Journal of Advances in Science and Technology

Vol. IV, No. VII, November-2012, ISSN 2230-9659

REVIEW ARTICLE

EXISTING LAND USE AND CROPPING PATTERNS OF AGRICULTURE LAND IN MAHARASHTRA

www.ignited.in

Journal of Advances in Science and Technology
Vol. IV, No. VII, November-2012, ISSN 2230-9659

Existing Land Use and Cropping Patterns of Agriculture Land in Maharashtra

Pathrikar Sandeep Radhakisan

Research Scholar, CMJ University, Shillong, Meghalaya, India

----------♦----------

INTRODUCTION

India is an agricultural nation. Seventy per cent of the total Indian population depends up on agriculture.

Agriculture contributes a high share of net domestic product by sectors in India. Farmers are growing numerous of crops in the field rather than single crop. The distributional pattern of crops in any region is an out-come of predominance of certain crop or combination of crops. Cropping pattern in study region has under-gone an evolutionary process. The land use intensification and the expansion of agricultural land at the expense of natural or semi natural vegetation constitute key variables in the cycle of un-sustainability linking degradation of natural resources to demographic pressure. Despite the impressive gains in agricultural production and productivity via crop intensification, the most of the regions are facing problems related to the land degradation due to intensively cropped lands, the over use of ground water, excessive nutrient loads in surface and ground water, and increased pesticide use. Low level of land productivity and subsequent land resources degradation can often be traced to inadequate access to the best or most appropriate knowledge required to overcome local constraints. Providing better information to both technologies and improved land management practices.

The soil and other natural environmental factors, along with the socio- economic factors, affect the cropping pattern in study region. The statistical techniques pro-vide accurate techniques. For the study of agriculture land use and cropping pattern various methods have used by scholar, scientists and agricultural scientists. Weavers in 1954 has applied least standard deviation techniques for computing crop combination region. He demarcated agricultural regions applying statistical method. On the basis of percentage of crops and their associations. His formulation has very simple. First, the percentage of each crop to the total cropped area is determined. Then each percentage is considered against the standard norm and with the help of standard deviation, the right crop combinations determined.

OBJECTIVES

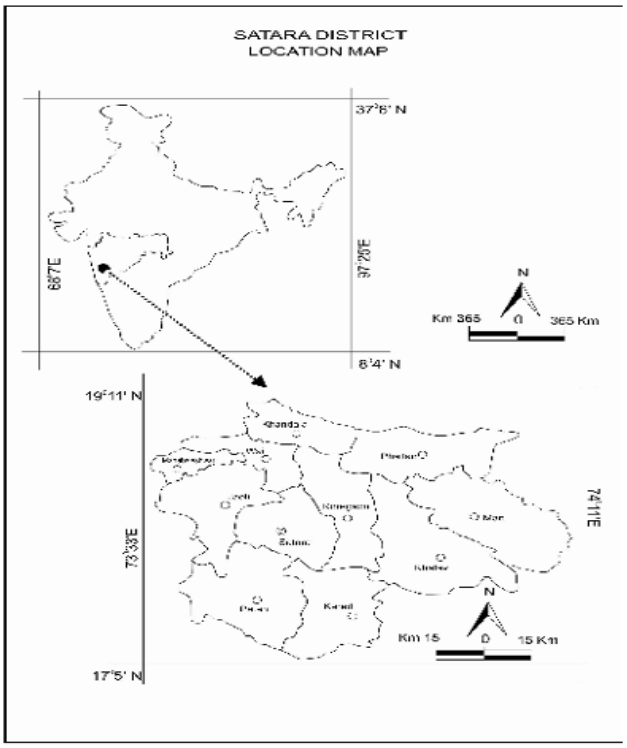
The main objectives of the study are; 1.To analyze the existing land use pattern. 2.To analyze the changes of cropping pattern between the period 1985-86 to 2008-09. 3.To analyze the crop ranking and crop combination regions. 0

DATA BASE AND MEHODOLOGY

The present study is based on secondary data collected through District Stastical Office, Department of Agriculture Satara District, Season and Crop Reports published by the department of Agriculture (1985-86 to 2008-09) Stastical Abstract of Maharashtra, Socio - Economic Review and of Satara District- 2008-09, District census and hand book, Gazetteer Agricultural epitomes, Agricultural statistical information Maharashtra state etc. were also scanned for getting relevant information. For the present investigation, district is selected is as in general and tahsils in particular. Simple statistical method has used to compute crop ranking and Weavers crop combination technique in present study. In order to assess the crop combination, the following formula has been adopted.

