Vol 4 Issue 8 Sept 2014

ISSN No : 2230-7850

International Multidisciplinary Research Journal

Indian Streams Research Journal

Executive Editor
Ashok Yakkaldevi

Editor-in-Chief
H.N.Jagtap

Welcome to ISRJ

RNI MAHMUL/2011/38595 **ISSN No.2230-7850**

Indian Streams Research Journal is a multidisciplinary research journal, published monthly in English, Hindi & Marathi Language. All research papers submitted to the journal will be double - blind peer reviewed referred by members of the editorial board.Readers will include investigator in universities, research institutes government and industry with research interest in the general subjects.

International Advisory Board

Editorial Board

Address:-Ashok Yakkaldevi 258/34, Raviwar Peth, Solapur - 413 005 Maharashtra, India
Cell : 9595 359 435, Ph No: 02172372010 Email: ayisrj@yahoo.in Website: www.isrj.org

Indian Streams Research Journal
ISSN 2230-7850
Impact Factor : 2.1506(UIF)
Volume-4 | Issue-8 | Sept-2014
Available online at www.isrj.net

A SPATIO-TEMPORAL STUDY OF SELECTED IRRIGATED CROPS IN WEST KHANDESH REGION OF MAHARASHTRA.

B. D. Patil

Associate Professor, Department of Geography , R.C.Patel Arts, Commerce and Science College, Shirpur Dist-Dhule.

Abstract:-An attempt has been made to see the spatial distribution of few major irrigated crops in study region. In a study region, during the period of triennium 1991-93, irrigated areas under wheat crop was 2.56 percent to gross cropped area meanwhile Sugarcane crop occupied 2.28 percentages of gross cropped area and ranking second amongst irrigated crop. While, during the period 2001-03, occupied 1.30 percent to gross cropped area. However, their spatial distribution differs at tahsil level. Irrigated area under cotton has considerably increased from 1.88 percent during 1991-93 to 5.84 percent of gross cropped area in triennium 2001-03.It is increased by 3.96 percent in irrigated area under cotton of gross crop area in a districts as a whole. Shahada tahsil reported high proportion of irrigated area under cotton during study period. It increases from 3.63 percent during triennium 1991-93 to 26.95 percent in 2001-03, increased by 23.32 percent.

Keywords:*Gross irrigated area, Gross cropped area, Spatial, Temporal, Correlation coefficient.*

INTRODUCTION

In rain fed areas, farmers hardly take any cash crop rather they prefer to grow one crop during the rainy season. In this study area where irrigation facilities are available, the farmer's practices sugarcane, wheat, cotton, groundnuts etc. In case of irrigation crops, the choices are directly governed by the specific purpose for which the irrigation crop are to be grown and these are also conditioned by the geographical factors and modified by the emergent, social and economic circumstances (Mamoria, 1979). After discussion over the agricultural practices and factors associated with it, the study of the cropping pattern is also quite essential. A review of changes in cropping pattern in the study region during the triennium 1991- 93 and 2001-03 is briefly presented here. The average area under different crops in a period of three years and percentage share of each crop to gross cropped area has been considered for analyze cropping pattern at district level.

Study Area

West Khandesh region has comprises by Dhule and Nanadurbar.The total geographical area of Dhule district is 8063 sq km and it lies between 20°38' to 21°61'N and 73°50' to 75°11'E.Nandurbar district lies between 21°00' to 22°03'N and 73°31' to 74°32'E. Total geographical area of the district is 5087 Sq km For the research purpose both Dhule and Nandurbar district have been taken into consideration as a study area. Thereby location of both Dhule and Nandurbar district lies between 20°38' to 22°03'N and 73°47' to 75°11'E, it comprises ten tahsils spreading over an area of 13,150 sq km, which is 4.3% of Maharashtra state.

OBJECTIVES -

The objectives of this research paper are to overview on tahsil wise gross irrigated area and gross cropped area in study area. And selected irrigated crops wise analyze in terms of aerial extension.

