

Economic Spacing for Irrigated Bunch Groundnut

by

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Introduction: Cultivation of groundnut during the summer season as an irrigated crop is becoming increasingly popular in the Madras State. While the scope for such increase is rather limited in garden lands, extension of cultivation in rice fallows offers vast possibilities. This new development deserves all round encouragement because (a) the increase in the production of oilseeds, which is in short supply now, is achieved without encroaching on the area sown to food crops; (b) the cultivator is financially benefited by this money crop; and (c) the leguminous crop not only improves soil fertility but also gives adequate green manure for the following rice crop.

The short duration ($3\frac{1}{2}$ months) bunch variety is preferred for the reason that it fits in well in the normal cropping programme and further, requires 2 or 3 irrigations less than the spreading variety. Definite information on the seed rate and spacing to be adopted for raising bunch groundnuts under irrigation is not available. An experiment was therefore laid out at the Agricultural Research Station, Tindivanam to elucidate this problem.

2. Review of Literature: Though experiments have been carried out in different tracts in and outside Indian Union on rainfed groundnut, no trials appear to have been conducted for determining the economic spacing to be adopted for the bunch groundnut under irrigation.

3. Materials and Methods: The experiment was carried out at the Agricultural Research Station, Tindivanam, during 1953, 1954 and 1955 summer seasons. The following five treatments were adopted.

1. 6" x 6"
2. 9" x 6"
3. 9" x 9"
4. 12" x 9"
5. 12" x 12"

The randomised block method of lay out with six replications was adopted. The gross plot sizes were different for the different treatments but the net size was the same, 24' x 6'.

TABLE I
Groundnut Spacing Trials - yield Data

Spacings	1953			1954			1955			Average of 3 years		
	Acre yield in lb.	Percentage on control	Whether significant or not.	Acre yield in lb.	Percentage on control	Whether significant or not.	Acre yield in lb.	Percentage on control	Whether significant or not.	Acre yield in lb.	Percentage on control	Whether significant or not.
A. 6" x 6"	639	100.0	YES	1474	100.0	YES	572	100.0	YES	895	100.0	..
B. 9" x 6"	745	116.6	YES	1172	79.5	YES	562	98.4	YES	826	91.2	..
C. 9" x 9"	674	105.4	YES	1159	78.6	YES	399	69.9	YES	744	83.1	..
D. 12" x 9"	515	80.6	YES	1046	70.9	YES	408	71.5	YES	656	73.3	..
E. 12" x 12"	602	91.2	YES	958	65.0	YES	314	55.0	YES	625	70.0	..
Standard error	35.3	5.2	..	62.9	4.3	..	31.2	5.5
(P = 0.05) YES YES YES YES YES YES YES YES YES YES YES												
Critical difference	102.5	15.7	..	185.7	12.6	..	92.3	16.2
1953 1954 1955												
Conclusion:	B	C	A	E	D	A	B	C	D	E	C	E
A B D C E												

Spacing	Gross plot size	Net size
6" x 6"	30' x 8'	
9" x 6"	30' x 9'	
9" x 9"	30' x 9'	24' x 6'
12" x 9"	30' x 10'	or 1/302.5 acre.
12" x 12"	30' x 10'	

A one foot wide bund separated each plot. Sowings were done in the proper season with graduated rods to the correct spacings. Germination was good in all the seasons and a few gaps were promptly filled up. Irrigations were given at regular intervals. Inter-cultivation, harvest, etc., were attended to as usual.

4. **Results:** The yield data obtained in all the three years were statistically analysed and the economics of adopting the different spacings were also worked out. The results are presented in the following tables.

5. **Discussion:** In all the three years, the differences in yield between the different spacings were statistically significant. The yields were low in the first and third years and fair in the second year. The highest yield was obtained in the treatment 6" x 6" in two out of the three years of trials. In the first year, the treatment 9" x 6" recorded significantly higher yields than the treatment 6" x 6" and in the third year, was on par with it. In the second year, the treatment 6" x 6" significantly out-yielded all the others. From the average figures for the three years, it is seen that the yield differences decrease progressively as the spacings increase.

When the economics were worked out, it was seen that the maximum net profit was obtained in the 9" x 6" spacings in two out of three years. Only the second year when the treatment 6" x 6" resulted in very high yields, maximum profit was obtained by adopting a spacing of 6" x 6". The average for three years shows that the highest profit is obtained in the case of the treatment with 6" x 9" spacings.

Adoption of the different spacings require adoption of different seed rates. The spacing 9" x 6" has given the highest average profit and to obtain this spacing a seed rate of 90 lbs. of picked kernels will have to be used.

TABLE II
Economics of the Different Treatments

Treatments	Seed rate in lb.	Cost of cultivation Rs.	Acre yield of pods in lb.	Gross receipts Rs.	Profit or loss Rs.
<i>1953 - Summer</i>					
A. 6" x 6"	134	217	639	223	6
B. 9" x 6"	90	195	745	256	61
C. 9" x 9"	67	181	674	232	51
D. 12" x 9"	45	169	515	177	8
E. 12" x 12"	33	162	602	206	44
<i>1954 - Summer</i>					
A. 6" x 6"	134	203	1474	305	102
B. 9" x 6"	90	187	1172	242	55
C. 9" x 9"	67	178	1159	238	60
D. 12" x 9"	45	164	1046	214	50
E. 12" x 12"	33	162	956	197	35
<i>1955 - Summer</i>					
A. 6" x 6"	134	119	572	118	-1
B. 9" x 6"	90	108	562	116	8 ^v
C. 9" x 9"	67	100	399	83	-17
D. 12" x 9"	45	95	408	85	-10
E. 12" x 12"	33	92	314	66	-26
<i>Average for 3 years</i>					
A. 6" x 6"	134	180	895	215	35
B. 9" x 6"	90	163	826	205	42
C. 9" x 9"	67	153	744	184	31
D. 12" x 9"	45	143	656	159	16
E. 12" x 12"	33	139	625	157	18

6. **Summary:** In an experiment conducted to find out the economic spacing for bunch groundnut grown under irrigation, it was found that the spacing 9" x 6" gave higher returns than other spacings tried. A seed rate of 90 lbs. of picked kernels will have to be used for this spacing.

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The Control of the Rice Mealy Bug — *Ripersia Oryzae* Gr — in the Tanjore Delta of the Madras State

by

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Introduction: Mealy bugs and scales are serious pests on cultivated crops — The mealy bug — *Ripersia Oryzae* Gr — is responsible for the malady popularly known as "soorai" on paddy in the Madras State. It is widely distributed in the Madras State and has been noted in Tanjore, South Arcot, Tiruchirappalli, Coimbatore, and Malabar districts. It occurs in a fairly severe form more often in the Tanjore delta than in other tracts.

The presence of the pest in the field is easily noticed by the characteristic round or oval sunken patches in the midst of a normal crop. The plants in the affected patches die in course of time and those that survive, seldom put forth normal earheads. The few earheads that may emerge are distorted and chaffy.

The control of the pest has been a difficult problem due to the concealed existence of the bugs inside the leaf sheaths. The results of recent investigations conducted for three seasons at the Agricultural Research Station, Aduthurai on the control of this pest are furnished in this paper.

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