Temporal Analysis Of Cropping Practices In Village Savali Of Sangli District

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Abstract
Agricultural crops meet the demands of food supply. The cropping practices are very important aspect because food is one of the basic needs. The local agricultural pattern is very much important as it is associated with regional and further national level. Village is the first administrative unit in planning and decision making process. The national cropping scenario is generated by merging all villages together. Due to various reasons, there might be temporal transformations in cropping practices of a village. Hence regular appraisal of agricultural conditions of a village is essential. Therefore through this paper an attempt is made to comprehend the cropping practices / agricultural landuse of village Savali in Miraj tahsil of Sangli district. This study is mainly based on primary data. The collected data is systematically arranged and analysis, discussion is made on derived results.

I. INTRODUCTION
Agriculture around the world will face tremendous pressure for intensification over the next 50 years. According to United Nations forecasts (2012) the world population will increase by one third from 2013–2050. This will dramatically increase the demand for food. Agricultural cropping practice is a complex process of interaction between the physical input - output relations of the agricultural system and the social and economic milieu of the national economy (Ratnam, 2014). About 60 per cent of the Indian population still dependent on agriculture and it is having significant effect on our economy. Agricultural land use meets the demands of food supply and there might be temporal changes in cropping practices due to several reasons. Village is the first administrative unit in planning and
decision making process. The comprehensive picture of agricultural condition/cropping pattern at nation level is generated from merging all villages together. Hence detail study of agricultural conditions of village is very much important. The countries like China, India and other developing nations are shifting from agrarian to industrial economies; as a result their demand for food, energy and natural resources will increase with rising income (Wu and Li, 2013). In coming day’s micro level agriculture landuse will be having great importance in forming future agricultural policies. Through this paper an attempt is made to comprehend the agricultural landuse of village Savali in Miraj tahsil of Sangli district, Maharashtra.

II. AIM AND OBJECTIVES
The main aim of this paper is to comprehend the agricultural cropping practices of village Savali for one decade. The other related objectives are:

- To study the agricultural crops and its trends in the period of one decade i.e. 1995-96 to 2005-06.
- To depict the parcel level cropping pattern through maps and generate thematic maps to understand the agricultural landuse of village.

III. STUDY REGION
The area selected for the study is village ‘Savali’. This is a small village located in Miraj tahsil of Sangli district within coordinates of 16° 46’ 28” to 16° 53’ 45” North Latitude and 74° 31’ 08” to 74° 40’ 51” East Longitudes which covers 536 hectors area. This village is 7 km’s from Sangli and 6 km’s from Miraj at triangular location near Maharashtra Industrial Development Corporation (M.I.D.C.) sector.

![Figure 1: Location Of study Area](image-url)
IV. DATA USED TO CONDUCT THIS STUDY

This study is carried out with the help of primary data. The agricultural landuse survey is conducted to collect crop data. Parcel wise agriculture landuse is mapped for the base years of the study period i.e. 1995-96 and 2005-06. During these years the personal field visits are made to all agricultural land parcels and checked the taken crops. The data collection task is associated with B.A.-III, Geography students of Willingdon College Sangli. This data is cross checked with the revenue records from Talathi office. The other available reports and census data is used to conduct this study. The Survey of India toposheet, Satellite Image and cadastral map of village is also used for base mapping.

![Figure 2: Survey of India toposheet, Satellite Image and cadastral map of village is also used for base mapping.](image-url)

V. METHODOLOGY

The primary data of parcel level landuse is collected in two phases. During first phase when author was student that time first base year (1997-98) data was collected and for second base year another survey was conducted. During field survey parcel wise cropping data is collected. The cadastral level village map is georeferenced using GIS software. The shape file is prepared for each parcel and cropping attributes are added to respective parcels. Based on the attributes thematic maps of agricultural landuse are prepared for respective
years. The crop wise data is tabulated and graphical representation is made to understand the cropping trend of individual crop. This analysis is used to realize the cropping trends and agricultural landuse status. The interpretation of derived results is carried out and conclusion is made.

