Evaluation Study No. 13

HIGH YIELDING VARIETIES (PADDY) PROGRAMME

An
Evaluation Study

ISSUED BY :

BUREAU OF STATISTICS & EVALUATION
GOVERNMENT OF PONDICHERRY

INTRODUCTION

The Evaluation Report on High Yielding varieties (Paddy) Programme is the thirteenth issue in the evaluation series of the Bureau of Statistics and Evaluation, Pondicherry. The object of this study is to make a current assessment of the results obtained in the cultivation of high yielding varieties of paddy in selected villages in Pondicherry and Karaikal regions.

The willing co-operation extended by the Director of Agriculture in furnishing necessary data for this study and by the Project Executive Officer, Villianur, and the Block Development Officer, Karaikal, in providing staff for doing field work, is gratefully acknowledged. The comments of the Director of Agriculture and this Directorate's remarks on these comments are also appended to the report.

It is hoped that this publication will be useful to those who are concerned in the evaluation of Plan Schemes.

Pondicherry,
August 1971.

V. SUBBARAYALU,
Director.

HIGH YIELDING VARIETIES (PADDY) PROGRAMME

Introduction :

The launching of the High Yielding varieties programme after the close of the Third Plan, marked the beginning of a purposive endeavour to tackle the problem of insufficiency of agricultural production. With the object of achieving a definite break-through in agricultural productivity, nation-wide efforts were made to introduce certain new strains of seeds possessing yield potentials of a degree that are provenly superior to those of the conventional varieties with which the Indian farmer is familiar.

The magnitude of the job involved, which subsequently earned the charismatic appellation of 'green revolution' can hardly be gauged. For such diver factors as the vastness of the country, the multitudinous number of farmers, the variegated agro-climatic conditions obtaining, the deep rooted traditional prejudices of a vast majority of cultivators, the institution of an effective agro-technological base for providing the wherewithals for increased productivity and the financial limitations had to be reckoned with. Thanks to the dynamism displayed by the consortium of official as well as non-official agencies, the High Yielding varieties programme got into its stride in a promising manner. What is more, the programme had been successful at a relatively early stage in enthusing and energising the hitherto conservative average Indian farmer. Maintaining the same momentum, this programme has now brought about the conversion of the traditional pattern of cultivation into one of commercially scientific cultivation, with the result, that the country which was in desperate need of food imports till a few years ago, is at the moment well set in the path of achieving food self-sufficiency. In view, however, of the ever present menace of the constantly growing pressure of population on land, even a semblance of complacency should not be allowed to creep into this very vital programme of stepping up agricultural production.

As the term itself implies, high yielding varieties are those hybrid strains obtained by cross cultivation of certain exotic varieties developed locally and abroad. Under appropriate conditions, these varieties give very good response to heavy manuring, the yield being nearly double that of ordinary varieties in the case of paddy.

The acreage under various varieties of high yielding paddy cultivated in Pondicherry and Karaikal regions during the year 1969-70 is as follows :

Sl. No.	Variety	Area covered (in acres)	
		Pondicherry	Karaikal
1.	ADT-27	1,250	11,637
2.	IR-8	7,599	219
3.	CO-25	15,291	11,766
4.	CO-29	11,700	—
	Total ..	35,840	23,622

Some of the latest varieties viz., Jaya, Padma, I.R. 5 were introduced in this region for trial purposes in 1969-70.

The high yielding varieties of paddy seeds are procured from Agricultural Research Stations and multiplied in the State Seed Farms. These foundation seeds are then supplied to the Seed Farm ryots for production of secondary seeds for purpose of distribution to the farmers. A few of the enthusiastic and progressive cultivators make their own arrangements for getting the seeds directly from other sources as well.

Maximisation of yield is possible only if the soil types chosen for cultivation of high yielding varieties of paddy are suitable and also have necessary irrigation facilities. The choice in the initial stages of the programme obviously fell on such lands as were free from natural hazards and those that afford all other facilities for maximum production.

Planning for a programme implies assessment of resources, both internal and external, assessment of needs in terms of areas and other inputs of the programme, equitable allocation of available resources and adoption of proper methods and techniques. Only then could planning be realistic and purposeful.

Objectives :

The object of the present study is to make a current assessment of the result obtained in the cultivation of high yielding varieties of paddy in selected villages in Pondicherry and Karaikal regions.

Methodology of Investigation :

Out of the total of 388 census villages in the Union Territory, a sample of 30 villages—18 in Pondicherry and 12 in Karaikal—were selected for field investigation. In view of the limitations imposed by paucity of time and dearth of staff, it was not possible to prepare suitable frames for the purpose of selection of villages on a statistical basis ; hence, the villages

were slected purposively. However, the number of villages selected in each commune had been fixed in proportion to the extent of the area under paddy in the respective communes. The list of villages thus selected is given below :—

Pondicherry Region

1. Abishagapakkam.
2. Adingapet.
3. Irulansandai.
4. Karayambuthur.
5. Keezhparikalpet.
6. Kunichampet.
7. Sanyasikuppam.
8. Sompet.
9. Thirubuvanai.
10. Nainarmandapam.
11. Eripakkam.
12. Sooramangalam.
13. Ellapillaichavadi.
14. Mettupalayam.
15. Keezhagaram.
16. Keezhsathamangalam.
17. Manakuppam.
18. Poraiyur.

Karaikal Region

1. Kottupalayam.
2. Panjatcharapuram.
3. Kizhoduthorai.
4. Kizhapponbethi.
5. Kizhannavasal.
6. Melathipadugai.
7. Poovam.
8. Sayampalayam.
9. Melaoduthorai.
10. Sellur.
11. Nedungadu.
12. Vadamattam.

Keeping the agricultural year 1969–70 as the period of reference for this survey, 6 cultivators using high yielding varieties of paddy and 4 cultivators exclusively using the other varieties of paddy were chosen for canvassing of schedules. The field enquiry was conducted by the Village Level Workers. The total number of cultivators works out to (6X30)=180 in the case of users of high yielding varieties and (4X30)=120 in the case of users of other varieties. However, the total target of (180+120)=300 respondent cultivators could not be achieved, on account of non-availability of the requisite number of exclusive users of non-high yielding varieties in many villages. Out of the proposed 120 sample cultivators of non-high yielding varieties paddy, only 48 were actually available for field enquiry. Apart from this reduced number, even the data furnished by these cultivators of non-high yielding varieties were hardly complete. Under these circumstances, only a broad comparison of the results achieved by these two groups could be made.

FINDINGS OF THE SURVEY

1. *General classification* :

Field data for this survey has been collected from 108 cultivators of high yielding varieties of paddy and 45 cultivators of other varieties of paddy in Pondicherry region, 72 and 3 cultivators of corresponding categories in Karaikal region. For purpose of analysis of the results obtained, a holding sizewise classification had been adopted so as to enable an appraisal of the comparative performance of the small farmer, medium farmer and large farmer in their efforts to reap maximum benefits from the cultivation of high yielding varieties. A cultivator of high yielding variety is, for the purpose of this survey, one who has utilised any one or more of the high yielding varieties of paddy for cultivation during the agricultural year 1969–70. Similarly a cultivator has been classified as adopting non-high yielding varieties if he has not utilised any of the high yielding varieties of paddy during the year 1969–70.

