



CROP DIVERSIFICATION IN DROUGHT PRONE AREA OF SATARA DISTRICT (MS)

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ABSTRACT:

The Different types of Crop diversification found in drought prone area. Its depend on different irrigation facilities and agricultural new techniques. The others factors are also closely related to crop diversification. Such as rainfall, soil structure, topography, land use and use of fertilizers. The varying physical conditions are responsible for variation in regional pattern of agricultural phenomena. However, the differential degree of combination, demographic, cultural and infrastructural factors are influencing agricultural pattern. Krishna River is a main River in Satara district but this district divided into three Physiographic divisions. First Hilly area with high rainfall, second Krishna river basin and third one is very important for study, low rainfall and rain shadow zone. This area is taken into consideration for crop diversification study. In this zone Manganga and Yerala are the main Rivers but not continuously supplying the water to the agriculture. Drought prone area of Satara District comes under rain shadow region. So the large scale of agriculture depends on the rainfall. However, it is observed and studies the crops diversification in rabbi of study area. It would be beneficial to different discipline to do so.

KEYWORD: *Cropping Pattern, Diversification, drought*

INTRODUCTION:

Crop diversification is an indicator of multiplication of agricultural activities which obviously involve intense competition among various activities for space (Jasbir Singh, 2004). Diversification is an important concept in agricultural land use and it also differs from region to region due to wide homogeneity in agro-climatic regions.

The crop diversification has several changes in cropping pattern in drought prone area of Satara District. In this paper to explain how the changes occurred in crop diversification after develops various modes of irrigation.

OBJECTIVES:

1. To study the cropping pattern and diversification level in the study area.
2. To know the crop diversification in drought prone region of Satara District.

DATA BASE AND METHODOLOGY:

In order to attempt a micro level studies of agricultural change in drought prone area of Satara District. The tahsil places have been chosen as the unit of analysis. However, there are some limitations regarding the circle-wise data availability.

- 1) The secondary data will be collected from District agricultural office and Z.P.
- 2) The secondary data also obtained from various websites and internet etc.
- 3) Statistical methods will be used to the analysis secondary data.

a. Gibbs and Martin's Method for Demarcating Crop Diversification Regions

$$\text{Index of Crop Diversification} = \frac{X^2}{(X)^2} - 1$$

Where X is the percentage of total cropped area under an individual crop.

b. Bhatia's Method for Demarcating Crop Diversification Regions

$$\text{Index of Crop Diversification} = \frac{\text{Total cropped area under X crops}}{\text{Numbers of X crops}}$$

Where 'x' stands for those crops which individually occupy 10 per cent or more of the total cropped area.

c. Singh's Method for Demarcating Crop Diversification Regions

Details of Methods:-

1. Jasbir Singhs Crop diversification:

$$\text{Index of crop diversification} = \frac{\% \text{ of total harvested area under 'N' Crops}}{\text{Numbers of 'N' Crops}}$$

Jasbir Singhs considered the crops which individually occupy 5% or more of the total harvested area. Out of these three methods Jasbir Singhs Crop diversification method is quite suitable for this paper.

STUDY AREA:

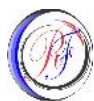
Satara is one of the important District laying in the drought prone area zone of Maharashtra out of the total of eleven Tahsil four tehsils fully and one tahsil partially has been declared the drought prone Tahsil by Government of Maharashtra which have been selected for the present study.

The drought prone area of Satara district is situated between the 17°39' to 18°03' north latitudes and 74° 01' to 74°54' east longitudes. In Satara district summer highest day temperature is in between 33°C to 41°C. Average temp of the study region is 25°C.

RABBI CROPPING PATTERN 2015:

Following table shows the percentage of crops at tahsil level in Rabbi Season

Rabbi Crops	Khatav	Man	Phaltan	Khandala
Cereal crops				
Jawar	71.44	81.57	56.42	63.64
Wheat	8.68	4.01	14.95	9.65
Maize	6.61	7.72	5.35	4.85
Other Cereals	0.1	0	0.54	0
Pulses				
Gram	12.44	5.04	5.27	9.29
Others Pulses	0.27	0.1	0.05	0
Oil seeds				
Sunflower	0.14	0	0	0.03
Safflower	0.02	0.12	0	0
Other Oilseed	0.25	0	0.004	0
Cash Crops				



Sugarcane	0	0.39	17.37	12.5
Total	99.95	99.56	99.954	99.96

(Source: data compiled by the Researcher)

CROP DIVERSIFICATION PATTERN:

A study of changing cropping pattern brings out the proportion of area under different **Rabbi** Crops at a point of time in the study region. The level of Rabbi Crop diversification largely depends on the geo-climate, socio-economic condition and mode of irrigation of the study region. To explain the crop diversification pattern in Study area of Satara district. Index of crop diversification is calculated for selected tahsil and mode of irrigation. The tahsil-wise index of crop diversification for 2015 is shown in following table

Rabbi Crop Diversification Index:

Those crops selected which individually occupy 5% or more of the total harvested area. The drought prone area of Satara district

Sr. No.	Tahsil of Satara District	Crops in Order	No . of Crops	Crop diversification Index
1	Khatav	J, Wh, Mz, Gr,	04	20.90
2	Man	J, Mz, Gr	03	32.33
3	Phaltan	J, Wh, Mz, Gr, Su	05	19.24
4	Khandala	J, Wh, Mz, Gr, Su	05	18.09

(J= Jawar, Wh= Wheat, Mz= Maize, Gr= Gram, Su= Sugarcane)

The pattern of crop diversification is closely related to the socio-economic changes, circle wise classes of crop diversification and magnitude of crop diversification given this table

Crop Diversification Index:

Sr. No.	Name of tahsil	Level of Crop Diversification
1	Man	High = above 30
2	Phaltan, Khatav	Moderate = Between 19 to 29
3	Khandala	Low = below 19

RESULTS AND DISCUSSION:

There are three level of crop diversification index i.e. High crop diversification, Moderate crop diversification and low crop diversification index. In the study area i.e. Man, Khatav, Phaltan and Khandala Tahsil.

High Crop Diversification Index (above 30):

It is shown in Man tahsil because low Rainfall, scarcity of rain and some facilities of irrigation i.e. canal, tank and tube well. As per availability of water farmers are changing the crops and changing the pattern depends on sources of water.

Moderate Crop Diversification Index (19 to 29):

Moderate crop diversification, shown by Phaltan and Khatav Tahsil. Some areas of these have sufficient sources and half of the parts have very low facilities of irrigation so the



moderate crop diversification is found in these area crops like Jawar, Wheat, Maize, Groundnut, Sugarcane and Pulses also cultivated but on small scale.

Low crop diversification Index (below 19):

Low crop diversification is found in Khandala tahsil due to seasonal water supply through canal irrigation seasonal supply of water so farmers are concentrated in single crops one crop dominant in Kharif and another in rabbi Crops.

CONCLUSION:

- 1) The high crop diversification index is mainly found in Man tahsil of Satara District which is marked as a drought prone area due to less Monsoon Rainfall and less irrigation facilities.
- 2) The Moderate crop diversification index is found in Phaltan and Khatav tahsil of Satara district. Surface irrigation facilities are developing in this area Because of availability of canal, deep black soil in this study region.
- 3) Low crop diversification index observed in Khandala tahsil because cropping pattern of this tahsil concentrate on cash crop due to canal irrigation but it is available only in some specific duration of the year

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