



THE CRITICAL STUDY OF AGRICULTURAL PRODUCTIVITY IN SOLAPUR DISTRICT

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ABSTRACT:

The agriculture productivity in any region is mainly depend on the use of modern techniques in agriculture and allied activities. The measurement of agricultural productivity helps in knowing the area that is performing rather less efficiency in comparison to the neighboring areas. By delimiting the areas of low, medium and high productivity, agricultural plans may be formulated to remove and minimize for the regional inequalities. It also provides an opportunity to ascertain the ground reality, the real cause of agricultural backwardness of a region. Therefore, attempt is made here to study agriculture productivity in Solapur district. This paper is based on secondary data source. To determine agricultural productivity Jasbir Singh's method (1976) is applied. The high productivity of Jowar was observed in Karmala, Barshi, Mangalvedha, Pandharpur, Sangola and North Solapur tahsil. The high productivity of Wheat was observed in Mohol and Pandharpur tahsil due to use of high yielding varieties and availability of water for irrigation. The high productivity of Tur is observed in Barshi, Mangalvedha and Pandharpur tahsil due to favorable soil and climate. The high productivity of Sugarcane is recorded in Madha, Mohol, Malshiras and Pandharpur tahsil due to canal irrigation and Uani major irrigation project, it is low in Akklkot, Mangalvedha, Barshi and South Solapur tahsil, because of lower development of surface irrigation facility

Keywords: *Agriculture, Productivity, irrigation etc.*

INTRODUCTION:

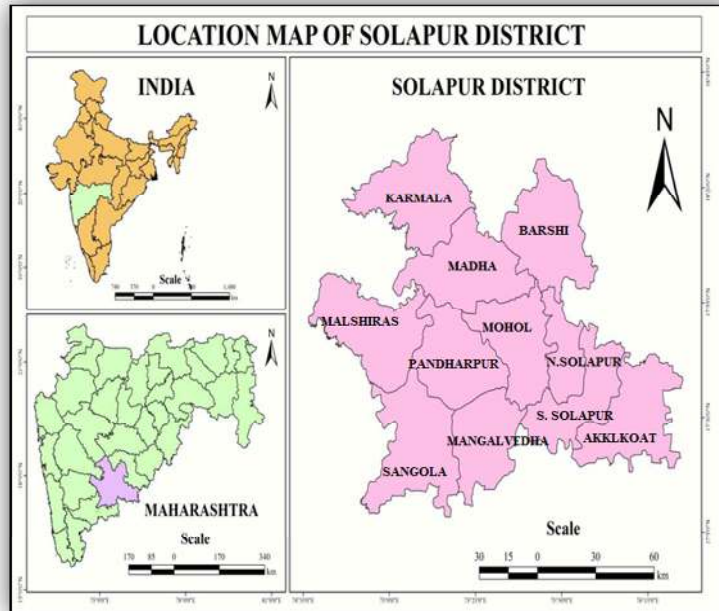
Agriculture productivity is a function of number of factors including physical, Socio economical and technical organization, mechanization (Noor Mohammad and Majeed Abdul, 1995). The concept of productivity is a relative

term and cannot be uniformity applied all over the world. Some have viewed productivity as the overall effectiveness of productive unit, while some have confined the use of the term productivity to denote the ratio of output to the corresponding input of labour. Productivity defined in economic or agricultural geography as output per unit of input or per unit of area respectively. Agricultural productivity is a measure of efficiency with which inputs are used to provide an output (Nanaware A.H., 2015). It is widely accepted that agriculture production is the result of combinations of infra-structural elements, viz, physical, techno-economic, socio-economic, socio-culture, etc. by which agriculture efficiency is influenced (Singh S. and Chauhan V. S., 1994). By delimiting the areas of low, medium and high productivity, agricultural plans may be formulated to remove and minimize for the regional inequalities. It is also provides an opportunity to ascertain the ground reality, the real cause of agricultural backwardness of a region. Therefore, attempt is made here to study agriculture productivity in lower Sina basin.

THE STUDY REGION:

The Solapur district is lies in the Bhima-Sina-Man basins, just before the Bhima River leaves Maharashtra state to enter in Karnataka state. It is located in between 17°10' North to 18°32' North latitudes and 74°42' East to 76°15' East longitudes. The district is fairly well defined to its west as well as east by the inward-looking scraps of Mahadeo hills range and the osmanabad plateau. The adjoining districts are Sangali to its southwest, Satara to its west, Pune to northwest, Ahmadnagar to its north, Beed & Osmanabad to its east and the Bijapur district of Karnataka state to its south. The district is divided into eleven tahsils to its administrative purpose, which constitute 1150 villages and 13 urban areas. These tahsils are Karmala, Madha, Barshi, North Solapur, Solapur South, Mohol, Pandharpur, Malshiras, Sangola, Mangalwedha, Akkalkot. The total population of district was 43,15,527 persons in which male & female were 22,33,778 and 20,81,749 respectively according to 2011 census. The regions under studies constitute about 4.88 percent area and about 4.51 percent population of Maharashtra state. It ranks fourth in terms of area and seventh in

term of population among the district of Maharashtra. The district occupies the total geographical area of 14,889 square kilometer and holds fourth ranks in Maharashtra state



OBJECTIVES:

The main objective of the present study is to analyze the agriculture productivity in study region.

