

## Compound Growth Rate of Major Vegetables in Raipur District of Chhattisgarh

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### ABSTRACT

The study was undertaken with the objectives to analyze the growth rate in area, production and productivity of major vegetables in Raipur district as well as Chhattisgarh state. The present study was conducted in Raipur district of Chhattisgarh. Forty farmers were selected randomly from four villages i.e. Doma, Datrenga, Kandul and Batagaon. Five wholesalers and ten retailers were also selected for the fulfilment of the objectives. The primary data were collected for year 2013-14. The compound growth rate of tomato, okra and brinjal in case of area was found to 15.99 percent, 11.40 percent and 16.59 percent in Raipur district and 7.30 percent, 8.18 percent and 7.20 percent in Chhattisgarh state respectively which is significant for total period of 10 year. The compound growth rate in production of tomato, okra and brinjal were (24.52, 17.97 and 25.14 percent in Raipur district and 17.16, 12.09 and 14.80 percent in Chhattisgarh state respectively) and productivity 7.35, 6.14, and 7.77 percent in Raipur district and 1.14, 11.93 and 1.12 percent in Chhattisgarh state respectively.

**Keyword** *Compound growth rate of major vegetables.*

India occupies 7.16 million hectare area with the annual production of 109 million tons and productivity 15.22 tons per hectare. India's share about the 15 percent of world output of vegetable from 3 percent of total cropped area in the country. West Bengal takes first rank in India with regards to area 1210.3 thousand ha, production 18666.3 thousand MT and average productivity 15.42 ton per hectare followed by Uttar Pradesh with an area, production and productivity of 895.5 thousand ha., 17337.3 thousand MT and 19.36 ton per hectare. Though Chhattisgarh ranks fourteenth in the country with an area 195.6 thousand hectares and productivity 12.44 ton per hectare in vegetables.

Chhattisgarh is known as the rice bowl of Chhattisgarh used to produce over seventy percent of total paddy production in the state. A part from paddy, vegetables are also grown. The state receives annual rainfall ranging from less than 1200mm to greater than 1600mm in the different areas. Chhattisgarh produce 5.49 m MT of horticulture produce from an area of 0.59 m. Ha and account for 2.47 per cent of horticultural production in the country. Major share of production of horticulture produce is from Vegetables (71.49 per cent) and fruit (26.41 per cent).

**Tomato:** Chhattisgarh accounts for 4 per cent of total production of Tomato in the country and produces about 0.63m.MT of tomato from an area of about 0.04m ha. The productivity of crop is 14 t/ha. The major tomato producing belts in the state are Raipur, Durg and Bastar.

**Brinjal:** Chhattisgarh accounts for 3 per cent of total production of Brinjal in the country and is producing about 0.44m.MT of Brinjal from an area of about 0.03m.ha with productivity of 16.5 t/ha.

**Okra:** The state is contributing about 4 per cent of the total production of Okra in the country. It produces about 0.25m.Mt of Okra from an area of 0.03m/ ha. with productivity of 9.9MT/ha. The major Okra producing belts in Raipur, Durg and Rajnandgaon.

### MATERIALS AND METHODS

The present study was conducted in Raipur district of Chhattisgarh state. Raipur district having 4 blocks Dharsiwa, Arang, Abhanpur, and Tilda. From the Dharsiwa block four villages namely, Doma, Bhatagaon, Datrenga and Kandul were selected randomly for the study looking to the responses of villages and vegetable growers. A sample of 40 respondent were selected by using

**Table 1. Compound growth rate of area, production and productivity of tomato, okra and brinjal in Raipur district as well as Chhattisgarh state.**

Particular	Compound growth rate (Percentage)					
	Raipur			Chhattisgarh		
	Area	Production	Productivity	Area	Production	Productivity
Tomato	15.99***	24.52***	7.35*	7.30**	17.16***	1.14***
Okra	11.14***	17.97***	6.14***	8.18*	12.09**	11.93***
Brinjal	16.59***	25.14**	7.77**	7.20**	14.80*	1.12***

Note: \* Denotes the significant level at 1% of probability level

\*\*Denotes the significant level at 5% of probability level

\*\*\*Denotes the significant level at 10% of probability level

Source: Director Horticulture Chhattisgarh Raipur

probability proportional to size techniques method subject to condition that at least ten respondents were included on sample from each of four categories of farms i.e. marginal (0 to 1ha), small (up to 2 ha), medium (2 to 4 ha) and large (above 4 ha). Selection of marketing functionaries of vegetable five wholesalers were selected and ten retailers were selected for the present study.

### Analytical tool

**Compound growth rate:** To compute the growth rate the following formulae were used:

$$Y = aB^t$$

$$\log Y = \log a + t \log B$$

Where, Y= Area/ Production/ Productivity

a= Constant

B= Regression coefficient

t= Time in year (From 2004-05 to 2013-14)

$$\text{Compound growth rate (per cent)} = \frac{(B-1) \times 100}{t}$$

## RESULTS AND DISCUSSION

Growth rate in area, production and productivity of selected vegetables were estimated for the period of ten years (2004-05 to 2013-14), which is presented in table 1. Growth rate in area of tomato in Raipur district and Chhattisgarh state was found positively significant being 15.99 percent and 7.30 percent respectively. In case of okra it was found 11.14 percent and 8.18 percent respectively for Raipur district and Chhattisgarh state. Whereas, growth rate in area of brinjal in

Raipur district and Chhattisgarh state was found positively significant being 16.59 percent and 7.20 percent respectively.

The growth rate in production of tomato in Raipur district and Chhattisgarh state was found positively significant being 24.52 percent and 17.16 percent respectively. In case of okra it was found 17.97 percent and 12.09 percent respectively for Raipur district and Chhattisgarh state. Whereas, growth rate in production of brinjal in Raipur district and Chhattisgarh state was found positively significant being 25.14 percent and 14.80 percent respectively.

The growth rate in productivity of tomato in Raipur district and Chhattisgarh state was found positively significant being 7.35 percent and 1.14 percent respectively. In case of okra it was found 6.14 percent and 11.93 percent respectively for Raipur district and Chhattisgarh state. Whereas, growth rate in productivity of brinjal in Raipur district and Chhattisgarh state was found positively significant being 7.77 percent and 1.12 percent respectively.

The compound growth rate of tomato, okra and brinjal in case of area is estimated as 15.99 percent, 11.40 percent and 16.59 percent in Raipur district and 7.30 percent, 8.18 percent and 7.20 percent in Chhattisgarh state respectively which is significant for total period of 10 year. The compound growth rate in production of tomato, okra and brinjal were (24.52, 17.97 and 25.14 percent in Raipur district and 17.16, 12.09 and 14.80 percent in Chhattisgarh state respectively)

and productivity 7.35, 6.14, and 7.77 percent in Raipur district and 1.14, 11.93 and 1.12 percent in Chhattisgarh state respectively.

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