SCREENING OF POST-EMERGENCE HERBICIDES IN CHICKPEA (CICER ARIETINUM) UNDER RAINFOD CONDITIONS OF JAMMU

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ABSTRACT
An experiment was conducted in randomized block design with twelve treatments replicated thrice during the rabi seasons of 2008-09 and 2009-10 in Inceptisols. The objective of the experiment was to study the effect of different post emergence (POE) herbicides to manage weeds in chickpea variety GNG 469 along with hand weeding (HW) at 25-30 and 50-55 days after sowing (DAS) and weedy check. Higher seed yield and yield attributes were obtained with 2 HW at 25-30 and 50-55 DAS and it was statistically at par with the POE application of imazamox @ 40 & 25 g/ha at 30 DAS. Post emergence application of Quialofop-ethyl @ 50 & 40 g/ha at 20 and 30 DAS also obtained significant values of yield and yield attributes which were superior to weedy check but the values were not at par with imazamox treatment. Higher values of weed control efficiency (WCE) at 70 DAS (94.3%) and at harvest (87.2%) and minimum values of weed biomass (6.54 and 7.04 g/m² at 70 DAS and at harvest) were recorded with 2 HW at 25-30 and 50-55 DAS followed by POE application of imazamox 40 and 25 g/ha at 30 DAS. The lowest values of yield and yield attributes and higher values of weed biomass were obtained with weedy check both at 70 DAS and at harvest.

Key words: Weed control, Herbicides, Chickpea, Post emergence herbicides.

INTRODUCTION
Weeds are a serious constraint to increased production and easy harvesting in chickpea. Chickpea, however, is a poor competitor to weeds because of slow growth rate and limited leaf area development at early stages of crop growth and establishment. Weed infestation in winter pulses, particularly in chickpea has been reported to offer severe weed competition causing yield reduction to the extent of 40-45 per cent in the crop (Singh and Singh, 1992).

Weeding is one of the major problems in rainfed agriculture. It is reported that at least 20 per cent yields are lost annually due to improper weed control (Biswas, 1991). In general, farmers from Kandi areas of Jammu region do not go for chemical weed control for pulses, except for 5-10 per cent farmers who use pre-emergence herbicides and thereafter 1 or 2 hand-weedings are done which results in lower yields. To bridge the gap between actual and potential levels of production, an effective weed control measure has to be found out so as to reduce the drudgery of farmers and save time. The erratic rainfall pattern in rainfed areas also leads to heavy infestation of weeds which also accounts for major yield loss. The conventional method of weed control in chickpea is time consuming, expensive and labourious. It is more favourable to use herbicides due to non-availability of human labour resource during peak crop season (Dungarwal et al., 2002). Hand and mechanical weed control methods traditionally followed in the winter sown chickpea are not effective besides being costly and uneconomical. Because of the sensitivity of chickpea to herbicides, most effective herbicides are pre-sowing and pre-emergence soil-acting chemicals and their efficacy is highly dependent on soil type, moisture, temperature and weed flora. Pre planting and pre emergence herbicides barely affect the weeds germinated during the late seedling stage in...