

Area, production and yield trends of Cabbage production in Tamil Nadu

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Abstract

Vegetables are important in human diet. India is the second largest producer of cabbage in the world. The objective of this study was to investigate the growth in area, production, and productivity of cabbage in Tamil Nadu. The study was conducted during 2010-11 to 2021-22. Krishnagiri and Nilgiris districts were selected for the study. The compound growth rate of area, production, and productivity for Tamil Nadu was 7.60%, 10.08% and 2.31% respectively. The compound growth rate of area, production, and productivity for Krishnagiri was 16.83 %, 16.68% and -0.06% respectively. The compound growth rate of area, production, and productivity for Nilgiris was -9.82 %, -3.42% and 7.26 % respectively. The State compound growth rate was positive and increasing for all variables. Krishnagiri had a positive trend the highest compound growth rate for area and production. Nilgiris district had negative trend in area and production.

Key words : compound growth rate, area, production, trend.

Vegetables and fruits play an important role in human diet as these serves as the source of nutrients such as vitamins, minerals and dietary fibers. Cultivation of vegetables ensures higher income for farmers within a short span of time with minimal investment. China is the largest producer of fresh vegetable due to its vast land area. India is the second largest producer of vegetables after China. India produces vast varieties of vegetables like tubers, Cole crops, leafy greens, bulb crops etc. This level of production and productivity is obtained due to the vast diversity of agro-

climatic zones in India which enables the cultivation of a wide range of vegetables as well as other horticulture crops. India is one among the major contributors to the total vegetable production of the world.

Cabbage is a crop that is grown all over the world. Cabbage belongs to the Mustard family which also includes other vegetables such as cauliflower, broccoli, turnip, Brussels sprouts, kale etc. These vegetables are generally known as “Cole crops”. The economical part which is used for consumption

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is generally termed as 'Head'. Cabbage is usually 60-80 days crops and left more than 120 days if used for seed production purpose. Cabbage is eaten as raw in salads and as well as cooked either by sautéed or stir fired.

In India, vegetable is an important component in food because there is a significant amount of population that completely depends on vegetarian diet. So vegetables play major part in everyday meals in India. India is the largest producer of some vegetables like cauliflower, okra, ginger and second largest producer of potatoes, onions and cabbage. Tamil Nadu is one among the cabbage producing states in India. In Tamil Nadu cabbage is grown in hilly areas and plains of some districts during winter season. The major cabbage growing districts are Dharmapuri, Dindigul, Erode, Krishnagiri, Theni, Nilgiris and Salem. For the preparation of the manuscript relevant literature¹⁻⁸ has been consulted.

Objectives :

The objective of the present study was to analyze trends in area, production and Productivity of cabbage for Krishnagiri and Nilgiris districts and also for the state of Tamil Nadu.

Study area selection :

Based on the data collected both Krishnagiri and Nilgiris districts were selected based on area under cabbage cultivation. The Krishnagiri district was first in terms of production followed by Nilgiris. The Nilgiris had the highest productivity among all the states of Tamil Nadu.

Collection of data and study period :

The present study is based on secondary data were collected from published Government sources of Department of Horticulture and plantation, Tamil Nadu. The study is conducted based on annual time series data covering the period of 12 years *i.e.*, 2010-11 to 2021-22.

Tools of analysis :

Compound growth rate was used to analyze growth rates in area, production and productivity of cabbage in the state of Tamil Nadu and selected districts of Krishnagiri and Nilgiris respectively.

Compound growth rate :

The growth in area, production and productivity of cabbage was analyzed using exponential growth rate function.

$$Y_t = ab^t$$

In the log form, it is written as:

$$\text{Log } Y_t = \text{Log } a + t \text{ log } b$$

Where,

Y_t = Area/production/productivity in the year 't',

t = time element which takes the value 1, 2, 3 N.

a = intercept and b = regression coefficient.

