DEPARTMENT OF AGRONOMY
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Title: "Effect of different herbicide molecules on weed control in transplanted rice (*Oryza sativa* L.)".

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ABSTRACT

A field experiment entitled "**Effect of different herbicide molecules on weed control in transplanted rice (*Oryza sativa* L.)"** was conducted at Agronomy Research Farm of Narendra Deva University of Agriculture and Technology, Kumarganj, Faizabad (U.P.) during *kharif* season of 2015 with an objective to find out the effect of different herbicide molecules on growth and yield of transplanted rice and associated weeds. The soil of the experimental field was silt loam, having pH 7.82, organic carbon (%) 0.35; available N, P and K values to the tune of 190.55, 13.03 and 254 kg ha^{-1}, respectively. Field trial was laid out in RBD with three replications, having 10 number of treatments *viz*. Bispyribac-Na 25 g/ha, Pyrazosulfuron 20 g, Oxadiargyl 100 g/ha (PE), Bispyribac-Na + ethoxysulfuron methyl 25 g + 18.75 g, Pretilachlor fb ethoxysulfuron methyl 750 g / 18.75 g, Butachlor 1.5 kg/ha (PE), Pendimethalin fb Byspyribac-Na 750g/25 g ha^{-1} and Bispyribac-Na 30 g/ha . Bispyribac-Na 30 g/ha along with weed free and weedy check. The herbicide treatments were applied at 0-2 DAT and 25 DAT as pre & Post emergence to weeds, respectively. The crop was transplanted on 26 July, 2015 with 25 days old seedlings of rice variety NDR-359. A recommended dose of nutrients of N, P, K and $ZnSO_4$ at 150:60:60:25 kg/ha, respectively were applied in the crop.

The density of BLWs, narrow leaved weeds and sedges as well as the total weed density and dry weight were recorded significantly less with Bispyribac-Na + ethoxysulfuron 25 g + 18.75 g ha^{-1} as compared to rest of the treatments. All the growth and yield attributes *viz*. plant height, dry matter, LAI, panicle length, test weight as well as grain and straw yield were significantly higher in Bispyribac-Na + ethoxysulfuron 25 g + 18.75 g ha^{-1}. With respect to economics maximum net return was recorded with Bispyribac-Na + ethoxysulfuron 25 g + 4 g ha^{-1} (Rs.53275) while the BCR (Rs. 1.81) of Pretilachlor fb ethoxysulfuron 750 g / 18.75 g ha^{-1} , was highest among all the treatments. Significantly higher and lower values of yield attributes and yield, as well as lower and higher values of density and dry matter of weeds were recorded with weed free and weedy treatment, respectively.

It can be concluded that Bispyribac-Na + ethoxysulfuron (25 g + 18.75 g ha^{-1}) proved superior with respect to weed control efficiency and crop yield and economics followed by Pretilachlor fb ethoxysulfuron 750 g / 18.75 g ha^{-1} and Pendimethalin fb Byspyribac-Na 750g/25 g ha^{-1}.

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