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Changing cropping pattern in selected Tahsils of Amravati district-Microlevel analysis

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Abstract

The paper based on study of the changes in cropping pattern in selected tahsils of Amravati district. The present study based on secondary data collected from various government publications and pertains to a period of 13 years i.e. from 2003-04 to 2015-16. The present study has examined the trends in Cropping pattern changes. Simple tabular analysis was used to examine the changes in cropping pattern in area of major crops in selected tahsils of Amravati district i.e. Dharni, Chikhaldara, Bhatkuli, Nandgaon and Tiwasa. In selected tahsils of Amravati district i.e. Dharni, Chikhaldara, Bhatkuli, Nandgaon and Tiwasa, there is existed wide temporal changes in cropping pattern during the study period. Over a period of study the proportion of area under *Kharif* Jowar, Green gram, and Black gram had reduced. The area of Cotton in Chikhaldara, and Nandgaon had reduced but the area of Cotton in Dharni, Bhatkuli and Tiwasa tahsils has increased.

Keywords: Cropping pattern, Amravati, simple tabular analysis

Introduction

Cropping patterns are the yearly sequence of crops grown and the spatial arrangement of crops. It is formulated within view to obtain maximum crop production under a given situation. Cropping patterns are dynamic and changes occur with changes in factors of production and physiological and social environments. Modifications made in cropping patterns are always to drive the maximum benefit from changed crop growing conditions. Indian agriculture has been diversifying during the last two decades towards High-Value Commodities (HVCs) i.e., fruits, vegetables, milk, meat, and fish products. The pace has been accelerated during the decade of 1990s. HVCs account for a large share in the total value of agricultural production. Supply and demand side factors coupled with infrastructural development and innovative institutions drive these changes. India is a country of about one billion people. Due to the challenge of feeding our vast population and the experience of food shortages in the pre-independence era (prior to 1947), 'self reliance' in food grains has been the cornerstone of our policies in the last 50 years.

The rural economy of Vidarbha is basically a crop economy. Through contribution of other sub sector like horticulture, forestry has increased over time, the cropping sector remains the major contributors to the domestic product. With the development of agriculture, cropping pattern has been changed to cope with the changing scenario and to meet the ever-changing demands of growing population. Limited supply of land along with increasing population and declining yield compelled the farmer to search for alternative ways of rising farm income and for sustainability of growth.

Methodology

For the present study, the major food grain and non food grain crops of selected tahsils of Amravati were selected. Selected crops occupied more than 80 per cent of gross cropped area of Amravati district. Thus, present study was confined to major crops with an assumption that excluded crops do not affect cropping pattern and in turn would not vitiate main conclusions of the study

The study is based on secondary data were collected from various published sources. From the year 2003-04 to 2015-16 Time series secondary data on the area of selected crops, farm harvest prices and other agricultural, statistical data were obtained from various publications of Government of Maharashtra. For the present study five tahsils of Amravati district namely Dharni, Chikhaldara, Bhatkuli, Nandgaon and Tiwasa were purposively selected.

Analysis of cropping pattern changes cropping pattern of selected tahsils of Amaravati district were studied by tabular analysis for major crops. Cropping pattern in terms of percentage share of individual crops in gross cropped area will work out at different point of time.

Result and discussion

The changes in the cropping pattern have been examined for selected tahsils of Amaravati district i.e. Dharni, Chikhaldara, Bhatkuli, Nandgaon and Tiwasa. The changes in the cropping pattern were estimated for the Period 2003-2004 to 2015-16 and presented in following Table no.1

Table 1: Changes in cropping pattern in Dharni tahsil (Area in ha.)

