



Inter-Relationship Between Net Irrigated Area and Area Sown More than Once in Dhule and Nandurbar District of Maharashtra - A Geographical Analysis.

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ABSTRACT

The area, which is cropped in winter season during current agricultural year called as area sown more than once (ASTO).A data reveals that 53173 hectares of area was occupied by area sown more than once in during triennium 1991-94, which is 7.11 percent to gross cropped area of study region. After decade, during the period of triennium 2001-03 the area sown more than once is 30597 hectare. It is indicated that the area sown more than once during triennium 2001-04 in the district as a whole was decreased by 3.02 percent as against 1991-93. The land, which is actually cropped under irrigation during current agricultural year, is called net sown area irrigated (NIA). In a district as a whole occupies 72327 hectare of net irrigated area, which was 9.67 percent to gross cropped area during triennium 1991-93. During triennium 2001-03, occupies 106076 hectare area under irrigation facilities, which is 14.19 percent to gross cropped area. It is absolute increased by 4.52 percent.

KEYWORDS

Net Irrigated Area, Inter-relationship, Correlation Coefficient, Area Sown More than Ones, Triennium.

Introduction

Net irrigated area (NIA) is a main parameter to see inter-relationship with area sown more than once (ASMTO).Because of area sown more than once fall into practices when net irrigated area is increased. Mostly, without irrigation facilities agricultural land has not been practices under area sown more than once. Further, the mere fact that a certain area cultivate without applying irrigation facilities were the areas have assured an adequate rainfall. But mostly area under sown more than once has cultivated under irrigation facilities. However, a close association between the net irrigated area and area sown more than once, therefore the data on both variable has become the most important parameter to analyze impact of irrigation on land use pattern, thereby study of area sown more than once is essential. Although, it has been assumed that irrigation have considerable impact on the aerial extent of the area sown more than once.

Objective

The principle objective of this research paper is to find out relationship between area sown more than once and net irrigated area and tahsil wise discussion under said categories of land uses.

Study Area

Dhule and Nandurbar districts falls under Khandesh region of Maharashtra. And 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.

Database and Methodology

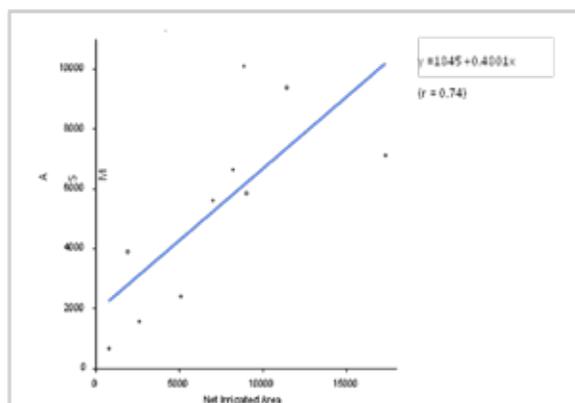
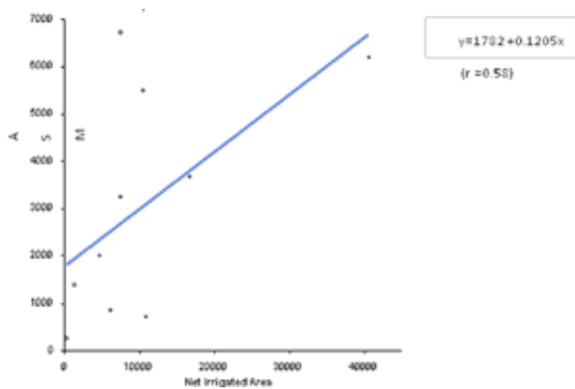
Primary data has not been used for this study. This study is entirely based on secondary data. A tahsil wise data has been obtained from socio – economic review published by directorate of economic and statistics, Government of Maharashtra. Triennium average is calculated for avoiding seasonal fluctuations [199-93 and 2001-03]. Regression and correlation coefficient has used for data analysis. The analysis is based on tahsil level data. The year 1991 considered as a base year. The triennium average calculated for the year 1991-93 and 2001-

03 at tahsil and districts level data regarding land use. With the help of obtained data calculate correlation by Pearson method and regression line. By using both techniques assess of data to achieve result through objectives. Following table indicate Salient features on net irrigated area [NIA] and area sown more than once [ASMTO] prepared through available data for analysis.

