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## EXPANSION OF RICE CULTIVATION IN HARYANA FROM 1966-67 TO 2010-11

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**Abstract:** *Rice is the staple food for about 60 percent of the total population of the country. The paddy cultivation is limited by rainfall and temperature. The crop required in most instances a relatively high atmospheric humidity, an average temperature of 20° centigrade and a well distributed rainfall between 125 centimeter and 150 centimeter during the growing season. To the climatic requirement must also be added on abundant supply of fresh water for irrigation where the rainfall is less than 125 centimeter. Rice thrives well on a variety of soils widely ranging from slightly acidic to slightly alkaline particularly the heavy, compact and acidic soils having the ability to hold water over the surface for a considerable period. Haryana is a traditionally wheat producing region but the enterprising farmers of the plain have made full use of package technology including perennial irrigation by canals and tube wells, HYV seeds and fertilizers. This has resulted in widespread change in the cropping pattern of state and the region has become a very important producer of rice. Over short period the spread of rice cultivation has enabled this region to occupy an important place among the rice producing states of India. The area used for the cultivation of paddy has increased fourfold. In 1966-67 area under rice constituted only 4.2 percent to total cropped area. But it increased to 19.06 percent in 2010-11.*

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## **INTRODUCTION**

Haryana is dominantly an agricultural region. The state of Haryana came into existence on November 1, 1966 after the reorganization of the administrative boundary of composite Punjab. In a short span of time this region has come to occupy a place of pride in the field of agriculture. The state made a rapid progress in the field of agriculture since 1966-67 and holds a leading position among other agriculturally advanced regions of India. The state which constitutes only 1.44 percent of the geographical area and 2.4 percent of the total population of country now contributes as much as about 7.2 percent towards the country's total food grains production. In Haryana, rice is not a native crop. Its cultivation started after the advent of green revolution. But in the due course of time, rice has emerged as the second ranking crop of the state after wheat.

## **SCOPE AND OBJECTIVES OF THE STUDY**

The present study unfolds the spatio-temporal pattern of rice cultivation at district level of Haryana state, covers a period of 44 years i.e. 1966-67 to 2010-11.

The specific objectives of the study are:

1. To examine the trends in area of rice in the state.
2. To examine the spatial pattern of rice cultivation during post green revolution period in the study area.

## **DATA SOURCE AND METHODOLOGY**

The present study is based on secondary data drawn from published as well as unpublished sources. The time series data relating to various aspects of agriculture such as area under rice crop and total cropped area in the state during the post green revolution period at state and district level have been obtained from the Statistical Abstract of Haryana for the period 1966-67 to 2010-11. In present study the data has been processed by using simple and suitable statistical techniques and presented in table and diagrams. Area under rice cultivation in the state has been shown with the help of trend line.

## **FINDINGS AND DISCUSSIONS ON STATE LEVEL**

In 1966-67, the proportion of area under rice cultivation was insignificant in Haryana. Area under rice was only 192 thousand hectares, accounting for 4.2 percent of total cropped area. This can be attributed to lack of irrigation facilities. In 1988-89 the position of rice cultivation in the state improved, because of development of irrigation facilities. By 1988-89



