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Temporal Variation of Agricultural Landuse Patterns in 1960 to 2011 of Sangamner Tahsil of Ahmednagar District (MS)

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Abstract:

The present research paper studies and analyzes the temporal variation of agricultural land use at the macro level in Sangamner tehsil. This study is based on secondary data collected from revenue records and district gazetteer offices. Agricultural landuse was depending on physical, climate, socio-cultural, economic, technological and organizational factors. Endeavour is made to study landuse patterns in Sangamner tehsil of Ahmednagar district for the year 1960-61, this is a normal year for an agricultural phenomenon. The present study represents a real situation of cropping pattern in Sangamner tehsil and helps planners and agricultural scientists for agricultural planning at the village level. In Sangamner tahsil to takes Bajara, jawar, wheat, oilseeds, pulses, vegitables, fodder crops, sugarcane, fruits, maize and rice crops in major crops. Throughout the study period fruits, fodder crops, wheat, sugarcane, maize and rice were increased in area and production while Bajara, jawar, oilseeds, pulses and vegitables were decreased in area and production. The study area changed cropping patterns scenario for food crops to cash crops. The highest decreased the area and production of crops were jawar (-13.56%) and highest increased is fruits crops (8.56%).

Keywords: *Agriculture landuse, Crops, Temporal Variation*

INTRODUCTION:

Describing the various kinds of general landuse in Sangamner Tahsil, it would be useful to explain the agricultural landuse pattern in the area for individual crops to better understand crop growth and pattern. The phrase "Agricultural Landuse" refers to the total amount of gross cropped

land in a given year for various crops. It is the outcome of the farmers' decisions about which crops to plant and how to produce them. As a result, this decision is based not just on physical constraints and limitations, but also on the farmer's overall view of the environment. His impression of the environment is influenced by the quality and nature of the information provided, much of which is based on a traditional approach. Crop growth, output, and changes are reflected in the physical and cultural environment.

The current research paper aims to explain agricultural landuse, growth, and crop pattern about the physio-socio-economic conditions that exist in the tahsil, and to highlight the use of cropland in the context of existing crop ecology, spatial distribution, and farm operation methods, as well as to discuss possible causes for the tahsil's current cropland pattern.

The area under various crops was gathered from the relevant tahsils and converted to a percentage of net sown area, which was then utilised to represent the distribution of particular crops. In the Sangamner Tahsil, the distribution of landuse patterns reveals variances in agricultural landuse. Explanations are supported by the data gathered during the field study. The agricultural landuse patterns were explained using the Ahmednagar District Census Handbook, District Gazetteer, and Socio-Economic Abstract, and analytical expositions on crop patterns were undertaken.

STUDY AREA:

Sangamner tehsil is located in the western part of Ahmednagar district in the state of Maharashtra. The highest peak, as well as temple of this tehsil, is Baleshwar. Baleshwar is located in Harichandra Range 15 km from Sangamner tehsil headquarters. Sangamner is surrounded by Rahata, Rahuri and Kopargaon to the east. Sinner tehsil Nashik District to the North. Akole tehsil to the west. Sangamner tehsil to the south-east, Junner tehsil Pune district to the south. The Tehsil ‘Sangamner’ is located middle part of the bank of Pravara river. This lays between 19°34′ North 19.57° North to 74°13′ East 74.22° East longitude. It has an average elevation of 549 metres (1,801 ft)from mean sea level Sangamner tehsil is located in the western part of Ahmednagar district. Physiography, rainfall, soil, temperature, and drainage influence on agricultural land use pattern in this tehsil The study region covers 135780 hectares of land and has a population of 487939 in 170 villages as per the 2011 Census. Sangamner tehsil is located in the western part of Ahmednagar district. Physiography, rainfall, soil, temperature, and drainage influence on agricultural land use pattern in this tehsil. Rainfall varies between 200 to 225 mms. The underline basalt on disintegration and decomposition brought various agents had yielded three kinds of soils viz. Deep black, deep & shallow Alluvial soils in Pravara, Mhalungi and Adhula river basins. These rivers are the main irrigation source of middle tehsil areas. Including five centres of Revenue circle i.e. Sangamner, Ashwi, Talegaon, Ghargaon and Sakur. The rainfall is mainly due to rain shadow area in terms of the amount of