Landuse	% of Area Sown More than Once & Net Irrigated Area to Gross cropped Area (District)							
	1991	1992	1993	1991-93 (Average)	2001	2002	2003	2001-03 (Average)
ASM	49782 (8.76)	64788 (8.27)	43549 (6.22)	53173 (7.11)	30159 (4.07)	30276 (4.08)	31361 (4.12)	30597 (4.09)
NIA	67875 (9.19)	77219 (9.91)	70887 (9.88)	72327 (9.67)	108013 (14.58)	111697 (15.04)	98577 (12.98)	106076 (14.19)
GCA	56578 (51.22)*	77866 (54.16)*	69519 (50.72)*	68254 (52.04)*	74100 (51.53)*	74248 (51.62)*	79929 (52.80)*	74500 (51.98)*

Tahsil	1991-93			2001-03			Volume of change 1991-93 to 2001-03
	Area sown more than once	Net Irrigated Area	% of ASM to NIA	Area sown more than once	Net Irrigated Area	% of ASM to NIA	
Dhule	5846	9026	64.77	3243	7510	43.18	- 21.59
Sakti	9377	11435	82.00	5507	10522	52.34	- 29.66
Nawapur	1554	2625	59.25	720	10885	6.61	- 52.64
Nandurbar	5601	7009	79.91	2000	4710	6.80	- 73.11
Taloda	2399	5098	47.10	861	6130	42.46	- 4.64
Alkalkuwa	3906	1937	201.65	1387	1291	107.44	- 94.21
Akrani	635	799	79.47	272	195	139.49	+60.02
Shahada	7119	17326	41.09	6202	40682	15.25	- 25.84
Shirpur	10095	8873	113.77	3686	16726	22.04	- 91.73
Shindhedha	6641	8206	80.93	6719	7425	90.49	+9.56
Total	55173	72327	73.52	30597	106076	28.84	- 44.68
Correlation	r = 0.74 and t value 3.12			r = 0.58 and t value 2.03			

Regression Line (NIA & ASMTO during 1991-93 and 2001-03)



Area Sown More Than Once (ASMTO)

The area, which is cropped in winter season during current agricultural year called as area sown more than once. A statistics from above table reveals that 53173 hectares of area was occupied by area sown more than once in during triennium 1991-94, which is 7.11 percent to gross cropped area of study region. After decade, during the period of triennium 2001-03 the area sown more than once is 30597 hectare. It is indicated that the area sown more than once during triennium 2001-04 in the district as a whole was decreased by 3.02 percent in respect of triennium 1991-93. The data depicted in table 4.2 summarized in fig 4.1 the percentage value of area sown more than once to net irrigated area, reveals that all tahsils have shown decline trend in the area sown more than once to net irrigated area. Only Akrani and Shindkheda tahsils have setup an increasing trend in aerial extension of area sown more than once to net irrigated area. sown more than once. It is happened due to aerial extension in rabbi crop. In these tahsils all crops are grown under rainfed condition resulting increased in are under area sown more than once. It means that the irrigation do not play an important role in the increase in area under area sown more than once. A technique has estimating the equation of a best fit regression line to express the relationship between two variables i.e. x and y. During trien-

num 1991-93, the coefficients of the regression line is 1845 (intercept) and 0.4801 (slope) so that the line has the equation $1845 + 0.4801x$. When the number of priors' increases by one, sentence length increases by 0.4801. It means that if the net irrigated area has increase 5 hectare, area sown more than once increases $1845 + 0.4801 \times 5 = 1847$. It shows linear progress between them. Pearson's correlation coefficient for area has sown more than once with net area irrigated which amounting $+0.74$. The t value for $r = +0.74$ is 3.12 at 0.01 and 0.05 significant level, which is upper than the Critical values of 1.86 and 2.31. That means it is statistically significant, which means established association between net irrigated area and area sown more than once. During triennium 2001-03, although it has been assumed that irrigation has had considerable impact upon the extent of the area sown more than once. Thereafter, Pearson's correlation coefficient of area sown more than once has amounting $+0.58$ with net irrigated area. The t' value for $r = +0.58$ is 2.03 which is statistically significant at 0.01 and 0.05 significant level. Therefore, indicate relationship between net irrigated areas with area has sown more than once. Also the regression line on a set of independent variables shows presence of correlation association. Overall the above study has indicated less influence of application of irrigation facilities in increased in area sown more than once.

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