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A study of wheat productivity in Aurangabad district (Ms)

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Abstract:-

Attempts to increase grain production at the national level are the best efforts to increase the production and productivity of wheat and rice crops. Globally green revolution means that the productivity of wheat and rice crops is used only in a limited sense, with a significant increase in the short term. Considering the drought and hot climate of Maharashtra weather wheat-like crops cannot be grown in large quantities. Wheat is the major food crop of Aurangabad district and people of Maharashtra, small efforts have been made to increase its productivity. As a result, the production of wheat per hectare has increased from 442 kg to 1761 kg in the last 50 years. Aurangabad district has a population of around 38 lakh. Wheat is the important food crop in Aurangabad district. The northern part of the district is mountainous. Rainfall is low in most areas but population is increasing day by day. Efforts should be made to increase the production per hectare of wheat to meet the growing population's need for food. Agriculture productivity s measured as the ratio of agricultural outputs from agriculture inputs. While every products are usually measured by weight, their changing densities make measuring overall agricultural output difficult.

Introduction:

Geographical Area of Aurangabad District is 10100 Sq.Km. out of which 8.03% is forest area. There are 9 tahsils and 1344 villages in the district. There is one Municipal Corporation in Aurangabad district, 6 Municipal Councils and one Cantonment Board. There are 9 Panchyat Samitis & 852 Grampanchayats. The district has total 3701282 populations and out of them 51.99% is male and 48.01% are female population as per census year 2011. Literacy rate of the district is 72.90 % and average annual rainfall of the district is 524mm and most time spending like summer very few days are rainy.

Keywords:- Area under wheat, Crop Cultivation, Irrigation, Productivity, Productivity Index,.

Objectives:-

The specific objectives of the present study are as follows:

1) To study the productivity of wheat crops and its tahsil wise variation.
2) To study the requirement of irrigation facilities to wheat cultivation.

Methodology:-

For the present study, the census data of 1991, 2001 and 2011 was used. The information regarding census was obtained from the website of Census of India. The general and geographical information of Aurangabad district was collected from Government Gazetteer and District Census Handbook of 1981, 1991 & 2001, website of the district.

Have choos the Crop productivity index is calculated by using Mohammad Shafi's following formula.

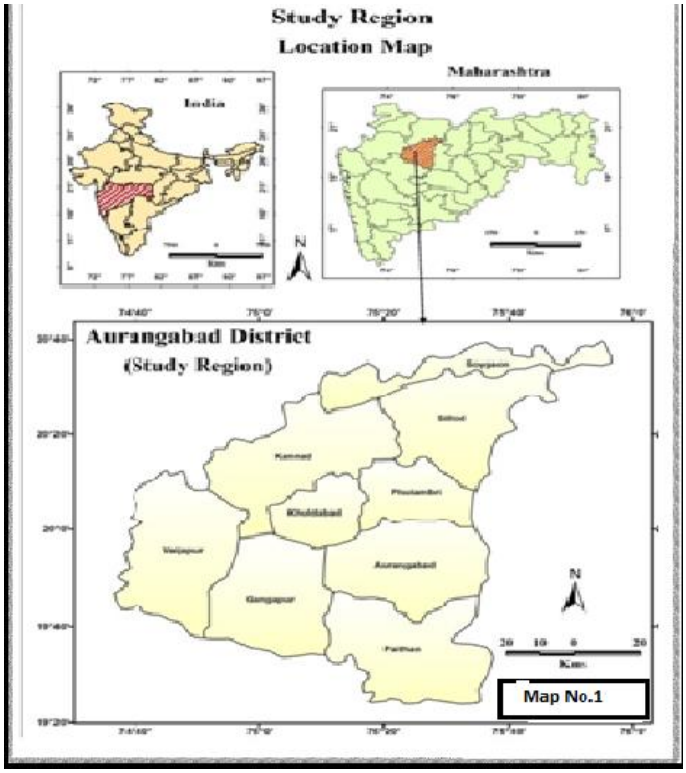
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Vol-8-Issue-12-December-2019

(Y÷Yn) ÷ (T÷Tn),

Where, Y = Production of unit area, Yn = Production of total area, T = Area under crop unit area, Tn = Area under crop of total area.

