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Growth performance of area, production and productivity of ginger in India – An economic analysis

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Abstract

India is rightly called as "spice bowl of the world" for its production of variety and superior quality of spices. Indian agriculture has to face competitiveness in international trade for each commodity due to liberalization and agreement of WTO. Spices are the major exports from India and it is generally expected that trade policies would influence the spice trade. In the area of export ginger occupies fifth position in terms of quality and sixth position in export earnings among the spices. This study is mainly based on time series data. The secondary data on area, production and productivity of ginger in India, were collected for the years 1997-98 to 2016-17 from various sources. The performance of ginger was examined by estimating the growth rates and instability index of area, production and productivity of ginger. The results revealed that, compound growth rates for Area, production and productivity for period of 20 years were found to be positive and significant at both 1 per cent and 5 per cent level of probability. The instability in ginger productivity exhibited less variation than area and production over the years. However, production witnessed highest instability as compared to area and productivity, over the period of time.

Keywords: Ginger, growth rate, instability index and production.

Introduction

India is rightly called as "spice bowl of the world" for its production of variety and superior quality spices. Growing of spices for various purposes has been famous since the ancient times. There are records about its various properties in Vedas as early as 6000 BC. India is known for trade since the exploration of sea routes. All these attracted the foreigners to India and this was the key reason why India invaded by European countries and was imperialized. To such an extent India was famous for the spices. According to the Bureau of Indian Standards (BIS), 63 spices are grown in India. The spices are grown throughout the country from tropical to temperate climate. India has highest number of spice varieties in the world. Ginger is a popular spice originating from the rhizomes of the plant *Zingiber officinale*. Ginger has been used for centuries to treat a variety of maladies, particularly in non-Western cultures. Today, ginger is used around the world as a dietary supplement and food ingredient. In the 2002 Health and Diet Survey sponsored by the Food and Drug Administration, roughly 1.4% of adult Americans reported using ginger as a dietary supplement over the past 12 months. Ginger is primarily used to treat nausea, but it is also used as an anti-inflammatory, a pain remedy, a warming remedy and a cholesterol-lowering herb.

Objective of the study

To analyze the growth trends in area, production and productivity of Ginger in India.

Methodology

The data used for the study was based on the secondary sources. The data on area, production and productivity of ginger were collected from India stat web site for the years 1997-98 to 2016-17.

Analytical tools**Growth rate analysis**

To analyze the CAGR (Compound Annual Growth Rate), the exponential form of regression analysis was employed.

To compute average compound growth rates of area, production and productivity, the following form of regression equation was used.

$$Y_t = ab^t e^u$$

Where,

Y_t = dependent variable (area/yield/production)

a = intercept term

$b = (1+r)$ and 'r' is the compound growth rate

t = time trend

u = error term

The above model in the Logarithmic form is expressed as,

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

Log a and Log b values were obtained using the ordinary least squares procedures and the R^2 was computed for testing the goodness of fit. Antilog of $(\text{Log } (b - 1)) * 100$ give the per cent growth rate. Significance of the growth rate was tested using 't' test.

Co-efficient of variation

The coefficient of variation (CV) also known as relative standard deviation (RSD), is a standardized measure of dispersion of a probability distribution or frequency distribution. It is often expressed as a percentage, and is defined as the ratio of the standard deviation to the mean

(average). It is a measure of relative variability.

$$\text{CV} = \text{Co-efficient of variation} = (\text{Standard deviation}/\text{Mean}) * 100$$

Results and Discussion

In this chapter an attempt is made to discuss the results obtain from the study. The important findings of this study are presented under following area, production and productivity.

Table 1 represents the growth in area, production and productivity of ginger in India. The average area under ginger in India was 116.90 thousand hectares, average production was 529.30 thousand MT and average productivity was 4.30 MT/ha. It was observed in case of Indian scenario the, highest growth rate was observed in production with 8.1091 per cent per annum, followed by area with 4.6930 per cent per annum and productivity to be 3.3048 per cent per annum. The growth rate for area, production and productivity were found to be positive and significant at both 1 per cent and 5 per cent level of probability. Whereas, with respect to instability index the highest variation was seen in production with 49.99 per cent followed by area with 28.55 per cent variation and the variation observed in productivity was 23.31 per cent.

