

## Trends in Groundnut Production in Tamil Nadu\*

by

T. SIVASUBRAMANIAN<sup>1</sup>

**Introduction:** Groundnut occupies a pre-eminent position in Tamil Nadu which ranks first in yield per acre and second in production and fourth in acreage among the sister States in India, which itself occupies the premier position in world acreage and production. Tamil Nadu accounts for an annual production of 10.56 lakh tons from an area of 22 lakh acres. A large number of projects is ushered in for boosting groundnut production and among them the one on Export Promotion assumes significance. In such schemes, a certain lacuna does prevail for want of sufficient data for a planned programme resulting in poor returns on investment. Fortunately however, as far as groundnut is concerned, authentic data have been preserved and they are helpful in proposing a proper approach towards success in the task. It is common knowledge that a two-pronged approach is by far safe and proper in maximising production and they are 'extensive' and 'intensive' cultivation. An attempt is made in this paper in proposing criteria for the two basic methods for boosting groundnut production in Tamil Nadu.

**Materials and Methods:** Season and Crop Report, an annual publication of Tamil Nadu Government, formed the source of data on area, out-put and yield per acre of groundnut as also the rainfall obtaining during the life-cycle of the crop, for each district. The data available from 1916 to 1966 were used in the study. Quin-quennial averages were worked out for the periods 1916 to 1950 and 1951 to 1966. The year 1950-51 was treated as the base year so as to fit in with the subsequent quin-quennia of the Five-year Plan periods. Nilgiris and Kanyakumari Districts with negligible area under groundnut and the Madras District, classified as 'non-agricultural' have been omitted. The trends of acreage, out-put, yield and rainfall are presented (Figure).

**Results and Discussion:** *Acreage:* The area under groundnut has had a phenomenal increase by two and a half times from 8.63 to 22 lakh acres in Tamil Nadu during the 50 year period. The average area of groundnut for the quin-quennium 1916-20 and 1962-66 and the maximum and the minimum area obtained with the related quin-quennium is presented (Table 1).

The largest area is commanded by North Arcot and South Arcot districts with 4.9 and 3.8 lakh acres respectively. Salem and Coimbatore, rank next each with three lakh acres. This is followed by Thiruchy and

---

\* Awarded T. Nataraja Rolling Shield and Medal for the year 1968.

1. Project officer (Spl. Deputy Director of Agriculture), Groundnut Export Orientation Programme, Vellore, N. A. District,



South Arcot is only 14.3 %; nevertheless, it represents an area of 57,000 acres. Likewise, a reduction by as much as 20 % in Thanjavur was a mere 15,000 acres. Again, Tirunelveli has recorded a notable fifty-fold increase for a negligible 600 acres at start. The quin-quennium ended 1966 experienced maximum area in almost all the districts while 1920 experienced the minimum.

TABLE 1. *Average area of Groundnut (in 1000 acres)*

District	Quin-quennium of		Maximum area	Quin-quennium ended	Minimum area	Quin-quennium ended
	1916-20	1962-66				
Chingleput	24.3	118.0	118.0	1966	24.3	1920
South Arcot	325.3	382.5	451.0	1930	325.3	1920
North Arcot	163.2	490.3	490.3	1966	163.2	1920
Salem	53.6	299.1	299.1	1966	53.6	1920
Coimbatore	64.1	291.0	308.9	1961	64.1	1920
Thanjavur	72.0	57.0	91.8	1930	44.7	1950
Thiruchy	89.3	251.8	251.8	1966	89.3	1920
Madurai	43.1	252.8	252.8	1966	43.1	1920
Ramanathapuram	27.8	92.9	92.9	1966	27.2	1925
Tirunelveli	0.6	29.2	29.2	1966	0.6	1920

*Out-put:* The average out-put of groundnut in Tamil Nadu has had a notable increase of two and a half times from 4.13 to 10.56 lakh tons over five decades. The district-wise break up of out-put for the first and the last quin-quennium and the data of maximum and minimum out-put with the corresponding year ending quin-quennium are presented (Table 2).

TABLE 2. *Average out-put of Groundnut (in 1000 tons)*

District	Quin-quennium of		Maximum out-put	Quin-quennium ended	Minimum out-put	Quin-quennium ended
	1916-20	1962-66				
Chingleput	11.2	55.5	54.5	1966	11.2	1920
South Arcot	149.7	177.7	204.5	1930	149.7	1920
North Arcot	80.6	214.5	214.5	1966	80.6	1920
Salem	28.2	139.6	139.6	1966	28.2	1920
Coimbatore	28.7	132.5	146.7	1961	28.7	1920
Thanjavur	33.9	25.1	42.9	1930	18.8	1950
Thiruchy	40.3	110.5	110.5	1966	21.0	1920
Madurai	21.0	111.0	111.0	1966	21.0	1920
Ramanathapuram	19.4	40.4	40.7	1961	13.6	1925
Tirunelveli	0.2	13.3	13.3	1966	0.2	1920

As in the case of area, the out-put recorded during the last quin-quennium was highest in North Arcot and South Arcot, followed by Salem and Coimbatore. Madurai and Thiruchy rank next with still lower values for Chingleput and Ramanathapuram. Thanjavur and Tirunelveli have the lowest out-put. Compared to the first quin-quennium, a two to two and a half times increased out-put is noticed in Ramanathapuram, North Arcot and Thiruchy, a five-fold increase is noticed in Coimbatore, Salem, Chingleput and Madurai. In South Arcot, the increase is 20% and in Thanjavur the decrease is 20%. In Tirunelveli the out-put has increased 65 times. The increase in out-put between the two quin-quennia presents a remarkable parallel to the increase in area in most of the districts.

