

Research
Paper

Impact source of treatments on yield performance of groundnut

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ABSTRACT

The present investigation was carried out at water management center, Parbhani, during 2005-2006. The result revealed that the beneficial effects on growth character of plant in different treatments resulted in enhanced yield contributing character viz., total number of developed pods, hundred pod and hundred kernel, test weight, shelling percentage and volume weight. Maximum value of yield attribute were observed in weed free treatment followed by two hand weeding and hoeing at 15 and 30 DAS and pre-emergence pendimethalin followed by hand weeding at 30 DAS. The highest yield of groundnut pods (16.18 q/ha) and haulm (10.30 q/ha) were observed in weed free check. This was followed by two hand weeding and hoeing at 15 and 30 DAS, and integrated method of weed control *i.e.* (PE) pendimethalin followed by hand weeding at 30 DAS, and (PPI) fluchloralin followed by hand weeding at 30 DAS. Imazethpyr herbicide was also significantly superior over unweeded control.

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Key words : Groundnut, *Arachis hypogaea* L., Weed , IWM

INTRODUCTION

Groundnut (*Arachis hypogaea* L.) is an important oilseed crop in India. The groundnut kernels are rich source of Thiamine, Riboflavin and nicotinic acid etc. The oil cube of groundnut is the valuable organic manure and animal feed. Groundnut is used for manufacture of soap, hydrogenated vegetable oil and for culinary purpose.

Among all the oil seed crop, groundnut accounts for more than 40% average and 60% production in the country. Its high oil and protein content, ability to withstand water deficient condition and remunerative price in the market make it an attractive crop to farmer.

In spite of this crop being so important, it is alarming to note that the average production of this crop has a decline trend. Low productivity of this crop is due to non implementation of proper package of practices, inadequate effects in plant protection measures viz., heavy infestation of pest under irrigated crop condition and also low yield is the competition of crop plant with the unwanted associated weed flora. Uncontrolled weed reduced groundnut yield up to 75% (Gananmurthy and Balsubrahmanian, 1998).

The first 3 to 4 weeks of crop growth period are critical for weed competition in groundnut (Kalaiselven *et al.*, 1991). By considering above fact in view, the present experiment was undertaken.

MATERIALS AND METHODS

The field experiment was undertaken at plot No. A-8, Water Management Centre, M.A.U., Parbhani during *Rabi* season of the year 2005-2006 in Randomised block Design (RBD) with three replication and nine treatments. The treatment details are given in Table 1. For recording the observations, the five plants were selected randomly from each plot and the periodical growth and development characters at different stages were studied. The same plant was harvested separately for recording individual plant yield at maturity.

RESULTS AND DISCUSSION

The data generated (Table 2) indicated that the post harvest studies regarding yield contributing characters of

Table 3: Dry pod yield (q/ha), haulm yield (q/ha), biological yield (q/ha) and harvest index as influenced by various treatments

| Treatments | Dry pod yield (q/ha) | Haulm yield (q/ha) | Biological yield (q/ha) | Harvest index |
|---|----------------------|--------------------|-------------------------|---------------|
| T ₁ Imazethapyr (POE) @100g a.i./ha at 15 DAS. | 7.70 | 6.90 | 14.60 | 52.73 |
| T ₂ Imazethapyr(POE) @ 150g a.i./ha at 15 DAS. | 8.22 | 7.56 | 15.78 | 52.09 |
| T ₃ Fluchloralin (PPI) @ 1000g a.i./ha+1HW at 30 DAS | 14.47 | 9.77 | 24.24 | 59.69 |
| T ₄ Pendimethalin (PE) @ 1000 g a.i./ha + 1 HW at 30 DAS | 14.90 | 9.94 | 24.84 | 59.98 |
| T ₅ Hand weeding (HW) at 15 and 30 DAS | 12.45 | 8.20 | 21.65 | 57.50 |
| T ₆ 2 HW and hoeing at 15 and | 15.40 | 10.23 | 25.63 | 60.08 |
| T ₇ Hoeing at 15 and 30 DAS | 9.79 | 7.81 | 17.60 | 55.62 |
| T ₈ Weed free (4 weeding at 15, 30, 45 and 60 DAS) | 16.18 | 10.30 | 26.48 | 61.10 |
| T ₉ Weedy check | 5.94 | 6.64 | 12.58 | 47.21 |
| S.E. ± | 0.44 | 0.36 | 0.69 | - |
| C.D. (P=0.05) | 1.32 | 1.09 | 2.07 | - |
| G. mean | 11.67 | 8.83 | 20.53 | 56.22 |

differences due to different treatments.

Dry pod yield:

Dry pod yield was maximum in weed free treatment which was found at par with, hand weeding and hoeing at 15 and 30 DAS, (PE) pendimethalin followed by hand weeding and (PPI) fluchloralin and hand weeding treatments. The dry pod yield of groundnut in weedy check treatment was significantly less as compared to rest of the treatments. Dry pod yield in the treatments (POE) imazethapyr @ 100 g a.i./ha and (POE) imazethapyr @ 150 g a.i./ha was at par with each other.

Haulm yield:

The haulm yield was found at par in weed free treatment, hand weeding and hoeing at 15 and 30 DAS, (PE) pendimethalin followed by hand weeding and (PPI) fluchloralin and hand weeding treatments. The haulm yield of groundnut in weedy check treatment was significantly less as compared to weed free treatment and it was at par with (POE) imazethapyr @ 100 g a.i./ha and (POE) imazethapyr 150 g a.i./ha. The haulm yield in the treatments of two hand weeding and hoeing was found to be at par with each other.

Biological yield:

The biological yield of groundnut was maximum (26.48 q/ha) in weed free treatment and it was at par with two hand weeding hoeing at 15 and 30 DAS and (PE) pendimethalin followed by hand weeding. It was minimum (12.58 q/ha) in weedy check, than rest of the treatments except the treatment (POE) imazethapyr @ 100 g a.i./ha.

Harvest index

Harvest index was found highest in weed free (61.10) treatment and lowest (47.12) in the weedy check treatment.

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