rainfall average receives 416.6 millimetres in western and middle part of tehsil but southern part of tehsil 102 villages are drought-prone area. Therefore these areas are mostly hilly and unirrigated. The variation in amount of rainfall & type of soil exerts an influence on the cropping pattern of the study region. The major crops namely cereals, cash crops, pulses, oilseeds, cash crops, fruit crops, vegetables, flower and fodder crops are cultivated in Sangamner tehsil.

OBJECTIVE:

To study the temporal variation in agricultural landuse patterns in Sangamner Tahsil Ahmednagar District of Maharashtra.

DATABASE AND METHODOLOGY:

The study is based on secondary data and field observations. Circle wise crop data is obtained from village officers (Talathi) records and Panchayat Samities records in Sangamner tehsil. Topographical maps and survey of India sheets are used for the physiographical study. Landuse data collected from socio-economical abstract and Ahmednagar gazetteer and District Census Handbook in Ahmednagar district referred to collect related information.

AGRICULTURAL LANDUSE PATTERNS:

In the area under consideration, spatial and temporal differences in agricultural landuse patterns have been investigated. The spatial distribution and patterns were investigated, while temporal studies were conducted from 1960-61 to 2010-11. Due to a paucity of data for the relevant tahsils, the researcher was unable to illustrate temporal variations over consecutive years. As a result, for the temporal assessment of agricultural landuse in Ahmednagar district, decadal data was used.

CROPS AND SEASONS:

In Ahmednagar district, there are two agricultural seasons: kharif and Rabbi. Rabbit crops are sown in October or mid-November and harvested in February or March, while Kharif crops are sown in June and July and reaped at the end of October or early November. Rice, bajara, jawar, cotton, pulses, maize, groundnut, and vegetable are Kharif crops, while wheat, rabbi jawar, and gramme are Rabbi Crops.

TEMPORAL VARIATION IN AGRICULTURAL LANDUSE PATTERS:

Due to fluctuations in rainfall volume and the nature of inputs, as well as climatic instability, crop patterns in any location cannot remain static. Furthermore, the introduction of new high-yielding seed types, irrigation facilities, and technical understanding are all factors that influence temporal variations. Cropping patterns vary considerably from circle to circle and region to area. As a result, it was important to investigate discrete causes of change over time and space.

From 1960-61 to 2010-11, Fig.1 depicts the temporal fluctuations in cropping patterns in the Sangamner Tahsil. The key elements of temporal fluctuations in the cropping pattern discovered are given below; Bajara has been prominent in the study area since 2011.

