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A Study on Growth and Trend Analysis of Mustard Production in Mahindergarh, Haryana

Dr. Sangita Kumari

Assistant Professor, Department of Geography, JVMGRR College Ch. Dadri, Haryana, India

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Abstract— *Haryana, located in northern India, cultivates a diverse range of crops due to its fertile soil, favourable climate, and well-developed irrigation infrastructure. This research paper presents a comprehensive analysis of mustard cultivation in Mahindergarh, Haryana, from 1966 to 2021, examining the trends in area under cultivation, production output, and yield efficiency. Utilizing historical data, the study identifies significant growth patterns, evaluates the impact of agricultural practices, and explores the role of technological advancements and policy interventions in shaping the mustard cultivation landscape in the region. By analysing block-level variations, the paper sheds light on the heterogeneous nature of agricultural development across Mahindergarh. The research employs statistical methods to forecast future trends and offers recommendations for sustainable cultivation practices to enhance. Haryana is a major mustard producing state in India, with districts like Mahendragarh ranking high in mustard production.*

Keywords— ***Mustard, Cultivation, Productivity, Cultivation, Landscape, Interventions***

I. INTRODUCTION

Mustard was earlier considered a main crop in non-irrigated southern parts of Haryana but as per reports, the sowing of mustard is now on the rise in the northern parts as well. The second-most significant and well-known winter oilseed crop in India is mustard. It is primarily grown in India's northern plains, while there are some cultivated areas in the country's eastern region as well. It is a member of the crucifer family, which includes several cultivated related species. Toria, Yellow Sarson, Brown Sarson, Gobhi Sarson or Canola, and Black Mustard or Banarasi Rai are among the additional crops included in the "Rapeseed & Mustard" group. The little brown or yellow seeds have an oil content of up to 45%. The cake that has been de-oiled is fed to animals. Mustard belongs to the family cruciferae popularly known as rai and is an important rabi season oilseed crop of north India. Mustard seed is primarily used in the food or condiment industries in the form of either ground seeds or oil. Yellow mustard is the mildest flavored and has a lower oil content. It is most used to produce "mild" prepared mustard for table use but is also used as dry ground mustard for seasoning in mayonnaise, salad dressings and sauces.

Mustard, a crucial oilseed crop, plays a vital role in the agricultural and economic landscape of Haryana, a state renowned for its significant contributions to India's agrarian economy. The cultivation of mustard in Haryana has a rich history, characterized by evolving practices that have adapted to changing climatic conditions, technological advancements, and market demands. This research paper embarks on an in-depth exploration of the evolution of mustard cultivation in Mahindergarh from 1966 to 2022, providing a detailed analysis of the trends in area under cultivation, production level and yield efficiency.

Study Area

The mustard growing district Mahindergarh of the state spread over an area of about 1899 Km2, it extends from 27˚ 47'N to 28˚ 26' N latitudes and 75˚ 56' E to 76˚ 51'E longitudes. Mahendergarh district is situated at the extreme end of the south-west end of Haryana state. Its west-south borders and a large part of the eastern boundary, the Rajasthan region and the rest of the eastern boundary, along with the districts of Haryana, Rewari and northern part of Bhiwani. The district is generally a flat plain with some

