RESEARCH ARTICLE | International Journal of Plant Sciences, (July to December, 2009) Vol. 4 Issue 2 : 524-526

Weed management in field pea (*Pisum sativum*) through agronomic manipulations

SANJAI CHAUDHRY, J.P.S. RATHI, D.K. CHAUDHARY AND O.P. SINGH

Accepted : May, 2009

SUMMARY

A field experiment was conducted during the winter season of 2004-05 and 2005-06 at Kanpur (Uttar Pradesh) to find out the effect of pea genotypes and row spacings on weed dynamics, crop yield and economics of field pea (*Pisum sativum*). *Anagallis arvensis, Chenopodium album, Parthenium hysterophorus, Asphodelus tenuifolius and Cyperus rotundus* were the major weeds causing 32.4% reduction in grain yield of pea. Tall genotype 'JP-885' showed significant reduction in weed population and dry matter than dwarf genotype 'sapna' and increase in grain yield by 23.0 per cent. The closer row spacing of 30 and 40 cm reduced intensity and dry biomass of weeds than 50 cm significantly and increased the grain yield by 17.4% and 34.3%, respectively. The combination of tall genotype and medium row spacing of 40 cm reduced weed population and weed dry weight effectively which resulted highest grain yield and net profit from field pea cultivation.

Key words : Field pea, Genotypes, Row spacing, Yield, Economics, Weeds

PEA (*Pisum sativum*) is an important pulse crop grown in entire Uttar Pradesh. It is grown in various crop rotations and growing conditions. The productivity of field pea in the State is low being only 12.97 q/ha during 2004-2005. Besides other constraints, weeds pose a serious problem and reduce the grain field of field pea upto 34.29 per cent (Mishra and Bhan, 1997). Thus, proper weed management in field pea is important for yield increase. Now a days the number of herbicides are available in market which are efficient in controlling weeds, but most of the farmers are not capable of using those because one or the another reason. Keeping this in view, an investigation was carried out to manage the weeds in field pea through agronomic manipulations.

MATERIALS AND METHODS

A field experiment was conducted during the winter season of 2004-05 and 2005-06 at Students' Instructional Farm of C.S. Azad University oF Agriculture and Technology, Kanpur. The soil was sandy clay loam, low in available nitrogen (111 Kg/ha), medium in available phosphorus (18 kg/ha) and potassium (141 kg/ha), with pH 8.1. The treatment combinations comprising of 3 row spacing (30, 40, 50 cm), 2 genotypes (Dwarf 'Sapna' and tall 'J.P. 885') and 2 weeding treatments (weed free and weedy check) were replicated four times in a split plot design with row spacings in main plots and combinations of other two factors in sub plots. The crop was sown on December 14, 2004 and December 19, 2005 in furrows behind plough using 100, 75 and 60 Kg seed/ha in 30, 40 and 50 cm row spacings, respectively keeping plant distance constant in all row spacing. Uniform dose of diammonium phosphate (18:46:0) @ 122.5 kg/ha + urea (46%N) @ 40.8 Kg/ha was applied at the time of sowing. Total 2 irrigations were applied at critical stages of crop. The data on weed population were recorded at 90 days after sowing by placing a quadrate of 0.5 M X0.5M twice in a plot and transformed to (x+0.5) for statistical analysis. The data on weed dry weight, growth characters, yield attributes and yields of crop were recorded. Net profit was also worked out for different treatments.

RESULTS AND DISCUSSION

The results obtained from the present investigation are presented below.

Weed:

The experimental field was infested with *Anagallis arvensis, Parthenium hysterophorus, Chenopodium album, Asphodelus tenuifolius, Cyperus rotundus* and other miscellaneous spp. such as *Cynodon dactylon, Fumaria parviflora* etc. Among these, the growth and intensity of *Anagallis arvensis* (20.90%) and *Chenopodium album* (20.00%) were more than the others at 90 days after sowing stage. The results showed (Table 1) that total weed population/m^2 and weed dry weight increased with each wider crop row significantly

Correspondence to:
SANJAI CHAUDHRY, Department of Agronomy, C.S. Azad University of Agriculture and Technology, KANPUR (U.P.) INDIA
Authors' affiliations:
J.P.S. RATHI, D.K. CHAUDHARY AND O.P. SINGH, Department of Agronomy, C.S. Azad University of Agriculture and Technology, KANPUR (U.P.) INDIA