

Efficacy of Herbicides and their Combinations for Weed Control in Transplanted Winter Rice in new Alluvial Zone of West Bengal

S.K.Sarkar¹, B.C. Patra², K.Ghosh³ and M. Maity⁴

^{1,2,3,4}Department of Agronomy Bidhan Chandra Krishi Viswavidyalaya Mohanpur, Nadia
E-mail: sksarkar_agro@yahoo.com

Abstract—The field experiment entitled “Efficacy of herbicides and their combinations for weed control in transplanted winter rice in new alluvial zone of West Bengal” was conducted during kharif season, in the new alluvial zone of West Bengal (NAZ), at the Instructional Farm, Jaguli, Mohanpur, Nadia, West Bengal having sandy clay loam (pH- 6.7) textured soil. The experiment was laid out in Randomized Block Design with 13 treatments replicated thrice. The variety ‘Swarnamasuri’(MTU-7029) was selected for the experiment and transplanted with the spacing of 20cm × 20 cm. Urea, Single Super Phosphate and Muriate of Potash were applied with recommended doses of N:P₂O₅:K₂O @ 60:30:30 kg ha⁻¹. The predominant grassy, sedge and broadleaf weed species (*Leersia hexandra*, *Cyperus rotundus*, *Ludwigia parviflora* etc.) were found in the experimental site. The results revealed that pre-emergence application of Bensulfuron-methyl 0.6% + Pretilachlor 6% @ 10 kg (G) ha⁻¹ + one hand weeding at 40 DAT (T₃) and Bensulfuron-methyl 0.6% + Pretilachlor 6% @ 10 kg (G) ha⁻¹ + Bispyribac Sodium 10% SC @ 25g-ai ha⁻¹ (T₈) recorded significantly higher grain and straw yield [(3.57 t ha⁻¹ and 5.90 t ha⁻¹) and (3.83 t ha⁻¹ and 5.87 t ha⁻¹), respectively], which remained at par with two hand weedings (T₁₂) at 20 and 40 DAT (4.20 t ha⁻¹ and 6.13 t ha⁻¹). In terms of economic analysis the higher net returns (Rs. 29423/-) and B: C ratio (1.90) was obtained from T₈. Treatments like T₁₁, T₄ and T₃ recorded higher net return of Rs. 29028/-, Rs. 26499/- and Rs. 28970/- respectively with benefit cost ratio of 1.92, 1.84 and 1.85 respectively. Present study revealed that combined application of Bensulfuron-methyl 0.6% + Pretilachlor 6% @ 10 kg granules ha⁻¹ as PE + Bispyribac Sodium @ 25 g.ai.ha⁻¹ as POE at 20 DAT (T₈) or the same pre-emergence herbicide + one hand weeding at 40 DAT (T₃) may be suggested for better weed control and higher economic returns in transplanted rice. But, on the basis of net return and B:C ratio Bispyribac sodium 10% SC @ 25g.ai ha⁻¹ (T₄) and Bensulfuron-methyl 0.6% + Pretilachlor 6% @ 10 kg(G) ha⁻¹ as PE + Metsulfuron methyl 10% + Chlorimuron-ethyl 10% (T₁₁) @ 4g-ai ha⁻¹ as POE showed satisfactory performance instead of hand weeding twice.

Keywords: Winter rice, Herbicide combination, Chemical weed control, Weed dynamics, Grain Yield, Straw yield, Benefit: Cost Ratio.