

AGRICULTURAL LAND USE CROPPING PATTERN IN YAVATMAL DISTRICT

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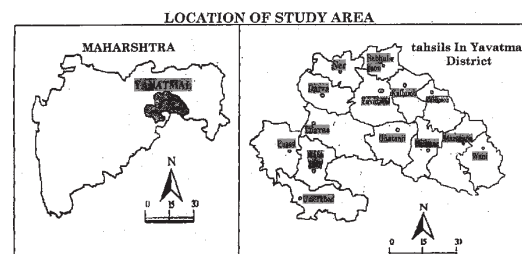
Abstract-In this paper an attempt has been made to analyze the agricultural land use pattern in Yavatmal district this study is based on primary and secondary data collected from revenue records. Agricultural production is influenced by physical, socio-economic, technological and organization factors, an endeavour is made here to study the crop combination regions in Yavatmal district for the year 1981 to 2001, this is 20 year for agricultural phenomenon in the Yavatmal district the crop data has been computed with the help of Doi's method of crop combination the study region covers 13582 sq.km. (4.4%) of the state and a population of 2077144 (2.63%) of the state in 1991 census Yavatmal district. The district consist of masses of hilly country broken by broad valley and partially surrounded by plains the district is occupied by a number of east west ranges the central portion is plateau with very steep sides and attains an elevation of between 300 and 600 meters above the mean sea level. The chief rivers of the district are the Wardha and Painganga rivers. The climate of the district is in general hot and dry with moderately cold winter the most of the total annual rainfall is received during the south west Monsoon Season the rainfall is not uniform in all part of the district. Wani 112.5 mm. Darwha 889 mm. Yavatmal 1099 mm of rainfall in general the amount of rainfall increase as one proceeds from west to east nineteen crops have been considered five crop combination analysis among the Rice, Jowar, Cotton, Tur, Mung, Pulses Oil seeds, vegetables and groundnut are Major crops by computing crop ranks and using Doi's one sheet table fo crop combination in Yavatmal district has identified five crops combination such type of study represents real situation of cropping pattern in Yavatmal district and helps to planners and agricultural scientists for agricultural planning a district level.

Introduction-Crops are generally grown in combination in any region and these crops have its relative position in terms of crop combination farmers are growing numerous crops in the field rather than single crops. The distribution of pattern of crops in any region is an outcome of predominance of certain crop or combination of crops this is in term resultant of emergence of typical crop combination the

statistical techniques provide accurate and scientific results than semi statistical techniques for the study of agricultural land use and cropping pattern various methods have used by scholars, scientists and agricultural scientists weavers in 1954 has applied least standard deviation techniques 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 variance (Sd^2/n) or standard deviation (VSd^2/n) is calculated for all possible crop and regional units is designated with crop combination or combination showing least variance or standard deviation using the same principal least square Raffiullah (1956) Doi (1959) Thoms (1963) Coppock (1964) Sing (1974) and many others have modified crop combination formula. Doi's technique is considered easiest. One for crop combination analyze in this method the tedious calculation work is avoided by substituting variance or least standard deviation with the sum of square deviation (Sd^2) the deviation of actual percentage from theoretical distribution is taken to formula the crop combination.

Study Area-Yavatmal district has lies in the South Western part of Wardha, Painganga plain the district lies between $19^{\circ}26'$ and $20^{\circ}42'$ North latitudes and $77^{\circ}18'$ and $79^{\circ}9'$ East longitudes it is surrounded by Amravati and Wardha district to the North Chandrapur district to the East Andhra Pradesh state and Nanded district to the South and Parbhani and Akola district to the West the district has an area of 13582 Sq.Km (4.41%) of the state. The population of 20,77,144 of



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the 1991 in Yavatmal district are in study region (1991 census) area. The soils of the district are generally black and are mostly derived from the Deccan traps with cover most of the district they are of a uniform. Fine texture and very in colour from black to dark brown they are however slightly inferior in productive capacity to those found in the other district the important cotton growing region in the Wardha basin the soil of the district posses there common defects a mixture of nodular pieces of line stones and sloping surface and excessive admixture of sand. Kelapur and Ghatanji tahsils the soils coarse gravelly or loose friable texture its varies in colour from height brown to gray. Location of Yavatmal district has shown in fig. no. 1.1.

Objectives - To asses the crop pattern and crop combination regions in Yavatmal districts.

Database & methodology-The entire data is used for the present study has been obtained from secondary source. Topographical maps and survey of India sheets are used fro physiographical study. Land use data collected from socio-economic abstract of Yavatmal district and Census Hand books are referred to collect related information. Simple statistical methods have used to compute cropping and crop percentage with considering the advantages

and simplicity of Doi's technique of cropping pattern and combination methods used for crop combination regions in Yavatmal district.

Changing cropping pattern in Yavatmal district- Reviews of changes of cropping pattern suggests the shifts in areas under different crops over a period of time the heterogen city and possibility of obstitution are the two important characteristics of agricultural land. Much deserve special in studies determining to cropping pattern changes theoretically arise from agro-climatic differences existing with the various tahsils of the Yavatmal district. Investigation determines to study of changes in cropping pattern assume special importance in taking cognizance of soil and the crops that could be grown with in a particular environment. Impact of changes in technological, economic and institutional factors. Review of changes in aggregate cropping pattern in the study regions over a period 1981-82 to 1996-2001 is briefly presented in table no. 1.1 the annual average area under different crops and the relative share of gross cropped area has been developed for the cropping pattern table no. 1.1 presents these details of the Yavatmal district with referred by the period 1981-82 to 1996-2001.