2. *Distribution of cultivators according to the size of their operational holdings* :

The operational holding is the criterion adopted for determination of a cultivator as small, medium or large. 50.01% of the high yielding varieties cultivators interviewed possess an area of less than 5 acres and they are treated, for purposes of this survey, as small cultivators. Medium cultivators of high yielding varieties constitute 32.77%, their size of holdings ranging between 5 and 12 acres. Only 17.22% of those interviewed in the above group belong to the category of large farmers possessing holdings of size exceeding 12 acres. The corresponding percentages in the case of cultivators of non-high yielding varieties interviewed are 81.24%, 14.59% and 4.17%. The table below gives the distribution of farmers of both the groups according to the size of their holdings and the group codes which will figure uniformly in the subsequent tables.

TABLE 1

Holdings size-wise distribution of cultivators.

Sl. No.	*Area of Operational holding of small farmers (in acres)*	*Group Code*	*Number of cultivators*		*Percentage to group total*	
			High yielding varieties	*Non-high yielding varieties*	*High yielding varieties*	*Non-high yielding varieties*
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	Less than 1	A	2	5	1.11	10.41
2.	1 to less than 2	B	19	13	10.56	27.08
3.	2 „ 3	C	32	12	17.78	25.00
4.	3 „ 4	D	21	5	11.67	10.42
5.	4 „ 5	E	16	4	8.89	8.33
6.	5 „ 7	F	24	3	13.33	6.25
7.	7 „ 9	G	27	2	15.00	4.17
8.	9 „ 12	H	8	2	4.44	4.17

(1)	(2)	(3)	(4)	(5)	(6)	(7)
9.	12 „ 15	I	7	0	3.89	—
10.	15 and above	J	24	2	13.33	4.17
		Total ..	180	48	100.00	100.00

3. *Source of irrigation* :

Energised bore well is the major source of irrigation to the cultivators of both the high yielding varties and other varieties with over 45% of each group resorting to it. Similarly, 41.11% and 6.25% of the cultivators in both these categories respectively draw their water requirements from canals. Irrigational facilities are provided by tanks in the case of 6.11% of high yielding varieties cultivators and 22.92% of the other group. In contrast to 25% of non-high yielding varieties cultivators who are dependent on wells for irrigating their lands, only 7.2% of those in the high yielding varieties group are making use of this source of water supply.

TABLE 2

Source of irrigation

Sl. No.	Source of irrigation	Number of cultivators		Percentage to group total	
		High yielding varieties	*Non-high yielding varieties*	*High yielding varieties*	*Non-high yielding varieties*
(1)	(2)	(3)	(4)	(5)	(6)
1.	Wells (including those supplemented by tanks).	13	12	7.22	25.00
2.	Bore wells (including those supplemented by tanks)	82	22	45.56	45.83
3.	Tanks only	11	11	6.11	22.92
4.	Canals only	74	3	41.11	6.25
	Total ..	180	48	100.00	100.00

4. *Adequacy of irrigational facilities* :

The majority of high yielding varieties cultivators (73.89%) are satisfied with the available irrigational facilities whereas only 43.75% of those in the non-high yielding varieties group have reported satisfaction. 13.33% in the former group and 33.33% in the latter group have declared that their irrigational facilities are inadequate while the rest have not chosen to give any definite opinion.

TABLE 3

Adequacy of irrigational facilities

Sl. No.	*Category*	*Number of cultivators reporting*		*Percentage to group total*	
		High yielding varieties	*Non-high yielding varieties*	*High yielding varieties*	*Non-high yielding varieties*
(1)	(2)	(3)	(4)	(5)	(6)
1.	Adequate	133	21	73.89	43.75
2.	Not adequate	24	16	13.33	33.33
3.	No opinion	23	11	12.78	22.92
	Total ..	180	48	100.00	100.00

A. Data relating to Cultivators of High Yielding Varieties

1. *Period of adoption of high yielding practices* :

Out of 180 cultivators of high yielding varieties 64 or 35.56% are having three years experience in the same, while 15 or 8.33% among them are newly acquainted with such practices.

Table 4

Number of years of cultivation of high yielding varieties

Sl. No. and number of years	*Number of cultivators*	*Percentage to number of cultivators*
(1) (2)	(3)	(4)
1. One year	15	8.33
2. Two years	47	26.11
3. Three years	64	35.56
4. Four years	24	13.33
5. More than four years	30	16.67
Total ..	180	100.00

2. *Source of advice and observance of instructions given* :

In a majority of cases (55%) the cultivators were first advised about the adoption of high yielding varieties by the Village Level Workers and 43.33% by the Agricultural Extension Staff. Only 1.67% of them derived knowledge of high yielding varieties from their fellow cultivators.

Table 5

Agency from whom advice was received

Sl. No. and Type of Agency	*Number of cultivators*	*Percentage of cultivators*
(1) (2)	(3)	(4)
1. Agricultural Extension Staff ..	78	43.33
2. Village Level Workers	99	55.00
3. Others	3	1.67
Total ..	180	100.00

In the matter of observance of instructions given for cultivation of high yielding varieties, an overwhelming majority (169 or 93.89%) have reported strict adherence to these instructions.

TABLE 6

Observance of instructions given

Sl. No.	*Opinion*	*Number of cultivators*	*Percentage of cultivators*
(1)	(2)	(3)	(4)
1.	Instructions strictly followed ..	169	93.89
2.	Instructions not followed ..	11	6.11
	Total ..	180	100.00

3. *Crop-wise utilisation of high yielding Varieties :*

ADT-27 and CO-29 are the more extensively utilised varieties of high yielding paddy during the first crop season, the percentage of holdings under these varieties being 54.89% and 32.34% respectively. In the second crop season 88.88% of the cultivated holdings of high yielding varieties had been sown with CO-25, popularly known as 'coimbatore Samba'. CO-29 accounts for the most extensively used variety of seed for the third crop season. Considering the variety-wise utilisation of seeds during the whole agricultural year 1969-70, the high yielding variety users' preferences are in the following order :—CO-25 (34.85%), CO-29 (27.58%) and ADT-27 (23.33%).

TABLE 7

Distribution of cultivators according to high yielding varieties seeds and crops

Sl. No.	Variety of high yielding paddy	I Crop		II Crop		III Crop		Total	Percentage
		Number	Percentage	Number	Percentage	Number	Percentage		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1.	ADT-27	73	54.89	3	2.38	1	1.41	77	23.33
2.	IR-8	13	9.77	1	0.79	20	28.17	34	10.30
3.	CO-25	1	0.75	112	88.88	2	2.82	115	34.85
4.	CO-29	43	32.34	4	3.18	44	61.96	91	27.58
5.	IR-5	2	1.50	4	3.18	2	2.82	8	2.42
6.	Jaya	—	—	2	1.59	1	1.41	3	0.91
7.	Padma	1	0.75	—		1	1.41	2	0.61
	Total ..	133	100.00	126	100.00	71	100.00	330	100.00

Due to the variation in the number of crops cultivated by each cultivator the total number of harvests made in the different varieties by the 180 cultivators worked out to 330.

