



## HARVESTING ARRANGEMENT AND CULTIVATED LAND USE IN MOHOL TAHSIL OF SOLAPUR DISTRICT (MS)

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### ABSTRACT

*The present study is an attempt to analyze the agricultural land use and cropping pattern at macro level in Mohol tahsil. This study is based on secondary data collected from revenue record in both Kharip and Rabbi Crops. Agricultural production influenced by physical socio-cultural, economic technological and organizational factor. Endeavour is made to study crop combination region in Mohol tahsil of Solapur district for the year 2010-2011, this is normal year for agricultural phenomenon. With the help of weavers (1954) technique calculated crop combination. The study region cover 1408.40 hectars land and having population in 104 villages in 252526 as per 2001 Census. Mohol tahsil is located at the eastern part of Solapur district.*

*Physiography, rainfall, soil, temperature, and drainage influences on agricultural land use pattern in this tahsil. Rainfall varies between 200 to 600 mms from east to west entire tahsil. Eight crops have been considered for crop combination analysis. These Cereals (wheat & Cotton), Fruit crops (Chikku, Graps, pampogranate) Vegetables Crops (Onion, Tomato), Flowers Crops (Rose, Mari gold, Mogara) are major crops by computing pattern and using Weavers minimum deviation crop combination in Mohol tahsil has identified eight crop combination.*

*Such type of study represents real situation of cropping pattern in Mohol tahsil and help to planners and agricultural scientist for agricultural planning at village level.*

**KEY WORDS:** Agriculture, Organization, Vegetable, Crop Combination

### INTRODUCTION

Agriculture happens to be the primary activity in India and dairy farming has been considered as a subsidiary occupation. Agricultural land use is the basic structural unit of natural resources. The History of Agriculture in Solapur reveals that famine is of common occurrence from ages due to inadequate and ill distributed rains. Partial and complete failure of both Kharif & Rabi crops result in famine. And as such Solapur District was identified as one of the 72 districts in India's drought prone area. It forms the basis for all biological, human eco activities. Land is an important input in agricultural sector but the yield of agricultural crops mainly depend upon fertility of land for raising different crops, cropping pattern is the central element of agricultural land use. Cropping means the proportion of area under various crops at a point of time.

The cropping pattern is however, a dynamic concept as it changes over space and the time, crops are generally grown in combination in any region & there crops have its relative position in terms of crop combination. Farmers are growing numerous crops in the field rather than single crops. The distributional pattern of crops in any region is an outcome of



predominance of certain crop or combination of crops. This is in term of emergence of typical crop combination. The Statical technique provides accurate technique for the stud of agricultural land use & cropping pattern in the various method have used by scholars, scientist and agricultural scientists. Weaver (1954) has applied least standard deviation technique for computing crop combination regions. This method is based on the comparison of the actual percentage of cropped areas occupied by the different field crops with theoretical distribution.

Thus, the standard deviation is design with crop combination, Raffiullah (1956), doi (1959), thoms (1974), and many others have modified crop combination analysis. In this method, tedious calculation work is avoided by substituting variance or least standard deviation with the sum of square deviation. The deviation of actual percentage from theoretical distribution is taken to formulate the crop combination.

### **STUDY AREA**

Mohol tahsil is located at eastern part of Solapur district in the state of Maharashtra. The famous temple in this tahsil at Vadval is situated in this tahsil, near about 5 km from head quarter Mohol. Mohol is surrounded by N.Solapur to the east. Madha tahisl to the North. Pandharpur tahisl to the west. Mangalwedha tahisl to the south-west, S.Solapur tahisl to the south- east. The study region cover 1408.40 hectares land and having population in 104 villages in 252526 as per 2001 Census. Mohol tahsil is located at the eastern part of Solapur district.

Physiography, rainfall, soil, temperature, and drainage influences on agricultural land use pattern in this tahsil. Rainfall varies between 200 to 600 mm from east to west entire tahsil. The underlain basalt on disintegration and decomposition brought varieties agencies had yielded three kinds of soils viz. Deep black, medium deep & shallow soils. Tahsil is provided with Neera and Man left bank canals. Similarly Sina and Bhogawati are two seasonal rivers at north side of the tahsil. The tahsil is divided into 104 villages as 51 Kharip and 49 villages are as Rabbi season. Including Eight centers of Revenue circle i.e. Penur, Shetphal, Begampur, Narkhed and Anagar.

