



Organic Farming and Horticulture: New Dimensions of Agriculture Development in MP, India

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Available online at: www.isca.in

Received 31st May 2013, revised 15th June 2013, accepted 5nd July 2013

Abstract

Agriculture is the dominant sector of Madhya Pradesh economy; which determines the growth and sustainability. Organic farming essentially that is not only chemical free produce but also same or higher yield with lower input cost. Madhya Pradesh has 10.8 lakh acres organic cultivation area in 2009-10. Cotton has been identified as major organic produce in the state; besides that fruits, vegetables and herbal plants also contribute a lot due to large forest cover in the state. Climate and soil of Madhya Pradesh is favorable for growing of horticultural crops. Horticulture is the fastest growing sector within agriculture. Madhya Pradesh is producing about 7.69 mMT of horticulture produce from an area of 0.75 mha and accounts for 3.20 percent of the total horticulture production of the country. The major share of horticulture produce is from vegetables (48.08 %) and fruits (43.85 %). The main objective of the study is to analyze organic farming and horticulture as new dimensions of agriculture development in Madhya Pradesh. We also analyze area and production of main organic crops of Madhya Pradesh and area, production and productivity of major crops of horticulture in Madhya Pradesh. We use secondary data for this study.

Keywords: Agriculture development, dimensions, horticulture, organic farming, productivity.

Introduction

Agriculture plays a key role in the development of Madhya Pradesh economy. It contributes significantly to the process by supply of raw material to manufacture, wage goods to worker in other sectors employment to the work force investible surplus and market of products of industry. Agriculture provides basic sustain to all living beings. It is very important that ecologically, sociology, and economically sustainable agriculture should become the backbone of the development process of country.

Madhya Pradesh has 10.8 lakh acres organic cultivation area in 2009-10¹. Madhya Pradesh is producing about 7.69 mMT of horticulture produce from an area of 0.75 mha and accounts for 3.20 percent of horticulture production with 372 lakh acres of cultivatable area and 135% of crop intensity². Madhya Pradesh like rest of the India is characterized by relatively small land holdings. Madhya Pradesh and India's future lies in ensuring high small farm productivity and profit gain by focusing on solutions and strategies for smaller farmers.

Objectives

The objectives of the paper are: i. To analyze organic farming in Madhya Pradesh. ii. To analyze area and production of main organic crops of Madhya Pradesh. iii. To analyze area, production and productivity of major crops of horticulture in Madhya Pradesh. iv. To analyze organic farming and horticulture as new dimensions of agriculture development in Madhya Pradesh. v. To analyze prosperity and challenges of agriculture development in Madhya Pradesh.

Agriculture in Madhya Pradesh

Madhya Pradesh with an area of 761 lakh acre is India's second largest state in size. Madhya Pradesh has current total population of approx. 7.25 cr., Madhya Pradesh remains one of India's poorer state despite being one of India's largest and naturally better endowed states. Population of about 2 cr. lives below the poverty line which is 28 percent of Madhya Pradesh estimated population. Net cultivated area of Madhya Pradesh is 372 lakh acre from total geographical area of 761 lakh acres. Area under double crop is 130 lakh acre and irrigated area is 32.37 % in Madhya Pradesh³.

Agriculture is the mainstay of the Madhya Pradesh economy with 74.73 per cent of the population is rural and engaged in the agricultural and allied activities. As much as 49 per cent of the land area is cultivable. The overall per capita income of Madhya Pradesh is less than the National average. Soybean is major crop of Madhya Pradesh. Soybean is referred as vegetarian meat due to its high quality amino acids profile and better protein digestibility⁴. Efforts are being made to construct strategic plan that with guide the processing technique. Soybean production in India and Madhya Pradesh is substantial and economically significant⁵.

Organic Farming in Madhya Pradesh

The farming that is driven to produces food that do not involve modern synthetic inputs such as synthetic pesticides and chemical fertilizers, do not contain genetically modified organisms and are not processed using irradiation, industrial

solvents, or chemical food additives¹. It can be said that it is the solution which blends science and tradition to produce under an ecosystem that benefits one and all.