4. *Yield rate of high yielding varieties of paddy* :

The average per acre yield of all high yielding varieties of paddy, as reported by the cultivators interviewed, shows a great degree of variance. Thus, it ranges from as low a figure as 1,000 Kg. per acre as reported by 10.56% of the cultivators to as high a figure as 3,001 to 5,000 Kg. reported only by 2.78% of the cultivators. An yield rate of 1,251 to 1,500 Kg. is secured by 20% of cultivators, while in the case of 40% of them the yield obtained ranges from 1,501 to 2,250 Kg. The size of the operational holding does not appear to have any direct bearing over the yield obtained. While an average per acre yield of 2,751 to 3,000 Kg. is reported by 3 cultivators having holding of less than 3 acres, there are, on the other extreme, an equal number among those possessing holdings of above 12 acres who report as low an yield as 1,001 to 1,250 Kg. only.

TABLE 8

Distribution of cultivators according to range of yield obtained

		Range of yield teported (Kgs.)										
Sl. No.	*Code*	*Less than* 1,000	1,001—1,250	1,251—1,500	1,501—1,750	1,751—2,000	2,001—2,250	2,251—2,500	2,501—2,750	2,751—3,000	3,001—3,500	*Average Yield*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1.	A	—	—	—	2	—	—	—	—	—	—	1,600
2.	B	2	2	2	3	6	1	1	—	2	—	1,760
3.	C	2	5	6	5	3	6	3	1	1	—	1,730
4.	D	3	3	6	2	3	1	1	2	—	—	1,576
5.	E	2	4	3	3	—	1	2	—	1	—	1,636
6.	F	2	2	6	2	2	2	3	4	—	1	1,851

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
7.	G	3	5	5	2	3	7	2	—	—	—	1,629
8.	H	2	—	—	—	1	4	1	—	—	—	1,793
9.	I	1	—	1	—	2	1	2	—	—	—	1,850
10.	J	2	—	7	5	2	3	1	—	—	4	1,881
Total ..		19	21	36	24	22	26	16	7	4	5	1,734
Percentage		10.56	11.67	20.00	13.33	12.22	14.44	8.89	3.89	2.22	2.78	

Similarly, comparing the yield obtained by the largest number of cultivators in each holding group, it is again found that it is subject to wide fluctuation, no definite relationship being discernible between the size of holding and the yield reported by the largest number of cultivators in each holding group. The average per acre yield reported by cultivators of high yielding varieties works to 1,734 Kgs.

5. *Number of crops cultivated* :

Kuruvai (I crop) and Samba (II crop) seasons were utilised for cultivation of high-yielding varieties by 22.22% of the cultivators. Those who cultivated in the Navarai (III crop) season as well form 15%. It is significant to note that nearly a third of the cultivators interviewed have raised only a single crop during 1969–70. Those who raised two crops, either I and II, I and III or II and III constitute 47.78%. Naturally the capacity of the small farmer to make use of all the three seasons for cultivation is limited. While 32.26% of the large farmers and 20.33% of the medium farmers raise three crops a year, only 6.66% of the small farmers are fortunate enough to reap the benefits of three crops a year.

TABLE 9

Distribution of cultivators according to number of crops cultivated

Sl. No.	*Code*	*No. of holdings*	*I Crop*	*II Crop*	*III Crop*	*I & II Crops*	*I & III Crops*	*II & III Crops*	*I, II & III Crops*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1.	A	2	2	—	—	—	—	—	—
2.	B	19	3	3	6	4	2	1	—
3.	C	32	6	3	5	13	2	—	3
4.	D	21	4	5	2	9	—	—	1
5.	E	16	1	3	5	3	2	—	2
6.	F	24	2	—	2	11	2	2	5
7.	G	27	—	4	5	10	2	—	6
8.	H	8	—	1	—	5	—	1	1
9.	I	7	—	1	—	2	—	—	4
10.	J	24	2	—	2	15	—	—	5
	Total ..	180	20	20	27	72	10	4	27
	Percentage ..		11.11	11.11	15.00	40.00	5.56	2.22	15.00

6. *Credit requirements :*

Out of 180 agriculturists contacted 80 (or 44.44%) have stated that they have secured loans for purposes of cultivation of high yielding varieties. The amount of loan obtained by 30% of them is between Rs. 251 to Rs. 500. Loans amounting to Rs. 250 and below were availed of by 3.75% of them, whereas 7.50% of the cultivators belonging to the middle or large farmer group have taken advances ranging from Rs. 2,001 to Rs. 3,000. Nine cultivators have not stated the amount of loan obtained by them.

TABLE 10

Distribution of cultivators according to Quantum of Credit Obtained

Sl. No.	*Code*	*Less than 250*	*251—500*	*501—1,000*	*1,001—1,500*	*1,501—2,000*	*2,001—3,000*	*Amount not stated*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1.	A	1	—	—	—	—	—	1
2.	B	..	7	—	—	—	—	3
3.	C	2	7	—	—	—	—	—
4.	D	—	1	1	—	—	—	1
5.	E	—	1	3	—	—	—	2
6.	F	—	2	4	2	—	—	—
7.	G	—	3	7	1	2	—	2
8.	H	—	2	3	—	1	1	—
9.	I	—	—	—	1	3	—	—
10.	J	—	1	3	2	5	5	—
	Total ..	3	24	21	6	11	6	9
	Percentage ..	3.75	30.00	26.25	7.50	13.75	7.50	11.25

7. Source of credit and interest paid ;

While co-opeative institutions have financed the loan requirements of 82.50% of the loanees, private sources have helped to meet the financial requirements of the rest. None among those who have availed of co-operative credit complained of any delay in the sanctioning of the loan amount.

TABLE 11

Source of credit

Sl. No.	*Code*	*Co-operative Bank*	*Agriculture Department*	*Private source*
(1)	(2)	(3)	(4)	(5)
1.	A	1	—	1
2.	B	4	—	6
3.	C	8	—	1
4.	D	2	—	1
5.	E	4	—	2
6.	F	7	—	1
7.	G	13	—	2
8.	H	7	—	—
9.	I	4	—	—
10.	J	16	—	—
	Total ..	66	—	14

The rate of interest paid by the majority of 72.50% of the loanees is between 7 and 8% while 7.50% have paid over 12%. The cultivators paying such high rate of interest are mostly small farmers.