VI. RESULTS AND DISCUSSION

Agriculture meets the growing demands for food and fiber. Agriculture supports as a food source for man and his livestock as well as the mode of economy. Due to this there is hidden competition for land around the world and land is utilized by different ways (Wu and Li, 2013).

6.1 Cropping Practices

In an agriculture system the cropping system should provide food for the farmer, fodder for his livestock and also generate cash income. Generally the intensive cropping pattern is adapted when land is limited. The water and labour is playing important role in Indian agriculture system. The sufficient water and cheap labour leads the cultivation of vegetable crops and horticulture cash crops. The crops like grapes, pomegranate required capital, labour, suitable land and weather. Capital intensive crop like sugarcane, banana, turmeric etc. find a space in the cropping system if farmer is well capable from all sides.

Table 1: Agricultural Cropping Practices – 1995 to 2005 (Area in Ha.)

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<tbody>
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<td>1</td>
<td>Jowar</td>
<td>82.35</td>
<td>49.24</td>
<td>75.70</td>
<td>29.20</td>
<td>24.20</td>
<td>23.30</td>
<td>25.30</td>
<td>0.00</td>
<td>34.57</td>
<td>31.11</td>
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<tr>
<td>2</td>
<td>Soyabean</td>
<td>184.33</td>
<td>213.45</td>
<td>139.12</td>
<td>201.20</td>
<td>182.88</td>
<td>189.8</td>
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<td>0.00</td>
<td>197.40</td>
<td>207.63</td>
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<tr>
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<td>Bajara</td>
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<td>0.30</td>
<td>0.00</td>
<td>6.10</td>
<td>2.50</td>
<td>1.40</td>
<td>0.60</td>
<td>2.73</td>
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<td>5</td>
<td>Sugarcane</td>
<td>43.55</td>
<td>45.12</td>
<td>52.00</td>
<td>58.20</td>
<td>63.00</td>
<td>65.20</td>
<td>60.20</td>
<td>7.50</td>
<td>5.68</td>
<td>4.86</td>
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<td>2.10</td>
<td>4.60</td>
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<td>5.15</td>
<td>6.30</td>
<td>5.70</td>
<td>11.70</td>
<td>15.29</td>
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<td>7</td>
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<td>2.10</td>
<td>3.21</td>
<td>6.50</td>
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<td>10.50</td>
<td>11.50</td>
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<td>1.20</td>
<td>0.90</td>
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<td>0.60</td>
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<td>0.80</td>
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<td>7.00</td>
<td>7.40</td>
<td>6.60</td>
<td>4.10</td>
<td>9.28</td>
<td>6.27</td>
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</table>

Source: Based on Survey reports of Village Savali and records of Talathi office (1995 - 2005)

Soyabean and Jowar are the main crops cultivated in the village. The farmers were turned to cash crops as a result the share of cash crop seems increasing. In year 2003-04 due to late monsoon, area under crop was less. Rest of the year the cropping pattern seems quite stable. Figure-2 is showing the toposheet view and satellite view of the village. The satellite view of the village represents open and developing plots at western edge, along MIDC.
border. The Savali village is out of M.I.D.C. as well as Municipal area therefore many new industries, cold storages and habitats have come in to existence.

6.2 Cropping Trends

Cropping pattern is the proportion of area under various crops at a point of as it changes over space and time. The cropping patterns of a region are closely influenced by the geo-climatic, socio-economic, historical and political factors (Hussain, M. 1996). Table -1 represents the area under different crops in the study area. There are about 15 major crops cultivated in the village Savali. Each crop is having up and downs trends due to several reasons.
Figure 3: Trend of individual cropping pattern in period of one decade

Figure 3 is the representation of trend of individual cropping pattern in period of one decade. The use of graphical representation is made with its trend line. The cropping pattern shows that crops like panmala (battle leaves), sugarcane, bajara, groundnuts, etc. is reduced. On the contrary crops like tobacco, grapes, tur, vegetables, etc. are having increasing trend. There are several reasons due to that the cropping pattern is changing like good price to sugarcane, grapes, vegetables, tobacco, etc. Hence the farmers are turning towards these crops. The crops like soyabean and other fruits are quite constant and stable trend because its area is neither increased nor decreased. The red soil suitable for Bajara crop hence earlier it was grown in some patches but that area is now converted in to residential built-up area.

