

## Effect of large scale scheduled plant protection measures on paddy\*

by

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**Synopsis :** A large scale demonstration conducted in Chingleput district in the cultivators' lands in two centres of 500 acres each, half the area to serve as treated and half the area to serve as untreated area, had shown that the incidence of pests and diseases had come down gradually in the treated plots while it recorded an upward trend in the untreated plots. A study on economic aspect, showed a net profit of Rs. 55 to 63 per acre. Hence the farmers can adopt the prophylactic measures with advantage for the paddy crop.

**Introduction :** The advantages of adopting scheduled chemical treatments as a prophylactic measure for the prevention and control of crop pests and diseases have not been fully realised by our farmers. The usual practice of treating the crop after the appearance of the pest or disease often does not help especially against those like the stem borer, blast, helminthosporium etc. which appear at particular stages of the paddy crop. In order to bring home to the farmers the beneficial effects of adopting scheduled prophylactic treatments against pests and diseases of paddy, large scale demonstration plots were laid out in Chingleput District during 1959-'60 under a scheme approved by the State and Central Governments. The object of this article is to let the farming public know the very encouraging results obtained.

**Scheme of operations :** Two Centres - Pulipparkoil and Pakkam - were selected in Maduranthakam block in Chingleput district (Madras State). In each centre a compact area of about 500 acres was selected - half of it for treatment and the other half to serve as untreated area. Care was taken to see that, as far as possible the time of sowing, transplanting etc. was uniform over the entire area in each centre. The paddy crop in Pulipparkoil was completely transplanted while in Pakkam it was broadcast under semi-dry conditions.

In Pulipparkoil the crop in the treated area received the seed treatment with organo mercuric compound before sowing. One spraying was given to the seedlings in the nursery and then three sprayings after transplanting - first spraying two weeks after planting, second a month later and the third just before shot-blade stage. In Pakkam, the crop in the

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treated area received the seed treatment before sowing and three sprayings corresponding to the three sprayings given to the transplanted crop in the other centre. A combination of parathion 0.025% and copper oxychloride 0.25% was used to check the pests and diseases simultaneously. In both the centres, if any patch was observed to have been affected by jassids, thrips etc., in the interval between any two sprayings the pests were kept under control with suitable insecticides.

The pesticides were supplied free of cost to the cultivators and the treatments were given at the proper time with the co-operation of the owners of lands under the direct supervision of the special staff of the scheme. No spraying or dusting was given to the plots marked as untreated, in both the centres.

One hundred one cent plots were marked at random in each of the treated and untreated areas and the incidence of the important pests (stem borer and jassid) and diseases (blast and helminthosporium) was recorded on 25 plants at random in each plot before and after spraying.

The incidence of stem borer was recorded in terms of the number of tillers affected and that of jassids, blast and helminthosporium based on the category values. The figures in the statement represent the average of hundred plots.

**Results :** From the infestation recorded it may be seen that the incidence was mild both in the treated and untreated areas. However as a result of the treatment, the infestation by pests and diseases had come down gradually in the treated area while in the corresponding untreated area it had been on the increase or the reduction was not appreciable.

The economics of the treatment has been worked out and it clearly indicates that the treatment has resulted in increased yield and profit. The total expenditure on prophylactic treatment works out to about Rs. 23/- per acre while the value of the increased produce has been from Rs. 78 to 86 per acre, resulting in a net profit of Rs. 55 to 63 per acre. Since the infestation was mild in the control also the damage due to the pest or disease might not have been appreciable. In spite of this fact, the treated plots have recorded a higher yield than the untreated. This leads us to believe that the pesticides used in the prophylactic treatment must have had some beneficial effect apart from keeping down the infestation. This of course needs further confirmation.

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## INCIDENCE OF PESTS AND DISEASES IN THE TWO CENTRES.

Counts recorded on 25 plants (average of 100 plots).

## PESTS

		PULLIPPARKOIL				PAKKAM				
		Control		Treated		Control		Treated		Remarks
		No. of tillers affected	Jassids Category value for 25 plants	No. of tillers affected	Jassids Category value for 25 plants	No. of tillers affected	Jassids Category value for 25 plants	No. of tillers affected	Jassids Category value for 25 plants	
Preliminary count	3.32	6.60	3.80	6.86	0.34	14.52	3.68	14.12	For Jassid and Helminthosporium (Per plant)	
After 1st spraying	5.97	8.53	3.46	6.25	0.02	11.02	0.55	3.05	0 - No incidence 1 - Mild incidence	
After 2nd spraying	7.28	10.64	2.25	3.17	0.13	14.02	0.87	6.88	2 - Moderate incidence	
After 3rd spraying	9.53	16.13	1.72	2.57	0.16	10.67	0.25	1.64	3 - Heavy incidence	

DISEASES

	Blast: No. of tillers affected	Helmin-thosporium Category value for 25 plants	Blast: No. of tillers affected	Helmin-thosporium Category value for 25 plants	Blast: No. of tillers affected	Helmin-thosporium Category value for 25 plants	Blast: No. of tillers affected	Helmin-thosporium Category value for 25 plants
Preliminary count	0	6.77	0	7.94	0	13.49	1.83	14.83
After 1st spraying	0	9.08	0	6.76	0	8.96	0.01	15.21
After 2nd spraying	0	10.49	0	3.23	0.04	13.29	0.03	12.81
After 3rd spraying	0	16.56	0	2.80	0.01	13.89	0.02	5.26

ECONOMICS

	PULLIPPARKOIL			PAKKAM		
	Treated	Control	Treated	Control	Treated	Control
Acre yield	...	3473 lb.	2846 lb.	2772 lb.	2083 lb.	...
Increased yield per acre	...	627 "	...	689 "	...	...
Percentage of increase over control	...	24 "	...	33 "	...	...
Value of increased produce at Rs. 20 per bag of 160 lb.	...	78.38 Rs.	...	86.12 Rs.	...	...
Loss value of pesticides labour etc. per acre	...	23.45 Rs.	...	23.05 Rs.	...	...
Net profit per acre	...	54.93 Rs.	...	63.07 Rs.	...	...