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Spatio-temporal changes in area, production and productivity of rapeseed and mustard in Haryana*

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ABSTRACT

A study was conducted to know the shift in the spread, production and productivity of rapeseed and mustard in Haryana during the three pentads comprising the recent past one and half decades (1979-80 to 1993-94). A significant increase in the area under the crop was noticed in the districts of Mahendergarh, Rohtak, Bhiwani, Gurgaon, Faridabad, Jind, Hisar and Sirsa. However in the districts of Ambala, Karnal and Kurukshetra a decline in area under the crop was noticed during the last two pentads. Almost similar trend was observed for the production of crop in the state. The increase in both area and production was more spectacular in the pentad comprising the period between 1989-90 to1993-94 as compared to the previous two pentads. A striking feature of the study was that the increase in production was not solely because of the increase in area, but the improved productivity also contributed equally.

Keywords : Mustarad, area production, Haryana

Oilseeds play a vital role in the Indian economy. Rapeseed and mustard is the second most important group of oilseed crop after groundnut and contribute 26 per cent to the total oilseed production in the country. Over a time period inter-state comparison of productivity of rapeseed and mustard reveals that the states of Haryana and Rajasthan have consistently improved their respective position. In Haryana, rape and mustard occupies an area of 612.2 thousands hectare with average yield of 1460 kg ha^{-1} ectare (Anonymous, 1998).

The present investigation was carried out to assess the change in spread, production and productivity of rapeseed and mustard in Haryana during the three pentads comprising the recent past one and half decades (1979-80 to 1993-94) using the area, production, productivity figures for this group of crops in the state available from the Statistical Abstract of Haryana.

MATERIALS AND METHODS

The data on area, production and productivity of rape and mustard in different districts in Haryana were collected for 18 crops seasons (1979-80 to 1993-94). Based on the information, the spatio-temporal per cent change in area, production and productivity were worked out. Subsequently, the period of 15 years was split in 3 blocks of 5 years each and the three blocks comprised of period between 1979-80 to 1983-84, 1984-85 to 1988-89 and, 1989-90 to 1993-94. The

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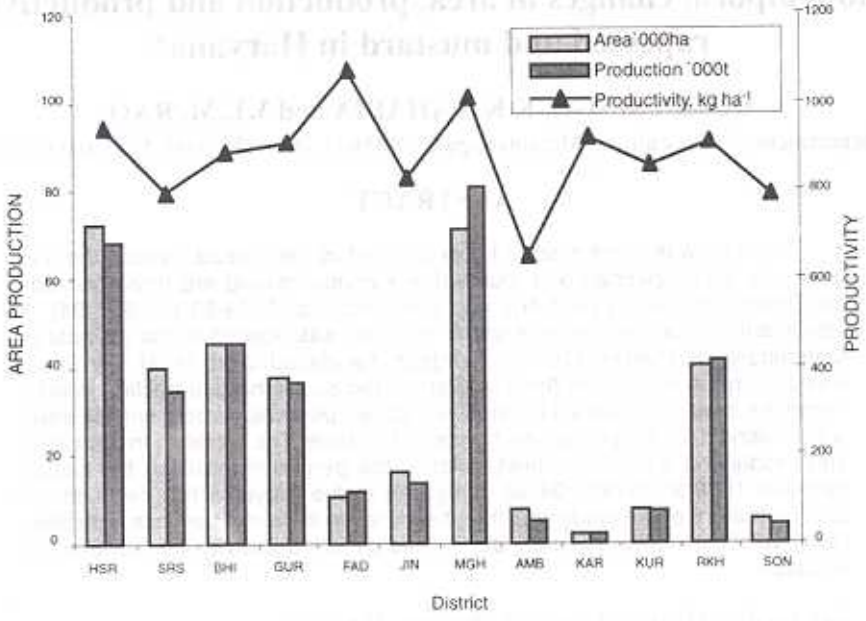

Fig. 1: Districtwise area, production and productivity of rapeseed and mustard in Haryana

spatio-temporal changes were then quantified over these pentads.

RESULTS AND DISCUSSION

District-wise area, production and productivity (averaged for 15 crop seasons) of rape and mustard are shown in Fig.1. Mahendergarh district has highest area (86.2 thousand hectares) and production (106.6 thousand tones) of rapeseed and mustard in the state with an average productivity of 1048 kg ha^{-1} which was second highest in the state after Faridabad where it was 1163 kg ha^{-1}. The district of Hisar occupied second position in terms of area (74.0 thousand hectares) and production (79.1 thousand hectares) with an average productivity of 988.7 $kgha^{-1}$. Sirsa, Bhiwani, Gurgaon, Jind and Rohtak were other important districts in the state where the crop has significant spread and production. In remaining districts of the state (Ambala, Karnal, Kurukshetra and Sonepat) were not important as the area and production was small and productivity was also low.

Pentad-wise shift (%) in area, production and productivity

Area, production and productivity of rape and mustard in 12 districts during three pentads are presented in Table 1. A significant increase in area, production and productivity was noticed in districts of Hisar, Mahendergarh, Bhiwani, Rohtak, Gurgaon, Sirsa, Jind and Faridabad. During the first two pentads, the Hisar district has the maximum area and production of rapeseed and mustard among the districts. However during the third

Table 1 : Pentad wise area, production and productivity of rapeseed and mustard in Haryana

