



## IMPACT OF RAINFALL ON AREA OF MAJOR CROPS OF SANGLI DISTRICT

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### Abstract:

The present paper deals with the Impact of Rainfall on Area of Major Crops of Sangli District of Maharashtra, in response to last five decades since 1970-71 to 2010-11. The study focused on area under different crops and the average annual rainfall of district, which collected from secondary data sources. Calculated data represented by bar and line graphs. The changes in cropping pattern are depending on rainfall of that particular region. Because growth of crops depending on the rainfall. In 1970-71 out of total agricultural land 82.45% area covered by food crops, but unfortunately area under food crops decrease in 2010-11 i.e. 78.68 % because of land under food crop shifted towards in the commercial crops like sugarcane, cotton, fruits and vegetables. But the area under non-food crops increased i.e. 17.55% in 1970-71 & in 2010- 11 it was 21.23%, due to farmers changes their attitude towards the cash crops because these crops well grown in least work and gives maximum economic benefit than food crops. But there is more demand for different food crops due to increasing population and the demand of food crops is not fulfilment from present agricultural land. That's why its study became necessary.

**Keywords:** Agriculture, Land use, Cropping pattern, Crop intensity.

### Introduction:

Climate is one of the main determinants of agricultural production. Any changes in climate that attributes directly to human activities, that alters the composition of global atmosphere in addition to natural climate variability observed over comparable time periods (IPCC 2007). Since climate factors serve as direct inputs to agriculture, any change in climatic factor is bounded to have a significant impact on cropping pattern and production. This study shows a significant effect of change in climatic condition on area under various crops. Throughout the world there is significant concerned about the effects of climate change and its variability on the agricultural production. Agriculture typically plays important role in the development the economies than the developed world.

This paper an attempt is made to analysis the changes in land use under major crops and its relation with the rainfall of Sangli district. In the last two decades (1990-91 and 2000-01) the scenario of land use and cropping pattern in the district were drastic change will be observed, because of population growth. In 1990-91, out of the total agriculture area 66.71% of agriculture land was under food crops, but in 2000-01 the food crops cultivated area were decrease to 57.41% because most of agriculture land shifted towards commercial crops like sugarcane, oilseeds and vegetables etc. Whereas, in 1990-91 the area under non-food crops is decrease up to 33.29% and it increase up to 42.59% in 2000-01, because agriculture trend change towards the food crops to cash

crops. The cropping pattern of the district has changed towards commercialization due to Variability in annual rainfall, increase in irrigation facilities, transport, communication, market facilities etc. The diversified nature of land use pattern and cropping pattern of the Sangli district has increased the cropping intensity of the land.

### Objective:

This paper aims to evaluate the impact of average annual rainfall on the area under major crops in the Sangli district during 1970 to 2011.

