



## Influence of weed control practices on weed growth and yields of groundnut

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Groundnut (*Arachis hypogaea* L.) is an important oil seed crop of united Andhra Pradesh, which has low productivity and high cost of production. Weed infestation at first 4-5 weeks is critical in *Rabi* groundnut. Scarce and expensive labour during critical period of weeding will affect crop growth and yield. Use of pre and post emergence herbicides and combining with physical method of weed control helps in reduced weed competition at initial and later stages of the crop (Shasikala *et al.* 2004, Solanki *et al.* 2005). Therefore the present study was initiated to find out an effective integrated weed control practice in *Rabi* groundnut.

### METHODOLOGY

The field experiment was conducted at Acharya N.G. Ranga Agricultural University during *rabi*, 2008-09. The soil was sandy loam, slightly alkaline with available N, P and K content of 252.9, 28.6 and 223 kg/ha. The experiment was laid out in randomized block design with twelve treatments consisted of handweeding, intercultural operations and herbicides pendimethalin as pre emergence and imazethapyr

and Quizalofop-p-ethyl as post emergence and un weeded control replicated thrice. The groundnut cultivar (*K-134*) was sown (22.5 cm x 10 cm) and fertilizers were applied at 30 kg N, 40 kg P<sub>2</sub>O<sub>5</sub> and 50 kg K<sub>2</sub>O /ha. Weed density and dry weight was taken in selected quadrat (m<sup>2</sup>) and worked out the weed control efficiency (%).

### RESULTS

Predominated weed flora consisted of *Cynodon dactylon*, *Digitaria sanguinalis*, *Dactyloctenium aegyptium*, *Cyperus rotundus*, *Parthenium hysterophorus*, *Amaranthus viridis*, *Amaranthus polygamus*, *Trianthema portulacastrum*, *Digera arvensis* and *Celosia argentea*. At 20 DAS, The lower weed density, dry matter and better weed control efficiency was recorded with pendimethalin applied as pre emergence. At 40 DAS lower weed density, dry weight and higher WCE (%) was recorded in hand weeding twice and pendimethalin *fb* imazethapyr. The pod yield of groundnut was significantly higher with handweeding twice and was on par with intercultural with star weeder *fb*

Table 1. Study of weed growth and pod yield as influenced by integrated weed management practices in *Rabi* Groundnut

Treatments	Weed density (no/m <sup>2</sup> )		Weed drymatter (g/m <sup>2</sup> )		WCE (%)		Pod yield (kg/ha)
Un weeded control	16.06 (260)**	17.01 (289.0)	74.0	96	-	-	561
Handweeding (HW) at 20 and 40 DAS*	15.54 (241)	7.26 (52.0)	69.0	20	6.7	79.1	1754
Intercultivation (IC) with star weeder at 20 DAS	15.86 (251)	7.68 (58.0)	66.0	27	1.0	71.9	1084
IC + HW at 40 DAS	15.15 (229)	7.89 (62.0)	67.0	28	9.4	70.8	1729
Pendimethalin @ 1.0 kg a.i/ha as PE*	8.87 (78)	11.22 (125.0)	24.0	36	67.5	62.5	1187
Imazethapyr @ 100 g a.i/ha at 20 DAS	15.80 (249)	10.28 (105.0)	70.0	25	5.4	73.9	1242
Quizalofop-p-ethyl @ 50 g a.i/ha at 20 DAS	15.25 (232)	13.96 (194.1)	68.0	37	8.1	61.4	1141
Pendimethalin as PE + imazethapyr as POE*	8.93 (79)	8.98 (80.0)	22.0	22	70.3	77.1	1649
Pendimethalin as PE + Quizalofop-p-ethyl as POE	9.37 (87)	9.38 (87.1)	26.0	29	64.8	69.8	1450
Pendimethalin as PE + HW at 40 DAS	8.77 (76)	10.29 (105.0)	23.0	27	68.9	71.9	1701
Imazethapyr as POE+ HW at 40 DAS	15.80 (249)	11.39 (129.0)	71.0	37	4.0	61.4	1685
Quizalofop-p-ethyl as POE + HW at 40 DAS	15.81 (249)	14.38 (206.1)	69.0	46	6.7	52.1	1435
SE(m) ±	0.32	0.32	3.3	1.8	-	-	30
CD (P = 0.05)	0.95	0.95	9.6	5.4	-	-	89

\*DAS= days after sowing, PE= pre emergence, POE= post emergence \*\* parenthesis original value

handweeding. Among herbicides, pendimethalin *fb* handweeding, imazethapyr *fb* handweeding and pendimethalin *fb* imazethapyr were superior due to minimum weed competition during critical stages of crop growth by effective control of grasses, sedges and broad leaved weeds with integrated weed control practices. These findings are supported with the findings of Shasikala *et al.* (2004) and Solanki *et al.* (2005).

### CONCLUSION

The results infer that in the peak periods of labour scarcity to carry out hand weeding followed by

intercultural with star weeder, application of pendimethalin as pre emergence followed by imazethapyr as post emergence are effective weed management practices for *rabi* groundnut.

### REFERENCES

- Sasikala B, Reddi Ramu Y and Raghava Reddy C. 2004. Pre and Post-emergence herbicides on weed control and yield of Groundnut (*Arachis hypogaea*). *Indian Journal of Dryland Agricultural Research and Development* 19(1): 78-80.
- Solanki RM, Bhalu VB, Jadav KV and Kelaiya GR. 2005. Studies on Integrated Weed Management in Irrigated Groundnut. *Indian Journal of Weed Science* 37(1&2): 119-120.