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EFFECT OF POST EMERGENCE OF HERBICIDES ON WEEDS, NODULATION, SOIL PROPERTIES AND YIELD ATTRIBUTES OF BLACK GRAM [*VIGNA MUNGO* (L.)] HEPPER

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ABSTRACT

A field experiment was conducted at Shamli during kharif 2007 to examine the effect of herbicides in black gram on productivity weed infestation and soil health. Treatment consisting of clodinafop-propargyl 8% EC at 80, 100 and 150 g a. i. ha^{-1}, Na- acifluorfen 20% SL of 150 and 200 g a. i. ha^{-1}, combination of clodinafop- propargyl 8% EC + Na-acifluoren 16.5% SL at 80+ 150, 100 + 200 and 150 + 300 g ha^{-1},imazethapyr10% SL at 100 g a. i. ha^{-1}, weed free and weedy check were tested in RBD with 3 replications. The black gram variety used for the study was PDU-1. Treatment of weed free check was found best by recording highest nodulation, yield and yield attributes, N uptake and soil parameters. It was significantly superior with imazethapyr 10% SL @ 100 g a. i. ha^{-1}, the treatment that showed highest nodule and plant dry weight, weed control efficiency, grain yield (1168 kg ha^{-1}), straw yield (1498kg ha^{-1}) N uptake (80.5kg ha^{-1} in grain and 25.1kg ha^{-1}in straw) soil organic carbon, available N, P, K, microbial counts and dehydrogenase activity among different herbicides treatments. Clodinafop- propargyl 8% EC +Na- acifluorfen 16.5% SL was also found effective in weed control with 100 +200 g a. i. ha^{-1}. It was comparable to imazethapyr 10% SL @ 100 g a. i. ha^{-1} in weed index, weed control efficiency, nodule dry weight, grain and straw yield, N uptake, soil organic C, available N and K, microbial counts and dehydrogenase activity. The highest net return of Rs. 43520 ha^{-1} was obtained with weed free check, which was at par with imazethapyr 10% S @100 g a.i. ha^{-1} and cladinafop-propargyl 8% EC + Na- acifluorfen 16.5% SL @ 100 + 200 g a. i. ha^{-1}.

Key words : Black gram, Herbicide, Nodulation, Nutrient uptake, Soil properties, Yield.

INTRODUCTION

Black gram [*Vigna mungo* (L.)] Hepper is an important pulse crop of India containing 26% protein. Being N_2-fixing crop it provides good returns to farmers even with low level of farm input. Black gram is usually accompanied by luxuriant weed growth during the kharif (rainy) season owing to abundant rain fall received during monsoon leading to crop loses. The crop is not very good competitor against weed and therefore, weed control initiatives are essential to ensure proper crop growth, particularly in the early growth period. Depending on the nature, density and period of occurrence weeds can cause loses of grain yield of black gram varying from 41.6 to 64.1% (Chand *et al*., 2004; Rathi *et al*., 2004). The critical period of crop weed competition in black gram usually