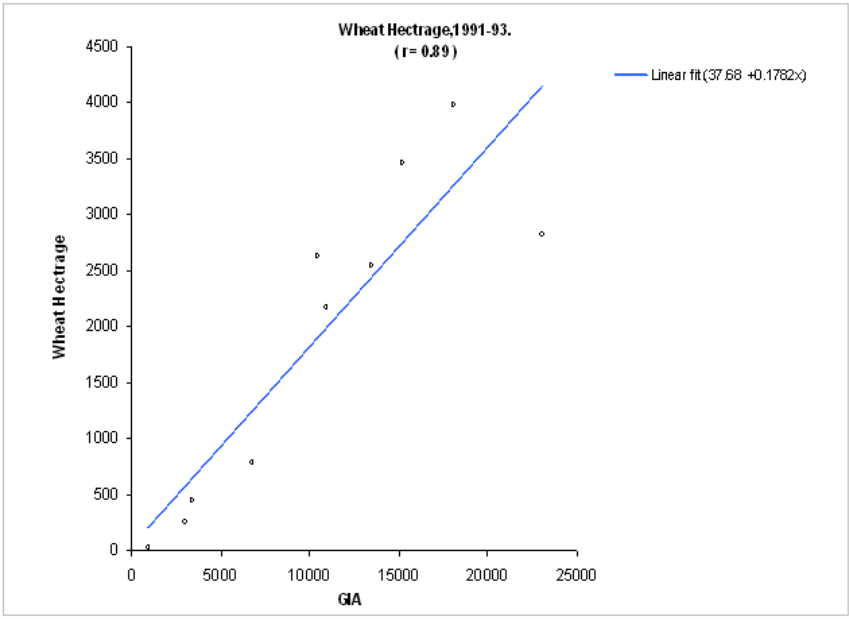
DATABASE AND METHODOLOGY

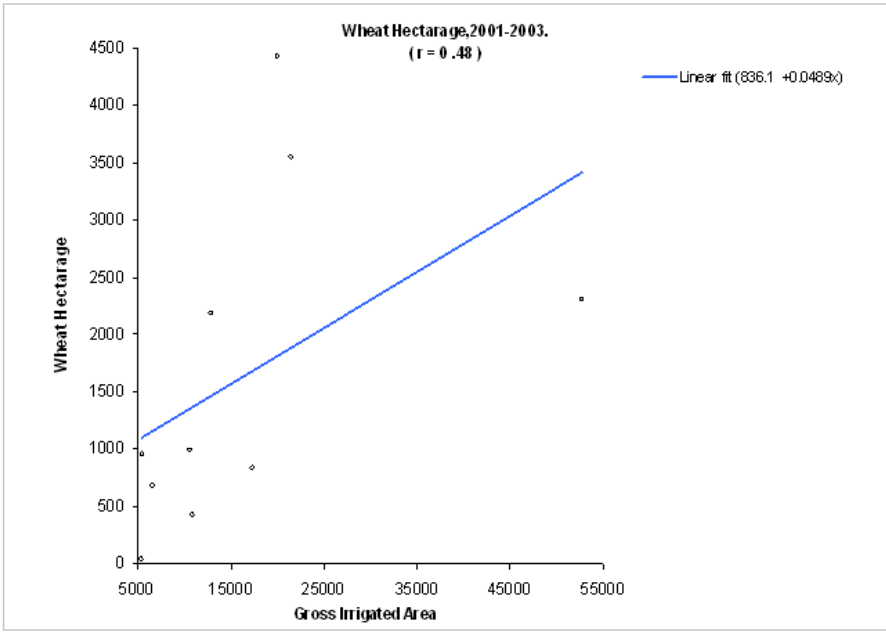
Primary data has not been generated for this study. This study is entirely based on secondary data. A tahsil wise data has been obtained from socio – economic review published by directorate of economic and statistics, Government of Maharashtra. Triennium average is calculated for avoiding seasonal fluctuations [199-93 and 2001-03]. Regression and correlation coefficient has used for data analysis. Only wheat, sugarcane and Cotton crops are considered Following table is reveal Salient features on area under irrigated crops and gross irrigated area [GIA] and gross cropped area [GCA] prepared by available data for analysis.