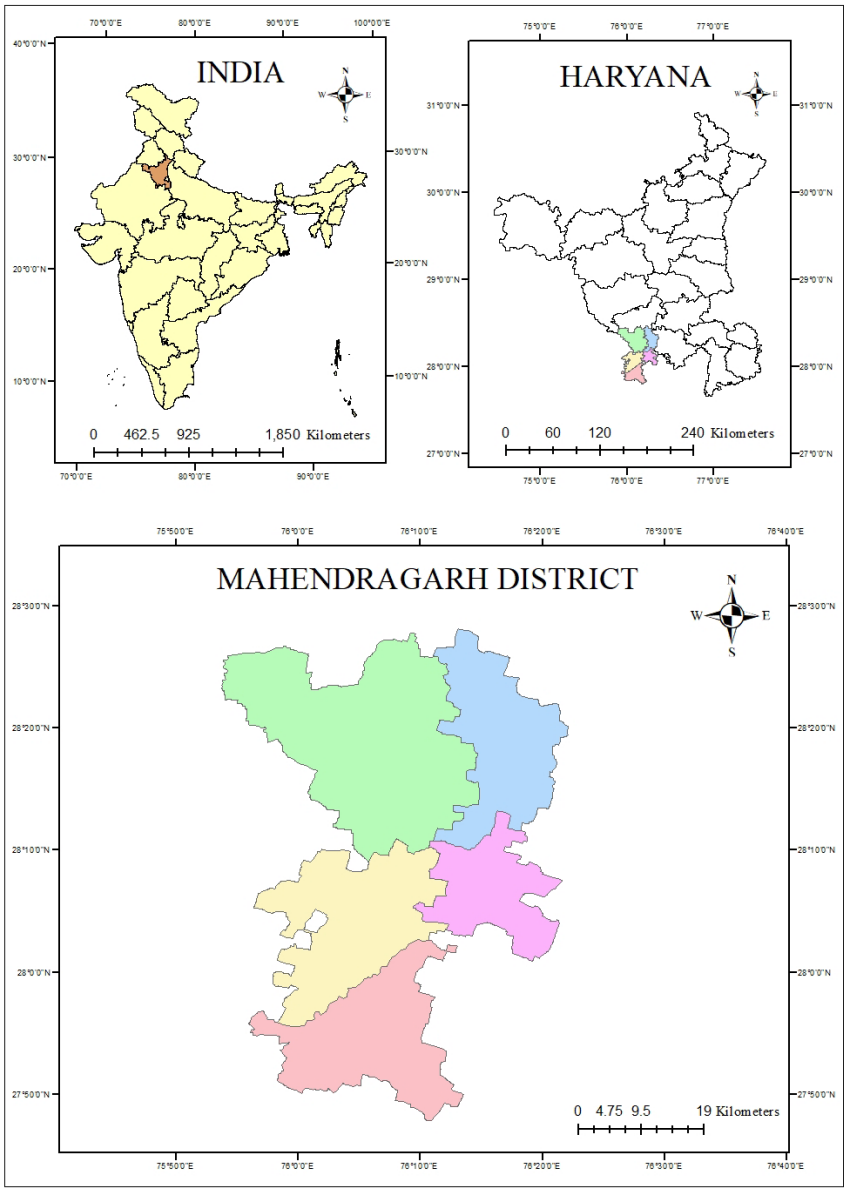
undulating topography, spotted by sand dunes of various shapes and sizes particularly in the west and south-west part of the district and little interrupted by eroded spots of Aravalli hills.

Objective

This study aims to analyse the trends and factors influencing mustard cultivation in Haryana.

Data Source

The present study is mainly a primary data-based study but in support of certain facts, the secondary data has also been used. The primary data was collected through a well-scheduled interview method from a sample of farmers selected amongst the selected villages within the selected blocks for the marketing year 2023-24. An attempt was made to include simple questions in the interview schedule so that the respondent could answer without any difficulty. The schedule was pre-tested before it was administered. The interview was largely conducted out the place of work and some at the place of work and some at the residences of the respondents. The secondary data was collected from various issues of 'statistical abstract of Haryana', Economic Survey' and from Haryana State Agricultural Marketing Board.



Mustard Cultivation in Haryana

Haryana is small state in the Gangetic plains of India meeting Shiwalik foothills in the north, Aravalli in the southwest and arid plains in the west. Agriculture will play a vital role in the growth of Indian economy. Crop diversification in paddy-wheat crop rotation with mustard must be encouraged for rapid economic growth and employment in the country. Rapeseed-mustard is the second

most important edible oilseed crop of India after groundnut. It must play a major role in making India self-sufficient in oilseed production. Rapeseed-mustard crop is one of the most important rabi oilseed crop cultivated in India.

Table: 1. Area, production and average yield per hectare of Mustard crop in Haryana

(Area in 000 ha.)

(Production in 000 Tonne)

(Yield in Kg. per ha.)

Year/District	Area(A)	Production (P)	Yield(Y)
1966-67	198	80	404
1970-71	129.8	89	685
1980-81	299.6	178	594
1990-91	473.8	634	1340
2000-01	408.8	560	1369
2010-11	509.7	953	1869
2018-19	609.8	1286	2112
2019-20	641.4	1149	1792
2020-21	617.5	1221	1978
2021-22	880.5	1684	1913
CGAR	18.03	40.29	18.86
Ambala	2.3	4.8	479.16
Bhiwani	169.6	294.6	1737.02
Charkhi Dadri	62.2	150.7	2422.82
Faridabad	0.6	1	1666.6
Fatehabad	20.1	36.4	1810.9
Gurugarm	19.1	43.4	2272.25
Hisar	73.5	139.5	1897.95
Jhajjar	33.8	70.3	2079.88
Jind	5.9	11.8	2000
Kaithal	1.5	2.8	1866.66
Karnal	2.9	6.3	2172
Kurukshetra	3.9	5.5	1410.25
Mahendragarh	**100.3**	**210.4**	**2097.70**
Nuh	28.1	62.4	2220.64
Palwal	2.4	4.2	1750
Panchkula	1.2	1.1	916.6
Panipat	1.8	4.1	2277.77
Rewari	7.7	17.5	2272.72
Rohtak	10.6	19.2	1811.3
Sirsa	65.1	125.4	1926.26
Sonipat	2.7	5.6	2074.07
Yamuna Nagar	2.2	4	1818.18

