Chemical Weed Management in Black Gram (*Vigna mungo*L.)

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Abstract—*Field experiments were conducted for three years at Pulses and Oilseeds Research Station, Berhampore, Murshidabad, West Bengal, India during kharif 2008, 2009 and 2010 to develop an efficient chemical weed management practice with newer herbicidal molecules in black gram. The experiment was laid out in a randomized block design with three replications having nine treatments viz. W_0 – Weedy check, W_1 – Hand weeding twice at 20 and 40 DAS, W_2 – Pendimethalin 30 EC @ 1.0kg a.i./ha as PE (Pre-emergence) at 1 DAS, W_3 – Quizalofop ethyl 5EC @ 37.5g a.i./ha as PoE (Post-emergence) at 10-15 DAS, W_4 – Chlorimuron ethyl 25 WP @ 4.0g a.i./ha as PoE (10-15 DAS), W_5 – Fenoxaprop-p-ethyl 9EC @ 50g a.i./ha as PoE (10-15 DAS), W_6 – Quizalofop ethyl 5 EC @ 37.5g a.i./ha + Chlorimuron ethyl 25 WP @ 4.0g a.i./ha as PoE (10-15 DAS) , W_7 – Fenoxaprop-p-ethyl 9EC @ 50g a.i./ha + Chlorimuron ethyl 25 WP @ 4.0g a.i./ha as PoE (10-15 DAS) , and W_8 – Imazethapyr @ 25ml/ha as PoE (15-20 DAS).Experimental results revealed that highest seed yield (1266.5kg ha^{-1}) was recorded under the treatment W_1 and lowest with W_0 (622.2kg ha^{-1}). Application of chemical herbicides significantly improved the seed yield over W_0. The treatments W_7 (1247.4kg ha^{-1}) and W_6 (1195.1kg ha^{-1}) were found at par with W_1. Significant reduction in the total weed density and total weed dry weight were found with the application of Fenoxaprop-p-ethyl 9EC @ 50g a.i./ha + Chlorimuron ethyl 25 WP @ 4.0g a.i./ha as PoE (10-15 DAS) and Quizalofop ethyl 5 EC @ 37.5g a.i./ha + Chlorimuron ethyl 25 WP @ 4.0g a.i./ha as PoE (10-15 DAS). Highest weed control efficiency was recorded under hand weeding twice (84.9%) followed by application of Fenoxaprop-p-ethyl 9EC @ 50g a.i./ha + Chlorimuron ethyl 25 WP @ 4.0g a.i./ha as PoE (10-15 DAS) (73.0%). Chemical weed control measures increased the total microbial population by 80.3 to 109.5% over weedy check and 57.5 to 83% over twice hand weeding. It was also revealed that nodulation in black gram was not affected significantly due to the application of chemical herbicides.*

Keywords *: Black gram, chemical weed management, microbial population, nodulation, seed yield, weed control efficiency.*