

International Journal of Advance Research in Computer Science and Management Studies

Research Article / Survey Paper / Case Study

Available online at: www.ijarcsms.com

A Study on Area, Production and Yield of Tomatoes in India from 2002 to 2011

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Abstract: *The world has witnessed a rising trend in the area, production and yield of crops in the horticulture sector. The present paper has tried to carry on a research on the trends in the area, production and yield of tomatoes in the horticulture sector of India from the year 2002 to 2011. It has also envisaged on finding out the annual compound growth rates (ACGR) of area, production and yield of tomatoes in India for a period of ten years i.e. from the year 2002 to the year 2011.*

Keywords: *horticulture, area, production, yield, tomatoes, ACGR.*

I. INTRODUCTION

Vegetables are one of the important aspects of the horticulture sector of India in particular and of the agricultural sector of India in general. Various factors have led to the rise in the area under production of vegetables in India. The productivity of vegetables in India has been rising from last many years. All this has been happening because of the factors like increasing per capita income, urbanization, increasing health consciousness, increasing working women, shifting of farmers in growing higher value vegetables due to higher returns and increasing annual growth rate of vegetables in India. Favourable income-elasticity of demand has also helped in rising trend of vegetables production in India.

Due to the short duration, high yield, nutritional richness and economic viability, vegetables become an integral part of the Indian agriculture. Vegetables provide a safe and secure nutritional net to the people of India. The rich and varied climate and geographical diversity, India has been blessed with different varieties of horticultural crops. India has been the second largest producer of horticultural products in the world. Total area under horticulture in India was 21.83 ml hand the production was 240.53 million tonnes in the year 2011.

Mittal (2007) has discussed the role of horticulture in raising the productivity of agricultural sector as a whole. An improvement in the facilities in the horticulture sector of Indian can have a great impact over the exploitation of full potential of this sector and thus only then the new practices of distribution and management can be introduced. Despite the advent of Golden Revolution, the horticulture production and productivity has increased only marginally from 7.5 tonnes per hectare in 1991-92 to 8.4 tonnes per hectare in 2004-05. After the introduction of NHM in 2005-06, the total area under fruits and vegetables was 11.72 million hectares and the aggregate production stood at 150.73 million tonnes. As a result, huge spurt in horticulture made India the second largest producer of fruits and vegetables in the world, next to China.

In the year 1961, the world's area under vegetables was 23.75 ml ha whereas the production and yield of vegetables in the world during the same year was 222.59 ml tons and 9.37 tons/ha (Vegetable Statistics, 2011, IIVR, Indian Council of Agricultural Research). The area, production and yield of vegetables in the world have grown tremendously over years. In the year 2011, area under vegetables in the world was 56.69 ml ha and the production and yield of the same was 1087.59 ml tons and 19.18 tons/ha.

The area, production and productivity of vegetables in India in the year 2010-11 was 8495 (000'ha), 146554 (000' mt) and 17.3 (mt/ha) (Indian Horticulture Database 2011). The same document has also shown that there has been tremendous potential

in the vegetable growing sector to grow and flourish on a larger scale so as to become the top producer of vegetables in the world.

There are no doubts in the fact that the Indian horticulture sector with special reference to vegetable growing sector has been witnessing a rising trend in terms of area under vegetables, production and productivity of vegetables. This trend will continue to make India the leader of growing vegetables in the whole world.

II. REVIEW OF LITERATURE

Kumar, et al. (2011) has talked about the potential of economic benefits of the cultivation of brinjal in India. In their study, they have found out that with the adoption of BT brinjal, the yield gains have increase by 37% and on the other hand the total insecticide use has been reduced by around 42% as compared to the non BT brinjal crop in India. They further claim that the gap in vegetables production can work as a stimulator for substantial increase in the production of the same.

Reddy, et al. (2010) has talked about the value chains and retailing of fresh vegetables and fruits in Andhara Pradesh. They have laid emphasis over the success of the new retailing market emerging in the present times. It has been offering greater opportunities to the farmers who are the growers of vegetables and fruits in Andhara Pradesh. These farmers can reap larger chunks of financial and economic benefits out of the cultivation of vegetables and fruits.

The use of hybrid seeds in the cultivation of vegetables has a huge impact over the farm incomes of the farmers growing vegetables by the use of commercial hybrid seeds (Sudha, et al., 2006), In their study, they have talked about the cultivation of tomato and okra with the use of commercial hybrid seeds. And as a result, the production of tomato and okra has tremendously increased. This has helped the farmers to increase their farm incomes up to a great margin.

Murthy, et al. (2009) has carried out a study on tomatoes production in the state of Karnataka. Technical and scale efficiencies have been helpful in rise in production of tomatoes in Karnataka. They have applied the Data Envelope Analysis (DEA). Proper utilization of chemical fertilizers have been helpful in raising the production of tomatoes across different groups of farmers in Karnataka.

Singla, et al. (2006) has carried out a study on green peas (*Pisum sativum* L.) IN Punjab. They have talked about the tremendous economic potentials of production of vegetables in the national economy of India. Their study has talked about the importance of growing green peas for the horticulture sector of Punjab. They have found out that the productivity of green peas in Punjab has been more on small farms than medium and large farms. Thus the cultivation of green peas help the small farmer to earn a good level of farm income.

