

Research Article

Trends in agricultural growth in Amravati division of Maharashtra

■ A.S. DAREKAR, S.B. DATARKAR, R.B. HILE AND K.H. PARSHURAMKAR

ARTICLE CHRONICLE :
Received :

26.06.2014;

Revised :

13.07.2014;

Accepted :

23.07.2014

SUMMARY : Agriculture is backbone of Indian economy. The present study was conducted in Amravati division. The data were collected from different public records of State Governments, Co-operatives and Private institutions. The compound growth rate of area, production and productivity of major crops were calculated at different periods. Therefore, present study indicated that whether the rate of development had been uniform or whether their was any imbalance in Amravati division. There was reduction in area and production under total cereals and cotton in Amravati district. Reduction in area under total cereals was also observed in Buldhana, Akola and Yavatmal district. Area under total food grain was found significantly increasing in Buldhana, Akola and Yavatmal district. There was a positive growth in productivity of cereals, pulses oilseeds food grain and cotton. Area and production of cotton was observed more in Yavatmal district. The production of total food grain was observed more stable in Amravati district.

How to cite this article : Darekar, A.S., Datarkar, S.B., Hile, R.B. and Parshuramkar, K.H. (2014). Trends in agricultural growth in Amravati division of Maharashtra. *Agric. Update*, 9(3): 435-438.

KEY WORDS :

Agricultural development, CGR

BACKGROUND AND OBJECTIVES

Agriculture is the backbone of Indian economy contributing 28 per cent of the gross domestic product, engaging 67 per cent of our human forces. Agriculture being the predominant sector of economy, the pace of economic development of the country has been and still continues to be significantly influenced by the pace of its agricultural development. Agricultural growth with stability has been a matter of concern in the strategy of agricultural development in the country in recent years (Singh, 2004 and Sisodiya and Sunil Kumar, 2004). Agricultural socio-economic and infrastructural development has become an extremely sensitive issue in recent times with serious social and political ramifications (Sharma, 2005; Barmah and Pandey, 1998). The country has made an impressive progress on the food front, which has resulted in increased production of food grains (Anonymous, 2010).

Steady globalization of trade has profound

implications for future agricultural development. The diversity of India's agro-ecological setting, high bio-diversity and relatively low cost of labour provide potential for agricultural competitiveness in a globalized economy. It is expected that with increasing globalization of markets over the years there are demands for agricultural intensification. Therefore, increase in production and productivity is bound to be strategically important to economy Desai (1999). Intensifications not only favours alleviation of rural poverty but also improves resource conservation particularly in the small farming sector where farmers are encouraged to take up organized production of high value crops such as fruits, specially vegetables, flowers, medicinal and aromatic herbs etc. Stronger demands for crops of the small farmers' not only improves income and welfare but also makes investment in technology and resource conservation more attractive.

Maharashtra is basically agricultural state. Though, the industrial development is very fast

Author for correspondence :
A.S. DAREKAR

 Department of
 Agricultural Economics,
 Mahatma Phule Krishi
 Vidyapeeth, Rahuri,
 AHMEDNAGAR (M.S)
 INDIA
 Email: ashwinisdarekar@gmail.com

See end of the article for authors' affiliations

in Maharashtra, but large population is engaged in agriculture (Kale *et al.*, 1987 and Kalyankar and Ghulghule, 1997). From last two decades, farmers in Maharashtra are adopting new technologies like improved seeds, fertilizers, irrigation systems etc. The traditional agricultural practices are gradually being replaced by new technologies. The present study aims at examining growth in area production and productivity of major Agricultural crops in Amravati division of Maharashtra.

RESOURCES AND METHODS

The Amravati division of Vidarbha region was purposively selected for the study. Amravati division covers Western Vidarbha region which includes Amravati, Yavatmal, Buldhana and Akola (including Washim) districts. Study of agriculture development was proposed by the method in which compound growth rates of area, production and productivity of major crops *i.e.* total cereals, total pulses, total oilseeds, cotton, sugarcane were calculated.

Time series data of various selected indicators *i.e.* area, production and productivity of selected crops of various districts in Amravati division was collected from secondary sources *i.e.* different published records of State Governments, Co-operatives and Private institutions.

Compound growth rate:

The growth in the area, production and productivity under different crops was estimated using the compound growth function of the formula :

$$Y_t = ab'e^{gt}$$

where,

Y_t = Dependent variable in period t (Area/productivity/production)

a = Intercept

b = Regression co-efficient = (1+g)

t = Years which takes values, 1, 2, ..., n

u_t = Disturbance term for the year t

The equation was transformed into log linear form for estimation purpose. The compound growth rate (g) in percentage was then computed using the relationship $g = (10^b - 1) * 100$ (Veena, 1996).