TABLE 12

Rate of Interest paid

Sl. No.	*Code*	*Rate of interest paid*				
		Less than 7	7—8	8—10	10—12	*More than 12*
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	A	1	1	—	—	—
2.	B	2	3	1	1	3
3.	C	—	8	—	—	1

(1)	(2)	(3)	(4)	(5)	(6)	(7)
4.	D	1	2	—	—	—
5.	E	2	3	—	—	1
6.	F	1	5	1	—	1
7.	G	1	12	—	2	—
8.	H	—	5	2	—	—
9.	I	—	4	—	—	—
10.	J	1	15	—	—	—
Total ..		9	58	4	3	6
Percentage ..		11.25	72.50	5.00	3.75	7.50

8. *Availability of inputs*:

The requirements of the cultivators in the matter of supply of seeds fertilisers and pesticides were mostly met by Agriculture Department, or private dealers. A few cultivators have themselves raised their seeds.

TABLE 13

Source of Supply of High Yielding Varieties Seeds

Sl. No.	*Code*	*Agriculture Department*	*Private dealers*	*Own seeds*	*Total*
(1)	(2)	(3)	(4)	(5)	(6)
1.	A	—	2	—	2
2.	B	13	5	1	19
3.	C	13	14	5	32
4.	D	8	10	3	21
5.	E	9	5	2	16
6.	F	16	4	4	24
7.	G	16	3	8	27
8.	H	5	—	3	8
9.	I	7	—	—	7
10.	J	18	3	3	24
Total ..		105	46	29	180
Percentage ..		58.33	25.56	16.11	100.00

9. *Satisfaction with various aids offered* :

Quite a large percentage (92.22%) of the cultivators have expressed satisfaction with the aids offered for cultivation of high yielding varieties. Out of the not so satisfied group of 14 cultivators only 2 have given specific

reasons for their considering as inadequate the aids now offered in this regard. For one of them it is the inadequacy of credit which for the other it is inadequacy of necessary inputs. The remaining 12 cultivators have not come forward to express any specific reason for their considering the aids as being inadequate. It may also be mentioned that out of the 14 in the dissatisfied group only 3 cultivators belong to the small farmer category of those having an operational holding of less than 5 acres.

TABLE 14

Satisfaction with various aids offered for cultivation of high yielding Varieties

Code	Total number of cultivators	Number satisfied	Percentage to group total	Not satisfied—Reasons			
				Not Stated	Lack of credit facilities	Lack of pesticides	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A	2	2	100	—	—	—	—
B	19	19	100	—	—	—	—
C	32	30	93.75	2	—	—	2
D	21	21	100	—	—	—	—
E	16	15	93.75	—	1	—	1
F	24	23	95.83	1	—	—	1
G	27	22	81.48	4	—	1	5
H	8	8	100	—	—	—	—
I	7	6	85.71	1	—	—	1
J	24	20	83.33	4	—	—	4
Total ..	180	166	92.22	12	1	1	14

10. *Cost of cultivation of high yielding Varieties* :

It is strange to note that the range of variation in the matter of per acre cost of cultivation as reported by high yielding varieties cultivators is indeed quite large. While the largest group of 37.23% of the cultivators have reported an average per-acre cost of Rs. 301 to Rs. 500, 15% of them have stated that their expenditure was less than Rs. 250 per acre. One cultivator in the holding group of 1 to 2 acres had claimed that is average cost of cultivation of High yielding varieties works out to anything between Rs. 1,001 to Rs. 1,500 per acre.

TABLE 15

Distribution of cultivators according to cost of cultivation of High Yielding Varieties

Sl. No.	Code	Less than Rs. 250	Rs. 251 300	Rs. 301 500	Rs. 501 700	Rs. 701 1,000	Rs. 1,001 1,500	More than Rs. 1,500	Total	Average cost (in Rs.)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1.	A	—	—	—	2	—	—	—	2	650
2.	B	1	—	12	3	2	1	—	19	521
3.	C	6	9	9	5	3	—	—	32	379
4.	D	6	3	7	4	1	—	—	21	400
5.	E	1	3	9	1	2	—	—	16	469
6.	F	3	5	7	6	3	—	—	24	472
7.	G	5	3	11	5	3	—	—	27	453
8.	H	—	1	3	1	3	—	—	8	563
9.	I	1	1	2	2	1	—	—	7	516
10.	J	4	10	7	1	2	—	—	24	381
Total ..		27	35	67	30	20	1	—	180	445
Percentage ..		15.00	19.44	37.23	16.67	11.11	0.55	—	100.00	—

It is still more interesting to note that even among farmers belonging to the same operational holding size, the cost reported varies from as low a figure of Rs. 250 per acre to Rs. 701 to 1,000. The average cost of cultivation of high yielding varieties per acre works out to Rs. 445.

11. *Gross value of out put per acre :*

Three cultivators, two having holdings of 3 to 4 acres and one possessing between 7 to 9 acres have stated that the gross value of the output realised by them is a mere Rs. 250 per acre. In contrast another three cultivators, in the 1 to 2 acres, 4 to 5 acres and 5 to 7 acres holdings group report that the value of their output is over Rs. 1,500 per acre. In between these extremes the majority of 58.35% of the cultivators have declared that the value of output realised by them is anything between Rs. 501 to Rs. 1,000. These data relate to the figures of average value of gross output reported by the cultivators interviewed, irrespective of the varieties of high yielding paddy utilised. The average gross value of output per acre works out to Rs. 832.

TABLE 16

Distribution of cultivators according to gross value of output per acre

Sl. No.	Code	Less than Rs. 250	Rs. 251 300	Rs. 301 500	Rs. 501 700	Rs. 701 1,000	Rs. 1,001 1,500	More than Rs. 1,500	Total	Average value in Rs.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1.	A	—	—	—	—	—	2	—	2	1,150
2.	B	—	1	4	4	7	2	1	19	904
3.	C	—	—	8	15	8	1	—	32	733
4.	D	2	1	5	5	6	2	—	21	694
5.	E	—	—	4	3	6	2	1	16	890
6.	F	—	—	3	6	7	7	1	24	855
7.	G	1	—	2	6	10	8	—	27	849
8.	H	—	—	—	3	—	5	—	8	989
9.	I	—	—	1	1	1	4	—	7	946
10.	J	—	1	1	7	10	5	—	24	834
Total ..		3	3	28	50	55	38	3	180	832
Percentage ..		1.66	1.66	15.56	27.79	30.56	21.11	1.66	100.00	—

12. *Cultivation of non-high yielding varieties by high yielding varieties cultivators :*

Out of 180 cultivators of high yielding varieties as many as 100 (55.56%) have simultaneously cultivated other varieties of paddy. Among these an yield of less than 1,000 Kg. per acre is reported by 12 cultivators, while one has stated having achieved an yield of more than 3,000 Kg. per acre which is quite sumptuous for a non-high yielding strain of paddy.

TABLE 17

Distribution of cultivators according to Range of Yield Reported from cultivation of non-high yielding varieties.

