RESEARCH PAPER International Journal of Agricultural Sciences, June, 2010, Vol. 6 Issue 2 : 463-466

Effect of integrated weed management practices on growth and yield of soybean (*Glycine max* L.) under agro-climatic situation Chhattisgarh

SANDEEP SHARMA* AND D.K.GUPTA
Department of Agronomy, Collage of Agriculture, RAIPUR (C.G) INDIA

ABSTRACT

An experiment was conducted during *Kharif* season 2004 at Instructional Farm of Indira Gandhi Krishi Vishwavidyalya, Raipur (C.G) to study the effect of weed management on weed dynamics and performance of soybean. The experiment was laid out in Randomized Block Design having the combination of fourteen treatments with three replications. The soybean variety JS-335 was grown as test crop. The growth performance of soybean *i.e.* plant height, branches plant^{-1}, dry matter accumulation plant^{-1}, nodule plant^{-1} and dry weight of nodule plant^{-1} was higher under metribuzin 300 gha^{-1} fb quizalofop 50 g ha^{-1} as compared to other weed management practices. Where as the minimum growth of soybean was recorded under unweeded. Maximum seed yield and stalk yield was under metribuzin 300 gha^{-1} fb quizalofop 50 gha^{-1}.

Key words : Integrated weed management practices, Growth and yield of soybean

INTRODUCTION

Soybean is mainly grown during *Kharif* season in sandy loam to clay loam soils in Chhattisgarh, which have low water holding capacity, do not turn up in working condition, hindering the timely weeding and intercultural operation. Weed flush come at the same time in almost all the *Kharif* crops, which also restrict the availability of manpower for weeding operation in this crop. The ultimely poor weed management adversely affects proper growth and yield of soybean. It is estimated that the loss in yield of soybean in the tune of 30 to 77 per cent due to poor weed control (Tiwari and Khurchania, 1990). These losses can be alleviated by effective integrated weed management practices. Integrated weed management is an integration of effective and workable weed management practices that can be used ecologically and economically by the farmers. Now-a-days a few herbicides like metribuzin, chlorimuron, imazethapyr, quizalofop, fenoxaprop (most of the selective herbicides) are available, which can be used safely in soybean.

MATERIALS AND METHODS

The field experiment was conducted during *Kharif* season of 2004 at the Instructional cum Research Farm, Indira Gandhi Krishi Vishwavidyalya, Raipur (C.G.). The soil of experimental field was clayey in texture (Vertisol). The chemical composition of field soil was pH 7.14, electrical conductivity 0.17 dsm^{-1}, available N 217.35 kg ha^{-1}, available P_2O_5 14.10 kg ha^{-1}and available K_2O 365.27 kg ha^{-1}. The design selected of these treatments was randomized block design of with three replications. The experiment comprised for fourteen treatments *viz.*, the treatments metribuzin @ 300 g ha^{-1} as (PE), imazethapyr @ 80 g ha^{-1} (PE), metribuzin @ 300 g ha^{-1} (PE) fb quizalofop @ 50 g ha^{-1} (POE), metribuzin @ 300 g ha^{-1} (PE) fb fenoxaprop @ 80 g ha^{-1} (POE), imazethapyr @ 80 g ha^{-1} (PE) fb fenoxaprop @ 80 g ha^{-1} (POE), imazethapyr @ 80 g ha^{-1} (PE) fb quizalofop @ 50 g ha^{-1} (POE), chlorimuron @ 4 g ha^{-1} (POE), chlorimuron @ 4 g ha^{-1} + fenoxaprop @ 80 g ha^{-1} (POE), chlorimuron @ 4 g ha^{-1} + quizalofop @ 50 g ha^{-1} (POE), fenoxaprop @ 80 g ha^{-1} (POE), quizalofop @ 50 g ha^{-1} (POE), hand weeding at 40 DAS, hoeing at 40 DAS and unweeded control. The soybean variety 'JS-335' was taken as test crop. The crop was sown during first week of July. The fertilizers N, P_2O_5 and K_2O were applied @ 20, 50 and 20 kg ha^{-1}, respectively.

RESULTS AND DISCUSSION

The results obtained from the present study as well as relevant discussion have been presented under following heads:

Effect on growth:

The higher plant height was recorded under metribuzin @ 300 g ha^{-1} fb quizalofop @ 50 g ha^{-1} as compared to other weed management practices of soybean. Significantly lower plant height was observed under unweeded (Table 1). Higher plant height under these treatments was due to the fact that there was lower weed competition of weeds, which allowed soybean to absorb required amount of nutrient and water for its growth. This favoured the higher plant height of soybean. The maximum number of branches plant^{-1} was registered in metribuzin 300 g ha^{-1} fb quizalofop 50 g ha^{-1}.

* Author for correspondence.