Andhara Pradesh was the second largest state to produce horticulture crops in the year 2006-07 (Chengappa, et al., 2007) In their study, they have carried out the growth in area, production and productivity of horticulture sector of the state in all the districts from 1998-99 to 2005-06. They have found out that there has been a significant growth in area, production and productivity of almost all the important horticulture crops in the state during the period of their study, i.e. 1998-99 to 2005-06.

III. PRIME OBJECTIVES OF STUDY

- » To study the trends in area, production and yield of vegetables in India.
- » To analyse the annual compound growth rate (ACGR) of area, production and yield of vegetables in India.

IV. HYPOTHESIS

H0: There has been a rising trend in area, production and yield of vegetables in India from 2002 to 2011.

H1: There has not been a rising trend in area, production and yield of vegetables in India from 2002 to 2011.

Note: **H0**- Null Hypothesis and **H1**- Alternative Hypothesis.

V. METHODOLOGY

The secondary sources of data have been approached in the present study on trend in area, production and yield of vegetables in India. Data has been availed from the reliable sources such as research papers, journals, news papers, periodicals, governmental websites like Ministry of Agriculture, Government of India, Indian Council of Agricultural Research (ICAR) and Food and Agriculture Organisation (FAO), governmental publications such as Vegetables Statistics, Handbook on Horticulture Statistics and Indian Horticulture Database et cetera. The study has tried to carry out a descriptive and exploratory research on vegetables in India. It has made use of the simple statistical tools such as tables to properly analyse and interpret the data. The horticulture sector of India is the universe size and the vegetable growing sector is the size of the sample of the present study. Area, production and yield are the three parameters inculcated in the study. 2002 to 2011 is the time period of the study.

VI. DATA ANALYSIS

There has been a rising trend in terms of area (000, HA), production (000' T) and yield (T/HA) of tomatoes in India in the period of 2002-11. Table 1 shows the statistics regarding area, production and yield of tomatoes from the year 2002 to the year 2011. In the year 2002, the area, production and yield of tomatoes in India was 458, 7462 and 16 respectively. In the years 2003 and 2004, the area under tomatoes in India was 479 and 503 respectively, production was 7616 and 8126 respectively and yield was 16 in both the years. In the year 2005, the area, production and yield of tomatoes in India was 503, 8825 and 17 respectively. Similar rising trends were witnessed in the following years. In the year 2006, the area, production and yield was 546, 9820 and 18 respectively in India. In the following years 2007 and 2008, the area under tomatoes in India was 596 and 566 respectively, production was 10055 and 10303 respectively and the yield was 17 and 18 respectively.

Table 1: Area, Production and Yield of Tomatoes in India from 2002 to 2011

YEAR	AREA (000' HA)	PRODUCTION (000' T)	YIELD (T/HA)
2002	458	7462	16
2003	479	7616	16
2004	503	8126	16
2005	503	8825	17
2006	546	9820	18
2007	596	10055	17
2008	566	10303	18
2009	599	11149	19
2010	634	12433	19
2011	865	16826	19
ACGR	5.60	8.08	2.43

SOURCE: WWW.FAOSTAT.FAO.ORG

In the year 2009, the area under tomatoes in India was 599 whereas the production and yield of tomatoes in India in the same year was 11149 and 19 respectively. In the next year i.e. 2010, the area, production and yield of tomatoes in India was 634, 12433 and 19 respectively. In the year 2011, the area under tomatoes in India was 865 whereas the production of tomatoes was 16826 and the yield of the same was 19.

Table 1 has also revealed the annual compound growth rates (ACGR) of area, production and yield of tomatoes in India for the time period of ten years (2002 to 2011). The ACGR of area under tomatoes in India during this period was 5.60 whereas the ACGR of production and yield of tomatoes in India during the same period was 8.08 and 2.34 respectively.

VII. FINDINGS AND RECOMMENDATIONS

The present study has worked within the set up of its prime objectives. And it has found that there has been a rising trend in the area under tomatoes during the time period of the study. Similar rising trends have been witnessed in the production and yield of tomatoes in India during this period. The area under tomatoes has risen from 458 (000' HA) in 2002 to 865 (000' HA) in 2011. Similarly, the production of the same has gone up from 7462 (000'T) in 2002 to 16826 (000' T) in 2011. The yield of tomatoes in India from 2002 to 2011 has gone up from 16 (T/HA) to 19 (T/HA).

The study has made some recommendations so as to further raise the production and productivity of vegetables in India. The government should provide economic incentives to the farmers to encourage them to cultivate vegetables not only for self consumption but for commercial purposes. The government should also provide genuine insurances to the vegetable growers in India so that the vegetables can be grown on a larger scale. The programmes like National Horticulture Mission (NHM), Rashtriya Krishi Vikas Yojana (RKVY) et cetera must be strengthened further to assist the vegetable cultivators in India to keep on growing vegetables and reap financial profits on a wider scale.

VIII. LIMITATIONS OF STUDY

- » The present study has considered only the tomatoes and it doesn't talk about other important vegetables in India.
- » The present study doesn't talk about the factors responsible for the rising trends in the area, production and yield of tomatoes in India during the time period of the study.

IX. CONCLUSION

The present study finds out that there exist a rising trend in terms of area, production and yield in India with respect to tomatoes cultivation. The rise in the area, production and yield of tomatoes during the time period of the study in India has been remarkable. Such a rise assures a bright future of the horticulture sector of India in the coming times. The null hypothesis of the study has not been rejected while the alternative hypothesis of the study is rejected.

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