then finalised.

**4.2 Reference period for the survey**: The Kodassery and the Chengamanad seed farms started production during the Third Plan period only. None of the farms selected, cultivates paddy during the Puncha season. In view of these facts the present study had to be confined to the first two years of the Third Five Year Plan in respect of seed production for Autumn (Virippu) and Winter (Mundakan) crops.

**4.3 Varieties of improved seeds cultivated in the selected farms**: 15 improved varieties of paddy have been cultivated in the three farms (8 for Virippu and 8 for Mundakan season) out of which one is common for both the seasons. The different varieties cultivated in these farms are given in Table 3 below:

TABLE 3

**Varieties cultivated at the selected seed farms**

| | *Seed Farms* | *Virippu Season* | *Mundakan Seoson* |
|---|---|---|---|
| 1. | **Kodasserry** | PTB–10 | PTB–20 |
| | | PTB–32 | PTB–4 |
| | | PTB–9 | PTB–33 |
| | | PTB–22 | Cochin–1 |
| 2. | Chengamanad | PTB–10, PTB–22 | PTB–27, PTB–20 |
| | | PTB–9, PTB–7 | PTB–12, PTB–10 |
| 3. | Karunagappally | PTB–23, PTB–28 | UR–19 |
| | | PTB–31. | |

## 5. Findings : Kodassery Farm

**5.1** The Kodasseri farm is accepted as one of the better seed farms by the Agriculture Department. The farm was started in 1960-61. It is located in the Mukundapuram Taluk of Trichur District and has a total farm area of 21.71 acres.

**5·2 Yield rates in 1961-62.** The farm started production of seeds from 1961-62. Four varieties of seed were tried during the Virippu crop and another four varieties during the Mundakan crop in the year. The details of these seeds, and the yield obtained from them are given in the sub-joined tables:-

TABLE 4 (a) 1961-'62 (VIRIPPU)

| *Sl. No.* | *Seed variety* | *Area sown (0·00 acres)* | *Average yield of dry paddy/ acre (in lbs.)* | *Total yield of dry paddy (in lbs.)* |
|---|---|---|---|---|
| 1 | PTB–9 | 5·00 | 881 | 4405·00 |
| 2 | PTB–10 | 1·25 | 795 | 993·75 |
| 3 | PTB–22 | 2·50 | 757 | 1892·50 |
| 4 | PTB–32 | 10·00 | 831 | 8310·00 |
| Total | | 18·75 | .. | 15601·25 |
| Farm average yield | | .. | 832 | .. |

TABLE 4 (b) 1961-'62 (MUNDAKAN)

| Sl. No | Seed variety | Area sown (0·00 acres) | Average yield of dry paddy/ acre (in lbs.) | Total yield of dry paddy (in lbs.) |
|---|---|---|---|---|
| 1 | PTB–4 | 4·00 | 2573 | 10292·00 |
| 2 | PTB–20 | 6·00 | 2372 | 14232·00 |
| 3 | PTB–33 | 3·25 | 1985 | 6451·25 |
| 4 | Cochin–1 | 5·72 | 2697 | 15507·75 |
| Total | | 19·00 | .. | 46483·00 |
| Farm average yield | | | 2447 | |

5.3 In the Kodasseri farm the farm records give only the yield of wet paddy in local units (Paras). Further, the wages to labourers engaged for harvesting the field are given in kind. To arrive at the dry yield of paddy in the farm the wages paid to the labourers are first added to the yield credited to farm accounts to arrive at the gross yield of wet paddy; and then the dry yield is worked out at the rate of 18 lbs. per para of wet paddy with 7·41% loss in weight for driage.

5·4 It may be seen from the tables given above that for the virippu season the average yield per acre in the farm was only 832 lbs. One way of assessing the level of performance of the seed farm in the matter of yield rate of the strains propagated by the farm is to compare the yield rate in the farm with the yield rate in the taluk in which the seed farm is located. The average yield of paddy in Mukundapuram taluk in which the farm is located during 1961-'62 (virippu) was 1117 lbs./acre. Comparing with this taluk average the performance of the seed farm during 1961-'62 (Virippu) seems to be unsatisfactory. The main reason adduced for the low yield rate in the farm was that, this was the first season of cultivation after the lands were aken possession of by the Agriculture Department and the cultivation had to be rushed through.

5·5 During the Mundakan season the achievement of the farm in respect of yield rate was quite good. As against the taluk average yield of 1326 lbs. per acre the average yield in the farm was as high as 2447 lbs. per acre.

**5·6 Yield rates in 1962-'63.** In the next year (1962-'63) the production of foundation seeds was restricted only to fewer varieties which were recommended by the Rice Research Officer as most suitable to the area and for which there was real demand from the cultivators. Accordingly only two varieties were sown in Virippu season and another two varieties in the Mundakan season. The details of these seeds and the yield obtained from them are given in the following tables:—

TABLE 5 (a) 1962-'63 (VIRIPPU)

| *Sl. No.* | *Seed variety* | *Area sown (0·00 acres)* | *Average yield of dry paddy/ acre (in lbs.)* | *Total yield of dry paddy (in lbs.)* |
|---|---|---|---|---|
| 1 | PTB–9 | 5·00 | 1586 | 7930·00 |
| 2 | PTB–32 | 13·00 | 1809 | 23517·00 |
| 3 | Total | 18·00 | .. | 31447·00 |
| | Farm average yield | | 1747 | |

TABLE 5 (b) 1962-'63 (MUNDAKAN)

| *Sl. No.* | *Seed variety* | *Area sown (0·00 acres)* | *Average yield of dry paddy/ acre (in lbs.)* | *Total yield of dry paddy (in lbs.)* |
|---|---|---|---|---|
| 1 | PTB–4 | 4·00 | 2419 | 9676·00 |
| 2 | PTB–20 | 15·00 | 2315 | 34725·00 |
| | Total | 19·00 | .. | 44401·00 |
| | Farm average yield | | 2337 | |

5·7 The average yield of paddy for Mukundapuram taluk for 1962-'63 (Virippu crop) was 1617 lbs./acre; and that for Mundakan crop was 1475 lbs./acre. Compared with these figures the general yield rates in the seed farm for both the seasons were definitely good. Between the seed varieties it is seen that in the virippu season PTB-32 gave a much better yield than PTB-9; and during Mundaka season PTB-4 gave a higher yield than PTB-20.