Where 'd' is the difference between the crop percent-age in a given country (areal unit) and the appropriate percentage in the theoretical curve and 'n' is the number of crops in a given combination.

? d2
d = -------
n



CONCEPT OF AGRICULTURE LAND USE

Agricultural land use means land under net sown area, fallow land and uncultivable land excluding fallow land. The cultivated area is known as net sown area, which is also known as agriculture land. In short agriculture land use means a cropping pattern means the proportion of area under various crops at a point of time or yearly sequence and spatial arrangement of crops and fallow on a given area. Cropping pattern is dynamic concept as it changes over space and time. The cropping patterns of a region are closely influenced by the geo climatic, sociocultural, economic, historical and political factors. The agriculture land use is the result of the direct application of efforts applied is related to decisions made by farmer regarding the actual use of land. These decisions are based on his appreciation of the available land resources, his responses as conditioned by the knowledge passed from generation to generation and his appreciation of demand for various agriculture commodities in the market. The cumulative effect of farmer's decision regarding the choice of crops, the method of tillage and his appreciation of the land resources is reflected in the spatial as well as temporal variation in agricultural land use.

See Table no 1

Source: Season and Crop Report, 1985-86 to 2008-09 and Agricultural Statistical Information, Maharashtra State.

The area available for agriculture which includes current fallow land increased highly from 14,500 hectares in 1985-86 to 51,000 during 1996-97 and decreased slightly to 32,200 in 2008-09. The land under cultivable waste decreased continuously from 47,800 hectares in 1985-86 to 38,200 hectares in the year 2008-09. In per cent terms, it decreased from 4.52 to 3.61 per cent of total geographical area. This clearly showed that, the area under agriculture has increased over period of time. The area under permanent pastures decreased continuously, where as the land under miscellaneous trees increased over the period of time in the district. The net sown area of Satara district was 5,90,400 hectares in the year 1985-86. In last twenty years, the net sown area of Satara district had decreased by 6.16 per cent over the base year. While the area more than once had increased by 2.87 per cent in the year 2008-09 over the base year 1985-86. It is an indication of intensive use of agricultural land for production in Satara district.

The gross cropped area was 6,95,000 hectares in 1985-86 i.e. 65.68 per cent. It showed a slight increase and reached to 7,06,500 hectares in 1996-97, i.e. 66.76 per cent and got decreased to 6,61,600 hectares in 2008-09, i.e. 62.53 per cent. This showed that, the gross cropped area has decreased over the study region. The intensity of land use efficiency was 119.42 per cent in the year 2008-09 which was 117.72 per cent in the year 1985-86.The area under forest remained more or less while the land under current fallows increased over the study region.

However, there were remarkable changes in the land use pattern of net sown area over the time period. Even though the area sown more than once and gross cropped area has shown considerable change in the district.

CROP COMBINATION

Weaver's method has been admirably accepted for the delineation of crop combination regions as its application result is suitable and accurate grouping of crops. The technique, however, gives most unwieldy combinations for the units of high crop combination. As a result of the application of the Weavers method, ten crop combination regions emerge out in Satara district.

Therefore, the scale of percentage starts from high percentage which is high rank may be first one called monoculture, two or three crop combination and so on.

In both the study periods, Jowar crop is widely grown in the district. In 2007-08 Jowar under kharif and rabi cultivation occupied an area of 64,778 and 1,50,647 acres respectively. Though it is taken through out the district its out turn is concentrated in Phaltan, Koregaon, Man, Khandala, Wai, Patan and Satara talukas. Jowar is taken in kharif as well as in rabi

seasons, medium black to deep black soils on the plane land, lighter soils on slopes and in the eastern part of the district, laterite soils in the hilly region on the western side. In eastern part of Satara district is no guaranteed source of water and rainfall is eastern part of the district is 500 mm., however, the area of Jowar crop is large. (Table:-2)

Table:- 3 shows that area under cultivation of crops in 2007-08. It reveals that the variance in Man, tahsils decreases to 181 in the two crop combination and later on rises to 352 in three crop combination and there from decreases continuously. So that after crossing the value of the form low, attains the lowest variance i.e. 248, in ten crop combination. Similarly, in Khatav tahsils, the variance decreases to 146 in two crop combination, but it increases in three crop (Bajara, Jowar and Wheat) combination. And later on rises to 286 in three crop combination to 298 in four crop (Bajara, Jowar, Wheat and Onion) combination, and there form decreases continuously. So that after crossing the value of the form lowest variance i.e. 202 ten crop combination.