Table 1: Temporal Variation in Agricultural Landuse

(1960-61 to 2010-11) Area in Percentage

Crops	Decades											Total
	1960 - 61	1970-71		1980-81		1990-91		2000-01		2010-11		
	Area	Area	Decr. /Incr.	Area	Decr. /Incr.	Area	Decr. /Incr.	Area	Dec. /Inc.	Area	Decr. /Incr.	
Bajara	52.02	42.16	-9.87	64.12	21.96	62.87	-1.25	62.92	0.05	54.53	-12.97	-2.07
Jawar	23.83	33.93	10.11	10.99	-22.94	7.67	-3.32	10.37	2.70	2.04	-0.11	-13.56
Wheat	1.87	3.39	1.53	2.89	-0.50	3.21	0.32	5.47	2.26	4.86	-1.02	2.58
Oil Seeds	8.62	3.13	-5.50	2.35	-0.78	1.79	-0.56	3.21	1.42	5.08	1.44	-3.97
Pulses	6.65	6.23	-0.42	6.60	0.37	5.71	-0.89	0.31	-5.40	3.27	2.68	-3.66
Vegetables	1.13	1.20	0.08	1.19	-0.02	1.48	0.29	0.22	-1.25	0.15	-0.09	-0.99
Fodder Crops	3.93	4.36	0.43	5.42	1.06	9.72	4.29	8.24	-1.47	10.58	1.45	5.76
Sugarcane	1.51	4.71	3.20	5.50	0.79	6.20	0.70	8.14	1.94	3.93	-4.53	2.10
Fruits	0.12	0.25	0.13	0.35	0.10	0.45	0.10	0.23	-0.22	9.48	8.46	8.56
Maize	0.02	0.05	0.04	0.05	0.00	0.40	0.35	0.49	0.09	3.27	2.51	2.98
Rice	0.19	0.41	0.22	0.35	-0.07	0.16	-0.18	0.08	-0.08	2.60	2.30	2.19
Other Crops	0.12	0.17	0.05	0.20	0.03	0.35	0.15	0.32	-0.03	0.22	-0.12	0.08

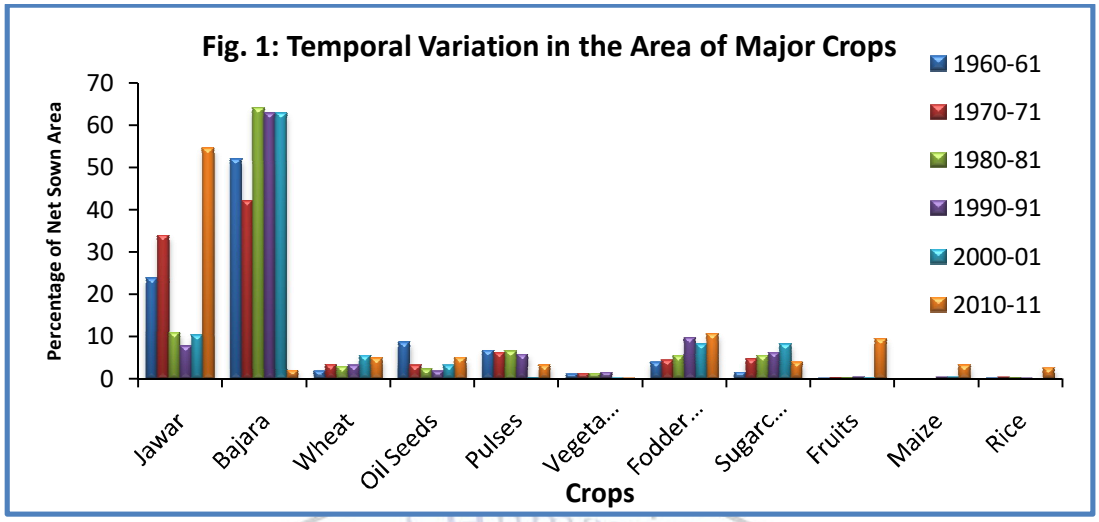
(Source: Revenue Records)

Note: The year 1960-61 is considered as the base year.

Throughout the study period, the area of Bajara had steadily shrunk. From 1960-61to 2010-11, Bajara total drop was -2.07 percent (Table 1). In 1960-61, 52.02 percent of Bajara was planted, while in 1970-71, it was cultivated more than 42.16 percent. The net sown area under Bajara increased from 1980-81 is 64.12 percent. In 1980-81 to 2000-01 area under Bajara is constant but 2000-01 to 2010-11 area and production of Bajara is decreased in 54.53 percent. The adoption of new cropping patterns and seed varieties may play a role in the tahsil's increased Bajara acreage and production.

During the study period, the areas under Jawar decreased. For the following years, there was a growth in the area covered by jawar. In the 1960-61 fiscal year, it observed 23.83 percent. The

cumulative decrease in jawar from 1960-61 to 2010-11 was -13.56 percent, except for 1970-71 when it climbed by 33.93 percent in the district.