Organic farming essentially that is not only chemical free produce but also same or higher yield with lower input cost. There are two types of Organic food categories:

Certified Organic: This Organic produce fulfills the norms and compliances set by the certifying agencies. It has three sub categories: i. "100% Organic": Can only contain organic ingredients, meaning no antibiotics, hormones, genetic engineering, radiation or synthetic pesticides or fertilizers can be used. ii. "Organic": Contains 95% organic ingredients, with the balance coming from ingredients on the approved national list. iii. "Made with Organic Ingredients": Must be made with at least 70% organic ingredients, three of which must be listed on the package and the balance must be on the national list.

Non Certified Organics: This Organic produce is produced and bought without any certification from any authorities. Mostly produced and sold based on Relationship of trust between the farmer and retailer. It can also be termed as perceived organic.

Current Organic Picture of Madhya Pradesh

Presently the total area under organic cultivation in Madhya Pradesh is 10.8 lakh acres which is increasing annually. Moreover about 30 percent of the area is under forest cover which is considered to be organic by default.

Table-1
Total Area under Organic Cultivation in Madhya Pradesh¹
(year wise)

Year	Area (in Lakh acres)
2005-06	0.408
2006-07	3.66
2007-08	5.3
2008-09	11.46
2009-10	10.8

Table-1 shows that area under organic cultivation is 0.408 lakh acres in 2005-06; 3.66 lakh acres in 2006-07; 5.3 lakh acres in 2007-08; 11.46 lakh acres 2008-09 and 10.8 lakh acres in 2009-10. Total area under organic cultivation is increased annually from 0.408 lakh acres in 2005-06 to 11.46 lakh acres in 2008-09 but it decreases to 10.8 lakh acres in 2009-10.

Madhya Pradesh: Present Organic Statistics Crop Wise

Presently cotton has been identified as major organic produce in the state. Besides that fruits, vegetables and herbal plants also contribute a lot due to large forest cover in the state.

Table-2
Present Organic Statistics Crop Wise (2009-10)¹

Crop	Quantity (Tonnes)	Coverage Area (Lakh Acre)
Cotton	513830.2	6.4
Wheat	26295	0.9
Other Cereals	33306.5	0.42
Pulses	15838.6	0.36
Oil Seeds	168008	2.5
Spices	11786	0.16
Fruits/Vegetables	71324.7	0.048
Herbal/Medicinal	23047	0.15
Others	52	0.08

Source: CII (2012) MP: NBIASF¹

Table-2 shows Quantity and Coverage area of Cotton, Wheat, Other Cereals, Pulses, Oil Seeds, Spices, Fruits/Vegetables, Herbal/Medicinal and Other crops.

Banana, pomegranates, pineapple, grapes, amaranth, ginger, large cardamom, sweet fennel, peanut, onion, and sugar/jaggery are the commodities which will emerge as significant organic commodities and these commodities are already produced in Madhya Pradesh.

Madhya Pradesh Horticulture Production

Climate and soil of Madhya Pradesh is favorable for growing of horticultural crops. Madhya Pradesh is producing about 7.69 mMT of horticulture produce from an area of 0.75 mha and accounts for 3.20 percent of the total horticulture production of the country. The major share of horticulture produce is from vegetables (48.08 %) and fruits (43.85 %). Vegetables with 84 to 96 percent of water content are rich sources of vitamins and minerals⁶. The Fruit are source of vitamins, minerals, carbohydrates, organic acid and other constituents. Fruits are rich in water content amounting to 75 to 95 percent of the total weight⁷.

Madhya Pradesh is sixth largest potato producing state accounting for 2 percent of the total production of potato in the country. Madhya Pradesh produces 0.74 mMT of potato from an area of 0.06 mha with productivity of 12.0 t/ha. The major potato producing belts in the state are Sidhi, Satna, Rewa, Rajgarh, Sagar and Tikamgarh.

Madhya Pradesh is fifth largest onion producing state in the country. Onion is cultivated thrice a year in monsoon, winter and summer⁸. Madhya Pradesh produces 7 percent of the total production of onion in the country. Madhya Pradesh is producing about 1.02 mMT of onion from an area of 0.06 mMT with productivity of 17.5 t/ha. The major onion producing belts in the state are Khargone and Khandwa.

Madhya Pradesh is fourth largest peas producer in the country. It produces 7.1 percent of the total production of Peas in the

country. Madhya Pradesh produces about 0.25 mMT of peas from an area of 0.02 mha having productivity of 11 t/ha. Major Peas growing belts in Madhya Pradesh are Ujjain and Durg.