Sl. No.	Code	Less than 1,000	1,001 1,250	1,251 1,500	1,501 1,750	1,751 2,000	2,001 2,250	2,251 2,500	2,501 2,750	2,751 3,000	More than 3,000	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1.	A	—	—	2	—	—	—	—	—	—	—	2
2.	B	—	1	7	—	5	—	—	—	—	—	13
3.	C	2	3	5	2	3	1	—	—	—	—	16
4.	D	1	4	2	1	2	1	—	—	—	—	11
5.	E	1	1	3	—	1	2	—	—	—	—	8
6.	F	—	—	4	1	2	2	—	—	1	1	11
7.	G	2	4	1	2	2	5	—	—	—	—	16
8.	H	1	—	—	3	—	—	1	—	1	—	6
9.	I	1	—	—	—	4	—	—	—	—	—	5
10.	J	4	2	—	2	2	—	1	—	1	—	12
Total ..		12	15	24	11	21	11	2	—	3	1	100

The largest number of cultivators (24) have reported having obtained an average yield of 1,251 to 1,500 Kg. per acre from the non-high-yielding varieties.

13. *Per acre cost of cultivation of non-high yielding varieties* :

A mere Rs. 150 is stated to be the per acre cost of cultivation of non-high yielding varieties by three cultivators while in the case of 4 it is over Rs. 600.

TABLE 18

Distribution of cultivators according to the per acre cost of cultivation of non-high yielding varieties.

Code (1)	*Less than* 150 (2)	151—200 (3)	201—300 (4)	301—400 (5)	401—500 (6)	501—600 (7)	*More than* 600 (8)	*Total* (9)
A	—	—	2	—	—	—	—	2
B	—	—	4	4	4	1	—	13
C	2	1	4	2	4	1	2	16
D	—	1	3	3	1	1	2	11
E	—	—	5	3	—	—	—	8
F	—	—	2	6	2	1	—	11
G	—	—	2	8	6	—	—	16
H	—	1	1	—	4	—	—	6
I	—	1	—	2	2	—	—	5
J	1	1	4	3	—	3	—	12
Total ..	3	5	27	31	23	7	4	100

For the largest group of cultivators (31) the average per acre cost on cultivation of non-high yielding varieties works out to Rs. 301 to Rs. 400.

14. *Reasons for simultaneous cultivation of non-high yielding varieties* :

The majority (59%) of those cultivating non-high yielding varieties have stated that the non-high yielding varieties are more palatable for their personal domestic consumption and as such they are devoting a part of their acreage for such varieties. 15% of them have taken to partial cultivation of non-high-yielding varieties for reasons of lack of adequate finance to cover their entire holdings with high yielding varieties. In the case of 9% of them, they had to resort to cultivation of non-high yielding varieties for want of assured irrigation facilities.

TABLE 19

Distribution of cultivators according to reasons for cultivation of Non-High Yielding Varieties

Code	Cultivation is Economic	More palatable for personal use	Better resistance to Disease	Lack of Irrigation
(1)	(2)	(3)	(4)	(5)
A	—	—	2	—
B	2	8	1	2
C	3	9	4	—
D	1	9	1	—
E	2	6	—	—
F	2	8	—	1
G	4	5	4	3
H	1	3	2	—
I	—	4	—	1
J	—	7	3	2
Total ..	15	59	17	9

15. *Opinion regarding the remunerative and marketing aspects of high yielding varieties :*

An overwhelming proportion (89.45%) of cultivators of high yielding varieties declare that this cultivation is reasonably remunerative. Only 3.33% of them go to the extent of dubbing the high yielding varieties as non-remunerative while 7.22% of the more enthusiastic farmers maintain that the cultivation of high yielding varieties is quite remunerative.

TABLE 20

Opinion regarding nature of remuneration

Code	Number of cultivators	Reporting that cultivation of high yielding varieties is		
		Highly remunerative	Remunerative	Not remunerative
(1)	(2)	(3)	(4)	(5)
A	2	2	—	—
B	19	2	15	2
C	32	—	32	—
D	21	—	21	—
E	16	1	14	1
F	24	2	21	1
G	27	4	22	1
H	8	1	7	—
I	7	1	6	—
J	24	—	23	1
Total ..	180	13	161	6
Percentage.	—	7.22	89.45	3.33

Again in the marketing of their produce most of them (68.33%) do not report any obstacle, while the remaining 31.67% state that they do experience difficulty in this connection. However, it is significant to note that, notwithstanding the above mentioned considerations of remunerativeness and marketing difficulties, all the cultivators with the exception of a single farmer have stated that they will continue to cultivate high yielding varieties in future as well.

TABLE 21

Marketing Difficulties

Code	Number of cultivators			
	Reporting difficulty in marketing		*Who will continue with high yielding varieties*	
	Yes	*No*	*Yes*	*No*
(1)	(2)	(3)	(4)	(5)
A	2	—	2	—
B	9	10	19	—
C	11	21	32	—
D	7	14	21	—
E	7	9	16	—
F	6	18	24	—
G	7	20	26	1
H	1	7	8	—
I	2	5	7	—
J	5	19	24	—
Total ..	57	123	179	1
Percentage.	31.67	68.33	99.14	0.56

B. CULTIVATORS OF NON-HIGH YIELDING VARIETIES

1. *Cropwise utilisation of Non-High Yielding Varieties* :

Four varieties of non-high yielding strains are popular with this group of cultivators. They are BCP-1, ASD-5, BAM-3 and Kullakar. 43.75% of the cultivators have chosen BCP-1.

TABLE 22

Varieties of non-high yielding paddy utilised cropwise

Sl. No.	*Crop*	*I Crop*	*II Crop*	*III Crop*	*Total*	*Percentage*
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	BCP-1	—	21	—	21	43.75
2.	ASD-5	—	12	—	12	25.00
3.	BAM-3	—	10	—	10	20.83
4.	Kullakar	—	—	5	5	10.42

2. *Number of crops cultivated* :

In sharp contrast to the cultivators of high yielding varieties, those cultivating non-high yielding varieties are by and large making use of only the II crop-season (Samba). Their percentage is as high as 87.50%. One cultivator of non-high yielding varieties in the medium farmer group has harvested two crops (I and II) and 50 other small farmers are cultivating during the II and III crop seasons. None among this group has reaped the benefits of three crops.

TABLE 23

Distribution of cultivators according to number of crops cultivated.

Sl. No.	*Code*	*I Crop*	*II Crop*	*III Crop*	*I & II Crops*	*I & III Crops*	*II & III Crops*	*I, II & III Crops*	*Total*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1.	A	—	3	—	—	—	2	—	5
2.	B	—	11	—	—	—	2	—	13
3.	C	—	11	—	—	—	1	—	12
4.	D	—	5	—	—	—	—	—	5
5.	E	—	4	—	—	—	—	—	4
6.	F	—	2	—	1	—	—	—	3
7.	G	—	2	—	—	—	—	—	2
8.	H	—	2	—	—	—	—	—	2
9.	I	—	—	—	—	—	—	—	—
10.	J	—	2	—	—	—	—	—	2
	Total ..	—	42	—	1	—	5	—	48
	Percentage ..	—	87.50	—	2.08	—	10.42	—	100.00

3. *Yield rate of non-high yielding Varieties :*

The yield reported in the cultivation of non-high yielding varieties ranges from 1,000 Kg. per acre, in the case of 27.09 % of this category of cultivators, to 3,001 to 3,500 Kg. per acre in the case of 2.08 % of them. The largest number constituting 29.17 % of this group report an average yield of 1,251 to 1,500 Kg. per acre. The average per acre yield from cultivation of non-high yielding varieties works out to 1,295 Kgs.

