

STUDIES ON CROP WEED COMPETITION IN GROUNDNUT

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ABSTRACT

The study conducted at Regional Research Station, Vridhachalam on crop weed competition in groundnut revealed that the weed free condition from 15 to 45 days after sowing is essential for getting maximum yield.

KEYWORDS: Groundnut, Weed Competition..

Groundnut is normally a rainfed crop. The crop is often infested with both broad leaf weeds and grasses. Kulkarni *et al.* (1963) recorded 52 and 18 per cent reduction in yield due to weed infestation in the bunch and spreading varieties of groundnut respectively. Hill and Santelman (1969) reported that annual weeds emerging six weeks after planting caused no reduction in groundnut yields, but yields were reduced when weeds were not removed until eight weeks after sowing. Dalal *et al.* (1967) observed that hoeing and weeding to the crop in the initial stages were found to increase the pod yield significantly over unweeded control. Experimental evidences on weed free and weed infestation conditions on groundnut are lacking. Hence an experiment was conducted to study the above aspects.

MATERIALS AND METHODS

The experiment was conducted for three seasons both under irrigated and rainfed conditions in a randomised block design with three replications. The treatments comprised weed-free condition upto 15,30 and 45 days after sowing; weed infestation upto 15,30 and 45 days after sowing; hand weeding 20 days after sowing and an unweeded control. The groundnut variety Co1 was used for all the three seasons. Hoeings and weedings were done to maintain the weed-free condition as per treatments.

RESULTS AND DISCUSSION

The effect of treatments on weed growth & yield of groundnut is presented in Table 1

and 2. The major weed flora at Regional Research Station, Vridhachalam comprised of *Digitaria sp.*, *Dactyloctenium aegyptium L.*, *Chloris barbata L.*, *Gynondropsis pentaphylla L.*, *Euphorbia hirta L.*, *Corchorus sp.* and *Lochnera pusilla L.* The intensity of weeds was severe in monsoon season and less in summer season. But similar types of weeds were found in both the seasons.

In the unweeded control, the weed populations were 108 m⁻². As the weed free condition increased from 15 to 45 days the reduction of weed population was more. A similar trend was noticed in the weed dry matter also. Maximum dry matter of weeds recorded in unweeded control (52.35 g.m⁻²)

The number of matured pods plant⁻¹ increased from 8.43 in unweeded control to 17.53 in the 45 days weed-free conditions. The increased number of weeds in the unweeded control reduced the crop growth and the number of pods (8.43 plant⁻¹)

The pod yield was maximum (1658 kg. ha⁻¹) in 45 days weed-free condition, where as the yield was only 1417 kg.ha⁻¹ in farmers method of weeding. The increased yield recorded in the 45 days weed-free plot due to the fact that the lesser weed population and dry matter of weeds unit area⁻¹ facilitated the good growth of the crop which inturn put forth more number of matured pods plant⁻¹. On the other hand, the unweeded

Table 1. Number of weeds and weed dry matter at 45 DAS

Treatments	No. of Weeds m ⁻² on 45 DAS			Dry matter of Weeds m ⁻² on 45 DAS				
	1984 Summer	Kharif	1985 Summer	Mean	1984 Summer	Kharif	1985 Summer	Mean
T ₁ - Weed free upto 15 days	39.30 (6.26)	54.30 (7.38)	10.17 (6.00)	34.59 (6.55)	16.80 (6.26)	23.40 (4.88)	5.09 (2.35)	15.10 (4.50)
T ₂ - Weed free upto 30 days	19.30 (4.45)	35.00 (6.05)	4.34 (2.16)	19.21 (4.22)	9.70 (4.45)	11.00 (4.27)	1.08 (1.24)	7.26 (3.32)
T ₃ - Weed free upto 45 days	(0.71)	(0.71)	(0.71)	(0.71)	(0.71)	(0.71)	(0.71)	(0.71)
T ₄ - Weed infestation upto 15 days	(0.71)	(0.71)	(0.71)	(0.71)	(0.71)	(0.71)	(0.71)	(0.71)
T ₅ - Weed infestation upto 30 days	(0.71)	(0.71)	(0.71)	(0.71)	(0.71)	(0.71)	(0.71)	(0.71)
T ₆ - Weed infestation upto 45 days	19.00 (10.92)	135.30 (11.64)	31.61 (5.66)	95.30 (9.41)	58.70 (10.92)	65.20 (8.10)	15.80 (4.02)	46.50 (7.68)
T ₇ - Farmers method (20 days after sowing)	26.00 (5.14)	46.00 (6.81)	9.31 (3.12)	27.10 (5.02)	13.96 (5.14)	21.20 (4.65)	3.10 (1.89)	12.76 (3.89)
T ₈ - Unweeded control	155.30 (12.47)	137.30 (11.72)	33.13 (5.79)	108.58 (9.99)	75.30 (8.10)	65.20 (4.12)	16.56 (8.23)	52.35
SEd	0.17	0.26	0.79	-	0.17	-	0.02	-
CD (5%)	0.52	0.56	1.71	-	0.52	-	0.04	-

Transformed values

Table 2. Effect of weed competition on yield of groundnut

Treatments	Number of matured pods plant ⁻¹				Yield kg ha ⁻¹				
	1984 Summer	1984 Kharif	1985 Summer	1985 Summer	1984 Summer	1984 Kharif	1985 Summer	1985 Summer	Mean
T ₁ -Weed free upto 15 days	13	15	16	16	1893	1473	1379	1379	1582
T ₂ -Weed free upto 30 days	14	16	18	18	1921	1451	1381	1381	1584
T ₃ -Weed free upto 45 days	18	17	18	18	1933	1585	1457	1457	1658
T ₄ -Weed infestation upto 15 days	11	17	16	16	1774	1392	1387	1387	1518
T ₅ -Weed infestation upto 30 days	10	16	17	17	1755	1188	990	990	1311
T ₆ -Weed infestation upto 45 days	8	11	12	12	1362	929	900	900	1063
T ₇ -Farmers method (20 days after sowing)	12	16	14	14	1774	1189	1289	1289	1417
T ₈ -Unweeded control	7	9	9	9	1293	768	790	790	950
SEd	0.3	0.1	0.5	0.5	6	4	17	17	-
CD (5%)	0.8	0.2	1.2	1.2	13	8	34	34	-

control recorded 950 kg.ha⁻¹ of pod yield. This might be due to competition of weeds for essential resources like moisture, light and nutrients since this had higher number of weeds as compared to other treatments (Rethinam *et al.* 1976). This resulted in the less number of matured pods plant⁻¹ under this treatment. Yield reduction in

pod was observed when the field is kept weed infested after 15 days of sowing and the yield reduction was maximum when the field is kept weed infested upto 45 days after sowing. The results revealed that a weed-free condition from 15 to 45 days after sowing is essential for getting maximum pod yield in groundnut.

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EFFECT OF MOISTURE REGIMES AND NITROGEN ON NPK UPTAKE AND YIELD OF FINGER MILLET

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ABSTRACT

Experiments were conducted for two seasons (*rabi*, 1985-1986 and *Kharif* 1986) on clay loam soils to study the effect of moisture regimes and N levels on NPK uptake and yield of finger millet (*Eleusine coracana* L. Gaertn.) In general, the uptake of N increased linearly from tillering and highest at maturity. Irrigating the crop at 0.6 IW/CPE ratio throughout the crop period increased the uptake of NPK leading to highest grain yield. Among the levels of N, uptake of N, P and K was highest at 80 kg.ha⁻¹ in both the seasons.

KEYWORDS : Finger Millet, Moisture Regimes, NPK uptake, Nitrogen Levels.