Tahsil	Cotton		Sugarcane		Wheat		GIA		GCA	
	1991 - 1993	2001-2003	1991-1993	200 1-2003	1991-1993	2001-2003	1991-1993	2001-2003	1991-1993	2001-2003
Dhule	4116	3791	496	265	2551	2185	13473	12970	122983	117810
Sakri	167	1555	3446	848	3987	4431	18096	20024	143150	135717
Nawapur	245	1539	223	556	446	829	3449	17360	47137	52837
Nandurbar	581	489	729	181	2635	955	10467	5519	82094	80422
Taloda	610	418	2049	1504	790	676	6796	6674	25505	24274
Akkalkuwa	108	449	30	26	252	420	2994	10911	39133	38336
Akrani	07	04	00	00	24	32	937	5378	18928	18222
Shahada	3286	22658	7984	3302	2829	2306	23065	52678	90506	84088
Shirpur	2408	8017	1702	2957	3468	3541	15185	21527	75389	83777
Shindkheda	2564	4714	411	75	2177	992	10941	10681	103429	112019
Total	14092	43634	17070	9714	19159	16367	105403	163722	748254	747502

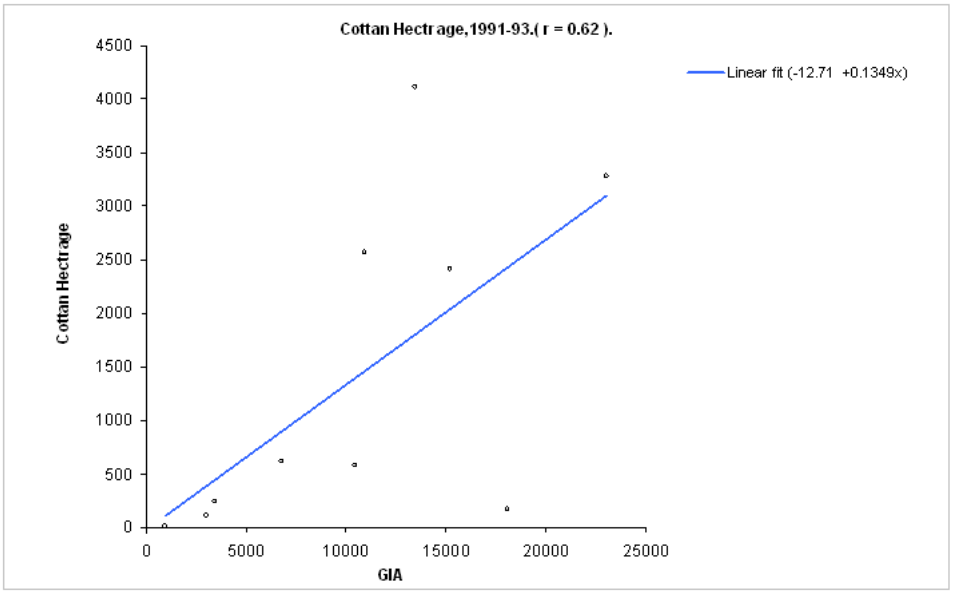
WHEAT

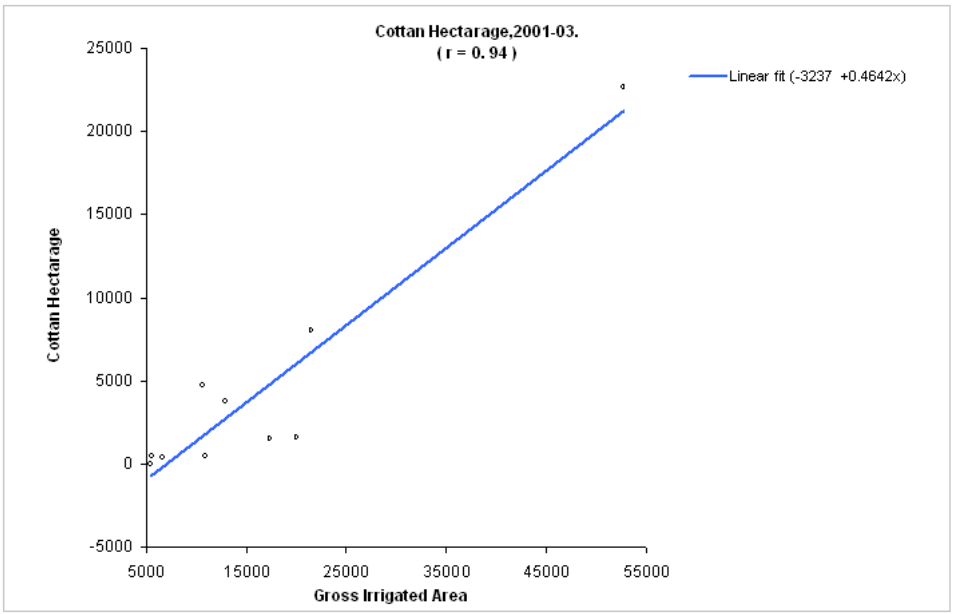
During the period of triennium 1991-93, irrigated area under wheat crop was 2.56 percent of gross cropped area while 2.19 percent during triennium 2001-03.It was marginally decreases by 0.37 percent. Sakri, Nawapur, Akkalkuwa and Akrani tahsils has shown increased in area under wheat crop. During the triennium 1991-93, Shirpur tahsil occupied 4.60 percentage of area irrigated area under wheat crop of gross cropped area, followed by Nandurbar, Shahada and Taloda tahsils occupied 3.21, 