District	Area, ('000ha)				Production ('000t)				Productivity (kg ha^{-1})			
	A	B	C	Mean	A	B	C	Mean	A	B	C	Mean
Hisar	51.2	76.0	89.0	72.1	35.3	69.3	100.4	68.3	718	976	1127	941
Sirsa	29.7	39.3	50.1	39.7	13.9	38.8	52.0	34.9	503	791	1098	797
Bhiwani	25.9	30.4	80.5	45.6	12.3	29.4	94.2	45.3	531	932	1193	885
Gurgaon	18.5	34.8	59.4	37.6	14.5	33.2	62.2	36.6	757	927	1039	908
Faridabad	6.1	9.5	16.5	10.7	4.6	10.4	20.6	11.9	801	1123	1284	1069
Jind	9.0	18.9	20.0	16.0	6.6	15.6	18.8	13.7	716	842	939	832
Mahendergarh	28.0	59.5	126.7	71.4	20.8	64.5	156.6	80.6	720	1066	1235	1007
Ambala	6.8	10.4	6.7	8.0	4.1	6.6	5.2	5.3	558	612	788	6653
Karnal	2.7	3.1	1.4	2.4	2.2	3.1	2.0	2.4	696	936	1126	919
Kurukshetra	4.9	11.3	7.8	8.0	3.9	9.9	7.4	7.1	746	857	971	858
Rohtak	13.2	35.2	73.3	40.6	9.6	34.8	80.0	41.5	693	946	1089	909
Sonepat	4.5	6.3	6.4	5.7	2.9	4.6	6.2	4.6	657	757	966	793
State	200.5	334.7	437.8	357.7	130.7	320.2	605.6	352.2	675	897	1071	881

A-represents 1st pentad (1979-80 to 1983-84); B-Represents 2nd pentad (1984-85 to 1988-89); C-represents 3rd pentad (1989-90 to 1993-94)

Table 2 : Pentad wise shifts (%) in area, production and productivity of rapeseed and mustard in Haryana

District	Area ('000ha)				Production ('000t)				Productivity (kg ha^{-1})			
	A	B	C	Mean	A	B	C	Mean	A	B	C	Mean
Hisar	48	74	17	47	96	184	45	109	36	57	16	36
Sirsa	32	69	28	43	179	274	34	162	57	118	39	71
Bhiwani	17	211	165	131	139	666	220	342	76	125	28	76
Gurgaon	88	221	'71	127	129	329	87	182	23	37	12	24
Faridabad	56	171	74	100	126	348	98	191	40	60	14	38
Jind	110	122	6	80	136	185	21	114	18	31	12	20
Mahendergarh	113	353	113	193	210	653	143	335	48	71	16	45
Ambala	53	-2	-36	5	61	27	-21	22	10	41	29	27
Karnal	15	-48	-55	-29	41	-9	-36	-1	35	62	20	38
Kurukshetra	131	59	-31	53	154	90	-26	73	15	30	13	19
Rohtak	167	455	108	243	263	733	130	375	37	57	15	36
Sonepat	40	42	2	28	59	114	35	69	15	47	28	30
State	67	168	61	99	145	363	89	199	33	59	19	37

A – represents shift during 2nd pentad over 1st pentad, B – represent shift during 3rd pentad over 1st pentad, C – represents shift during 3rd pentad over 1st pentad

pentad the position changed tremendously and the district of Mahendergarh gained lead both in area (127 thousand hectares) and production (157 thousand tones). The average productivity was highest in Faridabad followed by Mahendergarh and Hisar districts.

The per cent change in area, production and productivity of rape and mustard for three pentads are presented in Table 2. The area under rape and mustard crop in late eighties (1984-85 to 1988-89) increased by more than 100 per cent over early eighties (1979-80 to 1983-84) in districts of Mahendrgarh, Rohtak, and Jind. Other important districts where this increase was in the vicinity of 50 per cent were Gurgaon, Hisar and Faridabad. Likewise, the production also showed a spectacular increase of more than 200 per cent in districts of Rohtak and Mahendergarh. In other districts where the crop occupied significant area, the increase was around 100 per cent or more. Accompanying the gains in area and production was a significant improvement in the average productivity in almost all important districts except Jind and Gurgaon. Subsequently, in the early nineties the quantum of increase in area ranged between 108 to 165 per cent in case of Rohtak, Mahendergarh and Bhiwani. On the production front, the district of Bhiwani led the scene with an increase of over 220 per cent. The improvement in productivity was of significant magnitude in districts of Sirsa and Bhiwani (39 and 28%, respectively), whereas, a uniform improvement of around 15 per cent in the productivity was noticed in the remaining districts.

Further, during the decade ending 1993-94, the area under rapeseed and mustard in the district of Rohtak increased by 4.6 times followed by 3.5 times in Mahendergarh. In the districts of Bhiwani and Gurgaon, the area got more than doubled during the ensuing period. Similarly, the production increased by 7.3 times in Rohtak, 6.5 times in Bhiwani and Mahendergarh, and 3.4 times in Gurgaon and Faridabad districts. In the districts of Jind, Hisar and Sirsa the production got more than doubled during last one decade.

The productivity improvement in Sirsa and Bhiwani districts was of higher order and the productivity level achieved in early nineties was 1.25 times higher than that of early eighties. In the state as a whole the area under the crop increased by 168 per cent, the production by 363 per cent and productivity by 59 per cent during this period.

CONCLUSIONS

The district of Mahendergarh has highest area (86.2 thousand hectare) and production (106.6 thousand tonnes) of rapeseed and mustard. The districts of Hisar, Bhiwani, Rohtak, Sirsa, Gurgaon and Jind had significant share in spread and production of these crops in the state. The area under the crop in the districts of Mahendergarh, Rohtak and Jind took a quantum jump (100 per cent increase) during the second pentad of eighties as compared to first. Similarly, the production in these districts increased by more than 200 per cent during the period. The average productivity of the crop was highest in the district of Faridabad (1163 kg ha^{-1}) followed by Mahendragarh (1048 kg ha^{-1}).

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