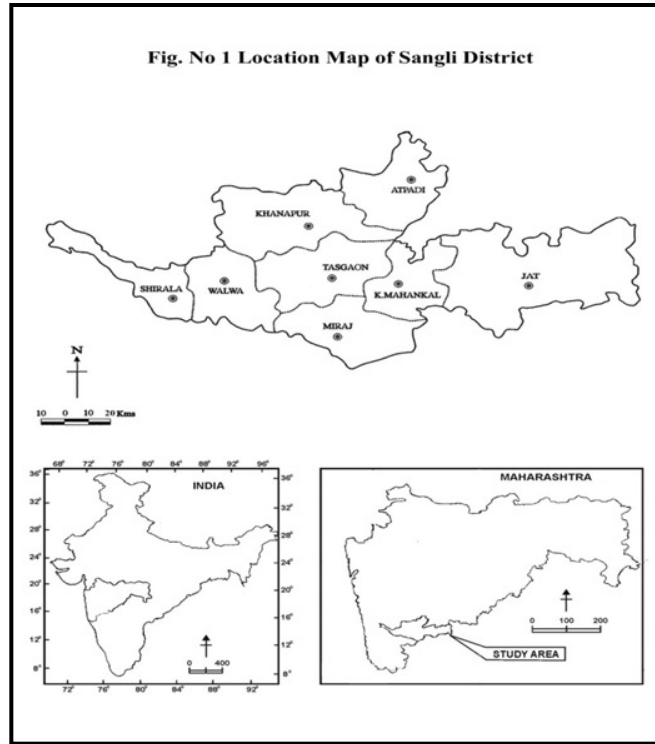
### Database and methodology

The secondary data have been collected from socio-economic abstract of Sangli district for 1970-71, 1980-81, 1990-91, 2000-01 and 2010-11 to analyses the rainfall and area under major crops. Simple graphical method is used to analyse the relation between rainfall and area under crops, in which are shown by bars graph and rainfall by the line graphs.

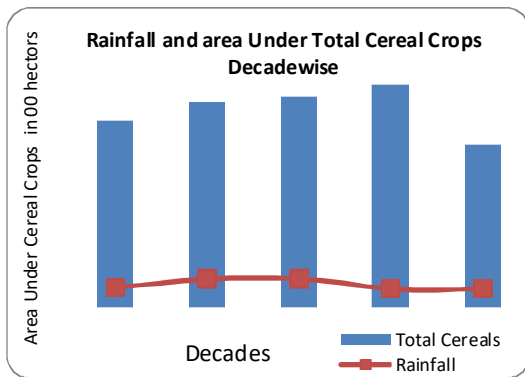
### Study Area

Sangli District is one of the district of Maharashtra states. It is located in the western part of Maharashtra. Sangli District lies between the 16° 45' N to 17° 22' N latitudes and 73° 42' E to 75° 40' E longitudes and it cover 8572 sq.km Area. Sangli city is the district headquarters. It is bounded by Satara and Solapur districts to the north, Bijapur District (Karnataka) to the east, Kolhapur and Belgaum (Karnataka) districts to the south and Ratnagiry District to the west. Sangli district is situated in the river basins of the Warna and Krishna rivers. Other small rivers, such as the Wama and the Panchganga,

flow into the River Krishna.

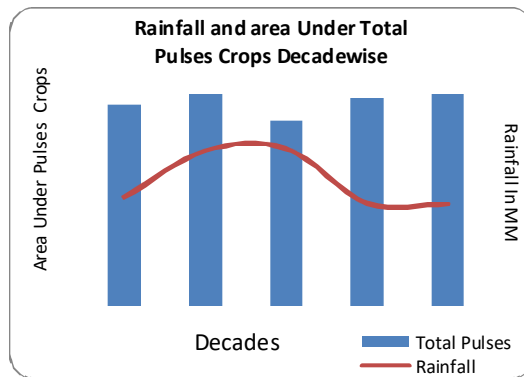


**Impact of Rainfall on Total Cereal Crops:**



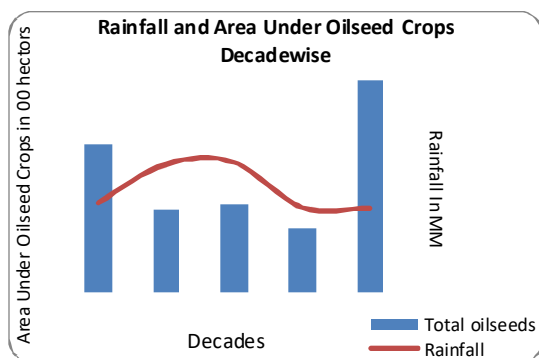
There is no correlation found in the rainfall and the area under total cereal crops. The decrease or increase in the area under total cereal crops is not directly related to the rainfall which received during growing season of the cereal crops. The maximum area under cereals was recorded in the decade 2000-01 while, average annual rainfall was low in this decade. Lowest area under cereals recorded in 2010-11 decade. The variation in area under cereals might be due to the irregular and insufficient rainfall during growing seasons.