All statistical analysis, maps and graphs are done with the help of computer in GIS software.

Study Area:-



The geographical expansion of the study region is in between $19^0 23' 43''$ North to $20^0 39' 36''$ North latitude and $74^0 36' 46''$ East to $75^0 57' 03''$ East longitudes. District is located in Maharashtra state. There are total six administrative divisions in Maharashtra and Aurangabad is one of them. Aurangabad has one of an important district in Marthwada region. Aurangabad district have divided in 9 Tahasils.

Total population of the district is 37,01,282, out of them 19,24,469 are male and 1776813 are female according to the 2011 census.

Aurangabad city is the headquarter of the district and also the division, is situated on the Kham river. It has spread laniary along the banks of Kham River. Aurangabad is a historical city and though it has its own attractions and charms, tourist value. Aurangabad is well connected with Airway, Railways and Road transport with over all India.

Discussion :-

Wheat is a grass widely cultivated for its seed, a cereal grain which is a worldwide staple food. The many species of wheat together make up the genus Triticum; the most widely grown is common wheat .

Tahsil wise share of under wheat crop to total cultivated area is shown in table no 1 from the year 1991 to 2011. Table also indicated the irrigated area of crop to their total cultivation in respective years.

In the district total 4.14% cultivated land was under wheat crop in 1991 and near about 82.04% land was under irrigation of wheat cultivation. In 2001 it was decreased and found 2.68% to the total cultivation and 85.42% cultivation under irrigation. In 2011 it found higher than both previous decades. In 2011 it was found 8.35% and their irrigation was 100%. Means the total wheat cultivation in the district was under irrigation in 2011.

ISSN: 2277-2995
Vol-8-Issue-12-December-2019

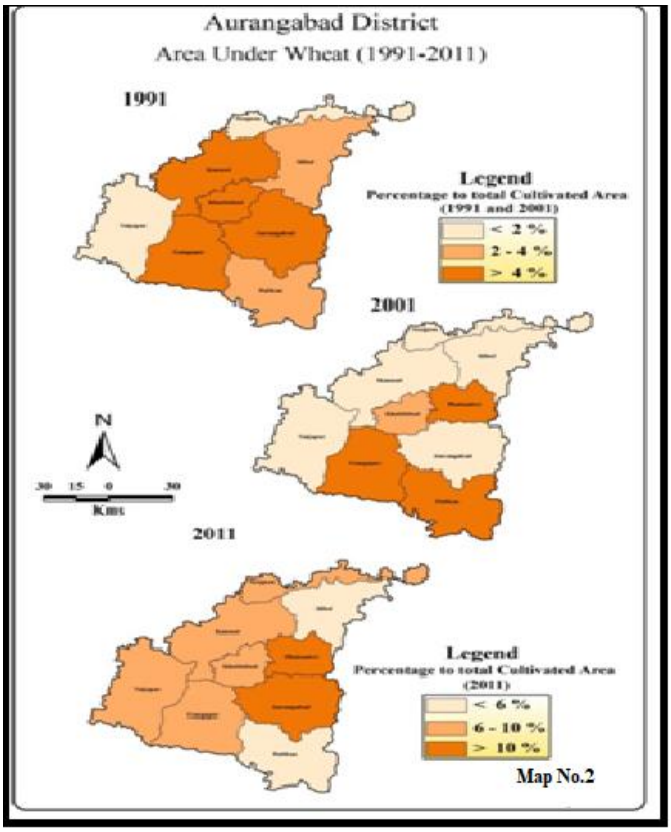
Table No. 1

Aurangabad District: Area under Wheat (1991-2011)

