

MUSTARD AND RAPESEED CULTIVATION IN HARYANA: 1971-2011

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ABSTRACT:

With the greatest area and second-highest production after China, India is a significant rape seed mustard-growing nation in the globe. One of the most significant spices in the world, mustard gets its name from the Latin word *mustum*, which means "must of old wine mingled with crushed seed" (Hemingway 1976). In India, powdered nut and rapeseed mustard are the two main sources of edible oil (Pandy et al 1999). They are grown on 4.83 million ha under a variety of agro-ecological circumstances, and in 2001–2002, we produced 5.34 million tonnes of rape seed mustard, with a productivity of 1106 kg/ha (Anonymous 2002). With 12% of the global production, India ranks third behind China and Canada as the world's top producer of rapeseed and mustard (2006-07). The primary edible oilseed crop in India is mustard and rapeseed, which produces about 28.8% of the nation's oil. India must import edible oils due to the discrepancy between domestic availability and actual usage of edible oils. The primary source of revenue for small and marginal farmers in rain fed regions is rapeseed-mustard. These crops play a significant role in the livelihood security of the small and marginal farmers in the country's rain-fed and resource-limited regions, where they are mostly grown.

Rain fed farming is used on roughly 30.7% of the rapeseed mustard land in India. Rajasthan, Uttar Pradesh, Haryana, Madhya Pradesh, and Gujarat account for 81.5% of total area and 87.5% of production of Indian mustard (2001-02 to 2005-06). These states accounted for more than 84% of the nation's rapeseed-mustard production and acreage in 2006–07, with Rajasthan alone contributing more than 47.0% of the total. The crop takes 135-150 days to mature. There are also some early cultivars that mature in 110 days. Now with the advent of new technological advancement and new hybrid seed we are able to ripen this crop only in 90 days.

Key-Words: Agro-ecological, Consumption, Production, Livelihood, Ecotypes, Agro-climatic conditions, Adaptability, Percentile, Methodological, Correlation

Geographical Attributes for Mustard and Rapeseed:

Following are the prominent Geographical conditions which are essential for the cultivation, growth and production of mustard and rapeseed.

Climate:

During the growth season, rapeseed and mustard demand chilly temperatures. In India, planting begins in the middle of October, however in some regions of the nation sowing is put off since the previous crop's harvest is taking longer than expected. India's winter does not last very long; beginning in February, the temperature begins to rise. Therefore, rapeseed/mustard harvest should be finished by the middle of February; otherwise, the crop would experience high temperatures and produce less. Rapeseed/mustard grows most effectively between 12°C and 25°C. It has been determined that a temperature of slightly over 20°C and a minimum of 5°C are the ideal temperatures for maximum growth and development. As a result, the mustard and rapeseed sowing seasons in India are quite short.

Soil:

Although it may be grown on a variety of soil types with sufficient drainage, rapeseed or mustard is best suited to fertile, well-drained, loamy or sandy-loam soils. This crop cannot grow in soils that are too wet since the growth will be stunted. Rapeseed and mustard are good for medium- and medium-high land.

Objectives:

Flowing are objectives of the present research paper.

1. To show temporal change in the area under mustard and rapeseed cultivation in Haryana from 1971-2011.
2. To show temporal change in production and yield of mustard and rapeseed crop in Haryana from 1971-2011.
3. To analyse spatial distribution of area, production and yield of mustard and rapeseed in Haryana in 2014-15.

Data Base and Methodology:

For the present paper mainly data of secondary source has been used. Data related to the mustard and rapeseed has been taken from the census of India and Statistical Abstract of Haryana for the year 2001-02, 2011-12 and 2015-16. By taking in to the consideration these data a comparative and percentile methodology has been used to analyse these data. From the data collected from the secondary sources, percentile value of increasing of area under mustard and rapeseed cultivation within the successive census years has been calculated. In the same way increasing percentile value of crop acreage have been calculated for the given period of time to compare and analyse the data to make the research more clear and fruitful.