Source: Statistical Abstract of Haryana 2020-21

Mustard and Rapeseed Cultivation in Mahendergarh District

In Haryana, the area under mustard and rapeseed cultivation is increasing daily. Mahendergarh district is the leading producer in Haryana. The area, production, and acreage have followed the same pattern in the study over the past 50 years. The picture is clear, as we pay little attention to the table number. 3.9, which is given below.

Table 2: Area, Production and Yield of Mustard in Mahendergarh district

Sr. No.	**Year**	**Area (000 ha)**	**Growth of area (in %)**	**Production (000 tonne)**	**Yield (kg/ha)**
1	1980-81	23	NA	20	852
2	1990-91	55	82	79	1435
3	2000-01	82	39	128	1573
4	2010-11	89	8	169	1902
5	2020-21	100	11	210	2098

Source: Data collected from Agriculture Department Mahendergarh District

This table shows that the area under this crop is 23000 hectares in 1980-81, which, with an increase rate of 82%, reached the figure of 55000 hectares in 1990-91. As we see in the above table, we learned that 2000-01, the area under mustard and rapeseed was 82000 hectares. In this decade, the area of mustard and rapeseed cultivation increased by 39 %. In 2010-11, the area under this crop was 89000 hectares. It is considered that there is an increase in area under this crop of only 8%. As we see from the data from 2010-11, we concluded that the area under mustard and

rapeseed was 100000 hectares, and during this period, the increase in area was

11%.

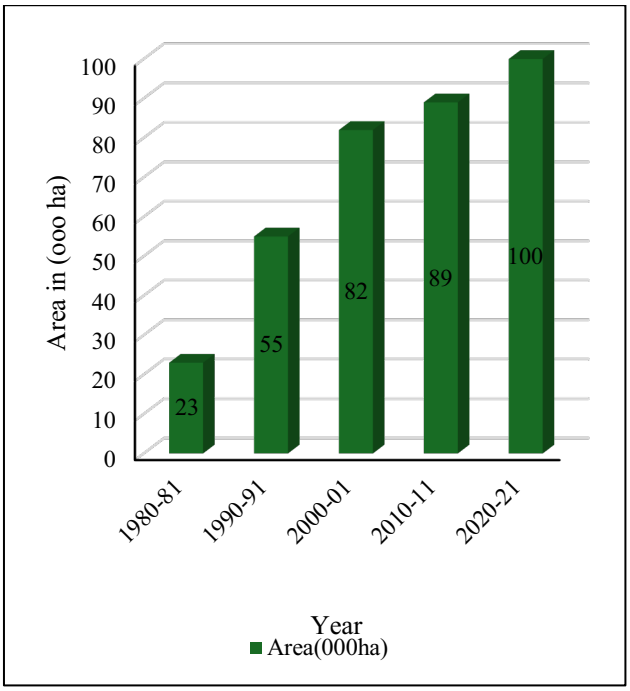


Fig.1: Area, Production and Yield of Mustard in Mahendergarh District

Source: Based on table 2

Table 2 shows that mustard and rapeseed production in Haryana increased from 1980-81 to 2020-21. It was 20 thousand tonnes in 1980-81 and 79 thousand in 1990-91. In the year 2000-01, the production of mustard and rapeseed had an alarming increase. This was due to increased area under this crop and high-yielding hybrid seeds. The production was 128 thousand tonnes in 2000- 01. In the year 2010-11, there was an increase in production of 169 thousand. Finally, in 2020-21, the production of mustard and rapeseed was 210 thousand in Mahendergarh, an increase from the production of 2000-01. This increase in production is mainly due to favourable climatic conditions and high-yielding seeds.

