

Research
Paper

Performance of Kagzi lime production in Akola district of Vidarbha region

V.M. BODADE AND PREMA BORKAR

See end of the article for authors' affiliations

Correspondence to :

V.M. BODADE

Department of Agricultural
Economics and Statistics, Dr.
Panjabrao Deshmukh Krishi
Vidhyapeeth, AKOLA
(M.S.) INDIA

ABSTRACT

The present study was an attempt to evaluate the growth and instability of Kagzi lime. For the present study, Akola district from Vidarbha region was chosen purposively as area under Kagzi lime is highest. The study was based on secondary data from the year 1984-85 to 2004-05. The results revealed that Kagzi lime is an important crop in Akola district. The growth rates for area and production of Kagzi lime were found significant. Instability studied in Akola district indicated that Kagzi lime productivity exhibited less variation. It means that production of Kagzi lime over the period has been almost constant. Production witnessed highest instability as compared to area and productivity.

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Key words : Kagzi lime, Performance, Production

INTRODUCTION

Cultivation of Kagzi lime has assumed much importance in view of scarcity of Kagzi lime. Government has been trying to increase Kagzi lime production in country. Kagzi lime is an important fruit crop in Indian subcontinent. Farmers earn a good profit from Kagzi lime cultivation and there is also advantage in value addition in Kagzi lime that it gives the good profit to processor. The data collected on performance of Kagzi lime, economies of Kagzi lime, marketing of Kagzi lime and value addition in Kagzi lime were tabulated and analyzed to accomplish the objectives of study. The results obtained are presented and discussed in logical order in light of the objective of the study.

An agricultural sector being unstable in nature may substantially impede the economic growth of the country. The spectacular performance of agricultural sector primarily is determined by the generation and sustenance of growth in production. The production instability tends to be transmitted to the markets and may cause wide fluctuations in prices of agricultural commodities (Marawar *et al.*, 2003). With this view it is essential to study the growth and instability of Kagzi lime production in Akola district from Vidarbha region. The objectives are as follows: to study the growth rates in area, production

and productivity of Kagzi lime production in Akola district of Vidarbha region, to study the degree of instability in area, production and productivity of Kagzi lime production in Akola district of Vidarbha region.

MATERIALS AND METHODS

The study covers a 21 year period of study predominantly based on secondary data pertained to the year 1984-85 to 2004-05. Data on area, production and productivity of Kagzi lime were collected from various issues of epitome of agriculture. The entire study was split into two sub periods. The growth rates were calculated separately for the overall period (1984-85 to 2004-05) and for two sub periods, periods I (1984-85 to 1994-1995) and period II (1995-96 to 2004-05), in order to study the instability in area and productivity which are the major sources of production instability. The coppock's instability index, coefficient of variation were estimated for the study period.

Estimation of growth rates:

The growth rates in area, production and productivity were studied estimating compound growth rates at different periods. Both linear and compound growth rates were estimated. However, finally the compound growth

rate was used for the study.

The growth rate was estimated using exponential trend model.

$$Y = a \cdot b^t$$

where,

Y = Area / production / productivity

a = Intercept

b = Regression coefficient

t = Time variable

From the estimated function the compound growth rate was worked out by:

$$\text{CGR (r)} = [\text{Antilog}(\log b) - 1] \times 100$$

where,

r = Compound growth rate

The degree of instability in area production and productivity of Kagzi lime in different period was measured using coefficient of variation and coefficient of instability:

$$\text{Coefficient of variation (C.V.)} = \frac{\sigma}{\bar{X}} \times 100$$

where,

$$\sigma = \text{Standard deviation} = \sqrt{\frac{\sum (\bar{x} - x)^2}{n}}$$

\bar{x} = Arithmetic mean

Coefficient of instability was worked out using Coppock's Instability Index

$$V \log = \frac{\left[\sum \log \frac{X_{t+1}}{X_t} - m \right]}{N}$$

$$\text{Instability index} = [\text{Antilog}(\sqrt{V \log}) - 1] \times 100$$

where,

X_t = Area / production productivity of crop in year t

N = Number of years minus one

M = Arithmetic mean of the differences between the log of X_t and X_{t-1} , X_{t-2} etc.

RESULTS AND DATA ANALYSIS

The results obtained from the present studies are presented below :

Compound growth rates:

An attempt was made to estimate the growth rate of

area, production and productivity of Kagzi lime with the help of growth rate model explained in methodology. The results obtained are presented in Table 1.

