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EFFECT OF ADVANCE PLANTING OF RAINFED GROUNDNUT IN POLLACHI TRACT

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ABSTRACT

Field experiments were conducted to find out the correct sowing date for rainfed groundnut with one pre-sowing irrigations for three years. The results showed that pod yield in all the three varieties increased, if the sowing was advanced by ten days. The yield increase was a result of improvement in shelling out turn and SMK percentage. Crops sown 10 days early than recommended sowing date was significantly higher (1612 kg.ha⁻¹) than other sowing dates. Among the varieties, Co 2 and JL 24 responded better than TMV2.

KEYWORDS : Groundnut, Date of Sowing, Rainfed.

In Tamil Nadu more than 60 per cent area is rainfed cropping. This situation warrants developing viable technologies in areas of low rainfall to increase agricultural production. Sowing crops in anticipation of monsoonic rains was reported to result in a better utilization of precipitation (Anon.1971). Rainfed groundnuts are sown on varied dates during *Kharif* season, depending on the onset of south west monsoon. The differences in the date of sowing bring about plant-environment interactions which alter the

inherent physiological processes leading to variations in pod yield. Shantimallaih *et. al.* (1979) was of the opinion that in any given locality early sowing and harvest at the right time ensured maximum pod yield of groundnut and better quality attributes. Delayed planting reduces the potential yield considerably. Farmers have also found by experience that sowing rainfed season leads to proper growth and high pod yield. Therefore the effect of advance sowing of groundnut with one pre-sowing irrigation was studied with

reference to pod yield and quality at the Agricultural Research Station, Aliyarnagar. The station is located in Pollachi tract where groundnut is raised in a special season between April to July.

MATERIALS AND METHOD

Field experiments were conducted during the *Kharif* season of 1984 and 1985 on groundnut. The experiment was laid out in a split plot design with three replications involving the treatments detailed below:

Main Plot (Sowing dates)

- S₁ - Recommended sowing date (April 15th)
- S₂ - 10 days earlier to recommended sowing date (April 15th)
- S₃ - 20 days earlier to recommended sowing date (March 25th)
- S₄ - 30 days earlier to recommended sowing date (March 15th)

Sub Plot (Groundnut varieties)

- V₁ - CO 2
- V₂ - TMV 2
- V₃ - JL 24

A fertilizer schedule of 15:30:45 kg.ha⁻¹ NPK was applied uniformly to all the plots. One irrigation was given at the time of sowing for all the treatments. Basu and Reddy (1989) have reported that advancement of sowing with one pre-sowing irrigation can increase the yield substantially. The source of irrigation in Pollachi tract is mainly canal water which stops by the middle of April. Data on pod and kernel yields and quality of produce in terms of shelling out turn, hundred kernel weight and SMK were collected and statistically analysed. The economics for different treatments was computed taking into account the expenditure involved and the receipts realised. A pooled analysis was also carried out (Table 1).

RESULTS AND DISCUSSION

The pod and kernel yields during 1984 were comparatively lower than 1985 and 1986. This was due to the rains received after 20 days of sowing during 1985 and 1986 but during 1984 the receipt of the rains was after 45 days of sowing. However, because of the ability of the crop to adjust with the environment, a moderate yield could be realised during 1984.

The yield of dry pods and kernels of the crops sown 10 days early was markedly higher (1612 and 1145 kg.ha⁻¹ respectively) than 20 to 30 days earlier sown crops. This treatment recorded 5.77 and 10.89 per cent increase in respect of dry pod and kernel yield respectively, than the crop sown on normal date (April 15th). The recovery of good pods was always higher in the treatment involving sowing 10 days earlier. The unfavourable weather conditions that prevailed during the second week of March resulted in poor establishment and initial set back to the crop, in the S₄ treatment and this treatment registered the lowest yield. Although, the yield level in general was lower during 1984, than the other two years due to delayed receipts of rains in the early flowering phase, the ranking of the treatments in terms of pod and kernel yields was not altered. The improved varieties viz. CO 2 and JL 24 recorded 25.54 and 21.08 per cent increased pod yield than the local variety TMV 2.

Quality Attributes

Shelling out turn and SMK were higher in 10 days early sown crop (71.0 and 63.6 respectively). This was due to the effective utilization of rainfall during the vegetative phase which increased the dry matter production in early stages and source sink efficiency in the later stages of the crop growth leading to higher yield and better quality attributes. However, in respect of hundred kernel weight, the differences due to sowing dates were not significant. Among the varieties, CO 2 and JL 24 recorded the higher shelling and hundred kernel weight.

Table 1. Data on pod yield, kernel yield, Quantity characters and economics

Treatments	Dry pod yield (kg.ha ⁻¹)			Kernel yield (kg.ha ⁻¹)			Quality attributes (Mean-three years)			Economic			
	1984	1985	1986	Pooled mean	1984	1985	1986	Pooled mean	Shelling %	Hundredkernel weight. (g)	SMK %	Net return Rs.ha ⁻¹	B-C ratio
S ₁	1427	1630	1514	1524	1016	1174	1000	1032	67.8	36.9	61.9	4154	2.08
S ₂	1528	1726	1583	1612	1100	1277	1059	1145	71.0	37.7	63.6	4643	2.20
S ₃	1346	1540	1420	1435	921	1105	948	991	69.0	36.8	59.1	3688	1.95
S ₄	1165	1870	1338	1291	790	977	887	885	68.5	36.4	58.2	2638	1.68
SE	47	41	30	28	47	37	25	28	0.7	0.6	1.	232	0.21
CD	106	91	68	64	105	83	55	63	1.5	NS	2.9	520	0.51
V ₁	1644	1830	1599	1691	1126	1136	1053	1172	69.1	38.9	63.5	4891	2.19
V ₂	1272	1480	1290	1347	943	1048	861	917	67.9	34.4	60.3	3001	1.78
V ₃	1613	1820	1461	1631	1084	1330	978	1131	69.1	38.4	62.4	4809	2.01
SE	32	24	45	40	39	31	19	21	0.5	0.4	1.0	149	0.09
CD	90	68	127	115	112	89	53	59	NS	1.2	2.9	427	0.22

Economics

The data presented in Table 1 clearly revealed that the net return as well as cost benefit ratio to be higher in advancing the sowing by 10 days as compared to 20 and 30 days early sowing and corroborated with earlier findings of Patel *et. al.* (1986) and Reddy *et. al.* (1984). The net return and the cost benefit ratio were Rs. 4643 ha⁻¹ and 2.20 respectively in this treatment, whereas the corresponding figures for normal sowing are 4154 and 2.08 respectively. Among the varieties CO 2 recorded the highest net return of Rs. 4891 ha⁻¹ and a cost benefit ratio of 2.19.

The foregoing results go to show that for Pollachi tract sowing groundnut crop on 5th of April with pre-sowing irrigation wherever possible, is the best. The choice of improved variety CO 2 will also be useful in increasing the net profit and cost effectiveness.

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REDGRAM AS AN INTERCROP IN GROUNDNUT

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ABSTRACT

A field experiment conducted at the Agricultural Research Station, Aliyarnagar during *Kharif* seasons of 1986, 1987 and 1988 revealed that redgram to be a suitable and remunerative intercrop in groundnut. Raising one row of redgram for every six rows of groundnut proved to be the most suitable arrangement of the component crops.

KEYWORDS : Redgram, Intercrop, Groundnut.