5·8 When an year-wise comparison of the yield from the important strains are made it is found that the yield rates for the virippu varieties of PTB-9 and PTB-32 had almost doubled in 1962-'63 from what they were in 1961-'62. But in the case of Mundakan varieties viz. PTB-4 and PTB-20 the yield rates registered a fall in 1962-'63 compared to those in 1961-'62.

**5·9 Production of foundation seeds in 1961-'62.** The basic objective in the working of the seed farms is the production of foundation seeds for distribution among the registered grower cultivators. The quantities of foundation seeds produced in the seed farm during 1961-'62 are given in the following tables:—

TABLE 6 (a) 1961-'62 (VIRIPPU)

| *Seed variety* | *Nucleus seed received (lbs.)* | *Total yield (lbs.) (*)* | *Paddy sold (lbs.)* | *Net paddy available for seed conversion (lbs.)* | *Foundation seed produced (lbs.)* | *Percentage of seed produced to net paddy* |
|---|---|---|---|---|---|---|
| PTB–9 | 203 | 4405·0 | 232·0 | 4173·0 | 3900·0 | 93·4 |
| PTB–10 | 144 | 994·8 | 777·0 | 217·8 | Nil | .. |
| PTB–22 | 250 | 1893·5 | 1000·0 | 9203·5 | 1348·0 | 84·9 |
| PTB–32 | 1000 | 8310·0 | | | 6467·0 | |
| Total | 1597 | 15603.3 | 2009·0 | 13594·3 | 11715·0 | 86·1 |

(*) Including wages paid in kind.

TABLE 6 (b) 1961-'62 (MUNDAKAN)

| *Seed variety* | *Nucleus seed received (lbs.)* | *Total yield (lbs.) (*)* | *Paddy sold (lbs.)* | *Net paddy available for seed conversion (lbs.)* | *Foundation seed produced (lbs.)* | *Percentage of seed produced to net paddy* |
|---|---|---|---|---|---|---|
| PTB–4 | 200 | 10292·0 | 310·0 | 9982·0 | 8600·0 | 86·1 |
| PTB–20 | 190 | 14232·0 | 205·0 | 14027·0 | 12480·0 | 88·9 |
| PTB–33 | 115 | 6451·3 | 380·0 | 6071·3 | 5200.0 | 85·6 |
| Cochin-1 | 200 | 15507·8 | 1035·0 | 14472·8 | 11900·0 | 82·2 |
| Total | 705 | 46483·1 | 1930·0 | 44553·1 | 38180·0 | 85·6 |

(*) Including wages paid in kind.

5·10 During 1961-'62 Virippu season the seed farm received 1597 lbs. of nucleus seeds and produced 11715 lbs. of foundation seeds from a cultivated area of 18·75 acres. This works out to 625 lbs. of foundation seed per acre. The target fixed by the Agriculture Department for the production of foundation seeds for Virippu season is 100 paras or 1600 lbs. per acre. Obviously the achievement of the seed farm in the production of foundation seeds during this period was poor. One explanation that in favour of the seed farm for the low achievement is, as already stated that being the initial stages of the development of the farm there were difficulties in the construction of threshing yards etc. As the Virippu harvest coincided with the late monsoons, the grains had a tendency to sprout on the ear-heads and as such sheaves have to be discarded and could not be converted into foundation seeds.

5·11 In 1961-'62 Mundakan season the total quantity of nucleus seed obtained by the seed farm was 705 lbs. and the total quantity of foundation seeds produced was 38180 lbs. The quantity of foundation seeds per acre of sown area works out to 1641 lbs. The target fixed for the production of foundation seeds in Mundakan season is 150 paras or 2400 lbs./acre. The achievement during this period also was therefore not satisfactory.

5·12 In the above paragraphs the overall rate of production of foundation seed per acre alone was examined. A variety-wise comparison of the seeds in respect of the rate of production of foundation seeds is attempted in this paragraph. As stated earlier the seed farm had evolved PTB-9 and PTB-32 as the best improved strains for virippu season; and PTB-4 and PTB-20 as the best varieties for Mundakan season. The rate of production of foundation seed per acre of cultivated area for these varieties are given below:—

TABLE 7

**Rate of production of foundation seed per acre of cultivated area (in lbs.) in 1961-'62**

| | | |
|---|---|---|
| PTB–9 | 780 | Virippu |
| PTB–32 | 647 | |
| PTB–4 | 1653 | Mundakan |
| PTB–20 | 2080 | |

These figures make it evident that even for the varieties approved as the best for the seed farm, the production of foundation seed per acre of cultivated area is far below the targets set, viz., 1600 lbs./acre for Virippu crop and 2400 lbs./acre for Mundakan crop.