Study Area:

I used the entire state of Haryana as the study area for the current investigation. Northwest India contains the state of Haryana, which is located between 27° 37' and 30° 35' latitude and 74° 28' to 77° 36' longitude (Figure.1). On November 1st, 1966, Haryana declared its independence from Punjab. It is bordered by Rajasthan in the south, Himachal Pradesh in the north, Punjab in the west, Uttar Pradesh in the east, and the Yamuna River in the east, which serves as the eastern administrative division. Haryana state extends for about 44,212 sq. kms with just 1.37 per cent of total geographical area and less than 2 per cent of India's population. Since it ambience Delhi in the northern, western and southern sides, a large area of state is included in National Capital Region (N.C.R.). Chandigarh, a union territory, is the capital of Haryana which is also share by Punjab. The state comprises 22 districts 74 sub districts, 94 tehsils, 49 sub-tehsils, 140 blocks 80 statutory towns, 74 census towns and 6841 villages (Statistical Abstract of Haryana, 2020).

The state has a subtropical, semi-arid to sub humid, continental climate with a monsoon pattern. The state receives 560 mm of rainfall on average, with variations from less than 300 mm in the south-western regions to more than 1000 mm in the steep Shivalik Hills. Haryana experiences extremely scorching summers and chilly winters. May and June are the hottest months, while December and January are the coldest. The Shivalik Hills region receives the most rainfall, while the Aravali Hills region receives the least. Between July and September, during the

monsoon season, almost 80% of the rainfall takes place. There is a wide range of rainfall, with the Aravali Hills region being the driest and the Shivalik Hills region having the wettest. Haryana experiences extreme summer and winter temperatures. The lowest temperature of the year, 50 degrees Celsius, is reached in January.

Mustard and Rapeseed Cultivation:

In Haryana the area under mustard and rapeseed cultivation going on increasing day by day. Not only the area but production and acreage also have the same pattern in the study in the past 40 years. The picture is clear as we give little bit attention towards the **Table No.1** given below. This table shows that area under this crop is 129800 hectares in 1970-71 which with the increase rate of 76.44% reached to the figure of 299600 hectares in 1980-81. As we see the above said table, we came to know that in year 1990-91 area under mustard and rapeseed was 473800 hectares. In this decade area of mustard and rapeseed cultivation increased by 58.14%. In 2000-01 area under this crop was 408800 hectares. It is considerable that there is decrease in area under this crop and this negative growth is with the rate of -13.71% as compare that of data of 1990-91. As we see the data of 2010-11, we came to the conclusion that area under mustard and rapeseed was 509700 hectares and during this period of time the increase in area was 24.44%.

Table No. 1**HARYANA : PRODUCTION OF MUSTARD AND RAPESEEDSIN 1971 TO 2011**

SR.NO.	CENSUS YEARS	AREA IN THOUSAND HACTARES	GROWTH OF AREA IN %	PRODUCTION IN THOUSAND TONES	YIELD KG. /HEC.
1	1970-71	129.8	NA	89	678
2	1980-81	299.6	76.44	178	634
3	1990-91	473.8	58.14	634	1338
4	2000-01	408.8	-13.71	560	1369
5	2010-11	509.7	24.44	953	1852

Source: Statistical Abstract of Haryana 2015-16.

Table no.1 shows that mustard and rapeseed production in Haryana also increased from 1970-71 to 2010-11. It was 89 thousand tonnes in 1970-71 and 178 thousand tonnes in 1980-81. In year 1990-91 the production of mustard and rapeseed has an alarming rate of increase.

This was due to increase in area under this crop and by using high yielding variety hybrid seeds. During 1990-91 the increase in yield was 111.04% as compare to yield of 1980-81. In year 2000-01 there is a slight decrease in production due decrease in area under this crop in 2000-01 as compare to 1990-91. Finally in year 2010-11 the production of mustard and rapeseed was 953 thousand in Haryana which 1.70 times that of production of 2000-01. This increase in production mainly due to favourable climatic conditions and high yielding seeds.

