

QUINQUENNIAL REVIEW  
I R R I 3  
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CONTROL AND MANAGEMENT OF RICE PESTS  
(WEEDS)

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Table 1. The effect of granular herbicides applied before weeds emerge on grain yield of transplanted IR26 rice at IRRI and three Bureau of Plant Industry (BPI) stations in the Philippines. 1975 dry season.

Herbicide treatment	Rate (kg/ha a.i.)	Grain yield (t/ha)			
		IRRI	Maligaya	Bicol	Visayas
MON 0358	0.5	7.1	6.9	7.6	5.4
MON 0358 + 2,4-D IPE	0.5+0.5	7.5	6.6	7.0	4.8*
C-288	0.5	6.0**	6.1	7.3	5.5
C-19490/2,4-D IPE	0.5	5.0**	5.3**	7.0	4.7**
Destun/2,4-D IPE	1.0/0.25	6.5**	4.1**	6.7	4.2**
Dinitramine + 2,4-D IPE	0.5+0.5	6.0**	5.9	7.4	5.1
Dinitramine + 2,4-D IPE	0.75+0.5	5.9**	6.2	7.1	4.6**
Butachlor + 2,4-D IPE	0.8	6.5**	4.1**	7.2	4.0**
Bifenox	3.0	7.6	1/	1/	1/
Hand weeded check <sup>2/</sup>		7.7	6.7	7.2	5.8
Untreated control <sup>3/</sup>		6.1	5.2	6.7	4.7

1/Not tested. 2/Hand weeded twice - at 20 and 40 days after trans-planting. \*, \*\*Significantly inferior to hand weeded check at the 5% and 1% level, respectively. 3/All herbicide treatments gave significantly higher yields than the untreated control.

Table 2. The effect of granular herbicides applied at early post-emergence of weeds (6 days after seeding) on grain yield of direct-seeded flooded IR26 rice at IRRI and three Bureau of Plant Industry (BPI) stations in the Philippines. 1975 dry season.

Herbicide treatment	Rate (kg/ha a.i.)	Grain yield (t/ha)				Avg.
		IRRI	Maligaya	Bicol	Visayas	
MON 0358	0.5	5.2 ab	5.8 a	5.6 a	6.0 a	5.6
MON 0358 + 2,4-D IPE	0.5+0.5	6.1 ab	5.4 a	5.8 a	5.8 a	5.8
C-288	0.5	5.6 ab	5.2 a	6.0 a	6.1 a	5.7
C-19490/2,4-D IPE	0.75	6.0 ab	6.2 a	6.2 a	5.3 a	5.9
Destun/2,4-D IPE	1.0/0.25	6.9 a	6.0 a	6.2 a	5.2 a	6.1
Dinitramine	0.75	5.9 ab	5.0 a	5.2 a	3.6 b	4.9
Dinitramine + 2,4-D IPE	0.5+0.5	6.3 ab	5.5 a	5.7 a	3.5 b	5.3
Butachlor + 2,4-D IPE	0.75+0.5	6.8 ab	5.7 a	5.0 a	5.6 a	5.8
Benthiocarb/2,4-D IPE	1.0/0.5	6.4 ab	6.5 a	6.0 a	4.2 b	5.8
Untreated control	-	4.4 b	5.4 a	3.7 b	0.7 c	3.6
Average		6.0	5.7	5.5	4.6	

Table 3. Effect of pre-emergence (4 days after seeding) application of granular herbicides on weed control and grain yield of transplanted IR26 rice. IRRI, 1975 wet season.