OBSERVATIONS AND ANALYSIS

The experimental findings obtained from the present study have been discussed in following heads:

Compound growth rates of area, production, productivity:

The compound growth rates of area, production, productivity of total cereals, total pulses, total food grains,

Table 1 : Compound growth rates of area, production and productivity for Amravati division

CGR value	District	Amravati	Akola	Buldhana	Yavatmal
Total cereals	Total area	1.4952 ^{NS}	-3.9588 ^{**}	-1.2293 ^{**}	-2.3969 ^{**}
	Total production	-1.1935 ^{NS}	2.6392 ^{**}	0.1144 ^{NS}	-2.3710 [*]
	Productivity	5.0727 ^{**}	4.1786 ^{**}	0.4967 ^{NS}	1.6702 ^{NS}
Total pulses	Total area	4.4963 ^{**}	-0.1501 ^{NS}	1.7756 [*]	-10.663 ^{NS}
	Total production	4.3139 ^{**}	4.2921 ^{**}	2.7580 [*]	3.0934 ^{**}
	Productivity	2.9049 ^{**}	2.5063 ^{**}	1.7254 ^{NS}	0.8839 ^{NS}
Total oil seeds	Total area	21.143 ^{**}	14.691 ^{**}	14.873 ^{**}	23.0863 ^{**}
	Total production	14.520 ^{**}	7.7458 ^{**}	7.7640 ^{**}	15.2990 ^{**}
	Productivity	16.883 ^{**}	15.350 ^{**}	15.147 ^{**}	16.9924 ^{**}
Total food grains	Total area	0.9869 ^{**}	-2.3042 ^{**}	-0.7648 ^{**}	-1.6021 ^{**}
	Total production	1.3752 ^{NS}	-1.4425 ^{NS}	-1.913 ^{NS}	-0.48772 ^{NS}
	Productivity	3.5848 ^{**}	2.5538 ^{**}	-0.1220 ^{NS}	0.936424 ^{NS}
Total cotton	Total area	-1.4308 ^{NS}	-2.7983 ^{**}	1.2621 ^{NS}	0.206255 ^{NS}
	Total production	1.3152 ^{NS}	-0.6540 ^{NS}	5.1541 ^{**}	4.70132 ^{**}
	Productivity	3.7936 ^{**}	8.7759 ^{**}	6.1139 ^{**}	4.6549 ^{**}
Total sugarcane	Total area	9.44518 ^{**}	19.7711 ^{**}	7.4238 [*]	2.23387 ^{NS}
	Total production	10.444 ^{**}	-2.7054 ^{**}	4.7730 ^{NS}	6.2795 ^{NS}
	Productivity	-2.4694 ^{NS}	0.93845 ^{**}	-3.9832 ^{NS}	-24.8272 ^{**}

Note: * and ** indicate significance of values at P=0.05 and 0.01, respectively

NS = Non-significant

sugarcane, cotton and total oil seeds were calculated for the period of 26 years (1985-86 to 2010-2011) for the four districts of Amravati division viz., Amravati, Akola, Buldhana and Yavatmal presented in Table 1. It has been seen from Table 1, that in Amravati district, growth rate of area under total pulses (4.4963) and sugarcane (9.44518) were positively significant at 1 per cent level. Growth rate of area under total food grains was positively (0.9869) significant at 1 per cent level. Growth rates of area under total oilseeds was positively (21.143) significant at 1 per cent level. Compound growth rate of production of total pulses was positively (4.3139) significant at 1 per cent of level. Compound growth rate of production for sugarcane was positively (10.444) significant at 1 per cent level. Compound growth rate for production of total oilseeds was positively (14.520) significant at 1 per cent level. It is observed that compound growth rate of productivity for total cereals was positive (5.0727) and for total pulses it was also found positive (2.9049) and both were significant at 1 per cent level. Compound growth rate of productivity for total food grains was positively (3.5848) significant at 1 per cent level and for cotton it was positively (3.7936) significant at 1 per cent level.

Compound growth rates for productivity of total oilseeds were positive (15.350) and significant at 1 per cent level. It is observed that, in Akola district, area under sugarcane was positive (19.7711) but significant at 1 per cent level. Growth rates of area under total oilseeds was positive (14.691) and significant at 1 per cent level. It is observed that, compound growth rate of production for total cereals were positive (2.6392) and compound growth rate of production of total pulses was positive (4.2921) which was significant at 1 per cent of level.

It is observed that compound growth rate of productivity for total cereals was positive (4.1786) and for total pulses it was also positive (2.5063) and both were significant at 1 percent level. Compound growth rate of productivity for total food grains was positive (2.5538) and significant at 1 per cent level. Compound growth rate of production for sugarcane was positive (0.93845) and for cotton it was positive (8.7759) and both were significant at 1 per cent level. Compound growth rates for productivity of total oilseeds were positive (15.350) and significant at 1 per cent level. It is observed that, in Buldhana district, growth rate of area under total pulses was positive (1.7756) and significant at 5 per cent level. Growth rate of area under sugarcane was positive (7.4238) which was significant at 5 per cent of level. Growth rates of area under total oilseeds was positive (14.873) and significant at 1 per cent level.

