

International Multidisciplinary
Research Journal

*Indian Streams
Research Journal*

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RNI MAHMUL/2011/38595

ISSN No.2230-7850

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MODERNIZATION OF AGRICULTURE IN MARATHWADA REGION



M.M. Pawar¹ and H.N.Redde²

INTRODUCTION

Modern agriculture relies on adequate and timely supplies of the agricultural inputs. The development of high yielding crop varieties, the improved method of crop fertilization, use of pesticides, tractors, irrigation pump etc. constitute in modern agriculture technology. The adoption of these components has resulted in increase in output. The success of the agriculture modernization depends on factors, such as irrigation, size of farm, capital, price, institutional credit, extension services etc.

Marathwada region is one of the administrative divisions of Maharashtra State. This is known as one of the agriculturally backward region of the state. The large proportion of agriculture is mainly depend

ABSTRACT

Modern Agriculture relies on adequate and timely supplies of inputs of new farm technology. Irrigation happens to be one of the important components of farm technology. It is not only a protective measure, but encourages the use of chemical fertilizers, high yielding varieties and tempo of mechanization etc. In Marathwada Region about 17.76 percent of the total cropped area is irrigated, whereas, state average was 17.91 percent in 2010-11. The cultivated area under high yielding variety seeds was marked 3406 thousand hectares during the year 1992-93, as against 5670 thousand hectares in 2012-13. There is marked 1.66 times increase in area under high yield variety of seeds during the last twenty one year. The pattern of fertilizer consumption is unevenly distributed in the region. During the year 2012-13, the highest share of consumption of chemical fertilizers was noticed in Aurangabad district (23%), while lowest share of consumption of chemical fertilizer was observed in Osmanabad (7%) district. Use of chemical fertilizers increased by 1.97 times during the period of investigation. Mechanization here refers to the number of modern implements being used in agriculture i.e. electric pumps and oil engines, tractors etc.

KEYWORDS : Irrigation, Improved seeds, Fertilizers, Mechanical power.

OBJECTIVES: The Main objective of this paper is to analyze the regional imbalance in the level of agricultural modernization in Marathwada region.

Short Profile

M.M. Pawar is a Research Student at Department of Geography at S.C.S.College, Omerga, Dist.Osmanabad (M.S.).

on vagaries is monsoon rain. The availability of rainfall is the main cause of the development of irrigation. The highest structure of the new farm technology is yet another serious handicap. All its ingredients are market-procured and their cost is substantial and unaffordable for the small and marginal farmers, who constitute over 80% of the total number. Because of limited economic means, which make them more tradition-oriented and power stricken. Recent past, government has supplies agricultural inputs to small and marginal farmers on concession rate. Hence large proportion of farmers is using new farm technology in their field.

¹Research Student , Dept. of Geography , S.C.S.College, Omerga ,Dist.Osmanabad (M.S.)

²Research Guide & Head , Dept. of Geography , S.C.S. College, Omerga ,Dist.Osmanabad (M.S.)

DATABASE AND METHODOLOGY

The present work is based on secondary sources of data for the period 1992-93 and 2012-13. The secondary data is collected from district and state census report, district statistical abstracts, Marathwada region at a glance, some unpublished records, socio-economic reviews of eight district of region.

District is considered as areal unit of the present investigation. In the present context, only irrigation, chemical fertilizers, HYVs and modern agricultural implements have been examined. The collected data was processed and presented in the form column. Cartographic technique is used to show statistical data.

STUDY REGION

Marathwada region situated in the heart

of the Maharashtra State. The region covering an area of 64,724 sq.km., support a population of about 1.87 crore, constituting 16.63 percent of the total population of the state. About 72.88 percent (2011) of the people are living in the villages and more than two-thirds of the workers are engaged in agricultural occupation, such a heavy dependence of people and economy on farming necessitates special consideration of agriculture in the developing planning. From the point of view of performance of agriculture, the region is far behind as compared to western Maharashtra. Yields of crops are low, dragging down the productivity. The situation of high dependency and low performance causes poverty and suicides of farmers.



