

Research  
Paper

## Economics and uptake of nutrients by crops and weeds as influenced by weed control practices in aerobic rice

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### ABSTRACT

A field experiment was conducted during *Kharif* 2009 at ZARS, V.C. Farm, Mandya to evaluate the different weed management practices in aerobic rice, with 4 herbicide formulations and combinations along with one intercultivation at 40 DAS, two hand weeding at 20 and 40 DAS, three intercultivation at 20, 40 and 60 DAS, weed free check and unweeded check. The results revealed that, application of bensulfuron methyl + pretilachlor (6.6 GR) @ 0.06 + 0.60 kg a.i ha<sup>-1</sup> + one intercultivation at 40 DAS recorded significantly lower weed population and weed dry weight and higher grain yield (4804 kg ha<sup>-1</sup>) which was at par with bensulfuron methyl + pretilachlor (6.6 GR) @ 0.06 + 0.60 kg a.i ha<sup>-1</sup> + one intercultivation at 40 DAS (4425 kg ha<sup>-1</sup>). The uptake of major nutrients by rice was higher in bensulfuron methyl + pretilachlor (6.6 GR) @ 0.06 + 0.60 kg a.i ha<sup>-1</sup> + one intercultivation at 40 DAS which was at par with bensulfuron methyl + pretilachlor (6.6 GR) @ 0.06 + 0.60 kg a.i ha<sup>-1</sup>. While nutrient uptake by weeds was higher in unweeded check.

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**Key words :** Soil fertility, Productivity, Levels of NPK

## INTRODUCTION

Aerobic rice production system is gaining importance for increased productivity and reduced water usage and is expected to occupy 10-15 per cent of the total area in India. The major constraint to get higher yield in aerobic rice is weed infestation which cause around 80-100% (Mishra and Singh, 2007) reduction in grain yield. Weeds that grow with the crop deplete considerable amount of plant nutrients, which results in lower crop yields. Nutrient depletion by weeds, besides other factors, depends on soil type and composition of weeds. Management of aerobic rice is, therefore, a very difficult task and would simultaneous approach on all these problems. Keeping the above information in view, the present investigation was under taken to study the effect of weed control treatments on losses of nutrients caused by weeds in aerobic rice.

## MATERIALS AND METHODS

A field experiment was conducted during *Kharif*

season of 2009, at Zonal Agricultural Research Station, V.C. Farm, Mandya district. The soil of the experimental site was red sandy loamy in texture and pH was normal (6.9). The soil was medium in available nitrogen (297.5 kg ha<sup>-1</sup>), available phosphorus (27.2 kg ha<sup>-1</sup>) and available potassium (174.3 kg ha<sup>-1</sup>). The organic carbon content was medium (0.59 %) in range. MAS-946-1 a popular medium duration variety was sown in July with a spacing of 25 cm x 25 cm. Experiment included twelve treatments consisted of T<sub>1</sub>= Butachlor (50 EC) @ 1.0 kg a.i ha<sup>-1</sup> as pre emergent herbicide, T<sub>2</sub>= Pyrazosulfuron ethyl (5 WP) @ 0.025 kg a.i ha<sup>-1</sup> as pre emergent herbicide, T<sub>3</sub>= Oxyfluorfen (23.5 EC) at 0.10 kg a.i ha<sup>-1</sup> as pre emergent herbicide, T<sub>4</sub>= Bensulfuron methyl + pretilachlor (6.6 GR) @ 0.06 + 0.60 kg a.i ha<sup>-1</sup> as pre-emergent herbicide (pre mix formulation), T<sub>5</sub>= Butachlor (50 EC) @ 1.0 kg a.i ha<sup>-1</sup> as pre emergent + one intercultivation at 40 DAS, T<sub>6</sub>= Pyrazosulfuron ethyl (5 WP) @ 0.025 kg a.i ha<sup>-1</sup> as pre emergent + one intercultivation at 40 DAS, T<sub>7</sub>= Oxyfluorfen (23.5 EC) @ 0.10 kg a.i ha<sup>-1</sup> as pre emergent + one intercultivation at 40 DAS, T<sub>8</sub> = Bensulfuron methyl + pretilachlor (6.6 GR) @ 0.06 + 0.60 kg a.i ha<sup>-1</sup> as pre -