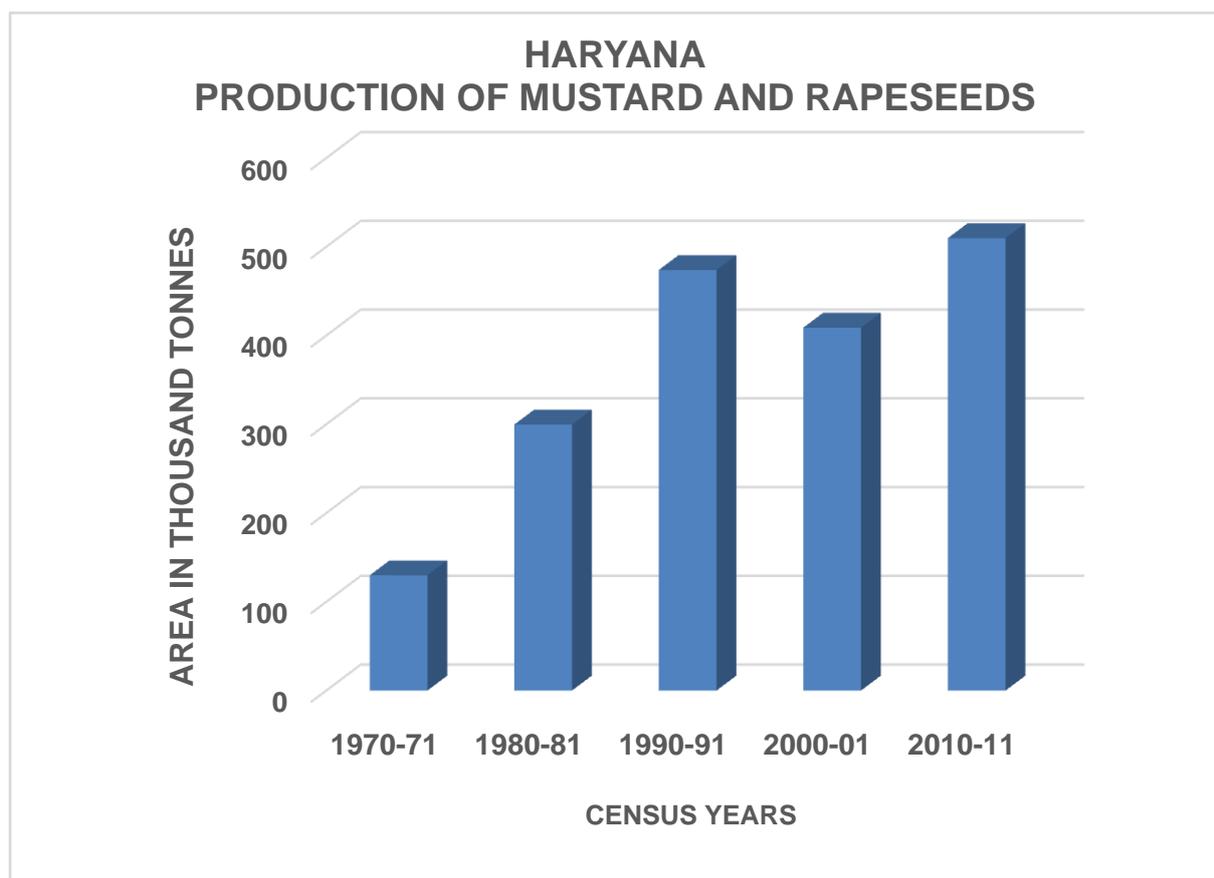


Figure-1

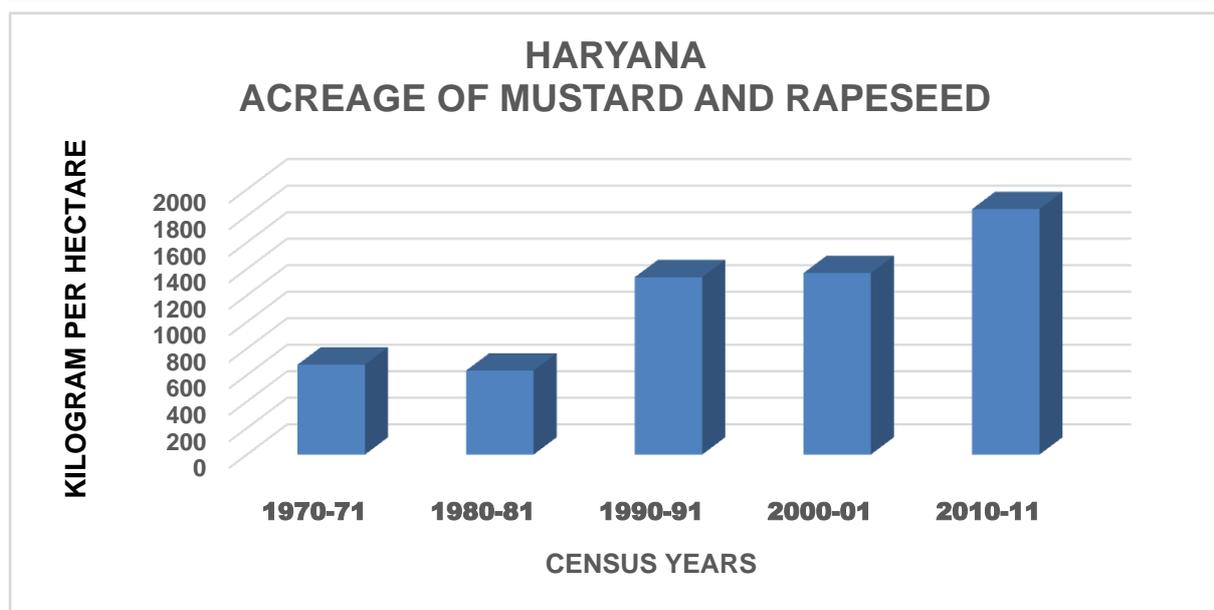


Figure-2

As shown in table no. 2 and figure no.3 in the year 2014-15 area under mustard and rapeseed varies from area to area. There are clear cut four categories of area, production and yield of mustard and rapeseed. On the bases of area following categories are found in Haryana. The very first category can be considered as having very marginal area under mustard and rapeseed cultivation i.e. below 5000 hectares. In this category Ambala, Panchkula, Yamuna Nagar, Kurukshetra, Kaithal, Karnal, Panipat, Sonipat, Faridabad, Palwal and Jind are present. This is due the fact that these are most fertile land of Haryana and here in this season peasants are more concerned with the wheat cultivation instead of oilseed cultivation.

TABLE-2**HARYANA : AREA, PRODUCTION AND YIELD OF MUSTARD AND RAPESEEDS
2014-15**

SR. NO.	DISTRICT	AREA THOUSAND HACTARES	PRODUCTION THOUSAND TONES	YIELD KG. /HAC.
1	Ambala	1.3	1	1432
2	Panchkula	1.7	2	1432
3	Y. Nagar	2.3	2	1432
4	Kurukshetra	1.4	1	1432
5	Kaithal	0.7	1	1432
6	Karnal	1.1	1	1432
7	Panipat	0.9	1	1432
8	Sonipat	1.5	1	1198
9	Rohtak	8.7	10	1122
10	Jhajjar	21.7	29	1296
11	Faridabad	0.5	1	985
12	Palwal	1.4	2	1160
13	Gurugram	9.8	13	1269
14	Mewat	21.7	30	1366
15	Rewari	62.8	97	1541
16	Mahendergarh	88.8	133	1499
17	Bhiwani	132.3	199	1398
18	Jind	3.4	3	1123
19	Hisar	66.8	99	1471
20	Fatehabad	11.9	18	1537
21	Sirsa	41.2	62	1500

Source: Statistical Abstract of Haryana 2015-16

In the second category districts with 5001-20000 hectares of land under mustard and rapeseed are present. In this category Rohtak, Gurugram and Fatehabad districts are present. In the third category Mewat, Jhajjar, Rewari, Sirsa and Hisar are present which has 20001-70000 hectares of their land under this crop. The 4th and last category of those districts having more than 70000 hectares of their land under mustard and rapeseed cultivation. In this category Mahendergarh and Bhiwani districts are present. In this way we came to the conclusion that there is positive correlation between area under mustard and rapeseed and scarcity of irrigation facilities and a positive correlation between area under this crop and coarse soil.

