



Research Article

Effect of integrated weed management practices on growth and productivity of soybean [*Glycine max* (L.) Merrill]

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ABSTRACT : A field experiment was conducted at the Research cum Instructional Farm, Indira Gandhi Krishi Vishwavidyalaya, Raipur (C.G.) during *Kharif* season of 2010 to find out the appropriate integrated weed management practices for growth and productivity of soybean. Results revealed that significantly higher growth character *viz.*, number of branches, dry matter accumulation, number of leaves, leaf area, crop growth rate and relative growth rate were obtained under hand weeding twice at 20 DAS and 40 DAS (T_{12}), as compared to others. This was followed by hoeing twice (by wheel hoe) at 15 DAS and 35 DAS (T_{11}), imazethapyr 10 SL @ 100 g ha⁻¹ fb hoeing (by wheel hoe) at 35 DAS (T_{10}), imazethapyr 10 SL @ 100 g ha⁻¹ fb HW at 35 DAS (T_9) and quizalofop ethyl 10 EC @ 37.5 g ha⁻¹ + chlorimuron ethyl 25 WP @ 9 g ha⁻¹ + surfactant @ 0.2 per cent fb HW at 35 DAS (T_6). However, the plant height was obtained significantly higher under weedy check (T_{13}), as compared to others.

KEY WORDS : Integrated weed management, Growth, Productivity, Quizalofop ethyl 10EC, Imazethapyr 10SL, Chlorimuron ethyl 25WP

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INTRODUCTION

It is two dimensional crop as it contains about 40-42 per cent high quality protein and 20-22 per cent oil. In India, soybean occupies an area of 9.67 m ha, with production potential of 10.22 MT and average productivity of 1124 kg ha⁻¹. The productivity of soybean in India is less as compared to world average 1.8 t ha⁻¹ and Asia 1.3 t ha⁻¹. In Chhattisgarh, soybean occupies 0.13 m ha with production of 0.12 MT and average productivity of 925 kg ha⁻¹ (Anonymous, 2010).

The soybean grown in rainy season faces severe weed competition. Weed competition in soybean at early stage of

crop growth is critical, as it causes yield losses up to 35 to 50 per cent (Tiwari and Kurchania, 1990). Losses by weeds 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. Therefore, integrated approach of chemical and cultural control may be more feasible and practicable (Sharma *et al.*, 2009).

EXPERIMENTAL METHODS

The present investigation was carried out during *Kharif* season of 2010 at the Research cum Instructional Farm, Indira Gandhi Krishi Vishwa Vidyalaya, Raipur (C.G.), to find out the appropriate integrated weed management practices for growth and productivity of soybean. The experimental site is located at latitude of 21°4' North, a longitude of 81°35' East with an altitude of 290.20 m above the mean sea level. The soil of experimental field was clayey in texture, low in nitrogen, medium in phosphorus and high in potassium contents with neutral in

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