Fig.No. 1

RESULTS AND DISCUSSION IRRIGATION

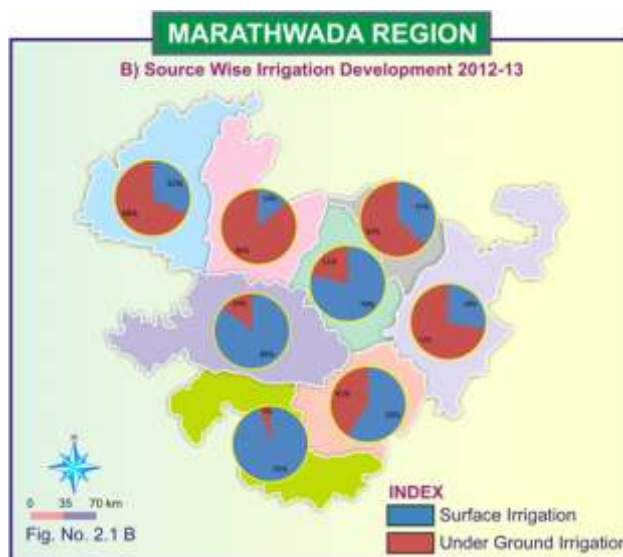
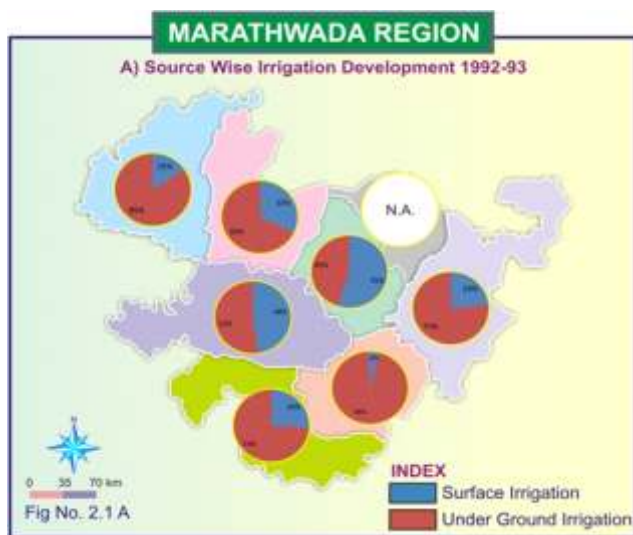
Irrigation is one of the fundamental factors in the adoption of the modern farm technology. Moreover, it saves agriculture from the gamble of rainfall and averts famine and semi-famine conditions. Assured irrigation facilities not only help in increasing productivity, but their availability is a pre-condition for application of modern farm technology.

In the region, there are two main sources

of irrigation i.e. surface irrigation and underground irrigation. The surface sources of irrigation are canal, tanks etc. and under irrigation sources are constitute wells. During the last 21 years, the area under surface irrigation is not been uniform, because this area affected by the amount of rains, which have played hide and seeks with the stare. An account of the areas under two sources of irrigation has been presented in fig. 2 A & B. It is seen from fig. 2 A that is year 1992-93 that gross

irrigated area is the Aurangabad district was 111 thousand hectares. Out of the total irrigated area about 15.31 percent of irrigated area was under surface irrigation and 86.69 percent area under underground irrigation. whereas 31.60 percent and 64.40 percent of total irrigated area was marked surface and under irrigation respectively in the same district during 2012-13. The highest percentage of surface irrigated area was registered in Parbhani (55%) district and lowest in Latur (4.22%) district in 1992-93. The highest percentage of underground irrigated area was experienced the same year. Where Jalna, Beed, Nanded and Osmanabad district were registered surface and underground irrigated area 32.11%, 47.61%, 23.40%, 25.80% and 67.89%, 52.39%, 76.60%, 74.20% respectively during 1992.93.

During 2012-13, highest percentage of surface irrigated area was recorded in Osmanabad (95.16%) lowest in Jalna district (13.79%), while highest percentage of underground irrigated area found in Jalna (86.2%) and lowest in Osmanabad district (4.84%) during the same year.



HIGH YIELDING VARIETIES

High yielding varieties of seed technology is a revolutionary transition from age-old tradition to innovation. Farmers get more profit, if they increase their output per unit area by using high yielding varieties.

Table-1: MarathwadaRegion : Trend of area under HYVs from 1992-93 & 2012-13 (Area in '000' hectares)

