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Short communication

Integrated weed management in chickpea

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Chickpea is used in salad and to cook various dishes. The yield of chickpea has fallen due to various biotic and abiotic factors. Weeds cause loss in yield by competing for space, nutrients, water and light. The crop is a poor competitor of weeds because of slow growth rate and limited leaf development at early stage of crop growth, resulting in yield loss of 40-87%. Further, the crop is generally grown on marginal and sub-marginal soils under rainfed conditions with low inputs. The information on weed management in Krishna zone is negligible. Hence, this investigation was taken to find out most suitable weed management practice for control of weeds in chickpea.

A field experiment was conducted during 2010-11 at experimental farm, College of Agriculture, Marathwda Krishi Vidyapeeth, Parbhani. The soil of the experimental field was loamy in texture, low in organic C and N, and medium in P and K, having pH 8.0 and EC 0.93 dS/m. The chickpea variety '*Vijay*' was sown on 20 December, 2010. Nitrogen 25 kg/ha and P_2O_5 50 kg/ha were applied through urea and single super phosphate. Nine treatments were laid out in randomized block design and replicated three times. The net plot size was 4.5 x 4.2 m. Sowing was done manually at a spacing of 45 x 10 cm and dibbling of two seeds at 10 cm distance in a row at depth 5-6 cm.

Weed-free (weeding for first 80-90 DAS) resulted in significant increase in number of pods/plant, weight of pod/plant, seeds/pod, seeds/plant, 100-grain weight. Pendimethalin 0.75 kg/ha as pre-emergence was found significantly superior to rest of chemicals. Kachhadiya *et al.* (2009) observed similar results. Weed-free recorded the highest seed and straw yield, followed by one hoeing at 30 DAS + 2 hand weedings, two hand weedings and pendamethalin 0.75 kg/ha. These findings were in agreement with Jadhav (2013). Application of trifluralin 1.0 kg/ha as pre-emergence recorded the highest harvest index, followed by weed-free. Monetary returns were the highest with weed-free, followed by pendimethalin 0.75 kg/ha + cultural treatment. Benefit : cost ratio was the highest with pendimethalin 0.75 kg/ha.

Table 1. Yield attributes, yield and economics as influenced by different weed management treatments

Treatment	Number of pods/plant	No. of seeds/pod	100-grain weight (g)	Seed yield (t/ha)	Cost of cultivation (x10^3 `/ha)	Net monetary returns (x10^3 `/ha)	B:C ratio
Pendimethalin 0.75 kg/ ha (PE)	78.3	1.13	15.7	2.16	15.46	34.44	3.20
Trifluralin 1.0 kg/ ha (PE)	66.0	0.96	13.3	1.64	14.93	25.03	2.67
Imazethapyr 0.75 kg/ha (POE)	63.3	0.92	12.8	1.58	14.53	24.09	2.67
Quizalofop-p-ethyl 40 g/ha (POE)	67.0	0.97	13.5	1.69	14.51	25.58	2.76
Propaquizafop 0.75 kg/ ha (POE)	66.0	0.89	13.3	1.64	14.52	25.40	2.74
1 hoeing at 30 DAS + 2 hand weedings	79.3	1.14	15.9	2.25	21.03	33.60	2.59
Two hand weedings	79.0	1.14	15.8	2.23	20.43	33.17	2.60
Weed-free	80.0	1.15	15.9	2.32	27.43	29.00	2.05
Weedy check	62.0	0.91	12.7	1.51	13.43	23.54	2.75
LSD (P=0.05)	5.80	0.11	1.14	0.23	-	3.741	-

SUMMARY

In a study on chickpea at Parbhani, two hand weedings resulted in the highest plant height, plant spread, branches, root nodules and dry matter followed by one hoeing + 2 hand weedings, pendimethalin 0.75 kg/ha as pre-emergence, and quizalofop-p-ethyl 40 g/ha as post-emergence. Among the herbicidal treatments, the pre-emergence application of pendimethalin 0.75 kg/ha was effective in recording higher growth parameters followed by quizalofop-p-ethyl 40 g/ha as post-emergence. The highest grain and straw yields were recorded with one hoeing + two hand weedings, followed by 2 hand weedings.

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