*Yield:* The data on average yield per acre arrived at from the area and out-put for the quin-quennium 1916-20 and 1962-66 together with the maximum and minimum recorded against particular quin-quennium is presented (Table 3).

TABLE 3. *Average yield in lb/acre*

District	Quin-quennium of		Maximum yield	Quin-quennium ended	Minimum yield	Quin-quennium ended
	1916-20	1962-66				
Chingleput	1035	1042	1129	1925	815	1950
South Arcot	1030	1044	1073	1961	869	1950
North Arcot	1107	981	1071	1961	850	1950
Salem	1179	1043	1192	1945	997	1956
Coimbatore	1005	1040	1091	1925	981	1956
Thanjavur	1055	1008	1107	1961	917	1940
Thiruchy	1010	979	1071	1961	887	1950
Madurai	1092	984	1107	1935	926	1950
Ramanathapuram	1561	978	1561	1920	897	1950
Tirunelveli	666	1011	1075	1961	666	1920

It is of interest that while a constancy of yield is maintained in most of the districts, a lower yield is recorded for North Arcot, Thiruchy, Madurai and Ramanathapuram. Incidentally, these are the districts in which occasional deviation can be noted with reference to area out-put parallelism.

*Rainfall:* The rainfall recorded during the life cycle of the crop for the quin-quennium 1916-20 and 1962-66 as also the maximum and minimum with the related quin-quennium for each district is presented (Table 4).

The table reveals that the districts of South Arcot, North Arcot, Chingleput and Thanjavur receive over 30 inches rainfall, while the rest receive less than 30 inches. Incidentally, South Arcot and North Arcot enjoy

TABLE 4. Average rainfall in inches

District	Rainfall for quin-quennium		Maximum rainfall	Quin-quennium ended	Minimum rainfall	Quin-quennium ended
	1916-20	1962-66				
Chingleput	43.5	41.0	47.1	1945	34.2	1955
South Arcot	37.5	38.5	47.3	1915	32.9	1955
North Arcot	34.2	34.3	34.6	1935	29.0	1925
Salem	31.5	27.5	31.9	1920	22.2	1930
Coimbatore	23.8	24.4	24.7	1935	18.8	1955
Thanjavur	37.7	37.2	43.0	1915	32.2	1955
Thiruchy	29.3	25.4	32.5	1935	23.2	1930
Madurai	24.4	23.6	28.8	1945	22.0	1910
Ramanathapuram	26.1	23.9	29.6	1935	20.6	1910
Tirunelveli	19.4	17.0	27.0	1915	16.7	1955

the twin advantages of large acreage and higher rainfall. This is followed by Thiruchy and Salem. Coimbatore and Madurai have comparatively lower rainfall despite considerable acreage. Chingleput and Thanjavur on the one hand and Ramanathapuram and Tirunelveli on the other, comprise two zones, the former with the limited acreage and the latter with the limited rainfall.

The degree of association between the three variables was studied by working out correlation coefficient for a comparison (Table 5).

TABLE 5. Correlation values for out-put vs area, yield and rainfall.

District	Correlation Values ("r")		
	Out-put×Area	Out-put×Yield/acre	Out-put×Rainfall
Chingleput	0.987 **	0.133	0.073
South Arcot	0.769 **	0.168	0.279
North Arcot	0.949 **	- 0.056	0.014
Salem	0.914 **	- 0.410	- 0.178
Coimbatore	0.993 **	- 0.849 **	- 0.151
Thanjavur	0.986 **	0.382	0.445
Thiruchy	0.989 **	0.158	- 0.547
Madurai	0.993 **	- 0.481	0.043
Ramanathapuram	0.968 **	- 0.420	- 0.064
Tirunelveli	0.998 **	0.746 *	- 0.125

\* Significant at 5% level. \*\* Significant at 1% level.

A high degree of correlation is obtained only for out-put and area but not for either out-put and yield or out-put and rainfall.

In an analysis of out-put, the districts fall into three groups: (i) Out-put exceeding the increase in area as in South Arcot and Tirunelveli; (ii) Out-put directly proportional to the increase in area as in Chingleput, Salem, Coimbatore, Thanjavur and Madurai and (iii) Out-put not commensurate with increase in area as in North Arcot, Thiruchy and Ramanathapuram. Such a grouping is helpful in proposing the type of cultivation, extensive or intensive. These zones again have to be screened for their yield potential for a proper assessment.