Koregaon tahsils i.e. jowar, gram, bajara, sugarcane, maize, wheat, groundnut, tur, onion and gram crops. Koregaon taluka is located central part of the region in Satara district. Krishna river is the main sources of irrigation. Dhom canals are also available for irrigation. Soil is shallow to deep black soil.

See Table No .2 Source:- Directorate of Economics and Statistics , Maharashtra 2008-09. In Satara district, the cultivation of sugarcane has increased considerably, especially in the Nira, Dhom and Koyna canals. Sugar- cane is always taken as an irrigated crop. Karad taluka comes under seven crop combination. Hence, sugar- cane, jowar, groundnut, rice, wheat, gram, maize crops have come in this combination. Karad taluka is located in Krisna and Koyna river join the together in Karad city. Krishna and Koyna river is the main source of irrigation, which flows from northeast and northwest to south- west. Koyna and Dhom canals are also available for irrigation. Soil is alluvial to deep black.

In the remaining four tahsils Patan, Satara, Jaoli and Wai located in the western part of the Satara district. Rainfall is high so crop combination is variance rice, sugarcane, maize, jowar, wheat, groundnut and fooder respectively. There was Mahabaleshwar tahsils no fourth and fifth crop combination during the year 2007-08. This tahsils the value of variance does not show gradual decline. In these tahsils the variance decreases up to few places from where it increases and then de- creases again so as to surpass even the former de- crease. These talukas belong to the western part of the district, where rainfall is high. Laterite soil are red in colour found in Mahabaleshwar hills and along the whole mountain ranges, comprising the entire koyna valley. At certain places black soils. This only indicates the greater dependence of agriculture on monsoon. Theses talukas are noted for with jowar, sugarcane, groundnut, wheat, maize, maize, gram, bajara, tur, and rice combination. In Mahabaleshwar talukas sugarcane, onion, groundnut is absence strawberry crop is found there. All the above factors affect diversification of crop combination and distribution pattern of crops.

See table no 3 Source:- Compiled by Author.

CONCLUSION

The crop combinational analysis reveals that the irrigational facilities impact on the farmers to grow few number and major crop depending upon the prices in the market and their demand. Jowar is the first ranking crop in Satara district with 41.04 per cent of the total cropped area. Bajara occupy the second place with 12.59 per cent of the total cropped area. Groundnut occupies the third place with 11.60 per cent of the total cropped area in the district. Sugarcane is the fourth ranking crop with 8.58 per cent of the total cropped area. Weaver's method has identified ten crop combinations in study region. Jowar as monoculture has found in Wai, Khandala, Phaltan, Man, Koregaon, Satara and Patan tahsils in study region. Karad taluka comes under seven crop combination. Six talukas shows ten crop combinations because of favorable physical condition and availability of irrigation facilities. Heavy rainfall and hilly area are responsible for producing rice and fodder in Mahabaleshwar, Patan, Jaoli and Karad tahsils. Rice crop is concentrated in western part of the Satara district. Eastern part of the Satara district is the eastern part of the Man, Khandala, Khatav, Phaltan and Koregaon tahsils noted for with jowar, bajara, sugarcane, groundnut, wheat, rice, maize, onion, and gram and tur combination. The problems of agriculture land use planning are envisaged by the ex- tension of agriculture land raising the productivity of land, soil conservation, improved seed pesticides, plant protection and better agriculture implements change in the crop distribution and agro based industries in study region. There- fore, new technologies information and new challenges are key priorities and decision making at the local and regional levels.

Table No-1

International Referred Research Journal, February, 2011 ISSN-0975-3486 RNI: RAJBIL 2009/300097 VOL-I *ISSUE 17