The rainfall is mainly due to rain shadow area in term of amount of rainfall average receives low rainfall 230 to 330 millimeters, in north, south and eastern part of Tahsil but western part of 16 villages are totally drought prone area. Therefore these villages are mostly unirrigated. The variation in amount of rainfall & type of soil exerts influence on the cropping pattern of the study region. The major crops namely cereals, cash crops, pulses, oil seeds, cash crops, fruit crops, vegetables, flower and fodder crops are cultivated in Mohol tahsil.

### **OBJECTIVE**

To assess the harvest/crop ranking and crop combination region in Mohol Tahsil in Solapur district.

### **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 Mohol tahsil. Topographical maps and survey of india sheets are used for physiographical study. Land use data collected from socio- economical abstract. Mohol tahsil Solapur district, strategic research and extension plan of solapur district and district census handbook in

Solapur district referred to collect related information. Simple statistical method has used to compute the least sum of squared deviation and variance and lowest standard deviation and coefficient of variation analysis (weaver) for cropping in the present study.

### HARVEST DISTRIBUTION

Distribution of irrigated land among different crops is shown in table no-1. total cereals, cereals, cash crops, pulses, oil seeds, cash crops, fruit crops, vegetables, flower are important crops

### CROP RANKING

It is observed that sugarcane and cotton is the leading crops as is grown irrigated land. The next important crop is Soyabean (oilseed) another vegetable, cereals, fruits and flower crops fodder crops, pulses etc. grown by the study region. There is an also the no. of total villages and the area of crops of Kharip and rabbi seasons are indicating in percentage of hectors in annual information cropping data as following.

**Table No 1**

Sr.no.	Crops group	Name of Crops
1	Cereals	Wheat,Bajara,Jowar Maiz etc.
2	Pulses	Tur,mugh,Matati,gram etc.
3	Oilseeds	Groundnuts,soyabin,Karadi,Jawas, etc.
4	Cash Crops	Sugar cane cotton,
5	Fruit crops	Chikku,Pomegranate,grape, lemon,Papai,Mango,sweet Lime etc
6	Vegetable crops	Onion,cabbage,Chilly,Bringle,tomato,Methi,leafyvegetable,garlic etc.
7	Flowers crops	Rose,Jasmine,marigold,mogaara,zendfu etc
8	Fodder crops	Grass –dry and green, etc.

**Source:** Department of Agirculture Mohol, PRENS OF Anagar.

**Table 2**  
**Cropping Pattern in Mohol Tahsil (2010-2011)**

Sr.No	Total Crops group (%)	Kharip season	Rabbi season (%)
1	Cereals	42.54	41.20
2	Fruit crops	16.53	15.20
3	Oilseed	10.62	11.10
4	Vegetable crops	10.03	9.17
5	Cash crops	8.40	7.76
6	Flower crops	5.06	7.28
7	Fodder crops	3.95	4.85
8	Pulses	2.87	3.16
	Total	100	100

**Source:** Tahsil Office Records, Mohol

### CROP COMBINATION ANALYSIS

Recently the crop combination, analysis geographical studies has gained momentum and it's important, it is increasing day by day. Combination studies are fruitful in many ways **firstly**, they provide an adequate understanding of an individual crop geography. **secondaly**, combination is in itself and integrative reality that demand definition and distribution analysis and crop combination regioes are essential for the construction of still more complex stricture of different agricultural region.



According to this method for present study in weavers crop combination (Minimum Deviation Method) and calculating from kharip and Rabbi Seasons and Lowest standard Deviation and Co-efficient of variation formula was selected for this study and analysis from (2010 -2011).The least sum squared Deviation and variance and Lowest standard deviation and Coefficient of variation formula was selected for this study and analysis from (2010-2011) both (Kharip and Rabbi) seasons variance value (table no-3 and fig no-2).

#### MINIMUM POSITIVE DEVIATION WEAVER'S METHOD:

Crop combination is calculated by applying Weaver's method. In 1954 J.C. Weaver has applied least standard deviation technique for computing crop combination of a region.

**The theoretical curve for the standard measurement was employed as follows.**

Monoculture = 100 per cent of the total harvested crop land in one crop.

Two crop combination = 50 per cent in each of two crops.

Three crop combination = 33.3 per cent in each of three crops.

Four crop combination = 25 per cent in each of four crops.

Five crop combination = 20 per cent in each of five crops.

Ten crop combination = 10 per cent in each of ten crops.

**Weaver's the actual formula used was as follows:**

$$d = \frac{\sum d^2}{N}$$

Where, **d** is difference between the actual crop percentages in a given area unit and appropriate in the theoretical curve and **n** is the number of crops in a given combination.