**Impact of Rainfall on Total Pulses Crops:**



In the 1970 and 1980 decades there was positive correlation found in the area under total pulses crops and rainfall. But after the 1980 there was no correlation found in it. The maximum area under pulses crops was found in the 1980-81 and 2010-11 decades. There was high average annual rainfall in the 1980-81 with compare to 2010-11. The total area under total pulses crops was found in 1990-91. This variation found mainly due to the changing tendency of farmers towards more cereal crop cultivation than the pulses crops.

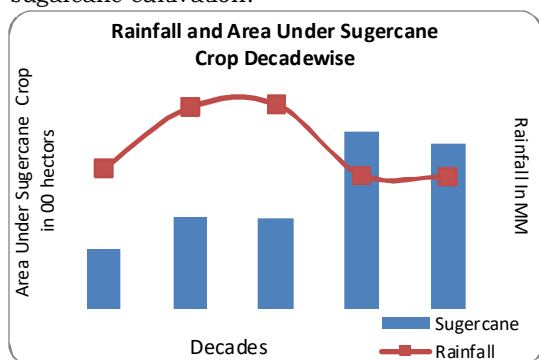
**Impact of Rainfall on Total Oilseed Crops:**



There was not found any kind of relation between the rainfall and the area under oilseed crops. In 1970-71 decade people attracts towards cultivation of oilseeds but after that farmers gave importance to cereal and pulses cultivation. So, the area under oilseeds were reduced. Maximum amount of area under oilseeds were found in the 2010-11 decade. It might be low due to uncertain rainfall during growing season of oilseeds.

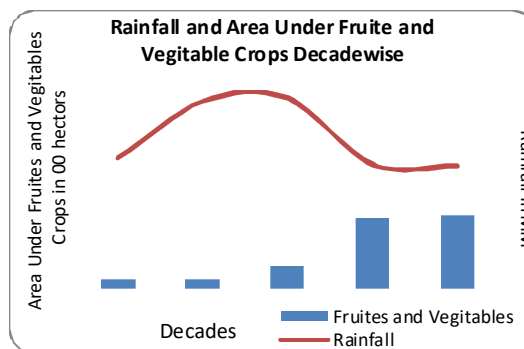
**Impact of Rainfall on Total Sugarcane Crop:**

Sangli district has important district in terms of the sugar cultivation. It is one of the traditional crops in this district but there was no correlation found in the rainfall and area under sugarcane crop. Maximum area was found in the 2000-01. But average annual rainfall was moderate. The area under sugarcane was increased might because of economic propose and it was also possible because lots of farmers attracted towards sugarcane cultivation.



**Impact of Rainfall on Fruit and Vegetable Crops:**

The average annual rainfall of district fluctuating year by year but the trend of the fruit crop cultivation was increasing day by day. Maximum area under fruit crops were found in 2010-11. Sangli district famous for grape cultivation there was another trend of



pomegranates cultivation was emerged in this district. So lots of farmers give their first preference to the fruit and vegetable crop cultivation. This region was also having bigger markets for fruits and vegetables. So, day by day area under fruits and vegetables were increasing in this district.

**Conclusion and Recommendations**

Sangli district is one of the districts of west Maharashtra which is came under the drought prone region. Farmers of this district practices traditional crops. This district suffers from uneven and uncertain rainfall so, in this region agriculture is largely depends on the irrigation facilities. We found very less correlation between the average rainfall and the area under cultivation. But still in this district crops are cultivated in huge quantity just because of farmers of this region more reliable on irrigation than the rainfall. By observing cropping pattern we can conclude that trend of sugarcane, fruit and vegetables cultivation is highly increased.

Various irrigation projects of this region are triggered the cropping area in last several years for example, Aarfaal, Tembhu schemas. Government is also providing funds for motivate farmers to practice various irrigation methods and schemes like drip irrigation, farm pond scheme etc. It is necessary to provide and produce HYV seeds and fruit plants which can survive in less water. It is need of time to conserve more and more water received in time of rainfall and it is used for crops by various methods.

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