

Studies on weed management in rice-wheat cropping system in Tarai conditions of Uttaranchal, India

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ABSTRACT

The field experiment is in progress since 1990-91 at Crop Research Centre of G. B. Pant University of Agriculture and Technology, Pantnagar, U.S.Nagar (Uttaranchal) to study the long term effects of herbicide use in rice-wheat system. Continuous use of butachlor and isoproturon for weed control in rice-wheat system during the last 13 years did not reduce the weed control efficiency of butachlor, however, efficiency of isoproturon was reduced slightly over the years but these herbicides are still providing satisfactory weed control. The crop productivity was not affected over the years due to continuous use of butachlor and isoproturon.

Key words : Rice, Wheat, Butachlor, Isoproturon

INTRODUCTION

The rice-wheat rotation is the most important rotation in India, covering about 12 m ha area and contributing nearly 31% of the total cereal production in the country. Thus, it is backbone of the country's food security.

Weeds are major constraints for the sustainability of production and productivity of this rotation. These are self-grown and appear simultaneously with crop plants creating severe competition for nutrients, space, moisture and solar energy. Weeds, by virtue of their wider adaptability and faster growth dominate the crop habitat and reduce crop yield potential. Hand weeding is the most common, old and effective method of weed control but it is becoming difficult and uneconomical due to high cost and unavailability of labour at peak period. Under such

situations, chemical weed control is easier, time saving and economical as compared to hand weeding.

MATERIALS AND METHODS

A field experiment was conducted at the crop Research Centre of G.B. Pant University of Agriculture and Technology Pantnagar, (U.S. Nagar) during year 2003-04 and 2004-05 to study the dynamics of weed flora in rice-wheat cropping system and its effect on yield of rice and wheat. In transplanted rice during *kharif* season treatments consisted of butachlor at 1.5 kg ai ha⁻¹ at 3 days after transplanting (DAT), hand weeding (HW) at 30 and 60 DAT and weedy check (WD) and during the following *rabi* season each treatment of *kharif* was followed by isoproturon at 1.0 kg ai ha⁻¹ at 35 days after

Table 1 : Details of experimental treatments

S. No	Rice			wheat		
	Treatment	Dose kg ha ⁻¹	Stage of application *(DAT)	Treatment	Dose kg ha ⁻¹	Stage of application **(DAS)
1.	Butachlor	1.5	3	Isoproturon	1.0	35
2.	Butachlor	1.5	3	Hand weeding	-	30 and 60
3.	Butachlor	1.5	3	Weedy	-	-
4.	Hand weeding	-	30 and 60	Isoproturon	1.0	35
5.	Hand weeding	-	30 and 60	Hand weeding	-	30 and 60
6.	Hand weeding	-	30 and 60	Weedy	-	-
7.	Weedy	-	-	Isoproturon	1.0	35
8.	Weedy	-	-	Hand weeding	-	30 and 60
9.	Weedy	-	-	Weedy	-	-

* DAT = Days after transplanting

** DAS = Days after sowing

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