5·13 From the tables 6 (a) and 6 (b) given above it will also be seen that the entire yield of paddy procured in the farm could not be converted into production seeds. During virippu season 2009 lbs. of paddy have been sold as consumption paddy; and in Mundakan season 1930 lbs. have been disposed of in the same manner. This kind of disposal of the produce in the farm was necessitated on account of the unsuitability of the produce for conversion as seeds. The main factors rendering the paddy unsuitable for seed conversion are said to be the following:—

(a) Some plants in the field may be affected by diseases and the yield from these plants are not used for conversion of seeds.
(b) Some of the harvested produce may germinate and thereby become unsuitable for seed conversion.
(c) Chaff or half-filled paddy eliminated during the process of seed conversion.

5·14 Detailed data are not available to make an assessment of the paddy quantities rendered unsuitable for seed purposes due to each of the above factors. But it may be generally stated that for the optimum utilisation of the resources in the seed farm it is necessary that steps should be taken to avoid situations which would lead to disposal of the paddy yield from the farm to purposes other than seeds.

**5·15 Production of foundation seeds in 1962-'63.** The quantities of foundation seed produced in the two crop seasons during 1962-'63 are given in the tables below:

**Table 8(a) 1962-63 (Virippu)**

| Seed Variety | Nucleus seed received (lbs.) | Total yield (lbs.) | Paddy sold (lbs.) | Net paddy available for seed conversion (lbs.) | Foundation seed produced (lbs.) | %age of seed produced to net pady. |
|---|---|---|---|---|---|---|
| PTB-9 | 198·5 | 7930·0 | 1278·9 | 6651·1 | 5239·1 | 78·7 |
| PTB-32 | 1168·7 | 23517·0 | 9300·7 | 14216·3 | 9812·3 | 69·0 |
| Total | 1367·2 | 31447·0 | 10579·6 | 20867·4 | 15051·4 | 72·1 |

**Table 8(b) 1962-63 (Mundakan)**

| | | | | | | |
|---|---|---|---|---|---|---|
| BTP-4 | 277·8 | 9676·0 | 1364·9 | 8311·1 | 6615.0 | 79·5 |
| PTB-20 | 617·4 | 34725·0 | 3087·0 | 31638·0 | 26755·5 | 84·5 |
| Total | 895·2 | 44401·0 | 4451·9 | 39949·1 | 33370·5 | 83·5 |

5. 16 In 1962-63 the farm had cultivated only those seeds which were evolved as the best varieties. During the Virippu season the farm received 1367 lbs. of nucleus seeds and produced 15051 lbs. of foundation seeds from a cultivated area of 18 acres. The production of foundation seed per acre of cultivated area works out to 836 lbs. Compared to the previous year the rate of production has shown a slight increase; but still the performance has to be cosidered as unsatisfactory because it is only just above 50% of the targeted rate of production viz. 1600 lbs/acre.

5. 17 Coming to the Mundakan season it is seen that the farm received 895 lbs. nucleus seeds produced out of which 33370 lbs. are fountation seeds. The seed was raised from a sown area of 19 acres. The rate of production of foundation seed per acre of cultivated area worked out to 1754 lbs. as against 1641 lbs. per acre in the corresponding season of the previous year. Evidently the rate of production of foundation seeds in 1962-63 also is far below the departmental target of 2400 lbs. per acre of cultivated area.

5. 18 The farm had sold about 10580 lbs. from the Virippu yield as consumption paddy. The wide gap between the foundation seeds produced by the farm and the targeted rate for virippu (1962-63) is mainly accounted for by the sale of such a large quanitity of the paddy produced. During Mundakan season also the farm had sold about 4451 lbs. of paddy yield as consumption paddy. The main reason for not achieving the targeted rate of production of foundation seed during this season was the low yield rate in the farm which by itself was below the target rate fixed for the production of foundation seeds viz. 2400 lbs/acre.

5. 19 In both the crop seasons in 1961-62 the foundation seeds produced constituted nearly 80% of the paddy used for conversion of seeds. In the next year the percentage of seeds obtained from the paddy used for seed conversion registered a substantial decrease, the figures being 72% for Virippu season and 33% for Mundakan

season. The percentage seems to be the lowest (69%) in the case of PTB-32. On an examination of the data relating to this seed it is found that 204 Kgm. (about 450 lbs. ) of paddy has gone out as chaff (half-filled paddy) during the seed conversion stage. Even after allowing this, the percentage of foundation seeds produced to paddy used for seed conversion comes to only 71.2% It is obvious that the percentage of foundation seeds produced to dry paddy used for the purpose is abnormally low in 1962-63 compared with the corresponding figures in 1961-62 especially in the case of PTB-32. But the exact reason for this decrease is not quite clear from the available data.

**Distribution of foundation seeds.**

5. 20 Considering both the seasons together it is found that about 97 and 99 percents respectively of the produced seeds have been distributed by the farm during the years 1961-62 and 1962-63. The percentage of seeds distributed during the Virippu season is comparatively lower than that during the Mundakan season. The figures for the various seasons are given in Table 9.

TABLE 9

**percentage of Produced Seeds distributed from the farm or Virippu & Mundakan seasons in seed farm at Kodasseri**

| | Virippu | Mundakan | Both Seasons |
|---|---|---|---|
| 1961–62 | 57·97 | 95·95 | 87·03 |
| 1962–63 | 98·52 | 100·00 | 98·63 |

Data were not available on the total demand for the seeds placed on the seed farm. In the absence of this, it has not been possible to examine whether the achievement of the farm in the production of foundation seeds could meet the demand placed on the seed farm fully.