TABLE 24

Distribution of cultivators according to range of yield of non-high yielding varieties.

Sl. No.	Code	Rate of yields reported (In kgs.)										
		Less than 1,000	1,001 to 1,250	1,251 to 1,500	1,501 to 1,750	1,751 to 2,000	2,001 to 2,250	2,251 to 2,500	2,501 to 2,750	2,751 to 3,000	3,001 to 3,500	*Average Yield in Kgs.*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1.	A	4	—	1	—	—	—	—	—	—	—	835
2.	B	1	3	3	5	1	—	—	—	—	—	1,437
3.	C	2	4	4	1	—	1	—	—	—	—	1,279
4.	D	—	1	4	—	—	—	—	—	—	—	1,292
5.	E	1	1	1	—	1	—	—	—	—	—	1,291
6.	F	1	—	1	—	1	—	—	—	—	—	1,288
7.	G	1	—	—	—	—	—	—	—	—	1	2,289
8.	H	1	1	—	—	—	—	—	—	—	—	1,050
9.	I	—	—	—	—	—	—	—	—	—	—	—
10.	J	2	—	—	—	—	—	—	—	—	—	900
Total ..		13	10	14	6	3	1	—	—	—	1	4,295
Percentage.		27.09	20.83	29.17	12.50	6.25	2.08	—	—	—	2.08	

4. *Credit facilities* :

Compared to the cultivators of high yielding varieties those of the varieties have lesser resort to loans for purposes of cultivation. Only 10 of the 48 cultivators (20.84%) have obtained loans and with the exception of two the rest belong to the small farmers group. Of the ten seven (14.59%) got loans from co-operative societies. The rest (6.25%) have tapped private sources for financing their cultivation.

TABLE 25

Source of credit

Sl. No.	*Code*	*Number*	*Source of Credit*	
			Co-operative Societies	*Private*
(1)	(2)	(3)	(4)	(5)
1.	A	5	—	—
2.	B	13	—	2
3.	C	12	—	2
4.	D	5	2	1
5.	E	4	1	—
6.	F	3	—	—
7.	G	2	—	—
8.	H	2	—	1
9.	I	—	—	—
10.	J	2	—	1
	Total ..	48	3	7
	Percentage ..	—	6.25	14.59

Six cultivators who have taken loans are paying an interest rate of 10 to 12%, two are paying between 7 and 8%, while the remaining two are having an interest burden of over 12%.

TABLE 26

Rate of Interest paid

Sl. No.	Code	Rate of Interest			
		7—8	8—10	10—12	Over 12
(1)	(2)	(3)	(4)	(5)	(6)
1.	A	—	—	—	—
2.	B	—	—	1	2
3.	C	1	—	2	—
4.	D	1	—	1	—
5.	E	—	—	—	—
6.	F	—	—	—	—
7.	G	—	—	—	—
8.	H	—	—	1	—
9.	I	—	—	—	—
10.	J	—	—	1	—
Total ..		2	—	6	2
Percentage ..		14.29	—	43.84	14.29

Five of the loanees have obtained less than Rs. 250, 4 have got between Rs. 251 to Rs. 500 and remaining one is indebted to the extent of Rs. 1,001 to Rs. 1,500. All the ten farmers have stated that they had obtained the loans on time.

TABLE 27

Quantum of credit in Rupees

Code	*Less than* 250	251—500	501—1,000	1,001—1,500
(1)	(2)	(3)	(4)	(5)
A	3	—	—	—
B	2	1	—	—
C	—	1	—	—
D	—	2	—	—
E	—	—	—	1
F	—	—	—	—
G	—	—	—	—
H	—	—	—	—
I	—	—	—	—
J	—	—	—	—
Total ..	5	4	—	1
Percetage to Grand Total.	33.33	26.67	—	6.67

5. *Supply of inputs* :

The cultivators of non-high yielding varieties have made their own arrangements for procuring the seeds required by them. In the case of fertilisers, they have obtained their supplies from co-operative societies as well as from private sources. The quantity of pesticides required by them had been supplied by the Agriculture Department.

6. *Satisfaction with facilities for cultivation of non-high yielding varieties* :

The majority of cultivators (83.33%) are satisfied with the existing facilities for cultivation of non-high yielding varieties.

TABLE 28

Satisfaction with existing facilities for cultivation of non-high yielding varieties

Code	*Total number of cultivators*	*Number of cultivators satisfied with aids*	*Percentage of group total*
(1)	(2)	(3)	(4)
A	5	3	60.00
B	13	10	76.92
C	12	10	83.33
D	5	5	100.00
E	4	4	100.00
F	3	2	66.67
G	2	2	100.00
H	2	2	100.00
I	—	—	—
J	2	2	100.00
Total ..	48	40	83.33

7. *Awareness of the remunerative aspect of high yielding varieties*

As the table below indicates as many as 42 cultivators of non-high yielding varieties are convinced about the profitability of cultivation of high yielding varieties. Only 6 cultivators (12.50%) are still to be convinced about this fact.

TABLE 29

Awareness of remunerative aspect of high yielding varieties

Sl. No.	*Code*	*Number reporting cost of cultivation of high yielding varieties is*		
		Highly remunerative	*Remunerative*	*Not remunerative*
(1)	(2)	(3)	(4)	(5)
1.	A	—	5	—
2.	B	1	9	3
3.	C	2	9	1
4.	D	1	4	—
5.	E	—	3	1
6.	F	2	1	—
7.	G	—	1	1
8.	H	1	1	—
9.	I	—	—	—
10.	J	1	1	—
	Total ..	8	34	6
	Percentage ..	16.67	70.83	12.50

8. *Inclination for cultivation of high yielding varieties :*

Eventhough 87.50% of the non-high yielding varieties cultivators agree that the cultivation of high yielding varieties is remunerative, nearly 40% of them appear to be indifferent about taking up the cultivation of such varieties.

TABLE 30

Incentives required for high yielding varieties cultivation.

Sl. No.	Code	Nature of assistance required				
		More credit	*Better irrigation*	*Drainage facilities*	*Agricultural implements*	*No opinion*
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	A	3	—	—	—	2
2.	B	3	2	—	2	6
3.	C	1	7	1	—	3
4.	D	—	1	1	—	3
5.	E	—	3	—	—	1
6.	F	—	3	—	—	—
7.	G	—	—	1	—	1
8.	H	—	1	—	—	1
9.	I	—	—	—	—	—
10.	J	—	—	—	—	2
	Total ..	7	17	3	2	19
	Percentage ..	14.58	35.42	6.25	4.17	39.58

It is obvious that better irrigational facilities more than anything else, would induce a greater number of ryots to take to cultivation of high yielding varieties. Over 35% of the cultivators have stated that, if assistance for better irrigational facilities could be provided, they would take up cultivation of high yielding varieties.