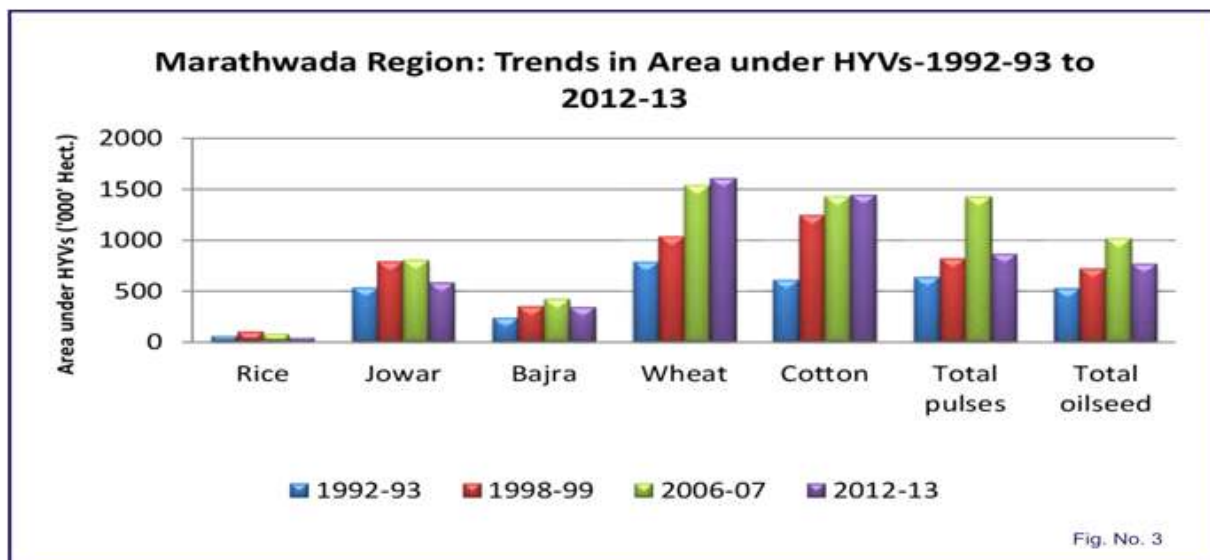
Sr. No.	Year		Major HYVs crops and its share to gross cropped area							Total
			Rice	Jowar	Bajra	Wheat	Cotton	Total Pulses	Total Oilseeds	
1	1992-93	A	60	537	240	790	612	640	527	3406
		P	1.09	9.83	4.39	14.47	11.21	11.72	9.65	
2	1998-99	A	100	791	350	1040	1245	823	723	5072
		P	1.70	13.48	5.96	17.72	21.22	14.02	12.32	
3	2006-07	A	79	805	425	1540	1433	1430	1018	6730
		P	1.06	10.83	5.72	20.73	19.23	19.25	13.70	
4	2012-13	A	40	585	345	1610	1448	870	772	5670
		P	0.70	10.27	6.05	28.26	25.42	15.27	13.35	

Source: Computed by the Author.

(A – Area in thousand hectares, P – Percentage area of the crop under HYVs)

Table 1 reveals that by the end of the 1992-93, area under HYVs was 3406 thousand hectares in the region. Wheat was the first with

14.47% of its area under HYV, followed by total pulses (11.72%), Cotton (11.21%), Jowar (9.83%), Total Oilseeds (9.65%), Bajra (4.39%) and Rice (1.09%). The area under HYVs increased about 1.66 times, from 3406 thousand hectares in 1992-93 to 5670 thousand hectares in 2012-13.

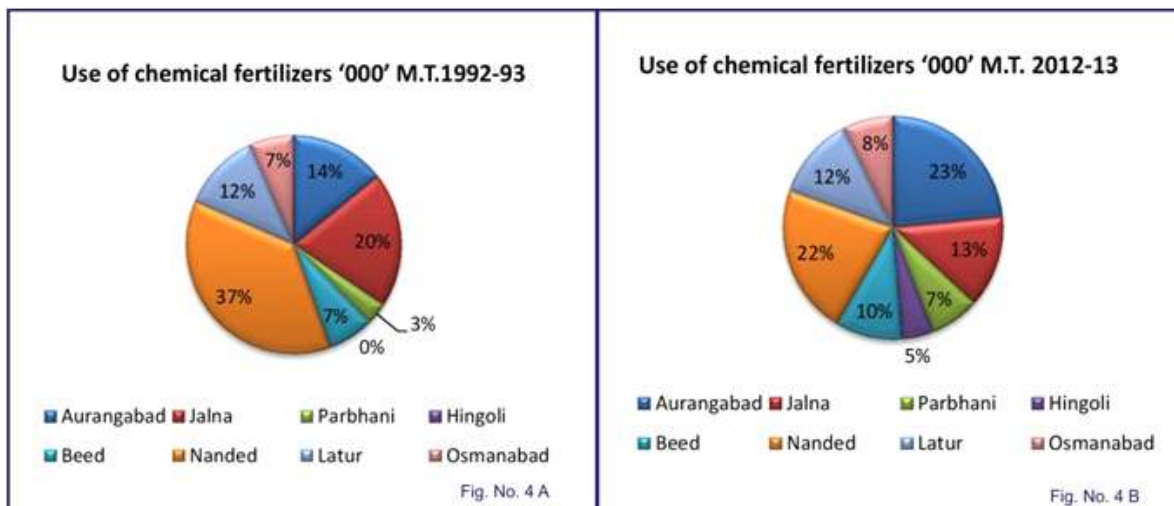


In the year 2012-13, 1610 thousand hectares of wheat cropped land was covered with HYVs. As far as area under HYVs is concerned, cotton stands at second place with 1448 thousand hectares under it in 2012-13. HYVs of pulses are popular in districts of the region. Pulses are the third ranking crops in the region, has 15.27% of its area under HYVs during 1992-93 there was 527 thousand hectares to total oilseed cropped land sown with improved seeds, as against 772 thousand hectares of land under HYVs of same crop in 2012-13(fig.3)