Years/crops	2003-04	2006-07	2009-10	2012-13	2015-16	Percentage change Over Base Period
<i>Kh.</i> Jowar	8190 (16.78)	4870 (10.00)	3845 (8.14)	2973 (5.13)	2162 (3.81)	-73.60
Tur	3025 (6.20)	4320 (8.87)	5454 (11.54)	7730 (13.36)	7815 (13.78)	158.34
Green gram	4090 (8.38)	3450 (7.08)	2172 (4.59)	1265 (2.18)	952 (1.67)	-76.72
Black gram	4200 (8.60)	3965 (8.14)	2974 (6.29)	1838 (3.17)	1475 (2.60)	-64.88
Soybean	2200 (4.50)	4720 (9.69)	5000 (10.58)	16136 (27.88)	17522 (30.90)	696.45
Cotton	18000 (36.89)	24130 (49.55)	24150 (51.13)	23621 (40.62)	23850 (42.07)	32.50
Other	9080 (18.61)	3239 (6.65)	3637 (7.70)	4295 (7.42)	2913 (5.13)	-67.91
Gross Cropped Area	48785 (100)	48694 (100)	47232 (100)	57858 (100)	56689 (100)	16.20

(Figures in the parenthesis are per centages over gross cropped area)

It is observed from the Table 1. that, In Dharni tahsil, Cotton, Soybean and Tur were major crops during the study period. The proportion of area under Cotton crop was 36.89 per cent in 2003-04 and in 2015-16, it was 42.07 per cent, indicate that increasing area under cultivation of Cotton. Next to Cotton, Soybean was the emerging important crop of the tahsil, shown increasing area in last thirteen years from 4.50 per cent in 2003-04 to the 30.90 per cent in 2015-16. The area under Tur was ranges in between 6.20 to 13.78 per cent, indicate the increasing area of Tur cultivation in study period. Proportion of area under *Kharif Jowar*, Green gram, Black gram and other crop has declined to 16.78, 8.38, 8.60, 18.61 per cent in

2003-04 to 3.81, 1.67, 2.60, 5.13 per cent in 2015-16. Significant changes in gross cropped area were observed in the Period of study.

The above result revealed that the highest per cent changes in the area was found in the Cotton and Soybean crops i.e. 36.89 and 4.50 per cent to 42.07 and 30.90 per cent the base Period from 2003-04 to 2015-16. The area of *Kharif Jowar*, Black gram and Green gram have been shifted to Soybean and Cotton. There is positive changes over base period in Tur is 158.34 per cent, Soybean 696.45 per cent and Cotton 32.50 per cent.

Table 2: Changes in cropping pattern in Chikhaldara tehsil (Area in ha.)

Years/crops	2003-04	2006-07	2009-10	2012-13	2015-16	Percentage change Over Base Period
<i>Kh.</i> Jowar	8250 (13.49)	4063 (6.18)	2650 (4.05)	1530 (2.33)	1056 (1.80)	-87.20
Tur	6740 (11.02)	4800 (7.31)	4206 (6.42)	3251 (4.96)	1530 (2.61)	-77.29
Green gram	8139 (13.31)	6590 (10.03)	2470 (3.77)	2570 (3.92)	1675 (2.86)	-79.42
Black gram	4895 (8.00)	5295 (8.06)	2327 (3.55)	1830 (2.79)	1108 (1.89)	-77.36
Soybean	10260 (16.78)	20909 (31.84)	33500 (51.21)	30097 (45.94)	34952 (59.73)	240.66
Cotton	19690 (32.20)	21480 (32.71)	18850 (28.81)	25473 (38.88)	17687 (30.22)	-10.17
Other	1862 (3.04)	2525 (3.85)	1410 (2.15)	762 (1.16)	501 (0.85)	-73.09
Gross Cropped Area	61136 (100)	65662 (100)	65413 (100)	65513 (100)	58509 (100)	-4.29

(Figures in the parenthesis are per centages over gross cropped area)

It revealed that in Table no.2 is Chikhaldara tahsil, the per centage of area under Soybean and Cotton crops was to the extent from 16.78 and 32.20 per cent in 2003-04 to 59.73 and 30.22 per cent in 2015-16, which is indicated that the Soybean is excellent diversified crop, during the study period. The slightly decrease in area i.e.32.20 per cent to 30.22 per cent was observed in respect of Cotton during study Period. The

decreasing area has been observed in *Kharif Jowar*, Green gram, Black gram and Tur. The area under *Kharif Jowar* was 1.80 per cent in 2015-16 which was declined from 13.49 per cent as in the year 2003-04. The area under Green gram was 2.86 per cent in 2015-16 which was declined from 13.31 per cent in year 2003-04. The area under Black gram was 1.89 per cent in 2015-16 which was declined from 8.00 per cent as

in the year 2003-04. The area under Tur was 2.61 per cent in 2015-16 which was declined from 11.02 as in the year 2003-04. No significant changes in gross cropped area were observed in the period of study.