3.13 and 3.10 percent area under irrigation of gross cropped area respectively. It is happened due to because of wheat crop required less irrigation. Besides, Dhule, Sakri and Shindkheda Tahsil have showed noticeable presence of irrigated area under wheat crop in the study region. Nawapur, Akkalkuwa and Akrani Tahsil have practices very negligible area under wheat crop. Correlation coefficient between wheat hectarage and irrigated area has amounted r = 0.89.It is positive correlation which statistically significant at 0.05 level. The regression analysis shows the positive correlation between wheat hectarage and gross irrigates area. That means the association between wheat hectarage and irrigated area in the study region. During the period of triennium 2001-03, the values depicted in table 4.9 shows that Shirpur tahsil ranked first among all tahsil with 4.23 percent of irrigated area devoted to wheat crop of gross cropped area.


Wheat Hectrage,1991-93.
(r= 0.89)
Linear fit (37.68 +0.1782x)
Wheat Hectrage
GIA
0
500
1000
1500
2000
2500
3000
3500
4000
4500
0
5000
10000
15000
20000
25000


Wheat Hectarage,2001-2003.
(r = 0 .48)
Linear fit (836.1 +0.0489x)
Wheat Hectarage
Gross Irrigated Area
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
15000
25000
35000
45000
55000

Cotton: Cotton is far the most important commercial crop in the district.