9. *Per acre cost of cultivation of non-high yielding varieties :*

Four cultivators of this group are spending only between Rs. 101 to Rs. 200 per acre while one is incurring as high an expenditure as Rs. 901 to Rs. 1,000 for cultivation of non-high yielding varieties. The per acre cost of cultivation of non-high-yielding varieties reported by the largest group (39.58%) of cultivators is between Rs. 201 to Rs. 300.

TABLE 31

Distribution of cultivators according to per acre cost of cultivation of non-high yielding varieties.

Code	Rs. 101—200	Rs. 201—300	Rs. 301—400	Rs. 401—500	Rs. 501—700	Rs. 701—900	Rs. 901—1,000
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A	2	—	—	—	3	—	—
B	1	6	5	—	1	—	—
C	—	5	4	3	—	—	—
D	—	3	—	1	—	—	1
E	—	1	1	1	1	—	—
F	—	—	1	2	—	—	—
G	1	1	—	—	—	—	—
H	—	1	—	1	—	—	—
I	—	—	—	—	—	—	—
J	—	2	—	—	—	—	—
Total ..	4	19	11	8	5	—	1
Percentage ..	8.33	39.58	22.92	16.67	10.42	—	2.08

10. *Opinion regarding marketing difficulties and prospective cultivation of high yielding varieties :*

Only 16.67% of the cultivators report encountering marketing difficulties for their produce. Paradoxically enough, though all the 48 cultivators are inclined to get educated about high yielding varieties more than half of them do not envisage shifting to the cultivation of high yielding varieties in the near future.

TABLE 32

Marketing difficulties.

Code	Marketing difficulties		No opinion	Inclined to get more information about high yielding varieties		Will continue cultivation of non-high yielding varieties	
	Yes	No		Yes	No	Yes	No
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A	—	3	2	5	—	—	5
B	2	8	3	13	—	7	6
C	2	8	2	12	—	7	5
D	1	4	—	5	—	4	1
E	3	1	—	4	—	3	1
F	—	3	—	3	—	2	1
G	—	2	—	2	—	2	—
H	—	2	—	2	—	—	2
I	—	—	—	—	—	—	—
J	—	2	—	2	—	—	2
Total ..	8	33	7	48	—	25	23
Percentage ..	16.67	68.75	14.58	100.00	—	52.08	47.92

Summary of findings

1. In the sample number of respondents interviewed a greater percentage (81.16%) of cultivators are small farmers in the non-high yielding varieties category, while in the case of high yielding varieties category nearly 60% of the cultivators are medium or large farmers. Hence, the need for attracting a greater number of small farmers to the cultivation of high yielding practice is evident.

2. That assured irrigational facilities are one of the prime determinants of high yielding cultivation is substantiated by the fact that over 86% of the high yielding varieties cultivators are dependent on energised borewells and tanks. Among the non-high yielding varieties cultivators, only 43.75% have reported satisfaction about irrigational facilities available to them.

3. The percentage of new entrants to the technique of high yielding varieties cultivation (among the high yielding varieties cultivators interviewed) is 8.33%. The benefit of propagational measures adopted by the Block and the Agriculture Department have been derived by over 98% of the high yielding varieties cultivators, and nearly an equal number (94%) have reported having strictly observed the instructions given What is even more encouraging is the fact that over 92% of the cultivators have reported to be satisfied with the various aids offered for the cultivation of high yielding varieties.

4. Notwithstanding the introduction of newer strains of high yielding paddy, over 62% of the cultivators of high yielding varieties stick to the cultivation of CO-25 and CO-29 varieties.

5. A wide divergence is noticed in the yield rate reported by the cultivators. It is surprising that an yield rate of less than 1,000 Kg. per acre is reported by 19 cultivators. An average yield of 1,000 to 1,500 Kg. per acre which too is on the low side, is reported by 31.67% of the cultivators. That over a third of the high-yielding varieties cultivators should continue the cultivation of high yielding varieties at higher cost with such poor returns is rather baffling. The outturn figures are perhaps not quite correct. Another relevant observation is that there is no palatable difference in yield rate between small, medium and large farmers.

6. Nearly a third of the cultivators of high-yielding varieties have made use of only a single cropping season. So also in the non-high yielding varieties category, a vast majority of 87.50% were satisfied with a single crop. In both the categories, it is evident that there is much room for intensification of land utilisation.

7. Very limited resort to credit facilities has been made by the cultivators of both the categories. Further the amount of credit obtained by them appears to be somewhat meagre. More than 55% of the high yielding varieties cultivators have carried out cultivation without any credit aid.

8. There are practically no complaints regarding the availability of inputs necessary for high yielding varieties cultivation. This testifies to the existence of an effective distribution net work for the supply of various inputs.

9. Cost of cultivation of high-yielding varieties :—Here again, a wide variation is noticed in the range of cost incurred for cultivation of high yielding varieties. The cost per acre ranges from less than Rs. 250 to Rs. 1,001 to Rs. 1,500. Both these figures are obviously extremes and are hardly acceptable without reservation. Similar divergence is discernible in the value of output per acre realised by the cultivators. The value fluctuates from Rs. 250 to over Rs. 1,500 per acre.

10. While out of 180 cultivators of high yielding varieties the largest group (36) report obtaining an yield of 1,251 to 1,500 Kgs. per acre, the largest group (14) out of 48 cultivators of non-high yielding varieties also report getting a similar amount of 1,251 to 1,500 Kgs. per acre. Though this observation cannot possibly detract from the superior yield capacity of the high yielding strains, it is evident that methods of cultivation exercise, comparatively speaking, a formidable effect on the quantum of yield obtained, whether the strain of the seed utilised is a high yielding one or not.

11. The greater palatability of the conventional non-high yielding varieties is one major reason for the cultivators of high yielding varieties resorting to partial cultivation of non-high yielding varieties. Lack of finance or irrigational facilities has also forced some of the cultivators to restrict the area under high yielding varieties.

12. Approximately one third (31.67%) of the cultivators have reported experiencing difficulty in the marketing of high-yielding varieties of paddy. However, it is significant to note that almost all the cultivators of high yielding varieties have uniformly stated that they will continue cultivation of high-yielding varieties despite the existence of minor impediments such as the one referred to above.

13. The large majority (87.50%) of cultivators of non-high-yielding varieties make use only of a single cropping season for cultivation. None among those in the group of non-high-yielding varieties cultivators have harvested three crops. Eventhough they mostly agree about the higher remunerative aspect of the high yielding varieties, 40% of the non-high

yielding varieties cultivators are not enthusiastic about taking up the cultivation of high yielding varieties. More than half of them have stated that they do not envisage shifting to high yielding varieties in the near future.

14. Among the non-high yielding varieties cultivators who have expressed inclination to cultivate high yielding varieties, the immediate felt need is provision of assured irrigational facilities.