DATA COLLECTION AND METHODOLOGY:

The present study is based on secondary data source. To fulfill the objective data regarding per hectare yield and production is collected from Socio Economic review and District Statistical Abstract of Solapur districts. Agricultural epitomes published by state Government for the period of 1991-95 and 2011 to 2015.

After data collection, the data is processed. To avoid fluctuation and to get reliable result the five years average is taken into consideration. Tahsil is taken as the basic unit of investigation. To determine agricultural productivity, the technique introduced by Jasbir Singh (1976) is applied.

The procedure explained as follows.

$$Y_i = \frac{Y_{ae}}{Y_{ar}} \times 100$$

Where,

Y_i = is the crop yield index.

Y_{ae} = is the average yield per hectare of crop 'a' in the component enumeration unit.

Y_{ar} = is the average yield of the crop 'a' in the entire region.

$$C_i = \frac{P_{ae}}{P_{ar}} \times 100$$

Where,

C_i = is the crop concentration index.

P_{ae} = is the percentage strength of crop 'a' in the total cropped area in the Component enumeration unit.

P_{ar} = is the percentage strength of crop 'a' in the total cropped area in the entire region.

The derived crop yields and concentration indices for crops are ranked separately, yield and concentration ranks for individual crops are added and there after divided by two thus giving the crop yield and concentration indices ranking coefficient.

The equation is as follows.

Crop Yield and Concentration Indices Ranking Coefficient For Crop-A	=	$\frac{\text{Crop Yield Index Ranking Crop 'A' + Crop Concentration Index Ranking Crop 'A'}}{2}$
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This will give an idea of the level of agricultural productivity. The lower the ranking coefficient, the higher the level of agricultural productivity and vice versa. This technique helps to identify the crop of good level of productivity in the region. The ranking coefficients for individual crops thus derived are arranged in order and coefficients are grouped in to three efficiency grade viz. high grade, moderate grade and low grade for discussing the spatial variations in the region

AGRICULTURAL PRODUCTIVITY IN SELECTED CROPS:

1. Jowar:

During 1991-95, the table shows that the high productivity of Jowar was observed in North Solapur, Sangola, Mangalvedha, Pandharpur and Mohol tahsil. The moderate productivity is recorded in Karmala, Barshi, Madha and

South Solapur tahsil. It is low in Akkalkot and Malshiras tahsil due to low rainfall.

During 2011-15, the table shows that the high productivity of Jowar was observed in Karmala, Barshi, Mangalvedha, Pandharpur, Sangola and North Solapur tahsil. The moderate productivity of Jowar is found in Madha and Mohol tahsil, while it is low in Akkalkot, Malshiras and South Solapur tahsil due to lower development of irrigation facilities.

2. Wheat:

During 1991-95, the table indicates that the high productivity of Wheat is observed in Barshi, Akkalkot, Pandharpur and Mohol tahsil. The moderate productivity is recorded in Karmala, Malshiras, Sangola, Madha, North Solapur and South Solapur tahsil. It is low only in Mangalvedha tahsil due to low rainfall.

During 2011-15, the table shows that, the high productivity of Wheat was observed in Mohol and Pandharpur tahsil due to use of high yielding varieties and availability of water for irrigation. The moderate productivity of Wheat is recorded in Madha, North Solapur, Malshiras, Mangalvedha and South Solapur tahsil. It is low in Karmala, Barshi and Akkalkot tahsil.

3. Maize:

During 1991-95, the table shows that, the high productivity of Maize was recorded in Akkalkot, Malshiras, Karmala, Barshi, Pandharpur, Sangola, Mohol and North Solapur tahsil. The moderate productivity is recorded in Mangalvedha and South Solapur tahsil. It is low only in Madha tahsil due to low rainfall.

During 2011-15, the high productivity of Maize was observed in Karmala, Mohol, Malshiras, Sangola, Mangalvedha and Pandharpur tahsil due to increase in irrigated area. The moderate productivity of Maize is recorded in Barshi, North Solapur and Madha tahsil, while it is low in and South Solapur and Akkalkot tahsil.

4. Tur:

The table indicates that the high productivity of Tur was recorded in Barshi, Mangalvedha, Akkalkot, tahsil in 1991-95. The moderate productivity of

Tur recorded in Madha, Pandharpur and South Solapur, tahsil. It is low in Karmala, Mohol, Malshiras, Sangola and North Solapur tahsil.

During 2011-15, the high productivity of Tur is observed in Barshi, Mangalvedha and Pandharpur tahsil due to favorable soil and climate. The moderate productivity of Tur is recorded in Madha, Akklkot, Sangola and Pandharpur tahsil, while it is low in Karmala, Mohol, North Solapur, South Solapur and Malshiras tahsil.