Treatment <sup>a</sup>	Rate (kg/ha a.i.)	Control rating <sup>b</sup>			Grain yield <sup>c</sup> (t/ha)
		grass	sedge	broadleaf	
MON 0358	0.3	9	6	6	4.8 a
MON 0358 + 2,4-D IPE	0.3+0.5	9	8	8	5.0 a
C-288	0.5	9	8	8	5.1 a
C-19490/2,4-D IPE	0.5	7	6	2	4.3 a
Destun/2,4-D IPE	1.0/0.25	8	8	7	5.1 a
Dinitramine (USB 3584)+2,4-D IPE	0.5+0.5	8	8	7	5.1 a
Butachlor + 2,4-D IPE	0.75+0.5	8	7	8	4.8 a
2,4-D IPE	0.8	7	8	8	5.0 a
Hand weeded check	twice <sup>d</sup>	9	10	5	5.0 a
Untreated check	-	0	6	1	0.8 b

<sup>a</sup>IPE = isopropyl ester; + = chemicals applied in immediate succession. Taken at 60 days after transplanting. <sup>b</sup>Scale: 0-10; 0 = no control, 10 = complete control. <sup>c</sup>Average of four replications. Any two treatment means followed by the same letter are not significantly different at the 5% level. <sup>d</sup>At 20 and 40 days.

Table 4. Effect of granular herbicides applied at early post-emergence of weeds (6 days after seeding) on weed control and grain yield of direct-seeded flooded IR26 rice. IRRI, 1975 wet season.

Treatment	Rate (kg/ha a.i.)	Control rating <sup>a</sup>			Grain yield <sup>b</sup> (t/ha)
		grass	sedge	broadleaf	
MON 0358	0.3	8	8	7	6.2 a
MON 0358 + 2,4-D IPE	0.3+0.5	8	8	9	5.3 a
C-288	0.5	7	7	6	5.7 a
C-19490/2,4-D IPE	0.75	8	8	7	5.4 a
Destun/2,4-D IPE	1.0/0.25	5	8	8	5.2 a
Dinitramine (USB 3584)	0.75	7	7	8	5.4 a
Dinitramine + 2,4-D IPE	0.5+0.5	6	8	7	5.4 a
Butachlor + 2,4-D IPE	0.75+0.5	7	8	9	5.8 a
Benthiocarb/2,4-D IPE	1.0/0.5	8	8	8	5.0 a
Untreated control	-	3	6	3	1.7 b

<sup>a</sup>Taken at 60 days after seeding. Scale: 0-10; 0 = no control, 10 = complete control. <sup>b</sup>Average of four replications. Any two means followed by the same letter are not significantly different at the 5% level.

Table 5. Effect of liquid herbicides applied before crop and weeds emerge (2 days after seeding) on weed control, crop tolerance, and grain yield of BPI 76 x Dawn rice grown under upland conditions. IRRI, 1975 wet season.

Treatment	Rate (kg/ha a.i.)	Control rating <sup>a</sup>			Toxicity rating <sup>a</sup>	Grain yield <sup>b</sup> (t/ha)	
		grass	sedge	broadleaf			
Butralin (A-820)	2.0	3	1	8	0	0.9	def
Penoxalin (AC 92553)	2.0	8	0	8	0	1.4	cde
Butachlor	2.0	2	4	8	0	1.4	cde
C-288	2.0	0	3	8	0	0	f
MON 0358	0.5	2	2	8	0	1.2	de
MON 0358	1.0	5	3	8	0	2.4	abc
Oxadiazon	1.0	4	2	8	0	1.9	bcd
Fluorodifen	2.0	1	4	8	0	0.8	ef
USB 3153	2.0	10	1	9	4	2.4	abc
Dinitramine (USB 3584)	2.0	9	1	8	2	2.5	ab
Hand weeded check	twice <sup>c</sup>	8	6	8	0	2.9	a
Untreated check	-	0	0	8	0	0	f

<sup>a</sup>Taken at 60 days after rice emerge. Control scale: 0-10; 0 = no control, 10 = complete control. Toxicity scale: 0-10; 0 = no toxicity, 10 = complete crop kill. <sup>b</sup>Average of four replications. Any two means followed by the same letter are not significantly different at the 5% level. <sup>c</sup>At 15 and 30 days after rice emergence.

Table 6. The effects of liquid herbicides applied before crop and weeds emerge (3 days after seeding) on weed control and grain yield of direct-seeded BPI 76/9 x Dawn rice grown under upland condition in a farmer's field at Cuenca, Batangas, 1975 Wet season.