**Financial Aspects**

**5. 21 Investment.** The seed farm was established in 1960-61. The fixed and other investments of the seed farm since its establishment are as follows:-

| | Rs. |
|---|---|
| Fixed investment (land and building) .. | 78812·20 |
| Other investments (Livestock, implements etc.) | 2063·60 |
| Total | 80875·80 |

The rate of investment in rupees per acre of farm area is about Rs. 3725/- of which Rs. 3630/- is under fixed investment and Rs. 95 under other investments. In other words 97.1% of the investment is fixed investment and 2·9% other investments.

**5. 22 Annual Expenses.** The annual expenses of the farm falls mainly under three heads, viz. farm establishment, operating expenses and maintenance of cattle. The total annual expenses per acre of cultivated farm area varied from Rs. 367/- in 1961-62 to Rs. 492/- in 1962-63. The expenditure in rupees per acre of cultivated area for the component items are given below:

TABLE 10

**Annual farm expenses in Rupees per acre of cultivated area in Kodasseri seed farm.**

| Sl. No. | Item of expenditure. | Expenditure in Rupees 1961–62 | 1962–63 |
|---|---|---|---|
| 1. | Farm establishment | 145·85 | 163·07 |
| 2. | Operating expenses for paddy | 220·87 | 295·90 |
| 3. | Maintenance of cattle | Nil | 33·16 |
| | Total | 366·72 | 492·13 |

**5. 23 Annual Receipts.** Crops and fodder are the major sources of income from the farm. Income from other sources is considerably low. The annual receipts per acre of cultivated area for the farm worked out to Rs. 382 for 1961-62 and Rs. 425/- for 1962-63. The figures for the component items are given in Table below:

TABLE 11

**Annual receipts in Rupees per acre of cultivated area in Kodasseri Seed Farm**

| Sl. No. | Source of Income | Receipts in Rupees 1961–62 | 1962–63 |
|---|---|---|---|
| 1. | Value of crops (Paddy) | 293·05 | 318·94 |
| 2. | Value of fodder | 70·10 | 105·82 |
| 3. | Others | 18·63* | 0·41 |
| 4. | Total | 381·78 | 425·17 |

* Includes value of Glyricedia produced.

From the above tables it can be seen that the farm has been working at a gain of Rs. 15·06 per acre of

cultivated area in 1961-62. In 1962-63 the position is reversed and the farm has been working at a loss of Rs. 66. 96 per acre of cultivated area.

Deducting the establishment charges it can be seen that the farm has been working at a gain of Rs. 160. 91 per acre of cultivated area in 1961-62. The profit during 1962-63 was Rs. 96. 11 per acre. Increased expenditure is noted under all items especially under maintenance of cattle.

## 6. Findings Relating To Chengamanad Farm

6. 1 The Chengamanad Seed Farm is considered as one of the average type of seed farms. It was started in 1961. It has an area of 23. 71 acres. It is located at Chengamanad in Alwaye Taluk in Ernakulam District.

**6. 2 Yield rates in 1961-62.** The farm started production of seeds in 1961-62. The farm grew four varieties of improved paddy starins during Virippu season and three varieties in the Mundakan season. Among these one variety (PTB-10) was common in both the seasons. Details regarding the seed varieties and the yield obtained from them are given in the following tables:

**Table 12 (a) 1961-62 (Virippu)**

| Sl. No. | Seed variety | Area sown (0·00 acres) | Average yield of dry paddy per acre (lbs.) | Total yield of dry paddy (lbs.) (Actuals) |
|---|---|---|---|---|
| 1. | PTB-7 | 0·80 | 1003 | 802·62 |
| 2. | PTB-9 | 8·20 | 204 | 1675·80 |
| 3. | PTB-10 | 1·64 | 1075 | 1764·00 |
| 4. | PTB-22 | N. A. | N. A. | N. A. |
| | Total | 10·64 | .. | 4262·42 |
| Farm average yield | | .. | 399 | .. |

N. A.=Not available

**Table 12 (b) 1961-62 (Mundakan)**

| | | | | |
|---|---|---|---|---|
| 1. | PTB-10 | 1·90 | 396 | 751·90 |
| 2. | PTB-12 | 6·00 | 1544 | 9265·41 |
| 3. | PTB-20 | 3·85 | 1180 | 4542·30 |
| | Total | 11·75 | .. | 14559·61 |
| Farm average yield | | .. | 1239 | .. |

6. 3 The average yield rate of paddy in Alwaye taluk during 1961-62 (Virippu) was 1551 lbs/acre. Obviously the yield rate in the seed farm viz. 339 lbs/acre was very poor when compared with the taluk average. The reason adduced for the low yield rate is the heavy floods in the season at Chengamanad. It may also be noted that the yield of PTB-22 has not been taken into account for want of data. It is said that yield from PTB-22 was not utilised by the farm for producing seeds as the yield was affected by fungus disease.

6. 4 The farm average yield rate during 1961-62 (Mundakan) was 1239 lbs/acre. The average yield rate during the season for the Alwaye taluk as a whole was 1861 lbs/acre. Comparing with this figure, the performance in the seed farm in the matter of yield rates is not commendable.

