

Weed-control techniques in transplanted rice (*Oryza sativa*)

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An experiment was conducted during the rainy season 1988 to evaluate the weed-control techniques in transplanted rice (*Oryza sativa* L.) on sandy clay-loam soils of

Table 1. Effect of weed control on grain and straw yields of rice, and weed-control efficiency and NPK uptake by weeds

Treatment	Grain yield (q/ha)	Straw yield (q/ha)	Weed-control efficiency (%)			Weed index (%)	Nutrient uptake by weeds		
			20 DAT	40 DAT	60 DAT		N	P	K
Unweeded control	44.9	82.0				46.83	47.7	21.3	113.7
Complete weed-free	83.3	126.9	100.0	100.0	100.0		124.2	63.1	334.4
2,4DEE @ 1.0 kg ai/ha	64.8	112.4	86.3	63.4	68.5	22.2	88.4	43.6	212.6
2,4 DEE @ 1.0 kg ai/ha + 1 hand-weeding	71.4	121.7	75.5	93.4	94.4	14.3	89.8	47.5	204.8
Butachlor @ 1.5 kg ai/ha	70.1	108.5	88.9	68.4	80.7	15.9	88.1	44.8	214.2
Butachlor @ 1.5 kg ai/ha + 1 hand-weeding	72.8	115.1	61.2	90.7	92.2	12.7	92.5	46.9	213.9
Pendimethalin @ 1.0 kg ai/ha	64.8	185.8	69.1	74.9	68.2	22.2	72.8	39.1	199.1
Pendimethalin @ 1.0 kg ai/ha + 1 hand-weeding	70.1	112.4	80.0	73.2	86.9	15.9	85.2	42.8	211.6
2,4 DEE @ 0.5 kg ai/ha + pendimethalin @ 0.75 kg ai/ha	74.1	108.5	82.8	39.4	60.2	11.1	87.4	48.9	210.4
2,4 DEE at 0.5 kg ai/ha + butachlor @ 0.5 kg ai/ha	75.4	121.7	86.7	68.8	88.1	9.5	97.4	56.9	266.4
Butachlor @ 0.5 kg ai/ha + pendimethalin @ 0.75 kg ai/ha	72.8	105.8	70.3	55.9	59.7	12.7	90.4	40.3	260.9
Anilofos @ 0.3 kg ai/ha + 2,4 DEE @ 0.3 kg ai/ha	72.8	116.5	91.7	59.6	91.7	12.7	91.6	47.6	244.2
CD (P = 0.05)	674.7	1309					13.8	6.3	24.2

DAT, Days after transplanting

Bapatla. The experiment was laid out in randomized block design with 12 treatments (Table 1).

Sedges dominated the weed flora and accounted for 51.89% total weed population in the unweeded control, followed by grasses (30.34%) and broad-leaved weeds (17.09%). Among the herbicides, butachlor @ 1.5 kg ai/ha + 1 hand-weeding at 30 days after transplanting was superior in reducing the density and dry-matter production of total weeds as compared with the other treatments. Weed-control efficiency was the

highest with butachlor @ 1.5 kg ai/ha (88.89).

2, 4 DEE + butachlor each @ 0.5 kg ai/ha recorded grain and straw yields equal to that of weed-free check and superior to all the other treatments.

Nutrients uptake at harvest by weeds was minimum in weed-free check, followed by butachlor @ 1.5 kg ai/ha + 1 hand-weeding at 30 days after transplanting and 2, 4 DEE @ 1.0 kg ai/ha + 1 hand-weeding at 30 days after transplanting of rice.

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Response of upland rice (*Oryza sativa*) varieties to herbicides

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The effectiveness of a herbicide in crops is based on interspecific and intraspecific selectivity. As a result, herbicides showing selectivity in one crop variety may become non-selective in another variety of the same crop. An attempt was made to evaluate the response of traditional tall and higher-yielding dwarf varieties of upland rice (*Oryza sativa* L.) to butachlor and thiobencarb.

The field experiment was conducted at Jorhat during the summer 1991, to study the susceptibility of upland rice to butachlor and thiobencarb. The crop was sown in rows at a spacing of 20 cm on 1 March. Variety

'Fapori' was harvested on 15 June and 'Rasi' and 'IR 50' were harvested on 20 June 1991.

The soil was sandy loam (Inceptisols) having organic carbon 0.65%, available N 231 kg, available P_2O_5 20 kg and available K_2O 99 kg/ha. The experiment was laid out in split-plot design with 3 replications. Three varieties were in main plot and 5 weed-control treatments in subplot. Pre-emergence herbicides were applied 3 days after sowing with hand-operated Knapsack sprayer. Toxicity rating, i.e. evaluation of toxic effect of the herbicides, on the rice plants at 10 days after sowing was evaluated by the European Weed Research Council Rating