Table 1: Compound growth rates of area, production and productivity of Kagzi lime in Akola district of Maharashtra

Sr. No.	Particular	Compound growth rates		
		Period I	Period II	Overall
1.	Area	10.38***	10.05***	10.38***
2.	Production	10.6***	10.93***	10.78***
3.	Productivity	0.19***	0.8***	0.48***

*** indicates significance of value at P=0.01

The compound growth rate of area, production and productivity of Kagzi lime is given in Table 1. It could be seen from the table that the increase in the compound growth rate of area to the extent of 10.38 per cent was noticed in period I which was found significant. Production of Kagzi lime has also shown significant compound rate of 10.6 per cent in yield, which was found significant in period I. Mostly growth in area contributed for such an increase in period I.

During the period II, there was declining in the area to the extent 10.05 per cent which was found significant. The compound growth rate for production increased significantly at the rate of 10.93 per cent while second period showed volatile and declined growth rates in the productivity level of the Kagzi lime at the rate of 0.8 per cent.

Table 1 also indicates the compound growth rate of Kagzi lime area in Akola district as a whole and was increasing at the rate of 10.38 per cent which was found in significant. Compound growth rate of Kagzi lime production for over all period was increasing significantly at the rate of 10.78 per cent.

Productivity is the most significant criterion in measuring any crop output. The success or failure of any improvement in the art of agriculture is measured by the resultant increase or decrease in the productivity. Kagzi lime productivity in Akola district for over all period registered the growth of 0.48 per cent which was significant. This revealed that the productivity of this crop was increasing over the study period.

Instability in Kagzi lime:

The performance of Kagzi lime during a given period was measured not only to know the increase or decrease in area, production and productivity but also to know the extent of fluctuations taking place in order to examine the extent of instability in area, production and productivity,

coefficient of variation were worked out. The results obtained are presented in Table 2.

Area:

As seen from Table 2, period II experienced low coefficient of variation value (28.62 per cent) for Kagzi lime area than period I with coefficient variation value of (29.62 per cent). During the overall period, the coefficient of variation value was 55.65 per cent. This indicated that there was acceleration in area expansion over period of study.

Table 2: Coefficient of variation in area, production and productivity of Kagzi lime in Akola district of Vidarbha

Sr. No.	Particulars	Coefficient of variation		
		Period I	Period II	Overall
1.	Area	29.62	28.62	55.65
2.	Production	30.3	31.15	58.91
3.	Productivity	0.69	2.48	3.02

Production:

As seen from Table 2, period I experienced low coefficient of variation value (30.3 per cent) for Kagzi lime production than period II with coefficient variation value of (31.15 per cent). During the overall period, high coefficient of variation value was (58.91 per cent). This indicated that there was acceleration in production of Kagzi lime over period of study.

Productivity:

As observed from Table 2 the period I experienced low coefficient of variation value of 0.69 per cent. It indicated less instable productivity level. During period II, high value of coefficient of variation (2.48 per cent) indicated that there was acceleration in yield level. During the overall period, the district experienced 3.02 per cent of coefficient of variation. This implies the stagnation in the productivity of Kagzi lime with fluctuation.

The coefficient of variation measures the absolute variation while coefficient of instability which is also called as instability index, which measures the variation around the trend. It could be seen from Table 3 that the instability index of area under Kagzi lime for overall period was 17.58 per cent for production it was 18.02 per cent for entire period. The study thus indicated that instability in production was on higher side during the study period. This indicated the unstable nature of production of Kagzi lime and the instability index of productivity during overall

Table 3: Coppack's instability index in area, production and productivity of Kagzi lime in Akola district of Maharashtra

Sr. No.	Particular	Instability index		
		Period I	Period II	Overall
1.	Area	13.28	12.81	17.58
2.	Production	13.34	13.06	18.02
3.	Productivity	10.05	10.20	10.26

period was 10.26 per cent. Arya and Rawat (1989) studied the growth rate, production and productivity of oilseeds, sugarcane, potato and cotton and Tripathi *et al.* (1989) of pulse production in Orissa and Marwar *et al.* (2003) studied the growth and diversification of agriculture in Vidarbha.

Conclusion:

The growth rates for area and production of Kagzi lime were found significant.

- Variability studied in Kagzi lime indicated that productivity exhibited less variation. It means that production of Kagzi lime over the period has been almost constant.
- Production witnessed highest instability as compared to area and productivity.

Authors' affiliations:

PREMA BORKAR, Agricultural Economics & Statistics Section, Anand Niketan College of Agriculture, Warora, CHANDRAPUR (M.S.) INDIA

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