**6. 5 Yield rates in 1962-63.** During the year 1962-63 three varieties of seeds were treated during Virippu season and another three varieties during Mundakan season. Details of these seeds and the yield obtained from them are given below:-

**Table 13(a) 1962-63 (Virippu)**

| Variety | Area sown (0·00 acres) | Average yield of dry paddy/ acre (lbs.) | Total yield of dry paddy (in lbs.) (Actuals) |
|---|---|---|---|
| PTB-7 | 2·54 | 632 | 1605·24 |
| PTB-9 | 11·40 | 1101 | 12548·66 |
| PTB-22 | 3·41 | 701 | 2392·43 |
| Total | 17·35 | .. | 16546·33 |
| Farm average yield | .. | 954 | .. |

**Table 13 (b) 1962-63 (Mundakan)**

| | | | |
|---|---|---|---|
| PTB-12 | 6·70 | 1415 | 9481·50 |
| PTB-20 | 4·96 | 1829 | 9075·78 |
| PTB-27 | 6·47 | 709 | 4590·81 |
| Total | 18·13 | .. | 23148·09 |
| Farm average yield | .. | 1277 | .. |

6. 6 The farm average yield rate for 1962-63 (Virippu) was 954 lbs/acre against an average yield of 1170 lbs/acre

for the Alwaye taluk. During 1962-63 (Mundakan) the farm average yield rate was 1277 lbs/acre against the taluk average yield of 1326 lbs. per acre. Thus during both the seasons the seed farm could produce only a lesser average yield compared to the taluk as a whole.

6. 7 The farm average yield rates have registered an increase in both the seasons during the year 1962-63. When the yield rates of the idividual strains are examined it is seen however, that in the case of PTB-7 sown in Virippu and PTB-12 sown in Mundakan the yield rates have substantially declined in 1962-63 compared to those in 1961-62.

### 6. 8 Production of foundation seeds in 1961-62

The quantities of foundation seeds produced in Chengamanad seed farm during 1961-62 are given in the following table:

**Table 14 (a) 1961-62 (Virippu)**

| Variety | Nucleus seed received (lbs.) | Total yield (lbs.) | Paddy sold (lbs.) | Net paddy available for seed conversion | Foundation seed produced (lbs.) | % of seed produced to net paddy |
|---|---|---|---|---|---|---|
| PTB–7 | 75 | 802·62 | .. | 802·62 | 718·83 | 89·5 |
| PTB–9 | 700 | 1675·80 | .. | 1675·80 | 1521·45 | 90·7 |
| PTB–10 | 160 | 1764·00 | .. | 1764·00 | 1587·60 | 89·9 |
| PTB–22 | N. A. | N. A. | Entire quantity produced | .. | .. | .. |
| Total | 935 | 4242·42 | .. | 4242·42 | 3827·88 | 90·2 |

**Table 14 (b) 1961-62 (Mundakan)**

| | | | | | | |
|---|---|---|---|---|---|---|
| PTB–10 | 120 | 751·90 | .. | 751·90 | 676·94 | 90·0 |
| PTB–12 | 125 | 9265·41 | .. | 9265·41 | 9040·50 | 97·5 |
| PTB–20 | 125 | 4542·30 | .. | 4542·30 | 4507·02 | 99·2 |
| Total | 370 | 14559·61 | .. | 14559·61 | 14224·46 | 97·6 |

6. 9 During 1961-62, Virippu season the seed farm received 935 lbs. of nucleus seeds and produced 3828 lbs. of foundation seeds from a cultivated area of 10. 64 acres. The foundation seeds produced per acre of cultivated farm area works out to about 360 lbs. This is far below the

targeted rate of production viz. 1600 lbs/acre. This may be due to the low yield obtained due to heavy floods..

6. 10 In 1961-62 Mundakan season the farm received 370 lbs. of nucleus seed and produced 14224 lbs. of foundation seeds from a sown area of 11. 75 acres. This means that the farm could produce only 1210 lbs. of foundation seeds per acre of cultivated area which is only just half the targeted rate of 2400 lbs/acre. But the production of foundation seed has increased compared to Virippu crop.

6. 11 The rates of production of foundation seed for the various seed varieties treated by the farm are given below:

TABLE 15

**Rate of production of foundation seed per acre of cultivated area (in lbs.) for the year 1961-62**

| *Seed variety* | | *Seed produced (lbs/acre)* | |
|---|---|---|---|
| PTB–7 | .. | 898 | Virippu |
| PTB–9 | .. | 186 | |
| PTB–10 | .. | 968 | |
| PTB–10 | .. | 356 | Mundakan |
| PTB–12 | .. | 1505 | |
| PTB–20 | .. | 1170 | |

The above table shows that the targeted rate of production of seeds viz. 1600 lbs/acre for Virippu season and 2400 lbs/acre for Mundakan season has not been achieved by any variety of seed cultivated in the seed farm.

## 6. 12. Production of foundation seeds in 1962-63

The quantities of foundation seeds produced in the two crop seasons in 1962-63 are given in the following tables:-

**Table 16 (a) 1962-63 (Virippu)**

| Variety | Nucleus seed received (lgs.) | Total yield (lbs.) | Paddy sold (lbs.) | Net paddy available for seed conversion (lbs.) | Foundation seed produced (lbs.) | % of seed produced to net paddy |
|---|---|---|---|---|---|---|
| PTB–7 | 165·4 | 1605 24 | .. | 1605·24 | 1214·96 | 75 6 |
| PTB–9 | 694·6 | 12548·66 | .. | 12548·66 | 9466·07 | 75·4 |
| PTB–22 | 189·6 | 2392·43 | .. | 2392·43 | 1885·28 | 8·8 |
| Total | 1049·6 | 16546.33 | .. | 16546·33 | 12566·31 | 75·9 |

**Table 16 (b) 1962-63 (Mundakan)**

| | | | | | | |
|---|---|---|---|---|---|---|
| PTB-12 | 132·30 | 9481·50 | .. | 9481·50 | 7653·71 | 80·51 |
| PTB-20 | 198·45 | 9075·78 | .. | 9075·78 | 7210·35 | 79·45 |
| PTB-27 | 198·45 | 4590·81 | .. | 4590·81 | 3660·30 | 79·73 |
| Total | 529·20 | 23148·09 | .. | 23148·09 | 18504·36 | 79·19 |

6. 13 During the virippu season in 1962-63 the farm received about 1050 lbs of nucleus seeds and produced 12566 lbs. of foundation seeds from a cultivated area of 17·35 acres. The production of foundation seeds works out to 724 lbs/acre. Even though this achievement is definitely better than that in the corresponding season of the previous year, it has still to be considered unsatisfactory because it is not even 50% of the rate of production targeted which is 1600 lbs/acre.