Before 2000-01, the tahsil's area under oilseeds had been effectively cultivated on 3.21 percent of the total net sown area. For the following years, there was a decline in the area under pulses. In 2000-01, it was lowered by 1.42 percent. Oilseeds were decreased by -3.97 percent overall from 1960-61 to 2010-11, except for 2010-11, when they climbed by 5.08 percent in the tahsil.

Table 1 reveals that over the study period, -3.66 percent of the net sown area under pulses declined (1960-61 to 2010-11). Table 1 shows that pulses accounted for 6.65 percent of total area in 1960-61, but just 3.27 percent of net sown area in 2010-11. Throughout the study period, the area under pulses has reduced. Table 1 shows that in 1960-61, the area under vegetables was 1.13 percent of net seeded area, and in 2010-11, it was 0.15 percent it decreased -0.99 percent.

Between the study periods, the area under fruits has increased. Fruits had been successfully cultivated on a large scale in the territory until 1960-61 to 2010-11. Fruits area under cultivation increased from 0.12 percent in 1960-61 to 9.48 percent in 2010-11. In 2000-01 the area under fruits decreases. Between the study periods, the total area under fruits increased by 8.56 percent.

The area under fodder crops has grown from 1960-61 to 2010-11. Between the research periods, the total rise was 5.76 percent. In 1960-61, 3.93 percent of fodder crops were planted, while in 2010-11, it was cultivated more than 10.58 percent. The net sown area under fodder crops increased from study periods was 5.76 percent.

Table 1 reveals that over the study period, the net sown area under Maize increased by 2.98 percent (1960-61 to 2010-11). The maize was discovered 0.02 percent area in 1960-61, but increased 3.27 percent to net sown area in 2010-11.

The area under wheat has grown from 1960-61 to 2010-11. Between the study periods, the total rise was 2.58 percent. In 1960-61, 1.87 percent of wheat was planted, while in 2010-11, it was cultivated more than 4.86 percent. The net sown area under wheat highly increased from 2000-01 in

5.47 percent.

After 1960-61, the tahsil rice-growing land had been effectively farmed. Between the study periods, the area under rice cover was inreased from 0.19 percent to 2.60 percent (Table 1). In 1960-61 to 2010-11, the area under rice increased very high, reaching 2.19 percent of the tahsil's total net sown area.

Sugarcane is one of the tahsil's most important economic crops. Up to 1990-91, the area under sugarcane in the tahsil has expanded. Between the study periods, the area under sugarcane increased from 1.51percent to 3.92 percent (Table 1). In the tahsil, the largest area under sugarcane was recorded in 2000-01 (8.14 percent).

Table 1 shows that net sown area under other crops increased by 0.08 percent over the study period (1960-61 to 2010-11). The other crops were found 0.12 percent of the net sown area in 1960-61, but climbed to 0.35 percent in 1990-91, as illustrated in Fig.1. In the tahsil, the area under other crops was increased in 0.08 percent of 1960-61 to 2010-11.

CONCLUSION:

- The temporal variation reflects major changes in the area under wheat, fodder crops, sugarcane, fruits, and other crops with an inceraesd in area and production.
- In the area under Bajara, jawar, oilseeds, pulses and vegetables decreased area and production due to increased demand for other crops such as vegetable, fruits, and fodder milk supply zone in the tahsil.
- The study area changed cropping patterns scenario for food crops to cash crops.
- The highest decreased the area and production of crops were jawar (-13.56%) and highest increased is fruits crops (8.56%).
- The lowest decreased the area and production of crops were vegetables (-0.99%) and lowest increased is other crops (0.08%).
- The area of cash crops increased because the agricultural industries developed such as sugarcane and milk processing industries are developed in these regions.
- The changing cropping pattern is due to the development of irrigation facilities.
- In Sangamner tahsil economic development is proper manners means the use of modern technology of instruments, seeds, organic fertilizers, etc. in agricultural field.

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