Table 2 shows that mustard and rapeseed production in Mahendergarh district also increased from 1980-81 to 2020-21. The yield under this crop was 852kg per hectare in 1980-81 and rapidly increased to 1435kg per hectare. in 1990-91. In 1990-91, the yield of mustard and rapeseed had an alarming rate of increase. This was due to increased area under this crop and high-yielding variety hybrid seeds. The yield is 1573kg per hectare. In 2000-01. In the year 2010-11, there was an increase in yield to 1902kg per hectare. Finally, in 2020-21, the yield of mustard and rapeseed was 2098 kg per hectare in Mahendergarh. This increase in production is mainly due to favourable climatic conditions and high-yielding seeds.

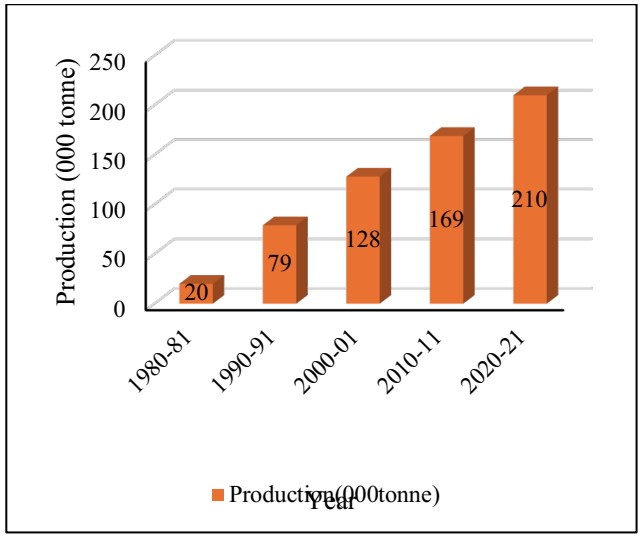


Fig.2: Area, Production and Yield of Mustard in Mahendergarh District

Source: Based on table 2

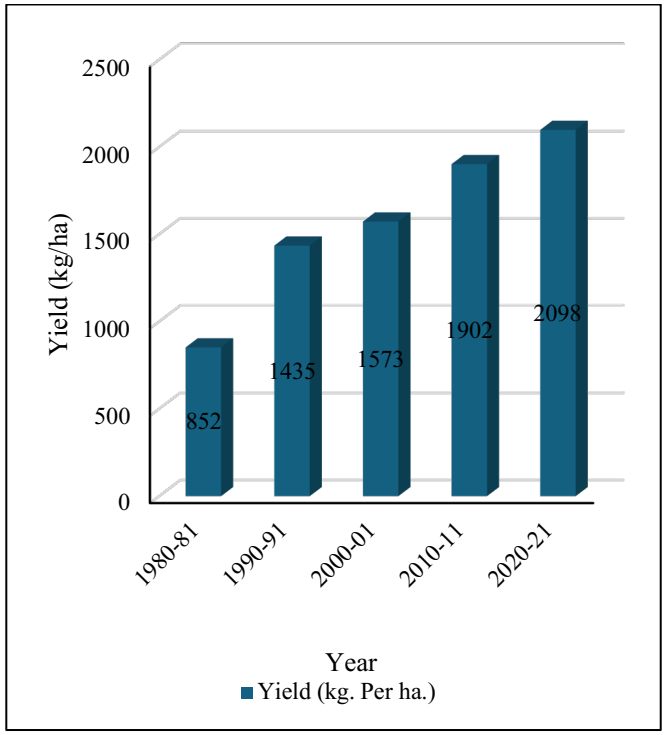


Fig.3: Area, Production and Yield of Mustard in Mahendergarh District

Based on Table 2

MODERN TECHNOLOGICAL IMPACT ON MUSTARD CULTIVATION

Farm Mechanization is the use of agricultural machinery for different agricultural operations from land preparation to harvesting and threshing. Farm mechanization contributes to increase production through saving the time and ease the work. It helps farmers to grow more crops in less time and with greater efficiency. Agricultural implements are the tools needed or used for agricultural practices like ploughing, leveling, sowing seeds, irrigation, harvesting, etc. The different types of agricultural implements used in rapeseed-mustard cultivation are harrow, cultivator, rotavator, leveler, seed drills, hand hoe, weeder, harvester, power tiller, sprayers, thresher, winnower, etc. It is essential for farmers to get knowledge of different implements and their use for doing agricultural operations effectively using them.

II. CONCLUSION

In this chapter a summary and conclusion of the study has been presented. Mustard is the main oilseed crop in our country. The production and area under these crops are shrinking continuously.

The one way to encourage the production of these crops is that a sound agricultural policy must be established for these crops. This can be done easily if we have accurate knowledge about the marketable and marketed surplus of these crops, marketing pattern of these crops and marketing problems faced by the growers of these crops.

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