

Double Cropping Sequence for Dry Lands in Tindivanam Tract of Tamil Nadu

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An experiment conducted for two years, to fix a profitable crop sequence for the dry lands of Tindivanam tract in Tamil Nadu revealed that the sequence bunch groundnut (July-October) followed by blackgram (November-January) was the most suitable. In this sequence the highest net Profit of Rs. 3062/ha was obtained. The increase in profit was more by 102% over the single crop of groundnut.

Among the improved crop production techniques, adoption of suitable cropping patterns play a vital role in exploiting the natural resources such as land, water and solar energy to maximise the production and profit per unit area. In Tindivanam tract of Tamil Nadu groundnut is the major single crop grown in an area of 1.184 lakh ha during the *Kharif* season (July to October) and the lands are left fallow till the next *Kharif*. The practical feasibility of growing profitable second crop following the *Kharif* crop in dry farming areas where rainfall is well distributed has well established by many workers (Badanur 1976, Yadahalli *et al.*, 1973 and Balerao and Chaudhiri 1977). The present study was taken up to fix a suitable second crop from November to January following the *Kharif* groundnut.

MATERIAL AND METHODS

Field experiment was conducted at the All India Co-ordinated Research Project on Oilseeds, Tindivanam from July-February, of 1976-77 and 1977-78

under rainfed condition. The crops included in the sequence were POL.2 (bunch) groundnut (July-October), followed by any one of the crops such as sunflower (K1), gingelly (TMV 3) green gram (CO.3) or black gram (Co.4) (November-January). The groundnut crop was intercropped with sunflower in the first year and with gram in the second year.

The groundnut crop was sown on 15th and 1st of July during first and second years respectively. The follow up crops were sown on 15th November in the first year and 30th October in the second year. The variants were tried in randomised block design replicated six times. The net profit converted to a common monetary equivalents under each sequence was subject to statistical analysis.

RESULTS AND DISCUSSION

The yield of groundnut ranged from 621 to 715 Kg/ha in the first year (Table I). In second year it was from 889 to 1046 Kg due to the better distribution of rainfall during the month of Septem-

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TABLE I. Yield of produce (Kg/ha)

Treatment	Groundnut			Kharif Inter crop		Second crop		
	1976	1977	Mean	1976 Sunflower	1977 Blackgram	1976	1977	Mean
Groundnut + Sunflower	659	889	774	56	253	541	395	468
Groundnut + Gingelly	715	991	853	70	290	267	150	209
Groundnut + Greengram	621	1015	818	71	257	873	281	577
Groundnut + Blackgram	675	1046	861	70	301	1167	855	1101

TABLE II. Monthly rainfall and number of rainy days during cropping season

Month	1976		1977		Mean rainfall for six years (1971- 76) (mm)
	Rainfall (mm)	No. of rainy days	Rainfall (mm)	No. of rainy days	
June	68.2	4	94.0	10	69.5
July	101.6	5	105.6	6	109.1
August	322.3	12	182.6	15	156.5
September	63.8	6	89.8	5	143.0
October	252.6	11	349.5	20	258.6
November	410.1	18	519.0	17	145.1
December	116.2	6	22.2	3	141.0
January	6.1

per (Table II). The yield of sunflower as intercrop in groundnut ranged from 56-71 Kg/ha in the first year and that of blackgram was from 253 to 301 Kg/ha in the second year. The yields of second crop which followed groundnut were normal in the first year and black gram recorded the maximum yield of 1167 Kg/ha. In the second year the yield of all the crops was lower as compared to previ-

ous years and the extent of reduction was 27 per cent in sunflower, 44 per cent in gingelly, 68 per cent in green gram and 27 per cent in black gram. The crops in the second year suffered due to continuous water logging in the early stages of their growth due to incessant and heavy cyclonic rains during the month of November and also due to drought during December as the quantity

DOUBLE CROPPING SEQUENCE

TABLE III(a) Monetary Returns

Treatment	Value of groundnut + Inter crop (Rs/ha)			Expendi- ture (Rs/ha)	Net Profit (Rs/ha)		
	1976	1977	Mean		1976	1977	Mean
Groundnut + Sunflower	2319.65	3673.90	2996.78	1850.18	469.47	1146.60	808.03
Groundnut + Gingelly	2535.25	4117.35	3326.30	1850.18	685.07	2267.17	1476.12
Groundnut + Greengram	2222.35	4107.00	3164.68	1850.18	372.17	2256.82	1314.56
Groundnut + Blackgram	2401.25	4331.85	3366.55	1850.18	551.07	2481.67	1516.37

TABLE. III(b) Monetary Returns

	Value / of groundnut + Inter crop and second crop			Total ex- penditure for double crop sequence (Rs./ha)	Net profit for double crop sequence (Rs/ha)			Cost /bene- fit ratio
	1976	1977	Mean		1976	1977	Mean	
Groundnut + Sunflower	3401.65	4463.90	3932.78	2921.43	460.22	1542.47	1011.35	1.35
Groundnut + Gingelly	3870.35	4847.35	4368.85	2933.32	936.42	1393.42	1435.92	1.49
Groundnut + Greengram	4404.85	4809.50	4607.18	3075.43	1329.42	1339.07	1531.75	1.50
Groundnut + Blackgram	5610.50	6683.10	6146.80	3084.43	2526.07	3598.67	3062.37	1.99

of rainfall received was comparatively lower than in the previous year. In spite of these adverse conditions, blackgram recorded the highest yield of 855 kg/ha.

Net Profit

The double cropping sequence of groundnut followed by the blackgram recorded the highest net profit of Rs. 2536.67 and Rs. 3598.67/ha. in the first and second year respectively which was significantly superior to other sequences. The mean net profit for two years was also the maximum of Rs. 3062.37 with this sequence and the cost benefit ratio was 1.99 per rupee invested. (Table III). This was closely followed by the sequences viz., groundnut + green gram, groundnut + gingelly and groundnut + sunflower.

The results revealed that growing of groundnut (July-October) followed by black gram (November-January) resulted in an increased monetary return of Rs. 1546.00/ha over the single crop of groundnut in the rainfed lands. The

cropping efficiency in dry lands could be enhanced from the present level of 100 per cent to 200 per cent and the consequential increase in net profit by 102 per cent over the conventional mono cropping of groundnut.

The authors are grateful to Indian Council of Agricultural Research for the financial help for the conduct of these experiments.

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