Percentage of Crop to Total Cultivated Area and Percentage of Irrigation to Crop Cultivated Area									
Tahsil	**1991**			**2001**			**2011**		
	Area %	**Irrigated %**	**Non Irrigated %**	**Area %**	**Irrigated %**	**Non Irrigated %**	**Area %**	**Irrigated %**	**Non Irrigated %**
Kannad	5.38	81.89	18.11	1.54	64.49	35.51	9.89	100.00	0.00
Soygaon	1.32	83.61	16.39	1.66	81.99	18.01	9.88	100.00	0.00
Sillod	2.99	100.00	00	1.53	78.99	21.01	5.59	100.00	0.00
Phulambri				6.31	93.40	06.60	13.89	100.00	0.00
Aurangabad	5.37	83.84	16.16	1.38	83.54	16.46	11.14	100.00	0.00
Khultabad	8.89	73.96	26.04	3.54	92.87	07.13	8.12	100.00	0.00
Vaijapur	1.85	95.88	4.12	1.29	64.98	35.02	9.76	100.00	0.00
Gangapur	5.64	57.06	42.44	4.71	87.26	12.74	6.39	100.00	0.00
Paithan	3.66	99.23	0.77	4.19	93.97	06.03	5.08	100.00	0.00
Total	**4.14**	**82.04**	**17.96**	**2.68**	**85.42**	**14.58**	**8.35**	**100.00**	0.00

Source:- Socioeconomic Review of Aurangabad District (1991,2001 2011)

In 1991 Khultabad tahsil (8.89%) was recorded maximum share of wheat cultivation than other tahsils. Soygaon and Vaijapur tahsil found lowest share in the district and it was less than 2% to total cultivation of these tahsils. The 100% wheat cultivation in Sillod tahsil was in irrigation and all tahsil's wheat cultivation was more than 70% irrigation except Gangapur tahsil. Gangapur tahsil had their 57.06% under irrigation in wheat crop.



In 2001 the cultivation of wheat reduced than 1991 and maximum share found in Phulambri tahsil (6.31%). Kannad, Soygaon, Sillod and Aurangabad tahsils observed 1 to 2% cultivation under wheat crop. The irrigation under this crop was more than 75% in all tahsils except Kannad tahsil.

In 2011 wheat cultivation was increased than both previous decades and also irrigation under this crop was found 100%. Phulambri and Aurangabad tahsils found more than 10% cultivated land under wheat crop.

ISSN: 2277-2995
Vol-8-Issue-12-December-2019

Productivity of Wheat Crop:-

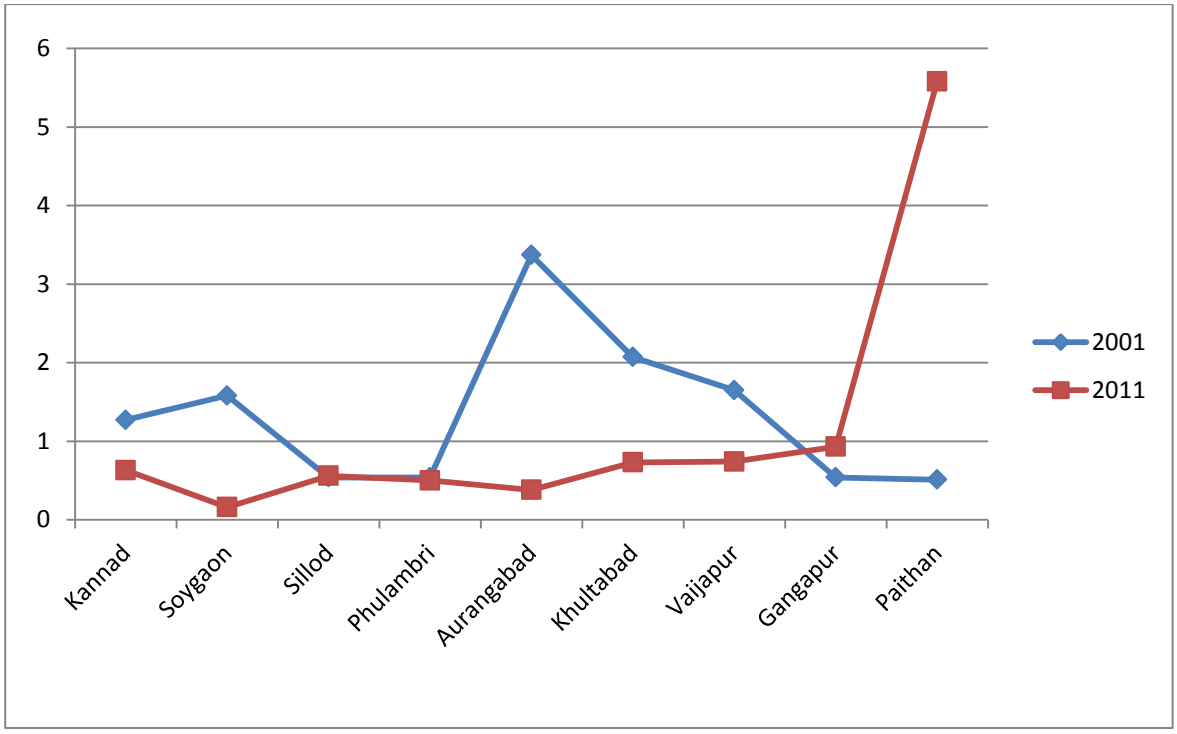
The tahsil wise wheat crop production data of crops is not available for the year 1991 therefore present analysis is based on the data of years 2001 and 2011. The productivity index of wheat crops is calculated by using Mohammad Shafi's method .