Madhya Pradesh produces about 3 percent of the total brinjal produce of the country with production of 0.28 mMT from an area of 0.02 mha having productivity of 12.00 t/ha.

Madhya Pradesh is second largest producer of guava after Maharashtra and accounts for 11.4 percent of the total production of Guava in the country. Madhya Pradesh produces 0.28 mMT of Guava from an area of 0.010 mha having productivity of 29 t/ha, which is the highest among the guava producing states. Main Guava producing belts in Madhya Pradesh are Durg and Jabalpur.

Madhya Pradesh contributes to about 5.4 percent of the total papaya production in the country. Madhya Pradesh produces 0.28 mMT of papaya from an area of 0.002 mha having productivity of 115.5 t/ha, which is the second highest after Tamilnadu. The production of papaya is concentrated in Dhar, Khandwa, Bilaspur, Ratlam and Guna.

Madhya Pradesh is sixth major banana producing state in the country and accounts for about 5.8 percent of the total production of country. Madhya Pradesh is producing about 1.72 mMT of banana from an area of about 0.04 mha with productivity of 45.2 t/ha. Mostly Cavendish varieties are grown with drip irrigation to some extent. The major banana producing belts in Madhya Pradesh are Burhanpur, Barwani and Dhar.

Madhya Pradesh is fifth largest spices producer in the country. It produces 7.73 percent of the total production of spices in the country. Madhya Pradesh produces about 0.41 mMT of spices from an area of 0.29 mha with productivity of 1.4 t/ha.

Madhya Pradesh is second leading producer of orange mandarin and accounts for 21 percent of the production of orange mandarin production in the country with productivity of 18.00 t/ha. Madhya Pradesh is the fourth largest citrus producing state in the country and accounts for about 10.7 percent of the total production in the country. Madhya Pradesh is producing 0.80 mMT of citrus from an area of 0.05 mha with productivity of 17.7 t/ha. The major citrus producing belts in the state are Mandsaur, Shajapur, Chindwara, Khandwa and Hoshangabad. Madhya Pradesh accounts for 5 percent of the total production of lime/lemon in the country. Production of orange in the state accounts for 21 percent of the total production in the country and Madhya Pradesh is the second largest orange producer after Punjab in the country. Madhya Pradesh is producing about 0.68 mMT of orange from an area of about 0.04 mha with productivity of 18 t/ha. Major orange (Mandarin) producing belts in the state are Chhindwara, Mandsaur, Betul, Ujjain and Shajapur.

Table-3; shows Area, Production and Productivity of Potato, Onion, Peas, Brinjal, Guava, Papaya, Banana, Spices and Citrus which is major Horticulture crops in Madhya Pradesh.

Figure-1 shows percentage of total production of Potato, Onion, Peas, Brinjal, Guava, Papaya, Banana, Spices and Citrus in Madhya Pradesh.

Factors Affecting Agriculture in Madhya Pradesh

To improve the natural degradation the farmers were educated to use fertilizers, pesticides and other chemicals to enhance productivity. But continuous and indiscriminate usage of chemical based inputs has led to: i. Change chemical balance of the soil. ii. Increased input cost. iii. Affects crop quality.

Table-3
Area, Production and Productivity of Horticulture in Madhya Pradesh²

Horticulture Crops	Area (mha)	Production (mMT)	Productivity (t/ha)	% of total Production
Potato	0.06	0.74	12.0	2.0
Onion	0.06	1.02	17.5	7.0
Peas	0.02	0.25	11.0	7.1
Brinjal	0.02	0.28	12.0	3.0
Guava	0.010	0.28	29.0	11.4
Papaya	0.002	0.28	115.5	5.4
Banana	0.04	1.72	45.2	5.8
Spices	0.29	0.41	1.4	7.73
Citrus	0.05	0.80	17.7	10.7