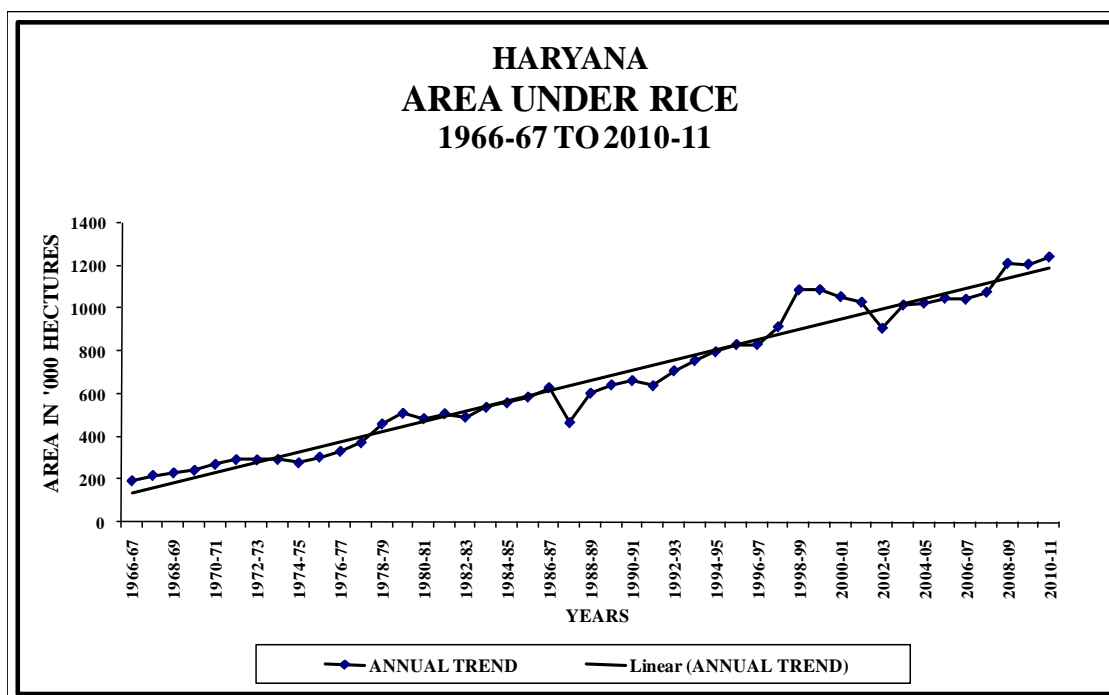
area under rice came to occupy 602 thousand hectares land. Thus between 1966-67 and 1986-87 area under rice in the state grew by over three times. During the period 1986-87 share of area under rice in the state was 10 percent to total cropped area (Table 1.1). By 2010-11, the area under rice cultivation in the state further grew. With a growth rate of 66 percent, since 1986-87 rice cultivation spread to 1240 thousand ha in 2010-11. This was 19.06 percent of the total cultivated area. It is clear from the figure 1.1 that area under rice cultivation had increased very sharply in Haryana during 1966-67 to 2010-11. In state area under rice has been fluctuating from year to year.

The trend line drawn for time series data shows the rapid increase in area under rice cultivation increase with passage of time. Fig. 1.1 shows that the area under rice cultivation fluctuates from year to year. A glance at the line graph of area under rice cultivation reveals that the area under rice cultivation over the years has been fairly high up to 2010-11 with few exceptions. From 1966-67 to 1986-87 the area under rice cultivation followed the trend line which shows the ideal increase in area under rice cultivation over the years. This increase in the area under rice cultivation is due to spread of irrigation facilities, changing cropping pattern and increasing cropping intensity.

A remarkable downfall in area under rice cultivation occurred in 1987-88 due to serious drought. After 1987-88 the area under rice cultivation increased smoothly till 1996-97. A remarkable increase occurred in 1998-99 due to spread of rice cultivation in non-rice growing districts Rohtak, Jhajjar, Sirsa, Hisar, Gurgaon, Bhiwani and Rewari districts of Haryana. The year 2002-03 was a drought year in which area under rice decreased perceptibly. After perceptibly 2003-04 the area under rice cultivation becomes stable.



Figure 1.1



### SPATIAL PATTERN OF RICE CULTIVATION:

It is not only the temporal, spatial pattern of rice cultivation has also changed with passage of time in Haryana. Table 1.2 shows the percentage of area under rice to total cropped area. In mid-1960's rice occupied a very insignificant position in the state in terms of percentage to the total cropped area. During the year 1966-67 the state reported only 175 thousand ha under rice cultivation. This accounts for 4.2 percent of the total cropped area. The cultivation of rice was mainly confined to the north eastern part of the state which enjoyed relatively better irrigation facilities. In 1966-67 important rice growing district were Karnal (15.3 percent) and Ambala (13.8 percent) occupying more than 13 percent of the total cropped area. Lowest area under rice cultivation was in Jind, Rohtak and Hisar i.e. below 2 percent. Gurgaon and Mahendragarh reported very negligible area under rice crop.