The value of b is computed by using OLS method. Further, the value of CGR was worked out as follows:

$$\text{CGR (r)} = (\text{antilog } b - 1) \times 100$$

Student "t" test was used to test the significance of calculated compound growth rate.

The compound growth rate of area, production and productivity of cabbage for Krishnagiri and Nilgiris districts and also for the State of Tamil Nadu district during the period of 2010 to 2022 are summarized in Table-1.

Table-1. Growth of area, production and productivity of cabbage in Tamil Nadu and selected districts

Variables	Indices	Tamil Nadu	Krishnagiri	Nilgiris
Area	Average (ha)	2251.24	1342.43	424.46
	CAGR (%)	7.60*	16.83*	-9.82*
Production	Average (ton)	144724.77	92088.82	25290.42
	CAGR (%)	10.08*	16.68*	-3.49**
Productivity	Average (ton/ha)	62.97	68.28	68.64
	CAGR (%)	2.31*	-0.06 ^{NS}	7.26*

Note : * significance at 1%level, ** significance at 5%level and ^{NS} Non significant

Source: Author's calculations are based on data collected from Department of Horticulture and plantation, Tamil Nadu.

From the table-1 there is significant increasing trend in area and production productivity of cabbage in Tamil Nadu. The compound growth rate observed was 7.60% per cent in area, 10.08% in production and productivity per hectare had a compound growth rate 2.31%. The compound growth rate for all the three variables was found to be significant at 1% level of significance.

The compound growth rate for Krishnagiri district was 16.83 % for area under cabbage cultivation, 16.68% for production at 1% level of significance. The compound growth rate for productivity of cabbage was -0.06% and found to be not significant.

It is revealed from the Table1 the compound growth rate for area and productivity during 2010-2022 in Nilgiris district were -9.82% and 7.26 at 1 % level of significance. The Compound growth rate for production was -3.49% and was found to be significant at 5% level of significance.

Based on the table-1 it can be deciphered that the district of Krishnagiri has the highest compound growth rate (16.83 %) for the duration of the study even more than the State compound growth rate (7.60%) which indicates an increase of area under cabbage cultivation in both the Tamil Nadu and Krishnagiri district but Nilgiris district has a declining trend in compound growth rate (-9.82%) for the duration of the study. In aspect of production both Tamil Nadu and Krishnagiri district has increasing trend in production 10.08% and 16.68% respectively. Nilgiris district (-3.49%) has declining trend in production aspect also. Nilgiris district has the highest productivity (7.26%) for the duration of the study even more than the State productivity (2.31%) which indicates the productivity has been increasing gradually but Krishnagiri district recorded minor decline productivity (-0.06) during the overall study period. The test of significance showed that there is scope for increasing the area, production and productivity of Cabbage in the state of Tamil Nadu.

Vegetable cultivation has seen a drastic increase in the past few years and more lands are brought under cultivation which is

needed to feed the growing population in the country. India share in the global market is increasing as there is increasing acceptance to the horticulture produce from India.

It can be observed that the overall State compound growth rate for area, production and productivity are positive and increasing even though negative trends can be seen in area and production except productivity for Nilgiris district which is considered as one of the major cabbage cultivation district of Tamil Nadu. Krishnagiri district had the highest compound growth rate for area and production which was more than the state compound growth rate thus indicates an increase of cabbage cultivation. Krishnagiri district had positive trends in area and production except productivity which had a decline.

Based on the information obtained during the survey and analyzing the data gathered and comparing with some of the past studies the following were found during the study. The area under cultivation has been fluctuating for the past years because there is shift towards some other vegetable crops like tomato and onion which are require less inputs compared to cabbage in plains and some prefer crops that fetch higher prices like carrots, beans and beetroot in hilly areas etc. But the area under cabbage cultivation is more or less constant even though there is a little up and down in the cultivation based on season and other environmental factors. The assumption

is that cabbage brings constant income and the price fluctuation is very low compared to some other vegetable crops so some farmers tend to cultivate cabbage to get stable returns during winter seasons in plains.

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