CONTROL OF PADDY BORER ON THE SECOND RICE CROP IN 1957

by

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Paddy borer (Schoenobius incertellus WK) has been a serious pest of the rice crops in the Southern part of Taiwan. It has five or six generations in a year. The second rice crop is destroyed by two generations, namely the fourth and fifth. They attack this crop from seedling to maturity. Heavy infestation of paddy borer in the fields usually occurs every year. Resent test by the writer from 1953 to 1956 has given hope for controlling this pest with certain insecticides. During the summer of this year the writer was provided an opportunity to retest some of the insecticides and untried materials for paddy borer control and these were compared with gusation. The results obtained by chemical control are here summarized.

Methods.—The field trials were carried out at Shang-tzu-ting in chia-yi county in 1957. The field experiments were divided into four blocks of 12 plots each. Plots measured 5×5 meters including 500 hills, each plot had 20 rows making 25 hills per row. The plant was 25 cm by 20 cm apart. The variety of rice which was used is Chia-yoh No. 242. It was transplanted on August 3. Ten different treatments and two checks were assigned at random to each block. Treatments consisted of 2 concentrations of endrin 0.02% and 0.04%; 2 concentrations of folidol 0.02% and 0.04%; 2 concentrations of gusathion 0.02% and 0.04%; 2 concentrations of trithion 0.02% and 0.04%; and 2 concentrations of methyl parathion 0.02% and 0.04%. The percentage of dead seedling was determing by examing 150 hills randomly selected from central rows of each plot at seven days after first spraying and the percentage of empty panicle or white head was counted by examing 150 hills at random from central rows of each plot at two weeks before harvest.

Sprays were made from emulsifiable concentrate and applied with a small type of automatic sprayer. Application of insecticides was made on Sept. 6, since the fourth generation of borer attacked seedling during growth stage. The rate of application was 800 liters per hectare and the spray was followed by a second spray on Sept. 30 and a third on Oct. 5, since the fifth generation of borer started to attack the booting stage or youngest panicle stage, the rate of application was increased to 1,200 liters of insecticidal solution per hectare in the last two treatments.

Results.—All treatments showed significant difference over the control. There was also a significant between the insecticides and concentrations. According to the yield of treated plots, endrin, gusathion and folidol were about equal in effective results giving excellent control of this pest. Endrin and gusathion were better than folidol and

trithion in controlling this pest, but methyl parathion was least against this pest in the treatments as shown in table 1.

Table 1.—Effective Control of Paddy Borer on The Second Rice Crop in 1957

Chemical Treatments	Dead Seedlings		Empty Panicles		Yield of Rice kg/ha	Index
	Percent (AV)	Angle	Percent (AV)	Angle		
0.02% Endrin emulsion	2.84	9.65	7.25	15.85	5,280.00	120.82
0.04% Endrin emulsion	1.75	7.52	3.50	10.49	6,040.00	138.24
0.02% Folidol emulsion	2.45	8.97	9.27	17.71	5,080.00	116.25
0.04% Folidol emulsion	1.76	7.45	5.18	12.59	5,720.00	130.00
0.02% Gusathion emul.	2.83	9.64	6.35	14.57	5,360.00	122.65
0.04% Gusathion emul.	1.45	6.90	5.57	13.58	5,800.00	132.72
0.02% Trithion emul.	3.63	10.95	8.24	16.49	5,200.00	119.00
0.04% Trithion emul.	1.35	6.64	7.37	15.54	5,440.00	124.50
0.02% Methyl parathion E.	4.10	11.60	9.80	18.17	4,840.00	110.80
0.04% Methyl parathion E.	2.75	9.52	8.05	16.49	5,160.00	118.10
Check (Untreated)	6.28	14.50	11.87	20.72	4,370.00	100.00
L. S. D. at 5% Level		2.08		3.15	343.68	
L. S. D. at 1% Level		2.79		4.23	459.80	

Discussion.—According to table 1, percentage of dead seedling in the treated plots was 1.35% to 4.10% as compared with 6.28% in the check. Percentage of empty panicle or white head was 3.50% to 9.80% in the treated plots as compared with 11.87% in the untreated plots. Yield of treated plots was 4,840 to 6,040 kilograms of rice as compared with 4,370 kilograms in the check per hectare or an increase of 470 to 1,670 kilograms of rice per hectare. Although all treated plots were more significant than the check, the high concentrated sprays proved better results than the low ones. Endrin and gusathion were found to be most effective in controlling this pest. In all treated plots 0.04% concentrated sprays were about equal in effectiveness against this pest except trithion and methyl parathion. These were not as effective as the others, but trithion was better than methyl parathion.

Summary.—Endrin, gusathion, folidol, trithion, and methyl parathion were tested for control of the paddy borer (Schoenobius incertellus WK) infesting the second rice crop at Shang-tzu-ting in Chia-yi county in 1957.

1. In the treated plots, the percentage of dead seedling and empty panicle were lower than the check. and there were also significant difference between insecticides and concentrated used
2. Yield of rice receiving treatments was higher than that on the untreated plots, but there was significant difference between insecticides and concentrated sprays. Endrin and gusathion gave the best results in controlling this species, as the index of yield were at 20.82% to 38.24%; and 22.65% to 32.72%; in the folidol

treated plots as index of yield was 16.25% to 30.00%; in the trithion treated plots as index of yield was 19.00% to 24.50%, in the methyl parathion treated plots as index of yield was 10.80% to 18.10%, therefore the methyl parathion was least effective in controlling this pest in these experiments.

1957年防治二期作水稻三化螟蟲試驗

陶　家　驊

摘　　要

在嘉義山子頂舉行二期作防治三化螟蟲試驗，參加殺蟲劑爲 19.5% Endrin, 20% Gusathion, 46.6% Folidol, 37% Trithion 和 44.5% Methyl parathion 等五種乳劑。

（1） 施藥區與對照區禾苗枯心率和白穗率之差異，均屬顯著，藥劑和濃度間之差異，亦屬顯著。

（2） 施藥區與對照產量之差異，頗爲顯著，藥劑和濃度間之差異，尙屬顯著。各試驗區之產量指數 Endrin 20.82～38.24%及 Gusathion 22.65～32.72%最高。Folidol 16.25～30.00%及 Trithion 19.00～24.50%次之，Methyl parathion 10.80～18.10%最低。本試驗中治螟成效，就產量而言，Endrin 和 Gusathion 乳劑最優，Folidol 和 Trithion 乳劑次之，但 Methyl parathion 乳劑最劣。

誌謝：本試驗期中承楊所長致福督促和鼓勵；王技士茂康惠允撥給試驗地及協助水稻栽培；農復會劉博士廷蔚惠贈殺蟲劑。又承本系同仁湯慶銓和余健敏兩君協助調查和分析，文成後，復蒙總所應用動物系陶技正家駒撥冗校閱，均此敬誌謝忱。