Table: Crop Yield & Concentration Indices Ranking Coefficient of Selected Crops (1991-92 to 1995-96 and 2011-12 to 2015-16)

1991-92 to 1995-96							
Tahsil	Jowar	Wheat	Maize	Tur	Gram	Groundnut	Sugarcane
Karmala	4.5	4	3.5	5.5	2.5	2	4.5
Barshi	4.5	2.5	3	1.5	1	2	5.5
Madha	4.5	5	5	4	5.5	4.5	2
Mohol	2	1	2.5	4.5	5	5	3
N. Solapur	1	4	3.5	5.5	5	5	3.5
S. Solapur	4.5	4.5	4	4	5.5	5	2.5
Akkalkot	5	2	2.5	2	5	2	4.5
Malshiras	7	3.5	1	5.5	6.5	4	2
Sangola	1	5	2.5	7	2	6	4
Mangalvedha	2	6.5	4	2	1.5	6	6
Pandharpur	2	2	1.5	3	3.5	4.5	1
2011-12 to 2015-16							
Tahsil	Jowar	Wheat	Maize	Tur	Gram	Groundnut	Sugarcane
Karmala	2	5.5	1	4.5	6	3	4
Barshi	2	5.5	4.5	1.5	2	2.5	5.5
Madha	4.5	3	3	4	5	6	2
Mohol	4.5	1	2.5	4.5	3.5	4	1.5
N. Solapur	2.5	3	4.5	5	7	5	3
S. Solapur	5.5	3.5	5.5	5	2.5	3.5	5
Akkalkot	7	6.5	7	3.5	2	2	7
Malshiras	7	3.5	1.5	5.5	6.5	4	2
Sangola	1.5	5	2.5	4	2	4	4
Mangalvedha	2	3.5	2	2	1.5	5	7
Pandharpur	3	1.5	2.5	3	2.5	4	1

Source: Compiled by researcher, on the basis of Socio economic Review and district Statistical Abstract of Solapur District 1991-92 to 2015-16, Chief Statistical office of Agriculture Maharashtra State, Pune.

5. Gram:

The table exhibits that the high productivity of Gram was recorded in Karmala, Sangola, Mangalvedha and Barshi tahsil during 1991-95. The moderate productivity of Gram is recorded only in Pandharpur tahsil, whereas it is low in Madha, Mohol, North Solapur, South Solapur, Akklkot, and Malshiras tahsil.

During 2011-15, the high productivity of Gram is recorded in Barshi, Akklkot, Sangola, South Solapur and Mangalvedha tahsil. The moderate productivity of Gram is recorded in Madha and Mohol tahsil, while it is low in Karmala, Malshiras and North Solapur tahsil.

6. Groundnut:

The table shows that during 1991-95, the high productivity of Groundnut was recorded in Barshi, Akklkot and Karmala tahsil, whereas the low productivity of Groundnut was recorded in Madha, Mohol, North Solapur, South Solapur, Sangola, Mangalvedha and Pandharpur tahsil.

The table shows during 2011-15, the high productivity of Groundnut is recorded in Barshi and Akklkot tahsil due to development of surface irrigation facilities. The moderate productivity of Groundnut is recorded in Karmala, Mohol, and South Solapur tahsil, while it is low in Madha, Malshiras, Sangola, Mangalvedha, Pandharpur tahsil and North Solapur tahsil.

7. Sugarcane:

The table shows that during 1991-95, the high productivity of Sugarcane was found in Madha, Mohol, Malshiras, North Solapur, South Solapur and Pandharpur tahsil. The moderate productivity of Sugarcane is recorded in Karmala, Sangola and Akklkot tahsil, while it is low in Barshi and Mangalvedha tahsil.

The table indicates that during 2011-15, the high productivity of Sugarcane is recorded in Madha, Mohol, Malshiras and Pandharpur tahsil due to canal irrigation and Uani major irrigation project. The moderate productivity of Sugarcane is recorded in Karmala, Sangola and North Solapur tahsil, while it is low in Akklkot, Mangalvedha, Barshi and South Solapur tahsil.

CONCLUSIONS:

The following conclusion is drawn on the given study. The study reveals that agricultural productivity in study region is function of geographical factors. The high productivity of Jowar was observed in Karmala, Barshi, Mangalvedha, Pandharpur, Sangola and North Solapur tahsil. The high productivity of Wheat was observed in Mohol and Pandharpur tahsil due to use of high yielding varieties and availability of water for irrigation. The high productivity of Tur is observed in Barshi, Mangalvedha and Pandharpur tahsil due to favorable soil and climate. The high productivity of Sugarcane is recorded in Madha, Mohol, Malshiras and Pandharpur tahsil due to canal irrigation and Uani major irrigation project, it is low in Akklkot, Mangalvedha, Barshi and South Solapur tahsil, because of lower development of surface irrigation facility.

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