**Table 3**  
**Crop Combination Coefficient Variance Value in Mohol Tahsil**

Sr.No	Crop combination	Name of Crop Groups	Coefficient value, kharip	Coefficient value, Rabbi
1	Monoculture	Cereals	57.45	58.51
2	Two crop	C+F	48.49	50.66
3	Three crop	C+F+o	51.41	51.59
4	Four crop	C+F+O+V	56.92	56.97
5	Five crop	C+F+O+V+Ca	64.888	64.44
6	Six crop	C+F+O+V+Ca+FL	75.63	72.33
7	Seven crop	C+F+O+V+Ca+FL+FO	85.84	81.83
8	Eight crop	C+F+O+V+Ca+FL+FO+P	96.49	91.89

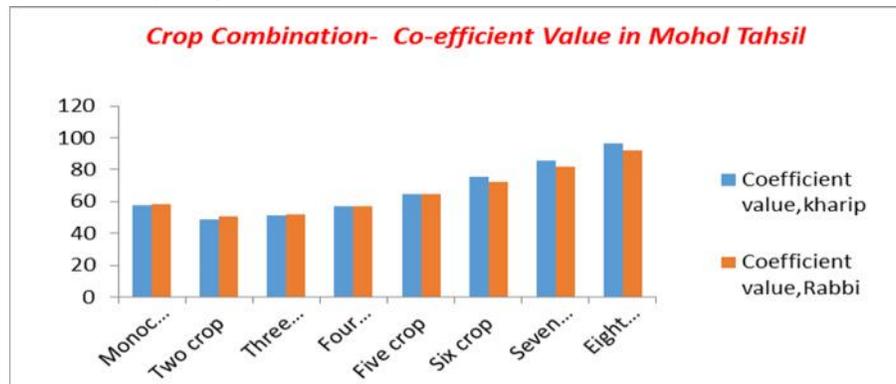
**Source:** Computed by Auther.

**Note:** C=Cereals, F=fruit crops, O= Oilseeds, V=vegetables crops, CA=Cash crops, FL=Flowers crops, FO=Fodder crops & P=Pulses.

The weavers technique is mathematically sound it requires much calculation work (table no 3).Further weaver (1954) himself admits that this technique occasionally tends to show the lowest deviation for a crop combination which includes even a crop occupying as much as one perfect of the total harvested cropland (see table no 3)

The coefficient variation value of present cropping pattern (2010 -2011) in Kharip season in the minimum value is 48.49 shows 2<sup>nd</sup> rank and rabbi seasons is 50.66 also present 2 ranking. So we conclude that both seasons of agricultural year 2010-2011 of Mohol tahsil

has identified 2 crop combination regions. It includes cereals and fruit crops, these crops are indicate 8 crops combination. The village level crop combination to crop of Mohol tahsil has computed in this study. (fig no. 2).



**Fig.no.2**

In this way Mohol tahsil which Five circles Penur,shetphal,Begumpur,Anagar and Narkhedand depend upon the socio-economic and physical conditions are the effect of land use and cropping pattern .With the use of agricultural equipment ,new technologies and are total cropping pattern of the tahsil get totally changed. table no 3 shows combination like cereals,gruits crops oilseeds, vegetables crops, cash crops, flower crops, fodder crops and pulses etc in the tahsil.Its is important to note that conditions owing to geographical condition like soil,climate,have limit the diversification in agricultural productivity. This is reflected in obtained results in the crop combination analysis.

### CONCLUDING REMARKS

In case if ranking of crops first rank in Mohol tahsil is first crops, and cereals crops. Weavers technique has identified two crop combinations in study area. Cereals as a monoculture has found in availability of irrigation facility and oil seed as increasing day by day. All over the part of these tahsil. The attitude of farmers, the crop production, demand for market crop combination grows in fgood production, affects the crop pattern and its changed.Twocrop combination entered fruit and cereals crops. Maiz is most important and leading corp. in all 104 villages, variance is 48.49 and 50.66 both Kharip and rabbi seasons. These crop combination appeared large scale of landlord farmers and the value is 56.92 is in Kharip and 56.97 rabbi seasons in four crop combination. Five crop combinations indicate cereals fruit crops, oilseed, vegetables crops, cash crops. Six crop combinations indicate 75.63 and 72.33 value for Kharip and rabbi season. Seven crops combination variance value in both season 85.84 and 81.83.Lastly, eight crop combination indicate value as 96.49 and 91.89 in both seasons.

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