COMMENTS OF THE DIRECTOR OF AGRICULTURE

1. As the information has been gathered by interviewing a very limited number of farmers by the village Level Workers, it cannot be assumed that small farmers are not coming forward to take up High Yielding Varieties. Our experience is that small farmers have already taken up cultivation of High Yielding Varieties in considerable number. Further, it is hoped that the implementation of Marginal Farmers and Agricultural Labourers Development Agency Scheme will attract more and more small farmers to take up High Yielding Varieties in view of the irrigation and loan facilities that are to be made available to them under the scheme.

2. No comment.

3. No comment.

4. Co. 29 and Co. 25 are very popular High Yielding Varieties of this Union Territory. The area under Co. 25 is gradually getting replaced by short-duration varieties. The ryots prefer to grow Co. 29 variety since the other high yielding varieties like IR. 8 and IR. 5 which yield more than Co. 29 are course varieties and are not easily marketable. With the introduction of finer high yielding varieties to replace these, it is hoped that Co. 29 variety also will be replaced by number yielders in course of time.

5. This may be due to the defect in the system adopted for the enquiry. The persons who enquired the same would not have been supplied with the correct information by the ryots. The position is that nearly 80% of the area in Pondicherry and Karaikal regions has been covered under High Yielding Variety Programme. If the output was discouraging, the ryots would not have taken up cultivation of High Yielding varieties and covered so much area. Hence, there is no justification for the conclusion that " over 1/3 of the High Yielding variety ryots are continuing the same with poor return ". The outturn is definitely more than traditional varieties or even the other improved varieties. No High Yielding Variety has so far yielded less than 1,500 Kgs. per acre on an average. That is why ryots continue to favour cultivation of High Yielding Varieties.

6. It does not seem to be correct to say that one third of the cultivated area is under single crop.

7. No comments.

8. No comments.

9. This department does not agree with the figures arrived at in respect of cost of cultivation and value of output indicated. The cost of cultivation of High Yielding Variety paddy ranges between Rs. 650 to Rs. 700 according to enqtiiries conducted by the Agriculture Department.

10. In view that the quantum of yield obtained in ordinary variety will be the same as that of High Yielding Varieties if proper methods are followed cannot be agreed to i.e., High Yielding Varieties are high fertility strains. Ordinary varieties have no capacity to absorb more of nutrients and thus to give more yield. Ordinary varieties cannot yield beyond a certain limit, whereas the High Yielding Varieties respond admirably to manuring due to their genetic composition. The figures arrived at in this regard do not conform to reality.

11. Only very few varieties such as IR. 8 are not palatable when compared to other varieties. Even then, owing to the increased output the ryots are cultivating more and more of high yielding varieties. More stress is laid in Research to elimi nate undesirable qualities like impalatability while evolving new varieties and new varieties are found to have overcome this defect. Efforts to overcome the restrictions and making the financial assistance easily available to all categories of land users are, taken up.

12. Difficulties experienced for marketing of grains of High Yielding Varieties are negligible when compared to the appreciable returns. That is why the ryots have uniformly stated that they will continue cultivation of high yielding varieties.

13. There is no justification for this view and is contradictory to the findings stated in the earlier paras.

14. No comments.

General Comments :

The study first of its kind in respect of high yielding varieties in the Union Territory will be highly useful in focussing the general image of the improvements brought about through the implementation of the programmes. It will also serve as the basis for further studies. It would have been better if selection of villages and growers is done on a more scientific manner instead of entrusting the work to village level workers.

It is desirable that, while making statistical analysis, all the factors should be kept constant to the extent possible except the one under investigation. Even if it is not possible to maintain uniformity in the case of nature bound studies, due weightage should be given when arriving at

results and drawing conclusions. For an illustration, study was made on growers of High Yielding Varieties with satisfactory irrigation facility on the one hand and on the other, growers of other varieties with inadequate irrigation facilities (50.25%) were studied alongwith.

The study could have included details to ascertain whether the literacy of the farmers has got any significant role to play in the programme.

Director of Agriculture.

REMARKS OF THE DIRECTOR OF STATISTICS AND EVALUATION ON THE COMMENTS MADE BY THE DIRECTOR OF AGRICULTURE.

1. It has to be conceded that the findings of the Survey must inevitably be based on the facts and figures furnished by the respondent cultivators. The number of cultivators chosen for the purpose of this enquiry is admittedly limited. However, it cannot be contended that this limitation would 'ipso facto' vitiate the value of the findings, as the selection of cultivators had been made from different villages in Pondicherry and Karaikal regions.

2. Nil.

3. Nil.

4. Nil.

5. This study does not attempt to dispute the scientifically established fact that high yielding varieties are capable of giving larger output. Nonetheless, it should be noted that the widely diverging rates of yield reported by the respondent cultivators are only subjective. Collection of field data by the method of personal interview had been made by Village Level Workers who are conversant with various agricultural operation.

6. As per the data obtained by the survey, over a third of the cultivators of high-yielding varieties who were interviewed have made use of a single cropping season only.

7. Nil.

8. Nil.

9. The figures relating to the cost of cultivation and value of output realised are again those that have been furnished by the respondent cultivators themselves, were it true that the figures of optimum cost of cultivation and optimum output had been actually reached by all the respondents uniformly, they could have been considered as ideal cultivators which unfortunately is not the case, with the cultivator in many cases cutting the cultivation expenditure according to his financial exigencies.

10. Nil.

11. Notwithstanding the fact that not all but only a few varieties of high yielding paddy are unpalatable and that their output is higher, over 55% of the respondents have declared that they have taken to simultaneous cultivation of Non-High yielding varieties for the very same reason, i.e., that of greater palatalability of the latter variety.

12. This finding while stating that nearly a third of the respondents appear to have difficulties in marketing their high yielding varieties produce, simultaneously agrees that this is a minor impediment, but one which it would be worthwhile to remove by concerted efforts.

13. It is once again emphasised that the observations made in this report are based on the data furnished by the respondents, in this case, those cultivating only non-high yielding varieties, and as such reflect their degree of acquaintance and reaction to the results of cultivation of high yielding varieties. Naturally, it cannot be expected that their attitudes would necessarily be same as those exposed to the benefits of high yielding varieties cultivation. As such there is no question of absence of justification for the views expressed by this group of cultivators. Furthermore, it is patent that this finding does not in any manner contradict the foregoing findings of this survey.

General Remarks :

(i) As the stated objective of this study is to assess the field results as actually reported by the sample cultivators engaged in the cultivation of high yielding varieties of paddy, it is not necessary that the results achieved by the cultivators under varying conditions of cultivation should be in strict conformity with the results obtainable in controlled and scientific cultivation. Hence, the deviations from the normal in the results reported are observations relevant only to the cultivation of the sample cultivators, and hence not universally applicable.

(ii) The remark that in the High Yielding varieties group chosen all the cultivators are those satisfied with irrigational facilities and that all the cultivators in the non-high yielding varieties group are those not satisfied with irrigational facilities is against recorded facts. Table 3 shows that both these groups include—though in varying proportions, those who are satisfied with their irrigational facilities and those who are not.

Director of Statistics and Evaluation.