

Table 3. YSB control with insecticides,^a MRRTC, Philippines, 1981 DS.

Treatment ^b	Application method	Deadhearts (%)		Whiteheads (%)
		20 DT	40 DT	
Chlorpyrifos + BPMC	Spray	11.1 a	8.1 bc	7.5 cd
Triazophos	Spray	12.1 ab	8.4 b	1.7 a
Diazinon	Spray	14.2 abc	24.0 def	5.8 abcd
<i>B. thuringiensis</i> ^c	Spray	15.0 abc	32.1 fgh	6.1 abcd
Acephate	Spray	15.5 abcd	16.9 cde	3.8 abc
Azinphos ethyl	Spray	17.5 abcde	11.9 bcd	5.9 abcd
UCX 2001	Spray	18.4 abcdef	9.7 bc	4.6 abc
Monocrotophos	Spray	20.3 abcdefg	31.4 fgh	4.4 abc
Aktrion	Spray	23.8 bcdefg	36.2 fgh	7.9 cd
Phosphamidon	Spray	25.1 cdefg	29.7 fgh	7.0 bcd
MTMC	Spray	27.8 defg	31.4 fgh	7.0 bcd
Carbaryl XLR	Spray	29.3 efg	38.5 gh	6.1 abcd
Propoxur	Spray	29.7 efg	29.9 fgh	14.7 d
MIPC	Spray	29.8 efg	34.3 fgh	7.3 bcd
Endosulfan	Spray	31.0 efg	25.5 defg	7.3 bcd
BPMC	Spray	32.1 g	28.8 fgh	7.3 bcd
Carbaryl	Spray	33.7 g	26.8 efg	4.8 abc
Carbofuran	Granular broadcast	10.8 ab	0.6 a	1.9 ab
Diazinon	Granular broadcast	17.2 abcde	33.1 fgh	7.2 cd
Gamma BHC + carbaryl	Granular broadcast	25.1 cdefg	35.1 fgh	8.3 cd
Gamma BHC	Granular broadcast	27.8 cdefg	40.6 h	7.4 cd
Endosulfan	Granular broadcast	30.7 fg	32.8 fgh	5.4 abc
Untreated check		32.3 g	38.9 h	7.7 cd

^a In a column, means followed by a common letter are not significantly different at the 5% level by DMRT. ^b Insecticides were applied at 10, 25, 45, 60, and 75 d after transplanting (DT). All were applied as foliar spray except for the granular formulations which were broadcast into the field water. Sprays were applied at 0.75 kg ai/ha and granules at 1.0 kg ai/ha. ^c 30 billion spores/g.

Results show that spraying chlorpyrifos + BPMC and broadcasting triazophos and carbofuran granules on field water or incorporating them in soil provide the most effective YSB control. Soil incorporation of carbofuran before transplanting is the most efficient way to control deadhearts as only one application is required. But because it provides no control at whitehead stage, it may be necessary to spray triazophos or another insecticide for whitehead control. *ℒ*

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Pest Control and Management WEEDS

Herbicides for weed control in transplanted rice

S. J. Patil, assistant professor, S. P. Nataraju, research assistant, and H. V. Pattanshetti, regional associate director, Regional Research Station (RRS), Mudigere 577132, Karnataka, India

In the hill region of Karnataka, India, labor for manual weeding is scarce and expensive. Labor costs are \$1-1.25/d. Hence, manual weeding has become a problem. We evaluated herbicides for weed control in rice in 1983 kharif at RRS, Mudigere. Six herbicides at 2 application rates were compared with an unweeded check and hand weeding on 20 and 40 d after transplanting. The experiment was in a randomized block design with three replications. Herbicides were evenly mixed in sand

and applied 2 d after planting.

Weeds were *Echinochloa colona*, *Cyperus iria*, *Rotala indica*, *Scheonopectum corymbosus*, *Zizania* sp., *Geissaspis tenella*, *Eriocaulon hookerianum*, *Pennisetum* sp., *Sacciolepis interrupta*, *Eragrostis unioloides*, and *Paspalum conjugatum*.

Butachlor 1.0 kg ai/ha, thiobencarb 1.75 and 2.00 kg ai/ha, and pendimethalin 1.75 kg ai/ha controlled weeds most effectively (see table). Weed dry weights in those treatments were 0.18 to 0.25 g/m² and were comparable. The treatments also had significantly higher grain yield than the unweeded check. Weeds significantly reduced plant height, straw yield, and effective tillers. In the unweeded check, plant height was 60 cm, yield 6.5 t/ha, and effective tillers/plant 7. In treated plots they varied from 77 to 81 cm, 8.3 to 9.7 t/ha,

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Treatment	Rate (kg ai/ha)	Grain yield (t/ha)	Weed dry weight (g/m ²) at harvest
Thiobencarb	2.00	5.8	0.2
Butachlor	1.25	5.1	0.5
Oxyfluorfen	0.12	5.5	2.3
Hand weeding 20 and 40 d after planting	—	5.5	0.2
Anilofos	0.50	5.4	1.0
Oxadiazon	0.50	5.2	1.7
Pendimethalin	2.00	5.2	1.1
Pendimethalin	1.75	5.1	0.2
Anilofos	0.40	5.1	2.4
Oxadiazon	0.40	5.1	1.2
Thiobencarb	1.75	5.0	0.2
Butachlor	1.00	4.8	0.2
Oxyfluorfen	0.09	4.7	3.5
Unweeded check	—	4.4	58.2
CD 5%		0.2	0.3

and 10 to 13 tillers/plant. Oxyfluorfen was toxic to rice. *ℒ*