It is observed that, compound growth rate of production for total cereals were positive (0.1144). Compound growth rate of production of total pulses was positive (2.7580) which was significant at 5 per cent of level. Compound growth rate of production for sugarcane was positive (4.7730) and for cotton production compound growth rate was positive (5.1541) and

significant at 1 per cent level.

Compound growth rate for production of total oilseeds was positive (7.7640) and significant at 1 per cent level. The compound growth rate of productivity for total cereals (0.4967) and pulses (1.7254) was found positive. The Compound growth rate of production for cotton was positive (6.1139) and significant at 1 per cent level. Compound growth rates for productivity of total oilseeds were positive (15.147) and significant at 1 per cent level. In Yavatmal district the growth rate of total area under total oilseeds (23.086) was positive and significant at 1 per cent level of significance. The growth rate of total area under total sugarcane and cotton (2.23387) and (0.206255) were positive but non-significant. The growth rate of production of total pulses, oilseeds and cotton were (3.0934) (15.2990) (4.70132), respectively and positive and significant at 1 per cent level of significance. The growth rate of production of total sugarcane (6.2795) was positive but non-significant. The growth rate of total productivity of food grains (0.936424) was positive. Growth rate of total production of total cereals (1.6702) and total pulses (0.88399) was positive. The growth rate of total productivity of cotton (4.6549) and total oil seeds (16.9924) were positive and significant at 1 per cent level of significance. It is concluded from the above discussion that, there was a reduction in area and production under total cereals and cotton in Amravati district over a period of 26 years. Reduction in the area under total cereals was observed in Buldhana, Akola and Yavatmal district. Area under total food grain was found significant in Buldhana, Akola and Yavatmal district. It was prominent to note that there was an increase in area over a period of 26 years under, total oilseeds in all the districts. There was a positive growth in the productivity of total cereals, pulses, oil seeds, cotton and food grains. More or less similar work was done by Jahagirdar and Ratnalikar (1996).

Conclusion:

There was a reduction in area and production under total cereals in Amravati, Buldhana, Akola and Yavatmal districts. And in case of cotton in Amravati district over a period of 26 years. It was prominent to note that there was an increase in area over a period of 26 years under, total oilseeds in all the districts. There was a positive growth in the productivity of total cereals, pulses, oil seeds, cotton and food grains.

Agricultural development was observed more in Amravati district. There was good agricultural development in Amravati and Akola district. There was decrease in agriculture development in Yavatmal and Buldhana district. Amravati district had achieved first position in 30 indicators, out of 66 indicators under the study and classified as 'developed' and ranked 1st for the year 2001-2002. Amravati was identified as model district for the year 1989-90, 1996-97, 2001-2002, 2006-2007 and 2010-2011. The rank of Amravati district was 1st and

remains constant over the period of time. Agricultural development of district significantly differed from each other over a period of time (26 years).

The results of statistical comparison of model district with other districts in each time period show that there was a significant difference in agricultural development in each district with model district. The non-parametric Freedman's test was applied to test the significance of development over a time period of 18 years (1984-1985 to 2001-2002) and it was found significant. It has been concluded that, Amravati district was served as model district with consistent growth over the 26 years of time period.

Authors' affiliations :

S.B. DATARKAR AND R.B. HILE, Department of Agricultural Economics, Mahatma Phule Krishi Vidyapeeth, Rahuri, AHMEDNAGAR (M.S) INDIA

K.H. PARSHURAMKAR, College of Agricultural, NAGPUR (M.S) INDIA

REFERENCES

Anonymous (2010). Karnataka State at a Glance, 2009-10, Directorate of Economics and Statistics, Bangalore, KARNATAKA (INDIA).

Barmah and Pandey (1998). Trends in area, production and productivity of rice in Assam. *Indian J. Agric. Econ.*, **53**(3):156-170.

Jahagirdar, S.W. and Ratnalikar (1996). Growth rate of *Kharif* jowar in Maharashtra. *Bihar J. Agric. Mktg.*, **4**(3): 274-280.

Kale, V.C., Rajmane, K.D. and Waghmare, P.R. (1987). Trends in Agricultural growth in Parbhani district of Maharashtra State. *J. Maharashtra Agric. Univ.*, **12** (3): 361-363.

Kalyankar, S.P. and Ghulghule, J.N. (1997). Regional variation in the productivity of agriculture in Maharashtra State. *Maharashtra J. Agric. Econ.*, **8**(1): 1.

Panse, V.G. and Sukhatme, P. V. (1967). *Statistical methods for agricultural workers*. Indian Council of Agricultural Research, NEW DELHI, INDIA.

Singh, R.K.P. (2004). Agricultural development of Bihar (2004). *Agric. Situ. India*, **61**(7): 467-467.

Sisodia and Sunilkumar (2004). Scenario of Agricultural development in eastern Uttar Pradesh. *Agric. Situ. India*, **60**(2): 715-721.

Veena, V.M. (1996). Growth dimensions of horticulture in Karnataka- An econometric analysis, Ph.D. Thesis, University Agricultural Sciences, Dharwad, KARNATAKA (INDIA).

9th
Year
★★★★★ of Excellence ★★★★★