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**GROWTH TRENDS IN AREA, PRODUCTION AND PRODUCTIVITY  
OF F. C. V. TOBACCO IN ANDHRA PRADESH\***

Flue cured virginia tobacco is grown extensively in Andhra Pradesh, which accounts for 117.5 million kgs. out of 119 million kgs. produced in India.<sup>1</sup> It is a major foreign exchange earner with Rs. 325 million out of Rs. 350 million earned from all tobaccos exported from India.<sup>2</sup>

Qualitative assessment of various factors contributing to the quantum of the crop output is helpful in reorienting the research programme so as to achieve higher rates of growth. The statistics of those factors that could bear direct relationship with productivity for sufficiently longer periods are not available. The trends in production aspects may help in assessing the impact of our research programmes in a broadway. With the limited information available, the present study is confined to only production trends, viz., total area sown, total production and productivity (yield per unit area) in 1948-68 so as to cover the impact of tobacco research during the three Plan periods in Andhra Pradesh, by fitting suitable statistical functions to the trends.

Since the present study is for relative growth rather than absolute, the indices were worked out by taking 1948-49 as base period to coincide with the inception of the Central Tobacco Research Institute. The production figures were estimated<sup>3</sup> for Andhra Pradesh till its formation (1953) by taking the present jurisdiction into consideration and the later ones were collected from *Indian Tobacco Bulletin, Vol. 1, No. 3, 1969.*

The trends in area and production could be adequately represented by linear functions as is evident from Table I. The rate of increase in production was much larger than the rate of increase in the area of production. This contrast contributes to the change in the productivity. Two linear functions for area and production, and a polynomial in fifth degree for the productivity were fitted by least squares method<sup>4</sup> for giving adequate functional relationships for the characters and time by taking 1948-49 as the first year.

A critical examination of the curves in Figure 1 in all the three characters under consideration will reveal that the Central Tobacco Research Institute was established (1947) at a time, when the stagnation was observed in tobacco production.

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1. *Indian Tobacco Bulletin*, Vol. , No. 3, 1969.

2. *Tobacco Export*, Vol. 6, No. 12, 24 1968.

3. M. S. Patel and D. S. Ramaratnam, "Tobacco in Andhra State," *Indian Tobacco*, Vol 4, 1945, pp. 76-77.

4. R. A. Fisher: *Statistical Methods for Research Workers*, Oliver and Boyd, London, Ed. 12, Rev. 1954.

TABLE I—REGRESSION OF AREA, PRODUCTION AND PRODUCTIVITY INDICES FOR THE PERIOD 1948-68

No	Character	Degree of the polynomial	R <sup>2</sup>	Regression equation
1.	Area	Linear	0.85	$Y = 97.76 + 5.76 x$
2.	Production	Linear	0.82	$Y = 94.45 + 7.83 x$
3.	Productivity	Quintic	0.61	$Y = 92.8630 - 14.7092 x + 6.0548 x^2 - 0.8200 x^3 + 0.0470 x^4 - 0.0010 x^5$

Note : 1948-49 is the first year in the time scale.

