

Comparative efficiency of herbicides in transplanted summer rice (*Oryza sativa*)

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A field experiment was conducted during summer 1990 at Karimganj, to find out the comparative efficiency of different weed-control methods in transplanted summer rice (*Oryza sativa* L.). The experiment, consisting of 18 weed-control treatments

Table 1. Grain yield, yield-attributing characters and dry weight of weeds as influenced by different weed-control treatments

Treatment	Dose (kg a.i./ha)	Time of applica- tion (DAT)	Dry weight of weeds at 60 DAT (g/m ²)	Panicles/ m ²	Grains/ panicle	Grain yield (q/ha)
Weedy			164	374	75.6	27.68
Weed-free				492	97.6	33.85
Hand-weeding (HW)		20	95.3	412	91.5	27.84
HW (twice)		20,40	21.8	480	93.5	30.92
HW + rice weeder		20,40	66.8	463	81.1	28.09
2, 4-D (Na-salt)	0.8	7	102.5	519	80.6	32.26
Thiobencarb	1.0	7	131.0	480	97.9	30.88
Thiobencarb + 2,4-D Na-salt	0.4 + 0.8	7	79.0	466	108.5	35.25
Pretilachlor	0.75	3	50.8	487	95.5	33.46
Pretilachlor	1.25	3	47.3	477	99.7	33.35
Anilofos	0.4	7	119.3	438	87.6	30.88
Anilofos	0.6	7	50.3	459	105.7	34.05
Pyrazosulfuron ethyl	0.005	3	127.5	475	82.0	30.65
Pyrazosulfuron ethyl	0.005	7	81.3	468	81.9	34.01
Pyrazosulfuron ethyl	0.01	3	44.0	500	101.5	32.30
Pyrazosulfuron ethyl	0.01	7	25.5	472	85.6	34.19
Oxadiazon	0.4	7	93.8	445	81.5	31.03
Pyrazosulfuron ethyl + oxadiazon	0.005 + 0.4	7	40.3	453	104.0	34.69
CD (P = 0.05)			18.9	28	NS	2.54
CV (%)			17.8	4.3	16.7	5.6

DAT, Days after transplanting

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(Table 1), was laid out in randomized block design with 4 replications. The soil was clay loam. The crop (cv. 'Krishna') was sown on 1 April and transplanted on 24 April 1990, with a spacing of 20 cm $\times$ 10 cm. The granular herbicide thiobencarb was applied by broadcasting uniformly in the entire plot, whereas other formulations were sprayed by a knapsack sprayer fitted with flat-fan nozzle, using a spray volume of 500 litres/ha.

The major weed flora of the experimental field consisted of *Echinochloa crus-galli* (L.) P. Beauv., *E. colomum* (L.) Link., *Digitaria* spp., *Cyperus rotundus* L., *C. difformis*, *C. iria*, L., *Eleusine indica* Gaertn., *Fimbristylis miliacea* and *Monochoria vaginalis* Presl.

The dry matter of weeds at 60 days after transplanting was significantly reduced, whereas panicles/m² were markedly increased by all the treatments compared with

the weedy check. Grain yield was significantly increased by weed-control treatments except hand-weeding at 20 days after transplanting, and hand-weeding + rice weeder at 20 and 40 days after transplanting respectively. The highest grain yield was recorded with thiobencarb applied @ 0.4 kg a.i./ha + 2 4-D Na-salt @ 0.8 kg a.i./ha 7 days after transplanting, followed by pyrazosulfuron ethyl @ 0.005 kg a.i./ha + oxadiazon @ 0.4 kg a.i./ha at 7 days after transplanting, pyrazosulfuron ethyl @ 0.01 and 0.005 kg a.i./ha at 7 days after transplanting, anilofos @ 0.6 kg a.i./ha at 7 days after transplanting, weed-free, pretilachlor @ 1.25 kg a.i./ha and pretilachlor @ 0.75 kg a.i./ha at 3 days after transplanting. Pyrazosulfuron ethyl @ 0.01 kg a.i./ha at 3 days after transplanting, and 2, 4-D Na-salt @ 0.8 kg a.i./ha at 7 days after transplanting, though significantly differed from the highest yielder remained at par with the weed-free treatment.

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Effect of nitrogen fertilization on maize (*Zea mays*) varieties under rainfed condition

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An experiment consisting of treatment combinations of 4 varieties ('EH 40084', 'Prabhat', 'Navjot' and 'Ganga 5') of maize (*Zea mays* L.) and 4 levels (0, 45, 90 and 135 kg/ha) of nitrogen, was conducted at Chhindwara during the rainy season 1989 in

split-plot design, assigning levels of N to the main plot and varieties to the subplot. The soil was clay loam with pH 7.1. Available N, P and K contents were 413, 8.8 and 600 kg/ha respectively. Sowing was done on 29 July 1989 with a spacing of 75 cm $\times$ 25 cm.