CHEMICAL FERTILIZERS

A fertilizer refers to a material added to the soil, in order to supply chemical elements needed for plant nutrition and to improve soil fertility. There is observed more spatial variation in the use of fertilizer in the region. During 1992-93, the highest share of consumption of chemical fertilizer was registered in Nanded District (37%), while lowest share was noticed in Hingoli

(1.37%). The share of Aurangabad, Jalna, Parbhani, Beed, Latur and Osmanabad districts were marked 14%, 20%, 3%, 7%, 12% and 7% respectively during the same period.



During the year 2012-13, the highest share of consumption of chemical fertilizers was observed in Aurangabad district (23%) followed by Nanded (22%), Jalna (13%), Latur (12%), Beed (10%), Osmanabad (7%) and Parbhani (7%) district. Use of chemical fertilizers increased by 1.97 times during the study period.

IMPROVED IMPLEMENTS

There are many farm implements being used in the region. The agricultural mechanization is the most important indicator of agricultural development, which in turn reflects the socio-economic background of the region. Table -2 reveals that, the density of wooden plough varies from 08/1000 hectares in Beed and Osmanabad district to 42 in Nanded and 40 in Latur district in 2012-13. The mean for the region is 25. There are three district in al with higher density of wooden plough per thousand hectares than the mean for the region. Parbhani (28), Nanded (42) and Latur (40) constitute in this districts. Aurangabad, Jalna, Hingoli districts are second area of high density. There are two districts with density lower than ten plough per thousand hectares of cropped area. The density of iron plough varies from 22/1000 hectares cropped area in Nanded to 48 in Beed district during 2012-13. The mean of the region is 32 iron plough per thousand hectare of cropped area. The higher density of iron plough more than the

mean for the region is marked in Jalna (49) and Beed (30) districts and lower in Aurangabad (23), Parbhani (24), Hingoli (23), Nanded (22) and Latur (32) district during 2012-13. The density of carts/1000 hectares of cropped area is higher in Beed (108) districts and varies between 6 to over 108 carts/ 1000 hectares Table 2 MarathwadaRegion : District wise Density of Agricultural Implements per of cropped area in Hingoli and Beed districts respectively. Number of electric pumps/1000 hectares of cropped area, ranges from 26 in Parbhani to 215 in Aurangabad district. Two districts namely, Aurangabad and Beed with higher density than the mean the region (92). Density of tractors/1000 hectares of cropped area varies from two in Jalna, Latur and Osmanabad district to 09 in Aurangabad district. The mean of these district figures arrives at four. On an average, there are three oil engines per thousand hectares of cropped area. 1000 hectares of cultivated area for 2012-13.

Table-2- Marathwada Region: District-wise Density of Agricultural Implements (per 1000 hectares of cultivated area for 2012-13.)

Sr. No.	District	Wooden Plough	Iron Plough	Electric Pumps	Carts	Tractor	Oil Engines
1	Aurangabad	23	23	215	31	09	02
2	Jalna	19	33	81	19	02	05
3	Parbhani	28	24	26	27	04	03
4	Hingoli	25	23	31	06	04	01
5	Beed	08	48	188	108	06	05
6	Nanded	42	22	77	34	04	02
7	Latur	40	30	65	36	02	02
8	Osmanabad	08	32	48	26	02	02
	Region Average	25	32	92	33	04	03

Source : Computed by Author.

The density is an high as five each in Jalna and Beed and as low as two each in Aurangabad, Nanded, Latur, Osmanabad district during 2012-13.

CONCLUSION

The preceding discussion regarding the farm technology in the study region reveals that, there is wide regional variation in the use of farm technology. The traditional technology is yet using small and marginal farms because of limited economic means, which make them more tradition-oriented and powerlystricken. Aurangabad, Jalna and Nanded districts have high use of modern technology. Commercialisaiton of crops and urban influences have facilitated the modernization of farming in these districts. Whereas the districts like Osmanabad and Beed are for behind in the use of modern farm technology.

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M.M. Pawar

Research Student , Dept. of Geography , S.C.S.College, Omerga ,Dist.Osmanabad (M.S.)

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