Table 2 shows the major state wise share in area and production of ginger in India 2016-17. The highest area was seen in Karnataka state with 17.76 per cent followed by Assam with 11.36 per cent and Orissa with 8.61 per cent respectively. In production Assam stands 1st place with 15.40 per cent followed by West Bengal with 12.76 per cent and Karnataka stands 3rd place with 10.11 per cent respectively.

Table 1: Growth in area, production and productivity of ginger in India

Years	Area (In ' 000 Hectare)	Production (In ' 000 MT)	Productivity (In MT/Hectare)
1997-98	75.60	252.10	3.3
1998-99	77.80	265.30	3.4
1999-2000	77.50	281.50	3.6
2000-01	83.40	303.40	3.6
2001-02	84.60	317.90	3.8
2002-03	85.90	307.40	3.6
2003-04	85.10	301.90	3.5
2004-05	95.30	359.00	3.8
2005-06	110.60	391.20	3.5
2006-07	106.10	393.40	3.7
2007-08	104.10	382.60	3.7
2008-09	143.90	610.40	4.2
2009-10	142.10	679.30	4.8
2010-11	167.40	702.00	4.2
2011-12	155.10	755.60	4.9
2012-13	136.30	682.60	5.0
2013-14	132.60	655.10	4.9
2014-15	141.70	760.30	5.4
2015-16	164.00	1109.00	6.8
2016-17	168.00	1076.00	6.4
MEAN	116.90	529.30	4.30
STDEV	33.37	264.62	1.00
R ²	0.8808	0.9247	0.8163
CAGR	4.6930 * (0.0039)	8.1091 * (0.0052)	3.3048 * (0.0036)
CV	28.55	49.99	23.31

Source: Spices Board, India & Ministry of Agriculture and Farmers Welfare, Govt. of India

Note: figures in the parentheses indicate standard error.

* Significant at one per cent level of probability.

** Significant at five per cent level of probability.

Table 2: Major state wise share in area and production of ginger in India 2016-17

State	Area	Percent share	Production	Percent share
Assam	18733	11.36	166536	15.40
Gujarat	6500	3.94	100500	9.29
Karnataka	29285	17.76	109340	10.11
Madhya Pradesh	7650	4.64	56575	5.23
Meghalaya	9936	6.03	66366	6.14
Sikkim	12300	7.46	55900	5.17
Orissa	14200	8.61	34230	3.17
Mizoram	8207	4.98	59994	5.55
West Bengal	13000	7.89	138000	12.76
Uttaranchal	2055	1.25	19599	1.81
Kerala	4500	2.73	20000	1.85
Andhra Pradesh	509	0.31	1770	0.16
Telangana	2500	1.52	12340	1.14
Others	35475	21.52	240280	22.22
Total	164850	100.00	1081430	100.00

Source: Spices Board, India & Ministry of Agriculture and Farmers Welfare, Govt. of India

Summary and Conclusions

In this perspective an analysis has been made to know the growth trend of area, production and productivity of ginger. The growth rates and variability in area, production, and productivity of ginger has been analyzed by obtaining the secondary data on area and production of ginger from various sources. The data has been collected for a period of 20 years i.e. from 1997-98 to 2016-17. The results revealed that, compound growth rates for area, production and productivity for period of 20 years were found to be positive and significant at both 1 per cent and 5 per cent level of probability. The instability in ginger, productivity exhibited less variation than area and production over the years. Whereas, production witnessed highest instability as compared to area and productivity, over the period of time.

References

1. Boyal VK, Pant DC, Burrak SS, Mehra J. Growth and instability in area, production and productivity of fenugreek in Rajasthan, *Int. J Seed Spices*. 2015; 5(1):18-23.
2. Rajesh SR, Raveendran N, Ajjan N. An analysis: Trends in area, production, productivity and export of major spices in India, *Spice India*. 2002; 15(2):19-22.
3. Sharma A. Trends of area, production and productivity of spices in the northeastern region. *Journal of Spices and Aromatic Crops*. 2015; 24(2):112-118.
4. Karthick V, Alagumani T, Anbarassan A. Growth and export performance of ginger in India – an economic analysis. *Economic affairs*. 2015; 60(2):207-214.