There is no doubt that productivity of different crops increased due to irrigation facilities, advance techniques and intensive agriculture techniques (Goyal and Kumar, 2013). The cropping systems are the cumulative results of past and present decisions by individual farmer, communities or government. These decisions are usually based on experience, tradition, expected profit, personal preferences and resources, social and political pressures and so on. Farming is the prime activity of the residents of village Savali but adjacent MIDC and nearby urban settlement influenced the cropping practices at greater extent.

6.3 Parcel Wise Agricultural Landuse

The spatio-temporal mapping is very much useful for the comparative analysis. Figure 4 represents the parcel level temporal mapping of agricultural crops. The cropping condition of Kharif and Rabi seasons for both base years i.e. first (1995-96) and last (2005-06) is
surveyed and mapped using GIS software. These maps are self explanatory and clearly depict the agriculture landuse conditions.

![Figure 4](image-url)
In Kharif season of year 2005-06 the dominant crop was again Soyabeen but its share is drastically came down and area under groundnut is increased. Also many land parcels practicing grapes cultivation which is a cash crop for long term. In Rabi season of 2005-06 Wheat was the dominant crop and second major crop was Rabi Jowar. The rest of the corps are having very small share among all. But crops like Sugarcane, Vegetables, Battle leaves, etc. have considerable share in the cultivation. In first base year i.e. 1995-96 in Kharif season, the Soyabeen was the major crop cultivated in most of the land parcels (Fig. 4 - A). The newly constructed built-up is also occupied quite big area which is demarcated with brown colour with slanting lines. The share of rest crops is seems pretty less. In Rabi season the dominant crop was Rabi Jowar which is represented with green colour.

In year 1995-96 the crop diversity seems very low where Soyabeen was the only main crop in Kharif season and share of other crops was quite low. At the same time in Rabi season Jowar was dominant one. On the contrary in year 2005-06 the crop diversity seems more for Soyabeen and Jowar. The crops like Grapes, Sugarcane, Groundnut, Vegetables, etc. was cultivated on considerable proportion. It is due to the irrigation facilities, good returns from cash crops and other various reasons. But important thing is that the agricultural landuse posses numerous changes.

VII. CONCLUSION

The regular appraisal of agricultural cropping practices is important because it represents the actual condition of particular time period as well as the changing scenario of that region. In case of general landuse of village Savali the cultivated land is reduced and proportion of open land, roads, built-up area, etc. are increased. The western edge along with MIDC border is converted into developing land. Village Savali is adjacent but out of M.I.D.C and Municipal area therefore many new industries, cold storages and habitat have established in this area.

The cropping pattern shows that crops like panmala (battle leaves), sugarcane, bajara, groundnuts, etc. are having decreasing trend. On the contrary crops like tobacco, grapes, tur, vegetables, etc. are containing up trend. There are several of reasons due to that the cropping pattern is changing the main cause is good returns from cash crops like sugarcane, grapes. In other words the crops like grapes, vegetables, tobacco, tur are getting good price hence farmers are turning towards these crops. Some crops have maintained constant trend i.e. crops like soyabeen and fruits. The base year analysis shows that in year 1995-96 soyabeen and jowar was the dominant crop on the other hand in year 2005-06 multiple crops were cultivated. The graphical representation shows individual trend i.e. up and down. The parcel level mapping is useful for comparative analysis by temporal aspect. Adjacent MIDC sector and nearby urban settlement influenced the cropping practices at greater extent. The positive change is the small land holding farmers are cultivating vegetables which is been sold in nearby urban area and they get fair amount in return. At the same time as negative impact the land under agricultural is decreasing and the share of Non-Agricultural parcels is gradually increasing.
In short village Savali is experiencing change in cropping practices. Change is product of time and it may be positive or negative but its study is useful to take steps accordingly. The increasing share of cash crop and crop diversification is a good sign as far as development of respective village is concern.

VIII. REFERENCES