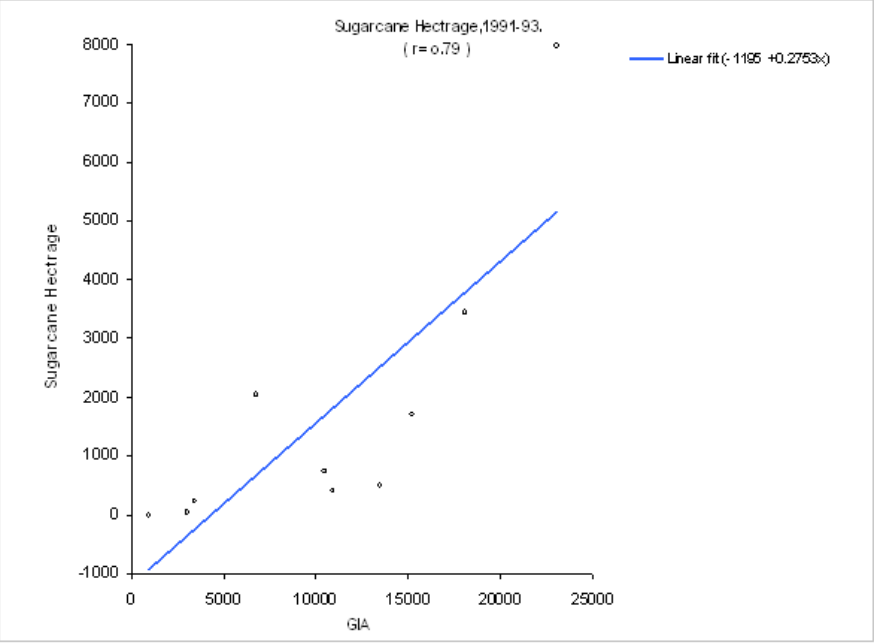


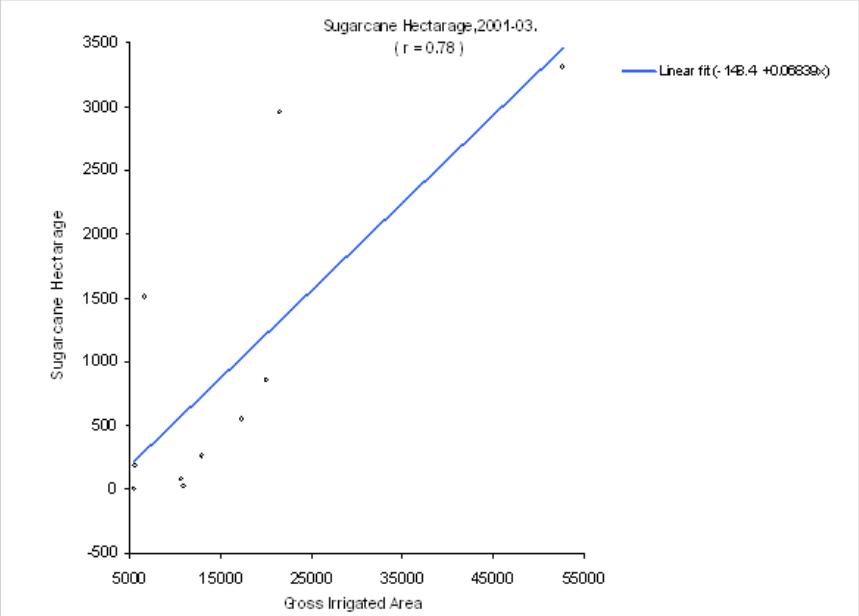


Sakri tahsil ranked second in the district for practicing wheat crop under irrigation facilities, followed by Taloda (2.78%) and Shahada (2.74%) tahsils. Dhule, Nawapur, Nandurbar, Akkalkuwa, Akrani and Shindkheda tahsil reported low proportion of irrigated area under wheat crop. During the period of triennium 2001-03, correlation coefficient between wheat hectarage and gross irrigated area was amounted +0.48, at 0.01 and 0.05 significant level the test was rejected. The regression line shows non-linear growth that means wheat hectarage and irrigated area was not established correlation. It suggest decline in the irrigated area under wheat crop. Sakri, Nawapur, Akkalkuwa and Akrani tahsil has created negligible increase in irrigated area under wheat crop. In the study region the hectarage under wheat has decreased from 19159 hectare during triennium 1991-93 to 16367 hectare during triennium 2001-03.The values summarised in table, suggest that irrigated area under cotton has considerably increased from 1.88 percent during 1991-93 to 5.84 percent of gross cropped area in triennium 2001-03.It is increased by 3.96 percent in irrigated area under cotton of gross crop area in a districts as a whole. Shahada tahsil reported high proportion of irrigated area under cotton during study period. It increases from 3.63 percent during triennium 1991-93 to 26.95 percent in 2001-03, increased by 23.32 percent. Correlation coefficient has witnessed phenomenal growth by establishing strong relationship between irrigated area under cotton and gross irrigated area. The regression line shows linear increase in cotton crop with gross irrigated area.

Sugarcane

It is an industrial crop with acreage of about 4 million hectares in India. It provides employment to over a million people directly or indirectly besides contributing significantly to the national exchequer. The Sugar industry in Maharashtra is highly popular in the cooperative sector, as farmers own a portion in the sugar factories. The Maharashtra Sugar Industry has seen a spectacular growth owing to the different conducive in the state. One of the chief crops manufactured in Maharashtra is sugarcane, with a host of sugar industries been set up over the years. In the present study region has occupied few areas with sugarcane cultivation where the irrigation facilities are available. The values depicted in table suggest that, Sugarcane crop occupied 2.28 percentage of gross cropped area while ranking second amongst irrigated crop during triennium 1991-93.During the period 2001-03, occupied 1.30 percent of gross cropped area. However, their spatial distributions differ at tahsil level.





