

Studies on tolerance of chickpea (*Cicer arietinum* L.) to some pre- and post-emergence herbicides

K. Rahamdad¹, I.A. Khan² and S.S. Shah¹

¹Department of Agriculture, Bacha Khan University Charsadda-Pakistan

²Department of Weed Science, The University of Agriculture, Peshawar-Pakistan
(drrahamdad@bkuc.edu.pk)

Summary Herbicides application is an integral part of farmers' cultural practice in modern agricultural systems. Weeds always cause serious losses in legumes due to poor competition with weeds. In order to quantify the tolerance of chickpea against pre-emergence herbicides (pendimethalin, s-metolachlor) and post-emergence herbicides (Clodinafop-propargyl, fenoxaprop-p-ethyl, di-methyl urea) a pot studies were undertaken during 2014–2015 and 2015–2016. Chickpea variety Karak-I was used for the purpose under the CR Design in the department of Weed Science, The University of Agriculture Peshawar. Data were recorded at plant height, number of branch per plant, number of seed per plant, number of pods per plant, number of nodule per plant, nodule fresh and dry biomass and seed protein contents during the investigations. The results revealed that the treatment had a significant effect on all the examined parameters

of chickpea except nodule fresh and dry biomasses. Moreover, the toxic effect of pre-emergence herbicide on chickpea was significantly higher as compared to post-emergence herbicides. Minimum chickpea plant height (50.50 cm), number of nodule per plant (17.83) and seed protein (14.13 %) was recorded in pendimethalin, while highest seed protein content (21.75 and 21.15 %) was recorded for control and fenoxaprop-p-ethyl. Thus, it is concluded from the present data that chickpea has less tolerance for pre-emergence herbicides pendimethalin and s-metolachlor as compared to post-emergence herbicides so farmers are advised to give preference to post-emergence herbicides instead of a pre emergence while controlling weeds in chickpea through chemicals.

Keywords Chickpea, herbicides, protein, pendimethalin, weed.