Table No. 1.1
Changing Cropping Pattern in Yavatmal District

(Area in hectares)									
Crops	1981-82 to 85-86	1986-87 to 90-91	1991-92 to 95-96	1996-97 to 2000-01	Crops	1981-82 to 85-86	1986-87 to 90-91	1991-92 to 95-96	1996-97 to 2000-01
Rice	10659 (1.22)	7174 (0.83)	7780 (0.82)	5566 (0.67)	Groundnut	16294 (1.86)	14737 (1.71)	8586 (0.91)	5510 (0.66)
Wheat	16965 (1.94)	15883 (1.84)	17372 (1.83)	11861 (1.43)	Sesamum	5789 (0.66)	6396 (0.74)	7543 (0.80)	3974 (0.48)
Jowar	285099 (32.58)	253177 (29.34)	227833 (24.06)	207094 (25.10)	Kardai	410 (0.05)	1243 (0.14)	1455 (0.15)	309 (0.03)
Bajara	11018 (1.26)	9780 (1.13)	11170 (1.18)	6558 (0.79)	Other Oil seeds	8135 (0.93)	1601 (1.11)	11440 (1.21)	604 (0.07)
Other cereals	292 (0.03)	208 (0.02)	203 (0.02)	737 (0.08)	Cotton	407519 (46.57)	417692 (48.41)	453142 (47.84)	459156 (55.66)
Tur	55272 (6.32)	62949 (7.30)	100326 (10.59)	69272 (8.39)	Other fibres	2276 (0.26)	985 (0.11)	497 (0.05)	425 (0.05)
Gram	3662 (0.42)	6717 (0.78)	10797 (1.14)	3124 (0.37)	Sugarcane	2522 (0.30)	4715 (0.55)	10803 (1.14)	8501 (1.03)
Mung	21750 (2.48)	30353 (3.52)	50056 (5.29)	25640 (3.09)	Condiments & Spices	4028 (0.46)	3210 (0.38)	2730 (0.29)	2604 (0.31)
Udid	16008 (1.83)	15353 (3.52)	50056 (5.29)	25540 (3.09)	Fruits & Vegetables	1114 (0.13)	1383 (0.16)	5395 (0.57)	6495 (0.78)
Other pulses	6164 (0.70)	1258 (0.15)	557 (0.06)	3439 (0.41)	Gross cropped Area	875074 (100)	862784 (100)	947091 (100)	824851 (100)

Source: 1) Socio Economic reviews and district statistical abstracts of Yavatmal district. (Fig. in brackets shows the percentages)

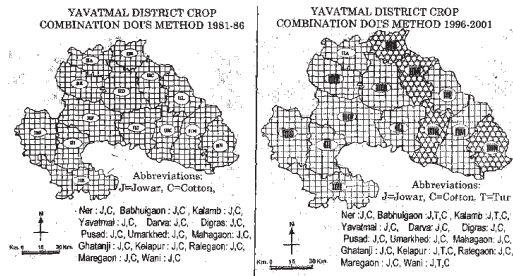
Show the existing overall cropping pattern of the regions and there during 1981-82 to 1985-86 , 1986-87 to 1990-91, 1991-92 to 1995-96 and 1996-97 to 2000-01 cropping pattern means the item of area under various crops at a point of time the region in change. Gross cropped area registered an

Table No. 1.2
Changes in Crop Combination in the Yavatmal District

Tahsil	Crop combination of Doi's method		Tahsil	Crop combination of Doi's method	
	1981-86	1996-2001		1981-86	1996-2001
Ner	02	02	Umarkhed	02	02
Babhulgaon	02	03	Mahagaon	02	02
Kalamb	02	03	Ghatangi	02	02
Yavatmal	02	02	Kelapur	02	03
Darva	02	02	Ralegaon	02	02
Digras	02	02	Mahagaon	02	02
Pusad	02	02	Wani	02	03
			Total District	02	02

Changing Cropping Pattern in Yavatmal District-Show the existing overall cropping pattern of the regions and there during 1981-82 to 1985-86 , 1986-87 to 1990-91, 1991-92 to 1995-96 and 1996-97 to 2000-01 cropping pattern means the item of area under various crops at a point of time the region in change. Gross cropped area registered a decreased gross cropped area substantial have occurred in the cropping pattern of the region period under study spatial variation in the cropping pattern as change up on the physical, socio-economic and technological environments are different from the regions overall generalities there detailed analysis for various agricultural crops in distribution based on five years term averages of 1981-82 to 86 and 1996 – 2001 and changes are found in the various tahsils give the combine effect during the period of investigation.

Combination analysis-According to this method for present study Doi's one sheet table has used for computing crop combination regions and those crops are included whose cumulative percentage is less than the changes in the crop combination regions result from Doi's method during the period of investigation do not show any significant change in Babhulgaon, Kallam, Kelapur and Wani tahsils change was found from three crops and two crops in Ner,



Yavatmal, Pusad, Darva Digras, Umerkhed, Mahagon, Ghatangi, Ralegaon in the combination during the period of investigation (Map no.1.2) Irrigation facilities use of high, yielding seeds and other technological factors are responsible for these changes in study region. It is important to note that the environmental constraints owing to geomorphic situation soils and climate have put the limit on diversified agricultural productivity. This is reflected in the results obtained in the crop combination analysis in the Yavatmal district. Cotton is concentrated on first rank in South and Western and North and central part of Jowar, Cotton and Tur crops combination in Yavatmal district. It is located in the South and North central region in the study area plature, plain region and black, red soil along the stream influences the cropping pattern in this area.

Concluding remarks-(1) During the entire time period 20 years from 1981-82 to 1996-2001 the average gross cropped are increased and decreased all crops time to period of the district. (2) Doi's method has identified two & three crops combination in study region. (3) Cotton crops has highly increased in total district. (4) Jowar crops has highly day by day decreased. (5) In every tahsil under total crops has increased & decreased.

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