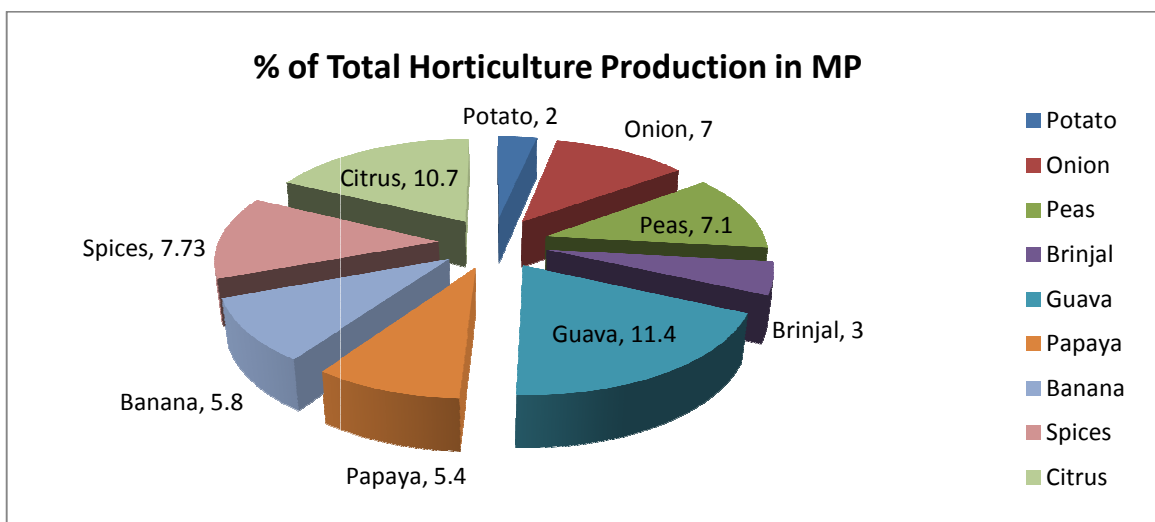


Figure-1
Percent of Total Production of Horticulture in Madhya Pradesh

Madhya Pradesh soil is deficient in nitrogen and phosphate nutrients. It was formed and is forever changing due to five major physical factors: i. Parent material. ii. Time. iii. Climate. iv. Organisms present. v. Topography.

Therefore need of the hour is a chemical free, low cost product/method to increase productivity of the land.

Methods of Growing Productivity of Agricultural Land in Madhya Pradesh

Balanced use of Pro-biotic biotechnology products to achieve the most favorable consumption ratio and Use of hybrid and improved seed varieties are the main things of growing productivity of agriculture land in Madhya Pradesh. Implementation of scientifically advanced micro-organism in agriculture is necessary for agriculture development. There is a need to involve farmers more intensely in research and extension activities⁹.

The chemical fertilizers, no doubt, are the important source, which can meet the nutrients requirement but their imbalanced and continuous use lead to environmental pollution and deterioration of soil physic-chemical properties¹⁰. One of the major constraints in boosting up the crop production is the deteriorious effect on soil health. Balanced fertilizer is the application of essential plant nutrients in light proportion and in optimum quantity for a specific soil crop condition. Continuous imbalanced use of fertilizer led to the deterioration in the soil fertility and decrease in soil productivity. Higher yield at balanced nutrition safe guards soil fertility. Integrated plant nutrient supply system could help in meeting the goals of balanced Fertilization. Apart from providing self sufficiency in food, the agriculture has enabled to produce important products.

Conclusion

The study shows that Madhya Pradesh produces main organic crops like Cotton, Wheat, Other Cereals, Pulses, Oil Seeds, Spices, Fruits/Vegetables, Herbal/Medicinal and Other crops. Total area under organic cultivation is increased annually from 0.408 lakh acres in 2005-06 to 11.46 lakh acres in 2008-09 but it decreases to 10.8 lakh acres in 2009-10. Horticulture is fastest growing sector in agriculture in Madhya Pradesh. Madhya Pradesh is producing about 7.69 mMT of horticulture produce from an area of 0.75 mha. Madhya Pradesh produces main horticulture crops like Potato, Onion, Peas, Brinjal, Guava, Papaya, Banana, Spices and Citrus.

The development of agriculture and allied sectors is still a critical factor in the overall performance of the Madhya Pradesh economy. The soil in Madhya Pradesh is deficient in nitrogen and phosphate nutrients. Therefore the need of the hour is a chemical free, low cost product/method; organic farming and horticulture production to increase productivity of the land. To improve the natural degradation the farmers were educated to use balanced fertilizers, synthetic pesticides and other bio-chemicals to enhance productivity. Methods of growing productivity of agricultural land in Madhya Pradesh are balanced use of Pro-biotic biotechnology products to achieve the most favorable consumption ratio; use of hybrid and improved seed varieties and implementation of scientifically advanced micro-organism in agriculture.

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