From the table it is observed that the Soybean crop is the most

replaced crop which has been increased to 240.66 per cent from 2003-04 to 2015-16 may be because it is a subsistence crop to the farmers. It is shown in the Chikhaldara tahsil which revealed that it is still major crop of the tahsil which is used mainly as a cash crop to the farmers.

Table 3: Changes in cropping pattern in Bhatkuli tahsil (Area in ha.)

Years/crops	2003-04	2006-07	2009-10	2012-13	2015-16	Percentage Over base Period
<i>Kh.</i> Jowar	7100 (12.91)	3925 (6.59)	4400 (7.30)	2564 (5.27)	742 (1.25)	-89.54
Tur	3965 (7.21)	5400 (9.07)	5549 (9.21)	3251 (6.68)	7368 (12.41)	85.82
Green gram	6620 (12.04)	3456 (5.80)	3492 (5.79)	2430 (4.99)	1423 (2.39)	-77.44
Black gram	8730 (15.87)	5140 (8.63)	4322 (7.17)	3070 (6.31)	1365 (2.29)	-84.36
Soybean	19100 (34.73)	33620 (56.47)	35176 (58.40)	30986 (63.74)	39395 (66.36)	106.25
Cotton	2613 (4.75)	3740 (6.28)	4100 (6.80)	4708 (9.68)	8500 (14.31)	225.29
Other	6855 (12.46)	4247 (7.13)	3187 (5.29)	1602 (3.29)	566 (0.95)	-91.74
Gross Cropped Area	54983 (100)	59528 (100)	60226 (100)	48609 (100)	59359 (100)	7.95

(Figures in the parenthesis are Per centages over gross cropped area).

It indicated that, in table no.3 Bhatkuli tahsil, the area under Soybean cultivation was increasing in 2003-04 i.e. from 34.73 per cent to 66.36 per cent in 2015-16. The proportion of area under Cotton has increased to the extent of 14.31 per cent in year 2015-16 from 4.75 per cent in the year 2003-04. The decreasing area has been observed in *Kharif* Jowar (12.91% to 1.25%), Green gram (12.04% to 2.39%), Black gram (15.87% to 2.29%) during the entire period of study i.e. 2003-04 to 2015-16. The slightly increasing area observed in Tur

from 7.21 per cent in 2003-04 to 12.41 per cent in 2015-16. From the below table it also showed that Cotton crop has shown the most replaced crop which has been increased to 225.29 per cent to the over base period followed by Soybean crop 106.25 per cent because it is a subsistence crop to the farmers .It is shown in the Bhatkuli tahsil that Tur crop cover the consistent area which is somehow increasing trend 85.82 per cent to the over base period 2003-04 to 2015-16 which revealed that it is still a major crop of the tahsil.

Table 4: Changes in cropping pattern in Nandgaon tahsil (Area in ha.)

Years/crops	2003-04	2006-07	2009-10	2012-13	2015-16	Percentage Change Over Base Period
<i>Kh.</i> Jowar	14200 (19.99)	12000 (14.63)	14400 (17.82)	12000 (14.24)	10100 (13.83)	-28.87
Tur	6584 (9.27)	8640 (10.53)	7662 (9.48)	8945 (10.61)	9600 (13.14)	45.80
Green gram	9254 (13.03)	8950 (10.91)	5760 (7.12)	5700 (6.76)	1528 (2.09)	-83.48
Black gram	9250 (13.02)	8750 (10.67)	6200 (7.67)	6010 (7.13)	1275 (1.74)	-86.21
Soybean	2150 (3.02)	12654 (15.43)	14277 (17.66)	14400 (17.09)	20250 (27.73)	841.86
Cotton	26250 (39.96)	26110 (31.84)	26950 (33.35)	31612 (37.52)	25889 (35.45)	-1.37
Other	3325 (4.68)	4895 (5.96)	5550 (6.86)	5568 (6.61)	4377 (5.99)	31.63
Gross Cropped Area	71013 (100)	81999 (100)	80799 (100)	84235 (100)	73019 (100)	2.82

