

## DETERMINATION OF AGRICULTURAL PRODUCTIVITY IN DAUND TAHASIL OF PUNE DISTRICT

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**General Introduction-**This paper is devoted to the production aspect in the study region. Here an attempt has been made to identify crop productivity regions and the factors involved in it. The term 'Productivity' refers to "A ratio of the output to input in relation to land, labour, capital and overall resources employed in agriculture." The term agricultural productivity is both a dynamic and relative concept. The study of agricultural productivity is essential for differentiating and delimiting the areas whose performance and accomplishments are diverse. For determining the productivity levels Enyedi (1964) calculated an index of productivity. Crop productivity is a function of factors like physiography, soil type, rainfall, irrigation etc. The present study aims at computing of crop productivity for Daund tahsil having diversity in soil, local relief and irrigation. The region exhibits rolling plain with local undulations sloping at north. Hillrange passes in east west direction in south. The productivity data, at village level has been collected during fieldwork both on yield and acreage for the selected major crops in selected villages. This data has been utilized to obtain crop productivity for six villages. These villages are representative to entire tahsil. These villages are 1) Koregaon, 2) Tamhanwadi, 3) Kusegaon, 4) Betwadi, 5) Mergalwadi and 6) Watluj, well spread over the region (Fig. 1). The soils and rainfall are considered while interpreting the productivity. Jowar, sugarcane, wheat and bajra crops in these six villages were studied to compute productivity. The productivity index of these crops is shown in Fig. 1 and Fig. 2. Enyedi's method was chosen to compute crop productivity for Daund tahsil because of its accuracy. The spatial distribution of productivity for every crop was computed, mapped and interpreted by Enyedi's Index is given as:

$$\text{Productivity Index} = \frac{Y}{Y_n} \div \frac{T}{T_n} \times 100$$

Where: Y = Production of selected crop in a unit area. Y<sub>n</sub> = Total production of selected crop in entire region.

T = Area under selected crop in a unit area

T<sub>n</sub> = Area under selected crop in entire region.

**Productivity of Jowar-**The spatial distribution of productivity of jowar is shown in Fig. 1. Local topography, soil type and rainfall distribution influence the productivity of jowar. Least productivity is recorded in the central part in the village Mergalwadi (72.7) where soil is coarse shallow to medium black. Jowar is Rabi crop requires less amount of water. It is a drought resistant crop. Village Koregaon and Watluj situated in the north and east shows high productivity i.e. 109.15 and 107.68 respectively. The productivity pattern of jowar has increasing trend toward east and west from central pocket of low productivity (Fig. 1). Variation of soil type, local relief and rainfall changes in productivity in the west and east part.

**Productivity of Sugarcane-**Sugarcane is long duration crop grown in medium black and deep black soil with assured supply of irrigation. The spatial distribution of sugarcane productivity is shown in Fig. 1. The highest productivity of sugarcane is in Watluj (132.260) situated in the eastern part along the bank of river Bhima. Lowest productivity of sugarcane is observed in south and southwest in Kusegaon and Mergalwadi i.e. 66.07. The productivity of sugarcane is increasing in south-north direction. The rugged topography, coarse shallow soil and unavailability of irrigation in the south make less productivity of sugarcane. Towards north and east, productivity increases due to change in soil type i.e. medium black to deep black, introduction of canal, well and river irrigation where region has plain topography gently sloping towards Bhima basin.

**Resume-**Crop productivity is a combined effect of physio-socio-economic factors. Among all crops, the productivity shows increasing trend toward north in study area. It is an indication of development in agriculture sector. In south due to adverse relief condition, coarse shallow soil and non-availability of irrigation leads to low productivity.

**Table- 1: Index of Productivity of Jowar in Daund Tahsil**

Sr.No.	Villages	Area(Hectare)Total	Population (Quintal)	Production (Quintal/Hectare)	Productivity Index
1.	Koregaon	324	12150	37.5	109.15
2.	Tamhanwadi	159	5565	35.0	101.83
3.	Kusegaon	638	23925	37.5	109.14
4.	Betwadi	121	3630	30.0	87.28
5.	Mergalwadi	299	7475	25.0	72.77
6.	Watluj	78	2886	37.0	107.68
	<b>Total</b>	1619	55631	Average 33.7	—

**Table- 2: Index of Productivity of Sugarcane in Daund Tahsil**

Sr.No.	Villages	Area(Hectare)Total	Population (Quintal)	Production (Quintal/Hectare)	Productivity Index
1.	Koregaon	88	110000	1250	110.11
2.	Tamhanwadi	00	00	00	00
3.	Kusegaon	36	27000	750	66.07
4.	Betwadi	72	72000	1000	88.10
5.	Mergalwadi	84	63000	750	66.07
6.	Watluj	126	189000	1500	132.2

**Table- 3: Index of Productivity of Bajra in Daund Tahsil**

Sr.No.	Villages	Area(Hectare)Total	Population (Quintal)	Production (Quintal/Hectare)	Productivity Index
1.	Koregaon	51	1187.30	37.0	105.22
2.	Tamhanwadi	34	1105.0	32.5	92.37
3.	Kusegaon	100	3700.0	37.0	105.19
4.	Betwadi	57	2109.0	37.0	105.20
5.	Mergalwadi	51	1402.5	27.5	78.19
6.	Watluj	44	1650.0	37.5	106.58
	<b>Total</b>	337	11853.5	Average 34.75	—

Source: Computed by Researcher.

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