Table 1.1 Percentage of Area under Rice to Total Cropped Area in Haryana

District	1966-67	1988-89	2010-11
Panchkula	DNA	DNA	23.68
Ambala	13.8	19.9	38.35
Y/Nagar	DNA	DNA	34.74
Jind	1.6	10.1	24.1
Kurukshetra	DNA	35.4	44.28
Karnal	15.3	34.7	44.36
Panipat	DNA	DNA	40.31



Sonipat	DNA	10.5	30.52
Gurgaon	DNA	0.3	4.39
Faridabad	DNA	1.9	13.43
Kaithal	DNA	DNA	41.3
Bhiwani	DNA	DNA	2.8
Rohtak	1	0.6	16.96
Jhajjar	DNA	DNA	12.92
Hisar	0.8	2.73	7
Fatehabad	DNA	DNA	20.71
Sirsa	DNA	3.8	8.5
Mahendragarh	Nil	Nil	Nil
Rewari	DNA	DNA	1.52
Mewat	DNA	DNA	3.13
Palwal	DNA	DNA	19.08
<b>Haryana</b>	4.2	10	19.06

DNA: Data not available

Source: Statistical Department Haryana

In 1988-89 the proportion of area under rice cultivation increased to 10 percent. It was because of progress made in irrigation facilities of the state during the intervening period. The main concentration of rice cultivation was in the districts lying in north and eastern regions, the central part of the state also gained in terms of intensity of rice cultivation. In 1988-89 Kurukshetra ranked first in terms of proportion of area under rice in state. It occupied 35.4 percent of the total cropped area. This was followed by Karnal and Ambala districts which also reported very intensive rice cultivation. These two districts reported 34.7 and 19.9 percent area under rice cultivation to total cropped area respectively. In Sonipat and Jind districts area under rice cultivation accounted for 10.5 and 10.1 percent respectively. In Sirsa, Faridabad, Hisar, Rohtak and Gurgaon the rice occupied below 8 percent of total cropped area. Bhiwani and Mahendragarh district were non rice growing districts till 1988-89.

In 2010-11 rice came to occupy a second position among the cultivated crops in the state, occupying 19.06 percent of total cropped area. During this period in Karnal, Kurukshetra, Panipat and Kaithal districts rice occupied more than 40 percent of total cropped area. It is pertinent to note that these four districts alone occupied about 50 percent of total area devoted to rice cultivation in the state. Ambala is also core rice growing district, where this crop occupied 38.35 percent of total cropped area. Other rice growing districts are Yamunanagar, Sonipat, Jind, Fatehabad, and Panchkula. Over the period of 1988-89 to 2010-11 area under rice also increased in non-growing districts like Rohtak, Jhajjar, Sirsa, Hisar,



Gurgaon, Bhiwani and Rewari districts. Mahendergarh maintained its distinction of having no area under rice cultivation in 2010-11 also. In Bhiwani district, the rice cultivation has been introduced at a limited scale in the canal irrigated areas in northern parts of the district.

## **CONCLUSION**

The state of Haryana came into being on Nov. 1, 1966. This region of the composite Punjab state was relatively less developed part at the time of reorganization of state was relatively less developed of the Punjab state. The emergence of Haryana as a separate state coincides with the onset of green revolution in the state underwent a significant change thereafter. In the present study an attempt has been made to examine the spread of rice cultivation in Haryana during the period 1966-67 to 2010-11. During this period, in non-traditional rice growing states like Punjab and Haryana, strength of area under rice vis-à-vis other crops have witnessed a sharp increase. Therefore, rice cultivation is often regarded as the by-product of green revolution in Haryana state. At present it is the second major crop after wheat. The last four decades have witnessed a notable spread of area under rice in the state, because large scale package technology including H.Y.V. seeds, chemical fertilizer and irrigation facilities were introduced during this period. It may be noted that just prior to the emergence of Haryana as separate state in 1966 rice was grown only on a little about 4.2 percent of the total cropped area. This figure has gone upto 19.06 percent by the year 2010-11. Rice cultivation was mainly confined in the north and north eastern parts of the state. The spread of rice cultivation in the southern parts over the period of forty four years has been quite minimal. This is because of the extremely unsuitable physical factors like topography and average annual rainfall. In addition, groundwater in this part is largely saline. Rice is a water intensive crop and requires irrigation more frequently than other kharif crops. Canal irrigation in the southern and south-western parts provides water only at fixed interval. As against this, groundwater is of better quality in the northern and north-eastern parts, and tubwells, which are capable of providing water at any time it is required, are the main source of irrigation here. Thus, the difference in the nature of two sources of irrigation seems to be an important limiting factor on the extent of spread of rice in the state.



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