6. 14 In 1962-63 Mundakan season the farm received 529 lbs. of nucleus seeds and produced 18504 lbs. of foundation seeds from a cultivated area of 18. 13 acres. The rate of production of foundation seeds per acre works out to 1020 lbs/acre. Besides the fact that the rate of production is far below the targeted rate of 2400 lbs/acre it has also registered a decrease from the rate achieved in the previous year which stood at 1210 lbs. per acre.

6. 15 The rate of production of foundation seeds per acre of cultivated area for each variety of seed is given in the following table:

TABLE 17

**Rates of production of foundation seeds (lbs.) per acre of cultivated area for the year 1962-63.**

| *Seed variety* | | *Seeds produced (lbs./acre)* | |
|---|---|---|---|
| PTB–7 | .. | 478 | Virippu |
| PTB–9 | .. | 830 | |
| PTB–22 | .. | 553 | |
| PTB–12 | .. | 1139 | Mundakan |
| PTB–20 | .. | 1453 | |
| PTB–27 | .. | 566 | |

Among the virippu varieties the maximum rate of foundation seeds is produced by PTB-9; and among Mundakan varieties the maximum rate of production is seen in PTB-20. But it may be noted that even in these cases of maximum rates of production, the rates are far below the targeted rates.

## Distribution of foundation seeds.

6. 16 Considering both the seasons together it is seen that 100 and 94 percents respectively of the produced seeds have been distributed by the farm during the years 1961-62 and 1962-63 respectively. In 1962-63 (Virippu season) the seed farm could distribute only 85%of the seeds produced. The results are presented in the table below:—

TABLE 18

**Percentage of produced seeds distributed from the Chengamanad seed farm during Virippu & Mundakan Seasons.**

| | *Virippu* | *Mundakan* | *Both Seasons* |
|---|---|---|---|
| 1961–62 | 100·00 | 100·00 | 100·00 |
| 1962–63 | 85·00 | 100·00 | 93·93 |

## Financial Aspects

**6. 17 Investment:** The Seed Farm was established in 1961. The rate of investment in rupees per acre of farm area works out to Rs. 3821 of which Rs. 3617 falls under fixed investment and Rs. 204 under other investments. That is about 95%of the investment is for fixed investment and the remaining 5% for other investments.

**6.18 Annual Expenses**. The total annual expenses per acre of cultivated farm area varies from Rs. 449 in 1961-62 to Rs. 444 in 1962-63. The break-ups of the expenditure for the various items are given in the following table.

TABLE 19

**Annual farm expenses in Rupees per acre of cultivated area in Chengamanad seed Farm**

| *Sl. No.* | *Item of Expenditure* | *Expenditure in Rupees* | |
|---|---|---|---|
| | | 1961–62 | 1962–63 |
| 1 | Farm management | 214.35 | 173.99 |
| 2 | Operating expenses for paddy | 234 46 | 241.06 |
| 3 | Maintenance of cattle | .. | 28.88 |
| 4 | Others | .. | .. |
| 5 | Total | 448.81 | 443.93 |

**6.19 Annual Receipts.** The annual receipts per acre of cultivated area of the farm for the year 1961-62 and 1962-63 are about Rs. 200 and Rs. 218 respectively. The details are given in Table 20.

TABLE 20

**Annual receipts in Rupees per acre of cultivated area in the Chengamanad Seed Farm**

| *Sl. No.* | *Source of income* | *Receipts in Rupees* 1961-62 | 1962-63 |
|---|---|---|---|
| 1 | Value of crops (Paddy) | 156.75 | 198.58 |
| 2 | Value of fodder | 43.02 | 19.07 |
| 3 | Others | .. | .. |
| 4 | Total | 199.77 | 217.65 |

It is seen that the farm has been working at a loss during both the years. The loss per acre of cultivated area was Rs. 249.04 in 1961-62 and Rs. 226.28 in 1962-63. After deducting the establishment charges, the loss during the two years was Rs. 34.69 and Rs. 52.29 only.

## 7. Findings Relating to Karunagappally seed farm

7.1 The seed farm is taken as one representing a below average type. The farm was started in 1957. It is located in Karunagappally Taluk in Quilon district. It has a farm area of 11.38 acres.

**7.2 Yield rates in 1961-62.** In 1961-62, Virippu season the farm tried two varieties of seeds and in the Mundakan season one variety. Details of these seeds and the yield obtained from them are given in the following table.

TABLE 21 (A) 1961-62 (VIRIPPU)

| *Sl. No.* | *Seed variety* | *Area sown (0.00 acres)* | *Average yield of paddy (dry) per acre (lbs.)* | *Total yield of dry paddy (lbs.)* |
|---|---|---|---|---|
| 1 | PTB-23 | 5.60 | 784 | 8153.60 |
| 2 | PTB-28 | 4.80 * | | |
| | Total | 10.40 | .. | 8153.60 |
| | Farm average yield .. | | 784 | .. |

* Separate figures are not available.

TABLE 21 (B) 1961-62 (MUNDAKAN)

| | | | | |
|---|---|---|---|---|
| | U. R. 19 | 11.38 | 1455 | 17445.45 |

7.3 During 1961-62 (Virippu) the seed farm tried two varieties of seed. But the yield data were not available

for each variety separately. The farm average yield during this season was 784 lbs./acre. The average yield rate during this season in Karunagappally taluk in which the seed farm is situated was 1483 lbs./acre. Compared with the taluk yield, the farm yield was very poor. This low yield was due to the severe draught experienced in the area during the season.

