Growth Performance of Chilli in Karnataka *

Chilli (Capsicum annuum L.) is one of the important commercial crops of India. It is a crop of tropical and sub-tropical regions and requires a warm humid climate. Though, chilli can be grown in many varieties of soils, well drained loamy soils, rich in organic matter are best suited for the cultivation. There are more than fifty chilli varieties grown in India. The chillies are believed to be originated in the tropical America and known from pre-historic times in Peru. Columbus carried chilli seed to Spain in 1493. The cultivation of chilli and capsicum spread rapidly from Spain to Europe.

Chilli is an indispensable condiment of every Indian household. It is used in the daily diet on one form or the other. It is a rich source of vitamin A and C with good medicinal properties. Among the spices consumed per head, dry chilli fruits constitute a major share. The pungency in chilli is due to the alkaloid ‘capsaicinoid’. It occurs in the cores or septa walls and placenta.

In India, chillies are grown in almost all states of the country. The important states growing chilli in terms of production are Andhra Pradesh (49%), Karnataka (15%), Orissa (8%), Maharashtra (6%), West Bengal (5%), Rajasthan (4%) and Tamil Nadu (3%). The total production in the country is around 8.46 lakh tonnes from 8.3 lakh ha (2002-03). In Karnataka, the production of chilli is 0.95 lakh MT with an area of 1.61 lakh ha (2002-03). Chilli is one of the important crop recently introduced in the study area. The present study was undertaken to analyse the growth performance of chilli in the study area.

For studying growth performance of chilli, three districts viz., Gulbarga, Raichur and Bijapur and Karnataka state as a whole were chosen based on the highest area under chilli in UKP command area. The contribution of three districts to state area was 43.29%.

In view of the limitation of the data, the present study is restricted for period of 14 years for analytical purpose. The growth and development of chilli, the growth rates of area, production and yield were compared for the period from 1990-91 to 2003-04. The linear, log linear, exponential and power functions were employed to study the growth rates. Among these, the exponential form of the function \( Y_t = ab^t \) was most frequently used and hence need in our study. In the present study, compound growth rates in area, production, yield and export of chilli were estimated by specifying the following relationship.

\[ Y_t = ab^t U_t \]  

Where,

\( Y_t \) : Area, production and yield of chilli in years ‘t’
\( t \) : Year which takes value 1, 2, …………n

\( a \) and \( b \) are the parameters to be estimated.

The equation (1) was transformed into log linear form and written as:

\[ \log Y = \log a + t \log b + \log U_t \]  

The equation (2) was estimated by using ordinary least squares (OLS) technique.

\[ \hat{g} = (b - 1) 100 \]  

Where,

\( \hat{g} \) = Estimated compound growth rate in per cent per annum
\( b \) = Antilog of log b

The standard error of the growth rate was estimated and tested for its significance with ‘t’ statistics.

The results of the compound growth rate analysis of area, yield and production of chilli in the study area as well as in the state as a whole are presented in Table 1. In general, a significant growth in area, yield and production of chilli was observed during the study period both at district level and state as a whole. Better prices, higher income with improved varieties and production technology and export opportunities along with low interest rate credit facilities in recent years might have encouraged the growth in chilli production. In Karnataka state, the growth in production of chilli increased significantly in period I mainly due to considerable increase in the area during period I. The criteria used for classification of two periods, is dividing the periods into two equal parts.

A district-wise study of growth rates of chilli showed that area and production registered high growth in all the selected districts in general except Bijapur. Gulbarga and Raichur districts are the chilli growing districts of the state while Bijapur district picked up chilli cultivation in recent years. The growth rate in yield in chilli increased at all locations in period II as well as for overall study period from negative growth in period I. Their growth in was general found to be lower due to sudden outbreak of pest and diseases, (Balappa, 1999) indicating the scope for improving the productivity of chilli.

Agriculture is inherently unstable and more so in a state like Karnataka where hardly about 20 per cent of the net sown area is irrigated and remaining proportion of area depends on the monsoon. In this study, an attempt was made to examine the extent and sources of instability in chilli between two sub periods i.e., 1991-97 to 1998-2004.

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Average area under chilli crop during the period (1990-91 to 2003-04) worked out to be 2856.64 ha in Gulbarga district followed by Raichur (2196.64 ha) and Bijapur district (1642.35 ha). The average area under chilli in Karnataka worked out to be 2,04,925.6 ha. While production of chilli was highest in Gulbarga district (4319.80 tonnes) followed by Raichur and Bijapur districts (Table 2). Average production of chilli worked out to be 276490.74 tonnes for the state as a whole. The mean productivity of chilli worked out to be higher in Raichur district (3.26 t/ha) as compared to Bijapur (1.57 t/ha), Gaddi (1999) and Gulbarga district (1.40 t/ha). The mean productivity of chilli in Karnataka was (1.57 t/ha), coefficient of variation was found to be higher for the state (69.18%) than for the sample districts namely Raichur (48.07%) followed by Gulbarga (42.16%) and Bijapur (32.49 %) respectively. In case of production, it was higher for Raichur district (90.55%) compared to Bijapur (81.36%) and Gulbarga district (76.96%). While for the whole state it was less, compared to all the three districts.

As for the productivity of chilli is concerned the coefficient of variation was little higher in Raichur district (73.12%) as compared to Bijapur (61.24%), Gulbarga (53.08%) and even Karnataka state as a whole (68.18%).

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References


