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Effect of integrated weed management on weed flora distribution, weed dynamics and performance of rice (*Oryza sativa* L.) under system of rice intensification (SRI) in Chhattisgarh

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ABSTRACT : A field experiment conducted at Research cum-Instructional Farm, Department of Agronomy, IGKV, Raipur (C.G.) during *Kharif* season of 2009 in Randomized Block Design (RBD) with three replications. The dominated weed flora of the rice field comprised of *Alternanthera triandra*, *Echinochloa colona*, *Fimbristylis miliacea* and *Cyperus iria* throughout the crop season. Other weeds were *Ischaemum rugosum*, *Boreria sirida*, *Commelina benghalensis*, *Cynotis axillaris*, *Aescheynomene indica* etc. observed in the experiment field. Results revealed that post-emergence combined application of fenoxaprop-p-ethyl 60 g ha⁻¹+ ethoxysulfuron 15 g ha⁻¹ at 20 and 35 DAT was statistically at par with hand weeding (twice) at 20 and 40 DAT for controlling weeds effectively in system of rice intensification method of rice. The maximum grain yield and straw yield was recorded under fenoxaprop-p-ethyl 60 g ha⁻¹+ ethoxysulfuron 15 g ha⁻¹ at 20 and 35 DAT followed by hand weeding. All the treatments gave significantly higher seed yield than unweeded control. The highest gross return and B:C ratio was obtained from fenoxaprop-p-ethyl 60 g ha⁻¹+ ethoxysulfuron 15 g ha⁻¹ at 20 and 35 DAT followed by hand weeding and lowest from unweeded control.

Key Words : Rice, Weed flora, Weed dynamics, Integrated weed management

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Rice (*Oryza sativa* L.) is one of the most important and extensively grown premium food crop of the world and important staple food of more than 60 per cent of the world's population. Chhattisgarh is known as rice bowl of central India. The area and productivity of rice in Chhattisgarh is 3.61 million ha and 1.5 t ha⁻¹ (Anonymous, 2009), which is quite low as compared to many states as well as country. Weeds are the major constraints in production of rice which often pose serious problem. Weeds compete with crop plants for moisture, light, nutrients and space. The extent of yield reduction of rice due to weeds is estimated from 15-95 per cent (Gogoi *et al.*, 1996). Weed competition depends upon method of rice cultivation, weed species and their time of emergence etc. Weed problems are generally of lower magnitude in traditional method because of puddling, transplanting and continuous submergence of water but in SRI fields, weeds

infestation is higher as compared to traditional transplanting system due to wetting and drying of field. The untimely and poor weed management adversely affects proper growth and yield of rice. Herbicide used in isolation, however, unable to obtain complete weed control because of their selective killing. Their use can be made more effective if apply in combination and/or supplemented with other weed management practices such as hand weeding or mechanical weeding etc which are available for weed control in rice. Keeping these points in view, integrated approach of weed management was evaluated for more feasible and practicable control of mixed weed flora in SRI.

RESEARCH PROCEDURE

The experiment was carried out at research cum-instructional-Farm, IGKV, Raipur (C.G.) during *Kharif* season