Sr. No.	Particulars	1985-86	1996-97	Percentage change in land use pattern over the base year 1985-86	2008-09	Percentage change in land use pattern over the base year 1985-86
1	Total geographical area	10482 (100.00)	10482 (100.00)	-	10482 (100.00)	-
2	Area under forests	1457 (13.77)	1379 (13.03)	-5.37	1427 (13.49)	-2.06
3	Barren and uncultivable land	863 (8.16)	931 (8.80)	7.88	1236 (11.68)	43.22
4	Land put to non agricultural use	287 (2.71)	277 (2.62)	-3.48	302 (2.85)	5.23
5	Cultivable waste land	478 (4.52)	423 (4.00)	-11.50	382 (3.61)	-20.08
6	Permanent pastures	843 (7.97)	740 (6.99)	-12.20	802 (7.52)	-4.86
7	Land under miscellaneous trees and crops	46 (0.43)	66 (0.62)	43.50	73 (0.69)	58.69
8	Current fallows	145 (1.37)	510 (4.82)	252.00	322 (3.04)	122.07
9	Other fallows	559 (5.28)	553 (5.23)	-1.07	496 (4.69)	-11.27
10	Net sown area	5904 (55.79)	5703 (53.89)	-3.40	5540 (52.36)	-6.16
11	Area sown more than once	1046 (9.88)	1362 (12.87)	30.20	1076 (10.17)	2.87
12	Total cropped area	6950 (65.68)	7065 (66.76)	1.65	6616 (62.53)	2.87
13	Cropping intensity (per cent)	117.72	123.88		119.42	

Table No-2

Tahsils	Rice	Wheat	Jowar	Bajara	Maize	Gram	Tur	Sugar cane	Onion	Ground nut
Mahableshwar	695	290	205	-	15	12	2	-	-	-
Wai	3736	3140	11437	1582	1005	1636	121	1952	377	5662
Khandala	820	2869	15820	10435	650	1225	50	548	460	2265
Phaltan	9	4541	34821	1100	434	836	334	5542	2273	412
Man	27	1428	23959	14972	229	1328	1363	2291	2531	243
Khatav	305	4309	27983	33700	238	2994	1539	3540	3546	2089
Koregaon	308	2700	27565	4352	3111	7868	742	4348	730	1826
Satara	6770	3955	28031	70	1631	1902	1107	4689	2580	16701
Jaoli	8629	2740	13049	-	255	1602	19	1246	206	3369
Patan	14823	5220	19262	41	2150	2954	435	4909	40	17343
Karad	8500	4485	13303	50	2675	3054	742	16000	43	10974
Toatl	44622	35677	215435	66122	12393	25411	6454	45065	12786	60884

Table No-3

Crop combination	Mahabl-eshwar	Wai	Khan-dala	Phal-tan	Man	Khata-v	Kore g-aon	Satar-a	Jaol i	Pata-n	Karad
Monoculture	1848	3307	3023	910	2547	3365	2355	3415	5222	5087	5367
2-crop combination	368	447	218	964	181	146	654	354	773	520	656
3-crop combination	308	204	260	812	352	286	436	227	261	167	129
4-crop combination	414	155	262	817	352	286	436	227	261	167	43
5-crop combination	421	155	263	650	350	281	275	191	125	164	48
6-crop combination	-	203	288	612	358	288	268	213	86	131	91
7-crop cbination	-	179	256	537	315	255	262	190	86	119	83
8-crop combination	-	159	233	488	286	229	247	173	80	115	82
9-crop combination	-	149	216	444	265	214	228	161	74	113	80
10-crop combination	-	143	204	409	248	202	214	155	70	111	78

REFERENCE

1. Chaudrun D.P., R.B. Singh, Deb and A.A. Pirazazy (1991): Land use Sustainability and Agricultural Development in the North West India report Prepared of Ministry of Agriculture Govt. of India.
2. Das M.M. (1981): Land use Pattern in Assam, Geographical Review of India. Vol. 43 No.3 Calcutta pp-43-44.
3. Hussain M. (1970): Pattern of Crop Concentration in Uttar Pradesh, Geographical Review of India, Vol. No. 32 Calcutta.
4. Hussain M. (1972): Crop Combination Regions of Uttar Pradesh, A Study in Methodology, Geographical Review of India, Calcutta. 38/1.
5. Hussain M. (2004): Agricultural Geography, Rawat Publication.
6. Johnston, Bruce F. and J.W. Mellor (1961): The Role of Agriculture in Economic Review. Vol. 5, pp. 566-593.
7. Mankar G.S. (2008): Agricultural Land use Pattern in Mulshi Tehsil, Pune District. The Deccan Geographer Vol. 46, No.1 pp- 85-91
8. Phule S. and A. Badade (2003): A Geographical Study of Land use Change in Marathwada Region, The Deccan Geographer, Maharashtra, Vol. 41, No. 2 pp-41-47.
9. Rayamane A. S.(2001):Changing Land use Profile in Belghum District A Spatio Temporal Analysis, Karnataka. The Deccan Geographer, Vol. 39, No.2, pp- 88-96.
10. Singh B. B. (1967): Land use and Cropping Pattern and their Ranking