(Figures in the parenthesis are Per centages over gross cropped area)

It indicated that in Table no.4 Nandgaon tahsil the area under Soybean cultivation was increasing in 2003-04 i.e. 3.02 per cent to 27.73 per cent in 2015-16. The proportion of area under Cotton has decreased to the extent of 35.45 per cent in year 2015-16 from 39.96 per cent in the year 2003-04. The increasing trend is observed in Tur (9.27% to 13.14%) and other crops (4.68% to 5.99%) during the entire period of study i.e. 2003-04 to 2015-16. The proportion of area decreasing is observed in *Kharif* Jowar (19.99% to 13.83%), Green gram (13.03% to 2.09%) Black gram (13.02% to 1.74%) during the entire period of study i.e. 2003-04 to 2015-16.

From the above table it also showed that Soybean crop has shown the most replaced crop which has been increased to 841.86 per cent to the base period i.e. 2003-04 may be because it is a subsistence crop to the farmers. It is also shown in the Nandgaon tahsil that Tur cover the consistent area which is somehow in increasing trend 45.80 per cent to the base period 2003-04 to 2015-16 which revealed that it is still a major crop of the tahsil.

Table 5: Changes in cropping pattern in Tiwasa tehsil (Area in ha.)

Years/crops	2003-04	2006-07	2009-10	2012-13	2015-16	Percentage Change Over Base Period
<i>Kh.</i> Jowar	3350 (8.67)	2910 (6.85)	2230 (5.07)	1422 (3.83)	972 (2.36)	-70.98
Tur	4245 (10.99)	3780 (8.90)	3280 (7.47)	2890 (7.78)	2315 (5.62)	-45.46
Green gram	6080 (15.75)	4856 (11.43)	3856 (8.78)	3220 (8.67)	1389 (3.37)	-77.15
Black gram	2230 (5.77)	3060 (7.20)	2250 (5.12)	1480 (3.98)	1221 (2.96)	-45.24
Soybean	3315 (8.58)	4200 (9.88)	8900 (20.27)	8510 (22.93)	18016 (43.79)	443.46
Cotton	14150 (36.65)	19800 (46.62)	19650 (44.75)	17130 (46.15)	15260 (37.09)	7.84
Other	5230 (13.54)	3865 (9.10)	3920 (8.92)	2460 (6.62)	1967 (4.78)	-62.37
Gross Cropped Area	38600 (100)	42471 (100)	43906 (100)	37112 (100)	41140 (100)	6.58

(Figures in the parenthesis are per centages over gross cropped area)

From the table 5. it is revealed that the area under Cotton slightly increase to the extent from 36.65 per cent in 2003-04 to 37.09 per cent in 2015-16. The area under Soybean increase from 8.58 per cent in 2003-04 to 43.79 per cent in 2015-16. In case of *Kharif* Jowar, Tur, Green gram, Black gram and other crop, its share in gross cropped area has fallen to the level of 8.67 per cent to 2.36 per cent, 10.99 per cent to 5.62 per cent, 15.75 per cent to 3.37 per cent, 5.77 to 2.96, 13.54 per cent to 4.78 from 2003-04 to 2015-16.

Conclusion

Change in cropping pattern in area under *Kharif* Jowar decreased during study period in all the selected tahsils of Amaravati district. The area under Soybean increased over a period of time in all the selected tahsils of Amaravati district. The area under Black gram and Green gram also decreased during the study period in all the selected tahsils of Amaravati district and area under Tur increased in Bhatkuli, Dharni and Nandgaon tahsil. The area under Cotton crop were decreased in Chikhaldara, Nandgaon tahsils of Amaravati district, but increased in Dharni and Bhatkuli tahsils.

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