Judged from the yield, a derived value from out-put and area, an explanation for the variation in yield has to be sought from factors other than acreage. While many factors of environment such as, soil type and climate, have their influence, the effect of rainfall on groundnut yield is perhaps the most important. In this study, association of yield with rainfall has shown a trend that supports, "zonal specificity" for groundnut crop. This can be appreciated when we admit that the efficacy of rainfall is varied with different soil types and the correlation between out-put and rainfall not significant (Table 5). As was shown earlier from the rainfall data, Tamil Nadu may be divided into areas of higher and lower rainfall - the former coinciding with large acreage under groundnut. Nevertheless, the efficacy of higher rainfall will be best obtained with the suitability of the soil types of the zones.

**Recommendations and Suggestions:** In the context of the proposed criteria, district classification into two zones one for intensive cultivation and the other for extensive cultivation can be proposed for Tamil Nadu. Areas with large acreage and adequate rainfall in a conducive soil type are ideally suited for intensive cultivation. Based on the criteria of high productivity per acre, loamy type of soil and adequacy of rainfall, the districts of Chingleput, North Arcot, South Arcot, Thanjavur, Thiruchy and Salem forming a zone are to be classified for 'intensive' cultivation. The other zone comprising Coimbatore, Madurai, Ramanathapuram and Tirunelveli suffers a lower productivity per acre and sparse rainfall and soil types not-so-well suited. Such a zone is fraught with risk for 'intensive' cultivation and obviously lends itself for 'extensive' cultivation.

**Summary:** Data for 50 years on area, out-put, yield and rainfall were employed in the study for proposing a proper approach in maximising groundnut production in Tamil Nadu. Close association between area and out-put was significant inspite of deviation in certain districts. Out-put relations with area and yield were examined and the discrepancy was studied in the context of factors affecting yield. Among the environmental factors, rainfall and soil types were given primary consideration as they had affected the other-wise consistent out-put : area ratio. An interaction of rainfall and soil type lends

itself for classifying the State into two zones based on the criteria of acreage, soil type and rainfall adequacy, the first zone comprising Chingleput, South Arcot, Thanjavur, Thiruchy, Salem and North Arcot with conducive factors is obviously suited for 'Intensive' cultivation, while the second zone comprising Coimbatore, Madurai, Ramanathapuram and Tirunelveli for 'Extensive' cultivation. The factors and the criteria are discussed.

REFERENCE

Anon. 1916 to 1966. Season and Crop Report of Madras State.

## protect your PADDY with CIBA pesticides



### DIMECRON 100

a Systemic water soluble insecticide based on Phosphamidon for the control of sucking and boring insects.

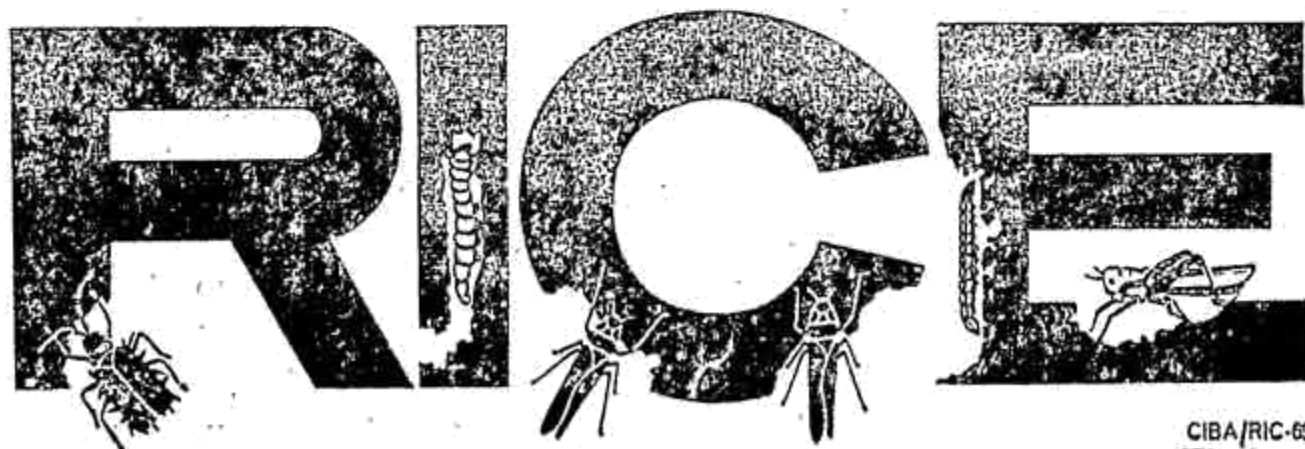
For further particulars write to:

CIBA of India Limited,  
Pesticides Division,  
Post Box 479, Bombay 1

### NUVAN 100 EC

a highly potent insecticide as contact, stomach and fumigant poison for the control of sucking, chewing, and mining insects.

C I B A



CIBA/RIC-69