7.4 During Mundakan season in the same year the seed farm tried only one variety, the average yield of which was 1455 lbs. per acre. The taluk average yield for the same period was 2011 lbs./acre. The farm average yield is only about 75% of the taluk average yield.

**7.5 Yield rates in 1962-63.** During the year the farm tried two varieties in Virippu season and one variety in Mundakan season. Details of the seed varieties and yield are given below:

TABLE 22 (A) 1962-63 (VIRIPPU)

| *Sl. No.* | *Seed variety* | *Area sown (0.00 acres)* | *Average yield of dry paddy acre (lbs)* | *Total yield of dry paddy (lbs.)* |
|---|---|---|---|---|
| 1<br>2 | PTB–23<br>PTB–31 * | 11.38 | 890 | 10128.20 |

(* Separate figures for each variety are not available)

TABLE 22 (B) 1962-63 (MUNDAKAN)

| | | | | |
|---|---|---|---|---|
| 1 | U. R. 19 | 11.38 | 1764 | 20074.32 |

7.6 The average yield of paddy in Karunagappally taluk during 1962-63 was 1788 lbs/acre for Virippu season and 2260 lbs/acre during Mundakan season. Compared with the taluk average yield rates the farm average yield rates are far low. It may be noted in this connection that the Karunagappally farm is comparatively poor from the point of soil fertility, irrigation facilities etc. It may however be noted that the farm average yield rates have increased in 1962-63 compared to the rates in 1961-62.

**7.7 Production of foundation seeds in 1961-62.** Details of nucleus seeds received and foundation seeds produced by the farm are given in the following tables.

TABLE 23 (A) 1961-62 (VIRIPPU)

| Seed variety | Nucleus seeds received (lbs.) | Total yield (lbs.) | Paddy sold (lbs.) | Net paddy available for seed conversion (lbs.) | Foundation seed produced (lbs.) | % of seed produced to net paddy |
|---|---|---|---|---|---|---|
| PTB-23 | 304.0 | * | * | * | * | * |
| PTB-28 | 265.6 | | | | | |
| Total | 569.6 | 8153 6 | .. | 8153.6 | 5596.8 | 68.6 |

* Figures not available for each seed variety.

TABLE 23 (B) 1961-62 (MUNDAKAN)

| | | | | | | |
|---|---|---|---|---|---|---|
| U. R. 19 | 512.0 | 17445.5 | .. | 17445.5 | 15936.0 | 91.4 |

7.8 During 1961-62 (Virippu) the seed farm received about 570 lbs. of nucleus seeds and produced about 5597 lbs. of foundation seeds from a cultivated area of 10.40 acres. This works out to 538 lbs. of foundation seeds per acre of cultivated area in the seed farm. This is only about one-third of targeted rate of production.

7.9 During Mundakan season the farm received 512 lbs of nucleus seeds and produced 15936 lbs. of foundation seeds from a sown area of 11·38 acres. The achievement rate works out as 1400 lbs. per acre which again is only about half the targeted rate of production.

**7.10 Production of foundation seeds in 1962-63.** Details of nucleus seeds obtained, and the foundation seeds produced during the two crop seasons in 1962-63 are given below:—

TABLE 24 (A) 1962-63 (VIRIPPU)

| Seed variety | Nucleus seed obtained (lbs.) | Total yield (lbs.) | Paddy sold (lbs.) | Net paddy available for seed conversion (lbs.) | Foundation seed produced (lbs.) | % of seed produced to net paddy |
|---|---|---|---|---|---|---|
| PTB-23 | 480 | * | * | * | * | * |
| PTB-31 | 152 | | | | | |

(* Separate figures for each variety not available)

TABLE 24 (B) 1962-63 (MUNDAKAN)

| | | | | | | |
|---|---|---|---|---|---|---|
| U. R. 19 | 4848 | 20074.3 | .. | 20074.3 | 19760.0 | 94. |

7.11 During the year 1962-63 (Virippu) the farm received 632 lbs. of nucleus seeds and produced 9760 lbs. of foundation seeds from a cultivated area of 11.33 acres. The rate of production of foundation seeds works out as 858 lbs. per acre which again is far below the targeted rate of production viz. 1600 lbs/acre. But the rate of production of foundation seeds has increased from 538 per acre in 1961-62 to 851 per acre in 1962-63.

7·12 During Mundakan season of the same year 4848 lbs. of nucleus seeds were obtained and 19760 lbs. of foundation seeds were produced from a cultivated area of 11·38 acres. This means that one acre of cultivated area could produce 1736 lbs. of foundation seeds. Eventhough the rate of production has registered a substantial increase from that of the previous year, it is still far below the targeted rate of production viz. 2400 lbs/acre.

7·13 **Distribution of foundation Seeds.** It is seen that practically the entire foundation seeds produced could be distributed by the farm. The figures of distribution for the two years are given below:—

TABLE 25

**Percentage of produced seeds distributed for Virippu and Mundakan Seasons from the seed farm at Karunagappally.**

| | *Virippu* | *Mundakan* | *Both seasons* |
|---|---|---|---|
| 1961-62 | 99.91 | 100.00 | 99.8 |
| 1962-63 | 100.00 | 100.00 | 100.00 |

## FINANCIAL ASPECTS

**7. 14. Investment.** The rate of investment in rupees per acre of farm area is about Rs. 8338 of which Rs. 7641 falls under fixed investment and Rs. 697 under other investments, ie. about 92% of the total investment is in the form of fixed investment.