Only Nawapur and Shirpur tahsil reports increased in irrigated area under sugarcane crop. Shirpur, Shahada and Taloda tahsils has been the major producer of sugarcane. But last few years decreases in area under sugarcane crop. Only Nawapur and Shirpur tahsil has indicate positive change in area under sugarcane. Shahada tahsil has major setback in producing sugarcane crop. It happened due to change in agro climatic condition, depleting underground water, policy of sugar factory, sugarcane productivity and fertility of soil. It is one of the ironies of sugarcane that the crop requires about 2500 mm of water a hectare but it is grown on a vast scale in a region that has an average annual rainfall of 300 to 500 mm.[Down to Earth]Nevertheless, correlation coefficient between sugarcane hectarage and gross irrigated area has obtained r = 0.79 during triennium 1991-93 and r = 0.78 during 2001-03. .The regression line indicates linear growth in irrigated area under sugarcane crop.

CONCLUDING REMARK

Sugarcane, the important cash crop occupies 2.28 percentage irrigated area of gross cropped area. Shirpur, Shahada and Taloda tahsils has been the major producer of sugarcane. But last few years decreases in area under sugarcane crop. Only Nawapur and Shirpur tahsil has indicate positive change in area under sugarcane. Shahada tahsil has major setback in producing sugarcane crop. Irrigated area under wheat in Sakri, Nawapur, Akkalkuwa and Akrani shows positive change during triennium 2001-03 with respect to base period triennium 1991-93. The spatio-temporal analysis of the distribution cotton reveals that, Sakri, Nawapur, Shahada, Shirpur and Shindkheda tahsils recorded high proportion of irrigated area with gross cropped area.

REFERENCES

1.Economic Survey (1991 to 2005) Union Budget and economic survey, Government of India and Maharashtra state.
2.Pawar C. T. (1989): Impact of Irrigation: A Regional Perspective, Himalaya Publishing House, Bombay.
3.Singh, Jasbir. (1976): "An agricultural Geography of Haryana, Kurukshetra, Vishal publications.
4.Socio-Economic Abstract of Dhule and Nandurbar Districts: (1991 to 1994 & 2001 to 2004). Published by Government of Maharashtra.
5.Wilcoxon, F. and Wilcoxon, R. A. (1964):"Statistical Techniques-A Basic Approach to Geography, by S. K. Pal, Tata-MacGraw Hill Publication Co. Ltd., New Dehi, 1982.
6.Pawar, C. T. and Shinde S. D. (1986): Irrigation in Maharashtra:Spatio-Temporal Perspectives, National Geographic Journal of India. 32(2):pp. 105-110.
7.Phule, Suresh and Badade, Abhijit (2003). "A Geographical Study of Land use Changes in Marathawada Region", Maharashtra", The Deccan Geographer, Vol. 41, No. 2 pp. 41-47.
8.Chatterjee, N. (1995): "Irrigated Agriculture", Rawat Publication, New Dehi.

Publish Research Article
International Level Multidisciplinary Research Journal
For All Subjects

Dear Sir/Mam,

We invite unpublished Research Paper,Summary of Research Project,Theses,Books and Book Review for publication,you will be pleased to know that our journals are

Associated and Indexed,India

- International Scientific Journal Consortium
- OPEN J-GATE

Associated and Indexed,USA

- Google Scholar
- EBSCO
- DOAJ
- Index Copernicus
- Publication Index
- Academic Journal Database
- Contemporary Research Index
- Academic Paper Databse
- Digital Journals Database
- Current Index to Scholarly Journals
- Elite Scientific Journal Archive
- Directory Of Academic Resources
- Scholar Journal Index
- Recent Science Index
- Scientific Resources Database
- Directory Of Research Journal Indexing

Indian Streams Research Journal
258/34 Raviwar Peth Solapur-413005,Maharashtra
Contact-9595359435
E-Mail-ayisrj@yahoo.in/ayisrj2011@gmail.com
Website : www.isrj.org