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Studies on chemical weed control in aerobic cultivated rice

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SUMMARY

An experiment on weed control was conducted to evaluate the different herbicides with different concentrations which were sprayed at different days after sowing in drill sown rice at Agricultural Research Station, Mugad, Karnataka. Higher grain yield (1805 kg/ha) was obtained with the application of Mon 46992 @ 2.5 l/ha 12-14 days after sowing. Crop phytotoxicity was observed at 10 days after spraying with Mon 46992 appplied either @ 3.75 or 5.0 l/ha of herbicide. Toxic effects were not observed at 20 or 30 days after the treatment. Weed control was better with the higher doses of herbicide irrespective of the time of spray.

Key words : Drill sown rice, Herbicides, Weeds.

Upland paddy is cultivated as direct seeded in aerobic and well-drained soils with no or little surface water irrigation for a brief period especially during monsoon season. In India upland rice declined from 5.97 million ha in 1978-80 to 5.06 million ha (Singh, 2002). In general, the decline in area may be due to drought and inconsistent change in the raining pattern. Decline in soil fertility and weeds also contribute a lot to decline in the grain yield of rainfed paddy. Often weed menace results in 70-90 per cent reduction in the rice yield. Weed management is done through mechanically and manually. Manual weeding is laborious and requires more number of laborers and the availability of laborers are scarce in peak season. Mechanical weeding involves wet intercultivation followed by planking to destroy the uprooted weeds completely. Non-availability of laborers in time makes the mechanical weed control ineffective. The success of mechanical weeding depends on rainfall and availability of water. Continuous tillage and stale seed bed technique followed by the farmers is very efficient in controlling the weeds. However, in absence of such measure it is essential to adapt chemical weed control method for effective management. Using of newer chemicals to reduce the risk of development of resistance to herbicide and effective control of broad spectrum of weeds is essential. Looking to these considerations, an experiment was conducted to find out the effectiveness of new herbicides in drill sown rainfed rice situation under moderately heavy rainfall situations.

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MATERIALS AND METHODS

A field experiment was conducted at Agricultural Research Station, Mugad during *kharif* 2001 and 2002 in completely randomized block design with 11 treatments (Table 1) and three replications. The texture of the soil was clay having pH of 7.2. Rice variety Abhilash (150-155 days) was drill sown with an inter row spacing of 20 cm. Rainfall of 664.4 mm and 798 mm was received during the cropping season from June to November in 2001 and 2002, respectively. Fertilizer dose of 100 kg N_2, 50 kg P_2O_5 and 50 kg K_2O was applied. Entire dose of phosphorus and potassium was applied as basal dose at the time of sowing. Nitrogen was applied in three equal

Table 1: Treatment details used in the experiment

Sr. No.	Treatments	Time of herbicide application
T_1	Butanil 55 % EW @ 2.5 l/ha	Herbicide applied at 8-10 DAS
T_2	Mon 46992 @ 3.75 l/ha	Herbicide applied at 8-10 DAS
T_3	Mon 46992 @ 5 l/ha	Herbicide applied at 8-10 DAS
T_4	Mon 46992 @ 2.5 l/ha	Herbicide applied at 12-14 DAS
T_5	Mon 46992 @ 3.75 l/ha	Herbicide applied at 12-14 DAS
T_6	Mon 46992 @ 5 l/ha	Herbicide applied at 12-14 DAS
T_7	Propanil @ 3.75 l/ha	Herbicide applied at 10-12 DAS
T_8	Propanil @ 5 l/ha	Herbicide applied at 10-12 DAS
T_9	Sofit @ 2.0 l/ha	Herbicide applied at 3 DAS
T_{10}	Clincher 10 % EC @ 0.75 l/ha	Herbicide applied at 20 DAS
T_{11}	Unweeded control	