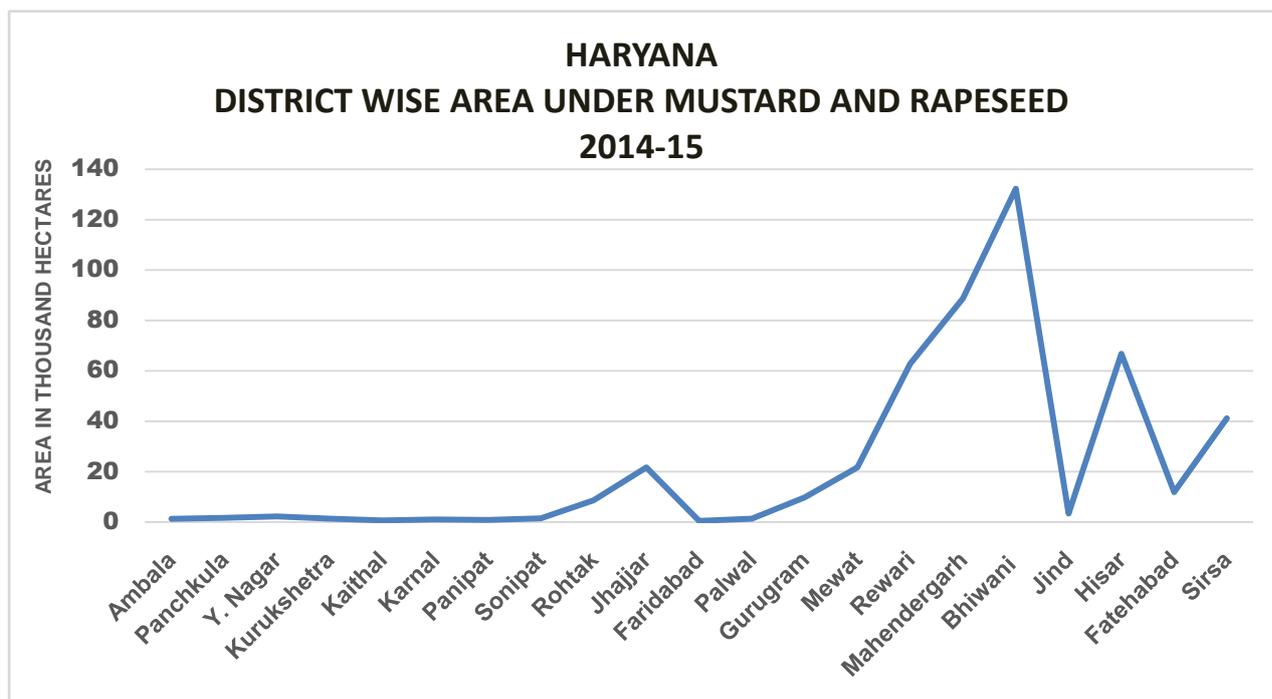


Figure-3

Conclusion:

In terms of Haryana, the rapeseed-mustard crop provides enormous potential for additional production improvement. This results from the fact that the current yield at the state level is much lower than the demonstrated yield level possible with the existing technologies, as well as the fact that there are still untapped and understudied potential areas for increasing yield in

the nation's oilseed production and crop. This serves as a potential yield reservoir that must be tapped through research improvements and the diffusion of current technology. Creation of novel methodological frameworks and crop protection and production methods. If the production potential of our annual edible oilseed crops is tapped through enhanced technology and their prompt transfer to oilseed cultivators, India might achieve self-sufficiency in edible oils.

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