Treatment	Rate (kg/ha a.i.)	Control rating <sup>a/</sup>			Grain yield <sup>b/</sup> (t/ha)
		Grass	Sedge	Broadleaf	
Butralin	2.0	7	7	5	1.7 a
Penoxalin	2.0	9	9	8	2.6 a
Butachlor	2.0	2	2	5	0.5 b
C-288	2.0	5	7	5	2.0 a
MON-0358	1.0	4	5	5	1.8 a
Oxadiazon	1.0	5	6	8	1.9 a
Fluorodifen	2.0	2	4	8	0.7 b
USB 3153	2.0	8	8	7	2.4 a
Dinitramine	2.0	8	8	5	2.0 a
Propanil <sup>c/</sup>	2.0	1	2	8	0.6 b
Hand weeded check	twice <sup>d/</sup>	9	8	8	2.0 a
Untreated check	-	1	3	2	0.3 b

<sup>a/</sup>Taken at 60 days after rice emerge. Scale: 0-10; 0 = no control, 10 = complete control. <sup>b/</sup>Avg. of four replications. Any two means followed by the same letter are not significantly different at the 5% level. <sup>c/</sup>Applied at 15 days after rice emerge. <sup>d/</sup>At 15 and 30 days after rice emerge.

Table 7. The effect of weeding methods on yield and population density of Scirpus maritimus and other weeds on three irrigated cropping patterns, 1975 dry season.

Treatment	Yield <sup>a</sup> per hectare	Weed count (no/sq m)				
		Grasses	Broad- leaves	Annual sedge	<u>Scirpus maritimus</u>	<u>Cyperus rotundus</u>
<u>Continuous lowland rice</u>						
Bentazon	5.0*a	157	37	26	1	-
Rotary weeding	5.6 a	4	11	16	27	-
No weeding	1.6 b	7	78	640	406	-
<u>Corn</u>						
Butachlor fb Bentazon	31,000**b	425	10	3	4	57
Hand weeding twice	36,500 a	15	0	0	0	4
No weeding	13,000 c	2360	20	6	35	53
<u>Corn + Mungbean</u>						
<u>Corn</u>						
Butachlor fb Bentazon	27,000**b	624	1	1	5	20
Hand weeding twice	31,500 a	23	0	0	0	3
No weeding	10,500 c	999	9	0	36	32
<u>Mungbean</u>						
Butachlor fb Bentazon	367***b					
Hand weeding twice	501 a					
No weeding	207 c					

<sup>a</sup>Average of two replications. Any two means followed by the same letter are not significantly different at the 5% level. \*Tons. \*\*Marketable ears. \*\*\*In Kilograms.

Table 8. The effect of weeding methods and population density of Scirpus maritimus and other weeds on the grain yield of lowland and dry-sown rainfed banded rice. IRRI, 1975 wet season.

Treatment	Grain yield <sup>a</sup> (t/ha)	Weed count (no/sq m)				
		Grasses	Broad-leaves	Annual sedge	<u>Scirpus maritimus</u>	<u>Cyperus rotundus</u>
<u>Continuous lowland rice</u>						
Bentazon	3.7 a	195	97	0	3	0
Rotary weeding	3.9 a	10	5	5	25	0
No weeding	1.7 b	115	90	135	325	0
<u>Lowland rice (previously planted to corn + mungbean)</u>						
Bentazon	4.1 a	117	22	10	15	0
Rotary weeding	4.3 a	7	7	12	5	0
No weeding	2.2 b	62	67	235	167	0
<u>Dry-sown rainfed banded rice (previously planted to corn)</u>						
Oxadiazon	3.0 b	153	0	0	23	110
Hand weeding	4.0 a	138	3	23	17	22
No weeding	0 c	1430	28	5	20	33

<sup>a</sup>Average of two replications. Any two means followed by the same letter are not significantly different at the 5% level.