7.15 **Annual expenses.** The total annual expenses per acre of cultivated area in the farm was Rs. 676 in 1961-62 and Rs. 591 in 1962-63. The details are given in Table 26.

TABLE 26.

**Annual farm expenses in rupees per acre of cultivated area in the Seed Farm at Karunagappally.**

| *Sl No.* | *Item of expenditure* | *Expenditure in Rupees* | |
|---|---|---|---|
| | | 1961–62 | 1962–63 |
| (1) | (2) | (3) | (4) |
| 1. | Farm establishment | 320.21 | 326.51 |
| 2. | * Operating expenses for paddy | 230.13 | 206.40 |
| 3. | Maintenance of cattle | 111.14 | 58.55 |
| 4. | Others | 15.01 | .. |
| 5. | Total | 676.49 | 591.46 |

* A small percentage of farm area was cultivated with sesamum in 1961–62. The expenditure for this item has been given under others.

7.16 **Annual Receipts.** The annual receipts per acre of cultivated area was Rs. 390 in 1961-62 and Rs. 426 in 1962-63. The details are given in the following table.

TABLE 27.

**Annual receipts in rupees per acre of cultivated farm area in Karunagappally Seed Farm.**

| *Sl. No.* | *Source of income* | *Receipt in Rupees* | |
|---|---|---|---|
| | | 1961–62 | 1962–63 |
| 1 | Value of crops (Paddy) | 304.39 | 347.34 |
| 2 | Value of Fodder | 74.32 | 76.80 |
| 3 | Others * | 11.78* | 2.52 |
| 4 | Total | 390.49 | 426.66 |

* Includes the value of Sesamum produced.

From the above tables, it would be seen that the farm has been working at a loss during both the years, the loss per acre of cultivated area being about Rs. 286 in 1961-62 and Rs. 165 in 1962-63. Deducting the establishment charges for the calculation of profit and loss account it can be seen that there was gain during the two years. The amount of gain was Rs.34.21 during 1961-62 and Rs.161·71 during 1962-63.

8. **Staffing and facilities in the farms.** The selected farms enjoy enough facilities for the working of the farms. Cultivation in the farms is done under the supervision of a qualified Agricultural Assistant assisted by a Fieldman and labourers. The District Agricultural officer is in overall charge of the cultivation and distribution of improved seeds. Demand for improved seeds from Blocks and others are made to the District Agricultural officer and the allotment of seeds is done by him according to availability of seeds. It is reported that the quality of seeds produced is 97% pure in the Karunagapplly farm and 99% pure in the remaining two farms.

9. **Summary.** 9·1 The present study has covered four seasons viz. 1961-62 (Virippu and Mundakan) and 1962-63 (Virippu and Mundakan). In the Kodasseri seed farm the yield rate is found to be greater than the average yield rate in the taluk in three of these seasons. In the Chengamanad seed farm the result holds good only for one season (1962-63 Mundakan). In all the remaining cases the yield rates at the seed farms are below the average yield rate in the taluk.

9.2 Based on the yield rates of the various improved seeds tried in the seed farms the following strains can be considered as the best strains for the respective farms.

| | *Virippu* | *Mundakan* |
|---|---|---|
| Kodasseri Farm | PTB-9<br>PTB-32 | PTB-4<br>PTB-20 |
| Chengamanad Farm | PTB-9 | PTB-12<br>PTB-20 |
| Karunagappally Farm | Yield data for separate strains not available. | U.R.19 |

9.3 According to the seed Multiplication scheme of the Agriculture Department the target fixed for the production of foundation seed is 1600 lbs/acre of seed farm area for Virippu season and 2400 lbs/acre during Mundakan season. These targets have not been achieved for any of the strains mentioned in the previous paragraph as may be seen from the following figures.

| | Virippu | | Mundakan | |
|---|---|---|---|---|
| *Seed Farm* | *Variety* | *Foundation seeds produced lbs/acre of cultivated farm area* | *Seed variety* | *Foundation seeds produced. lbs/acre of cultivated farm area* |
| Kodasseri | PTB-9 | 1048 | PTB-4 | 2150 |
| do. | PTB-32 | 755 | PTB-20 | 2080 |
| Chengamanad | PTB-9 | 830 | PTB-12 | 1506 |
| | | | PTB-20 | 1453 |
| Karunagappally | PTB-9 | 858 | U. R. 19 | 1736 |

The target could not be achieved as all the paddy could not be converted into seed since some of the seeds were disease affected. Moreover the harvesting charges in the farm were paid in kind according to the local practice and hence a portion of the paddy was not available for conversion into seed.

9.4 In the matter of distribution of seeds produced at the farms the best achievement is noticed in Karunagappally farm as the entire seed produced has been distributed in all the seasons studied. In the remaining two farms, the position has improved in 1962-63 as they could distribute 100 % of the seeds produced in Mundakan season. But during 1962-63 (Virippu) Kodasseri farm could distribute only 99 % of the seeds produced and Chengamanad farm could distribute only 85% of the seeds produced.

9.5 The investment per acre of farm area is highest for Karunagappally farm and lowest for Kodasseri farm. All the three farms have been working at a loss during 1962-63. The loss per acre of cultivated area is lowest for Kodasseri seed farm.

**10. Conclusion.** The data for the present study have been taken only for the two years 1961-62 and 1962-63. Further the data were not available fully for all the items. Due to these factors the results thrown out by the present study have to be handled with caution in making firm conclusions. Nevertheless it is hoped that the results are indicative of the important aspects relating to the general functioning of the seed farms studied.