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Effect of herbicide application on weed management in green gram (*Vigna radiata*)

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Green gram [*Vigna radiata* (L.) Wilczek] is an important pulse crop of West Bengal. It is a short duration legume and can be raised as a catch crop, and by raising the crop the cropping intensity can be increased, at the same time the natural resources can be utilised in an efficient manner. Unfortunately the crop often faces a tight competition with weeds causing tremendous yield losses. The loss of yield due to weeds is quite high, ranges from 40- 68%.

A field experiment was carried out at the Bidhan Chandra Krishi Viswavidyalaya (Nadia, West Bengal) during 2012 and 2013 to investigate the effect of herbicide application on growth and yield of summer green gram (*Vigna radiata* L. Wilczek) crop (raised during March-May) in upland situation to judge the efficacy of the herbicides against weed flora in green gram field and also to find out effect of herbicides on crop yield. The soil of experimental site was sandy loam in texture having neutral in soil reaction. The experiment was conducted with 14 treatments and laid out in RBD with 3 replications. The green gram variety used was IPM-2-3.

It was observed that hand weeding resulted in significantly lower weed density and dry weight and gave better seed yield of green gram. Most of the herbicides were found effective in controlling weeds and maximizing seed yield of green gram. These treatments were at par with hand weeding twice at 20 and 40 DAS. Total weed free treatment showed the best performance in respect of yield and yield attributes of green gram crop and weeds management. The herbicidal treatments Fenoxaprop-p-ethyle @ 50 g a.i. / ha and @ 100 g a.i. / ha were found less effective for controlling weeds. Maximum net returns and benefit: cost ratio were obtained from Vellore 32 (Pendimethalin 30 EC + Imazethapyr 2 EC) @1.00 kg a.i. / ha. Hand-weeding treatments, though significantly reduced weed biomass and improved the grain yield, gave less benefit: cost ratio owing to higher cost of farm labour.

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