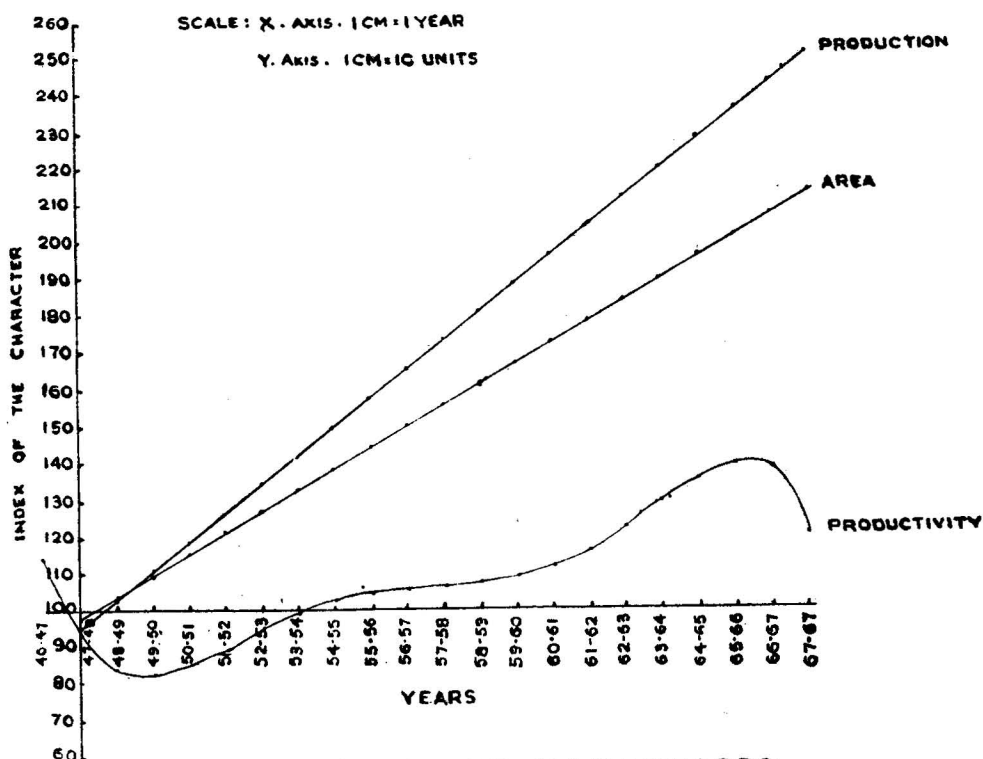


Fig.1. TRENDS OF F.C.V. TOBACCO

Within four years of its establishment the Institute had released improved strains of F.C.V. tobacco and recommended better cultivation practices and plant protection measures which gave the fillip to bring more area under production and increase the productivity of land till 1954. After 1955-56 the productivity got stagnated for a period of about 4 years probably due to bringing in of more and more marginal lands under tobacco and also due to the extensive cultivation of unapproved varieties like *Putcha*, *Karedu*, etc. Then two new varieties, *Delcrest* and *Virginia Gold*, were released and

from 1961 onwards they gradually replaced all the F.C.V. tobacco varieties so far under cultivation. With the increase in the tempo of activities of the different sections at the Institute a number of useful findings such as deep ploughing in summer, supply of pure seeds and seedlings along with plant protection recommendations, band placement of fertilizers, improved methods of curing and topping the crop had started to help the responsive Andhra farmer to reap bumper harvests till 1966. The slight decrease in the productivity in 1966-67 and 1967-68 could be mainly attributed to vagaries of the climate such as drought and cyclonic conditions during the crop seasons. By and large it may be inferred that the stagnation point was reached during this period. To overcome these conditions two new varieties *Kanakaprabha* and *Dhanadayi* were released in 1970 by the Central Tobacco Research Institute to boost up the production and the productivity in the traditional black soils and the newly exploited light soils.

During the twenty-year period under study the area and production had shown a tremendous increase of 114 per cent and 135 per cent respectively. But the increase in the productivity was only 11 per cent for which the important reason could be, as mentioned above, bringing in marginal lands under tobacco production, vagaries of the weather and cultivation of unapproved varieties, etc.

The present study reveals that the production of F.C.V. tobacco is closely linked with many variable factors, particularly the seasonal conditions and that the Central Tobacco Research Institute, Rajahmundry has made substantial contribution during the past 20 years for the improvement of this crop. Further improvements may be achieved by intensifying the research activities under different agro-climatic conditions and passing on the recommendations effectively to the tobacco farmers through the extension agencies.

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#### RICE DRYING PROBLEM DURING RAINY SEASON IN BANGLADESH†

Bangladesh is an important rice producing country. Rice is grown and harvested almost round the year throughout the country; this has particularly become possible with the introduction and rapid expansion of the cultivation of IRRI strains in the country.

The most prevalent practice of drying paddy in the country is the age old method of sun-drying in open yard. During the monsoon or rainy

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† This paper is prepared based on the report, *Aus Rice Drying in Bangladesh (A Case Study)*, Miscellaneous Report No. 3, Department of Co-operation and Marketing, Bangladesh Agricultural University. This study is an observational study that suffers from sufficient limitations.