Table no 2 shows the productivity index of wheat crop in the year 2001 and 2011.

Table No 2
Aurangabad District: Productivity of Wheat (2001-2011)
Crop Productivity Index by Shafi's Method

Tahsil	2001	2011
Kannad	1.27	0.63
Soygaon	1.58	0.16
Sillod	0.54	0.56
Phulambri	0.54	0.50
Aurangabad	3.37	0.38
Khultabad	2.07	0.73
Vaijapur	1.65	0.74
Gangapur	0.54	0.93
Paithan	0.51	5.58

Source:- Production data is collected from District Agriculture Office, Aurangabad and productivity index is calculated by author



In 2001Aurangabad tahsil had found highest index of wheat productivity and it was found in Khultabad tahsil. Per yield production of wheat was sufficient compare to the cultivation of crop. The index in Gangapur, Paithan, Sillod, Phulambri was less than and other tahsil was found 1 to 2 index.

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Vol-8-Issue-12-December-2019

In 2011 only Paithan (5.58) tahsil found highest productivity index of wheat crop and it was grater than 2001.The productivity of this crop in other tahsil was less than 1 and mostly reduced in all part of the district. In 2011 the cultivation wheat crop and its irrigation was increased but compare to increasing area production was not increased and therefore the productivity was found less than 2001.

Conclusion:-

1. According to total area of irrigation, irrigated area for wheat crop in 1991 is 4.14 %, 2001 is 2.68 % and in 2011is 8.35%. According to research it is concluded that total area for irrigation for wheat crop should be increase.
2. As compare to 1991 to 2001 in 2011the production of wheat crop should be increase and reaches up to 100 % of total irrigation.
3. For the increasing production of wheat crop we have to provide the information of weather condition with the help of weather department before 2 to 3 months to the farmer so that he can manage the seed the crop which is helpful for increase in the wheat crop yield in Aurangabad district
4. According to the study of Phulambri and Aurangabad Tahsil the irrigation area is more for the wheat crop but the income/hector is very less. So these farmer need the information about the temperature, weather condition and guidance from the agricultural officer time to time for increase the yield of wheat crop.
5. According to the study, the remote and hilly places like Ta-Soygaon the crop yield of wheat/hector is very less where temperature plays a important role in these remote and hilly area. For the increasing the yield of wheat crop we have to work out on the texture of the soil , correct information about temperature and also weather condition which is given by the weather department time to time.

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