Policy Report

Increasing acreage in RICE

Uttar Pradesh

SURVEY REPORT

Directorate of Research

Chandra Shekhar Azad University of Agriculture & Technology

Kanpur

Policy Report

on

Increasing acreage in

RICE

Uttar Pradesh

Directorate of Research

Chandra Shekhar Azad University of Agriculture & Technology

Kanpur

Patron

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डा. डी. आर. सिंह
कुलपति
Dr. D. R. Singh
Vice-Chancellor

चन्द्रशेखर आजाद कृषि एवं प्रौद्योगिक विश्वविद्यालय
कानपुर–208 002, उत्तर प्रदेश, भारत
Chandra Shekhar Azad University of Agriculture & Technology
Kanpur-208 002, Uttar Pradesh, INDIA

Foreword

COVID-19 is a rapidly evolving pandemic, with many rural and urban areas across the globe effectively shut down for most commerce and transport. Border closures, quarantines, and value chain disruptions are restricting food access, while shortfalls of inputs and the financial means to purchase them are jeopardizing production capabilities.

India imposed lockdown at the end of March 2020, a decision that resulted in a massive reverse migration as many workers across economic sectors returned to their home regions. Migrants provide the foundations of the agricultural workforce in the 'breadbasket' states of Punjab and Haryana in Northwest India to different district of Uttar Pradesh causes surplus manpower resulted more engagement of migrant laborers. This study reveals the impact of availability of migrant labourers on enhanced acreages and production of rice. It is my privilege to present the study on **"Increasing Acreage of rice in Uttar Pradesh"** due to availability of migrant labourers.

I express my appreciation to the Dr H.G. Prakash Director Research and Team of scientists who involved in the study and for synthesizing the study report.

(D.R. Singh)

Dated: August 19, 2021

Phone : +91-512-2534155 (Off.), **Fax :** +91-512-2533808 **E-mail :** vc@csauk.ac.in, www.csauk.ac.in

CONTENTS

1.	Executive Summary	1-3
2.	Introduction	4-5
3.	Methodology	6-8
	Study area	
	Source of data	
	Estimation area under rice cultivation	
4.	Results And Discussion	9-15
	Size of holding of sample farmers	
	Land use pattern in sample district	
	Trend in net sown area under kharif	
	Trend in acreage of rice in sample districts	
	Trend in acreage of rice in sample villages	
	Trend in acreage of rice in category wise sample farmers	
	Diversion of Non-paddy crop to paddy	
5.	Conclusion	16

EXECUTIVE SUMMARY

1. Agricultural production potential in Uttar Pradesh is far greater than what is being realized while a major cause of rice yields appears to be the uncertainty about the availability of water in the rainfed fields, even the yields of irrigated rice are low. Uttar Pradesh ranked second with the production of 140.22 lakh ton during 2019-20. During 2020-21 hectarage under rice cultivation has been increased causing the replacement important *kharif* crop.

2. For selection of sample farmers, two districts (Kanpur Nagar and Kanpur Dehat) were selected. From each district, two blocks and from each block five villages were selected randomly. All the farmers in a village were grouped into three categories *viz;* marginal, small and large on the basis of their size of holdings. A total of 15 farmers from each village were selected. Thus, a total of 150 farmers were selected for the detailed farm survey.

3. Sample farmers from each district were grouped into marginal, small and medium farmers. It revealed that out of total sample farmers (150), there was 55 marginal, 60 small and 35 large farmers having average size of holdings are 0.74, 1.38 and 2.65 ha, respectively.

4. It was also recorded that there were 968 in house family members in all sample farmers and after COVID-19 lockdown, 323 more migrant family members were back to their house which was 25.34 per cent of in house family members. Maximum migrant family members were observed in marginal category of farmers sample villages in both the districts. Lower numbers of migrant family members were recorded in large category of farmers in both the districts.

5. Maximum area coverage during *Kharif* 2020 under rice cultivation was increased by 16.67 per cent in small farmers over *Kharif* 2019 followed by large farmers (14.20 %) and marginal farmers (7.75 %) in district Kanpur Nagar whereas 17.86% increased area under rice coverage was also recorded in small farmers of sample villages of Kanpur Dehat followed by 14.80% in large and 6.34% in marginal category farmers.

6. Survey report revealed that increased area coverage in rice may be due to availability of excess migrant family labour (42 % respondents), less losses due to heavy rains (9% respondents), less losses due stray cattle (08% respondents), availability of irrigation (07% respondents), assured production (09% respondents), assured market (09% respondents), cultivation rice by neighboring farmers (08% respondents) and fodder availability (08% respondents).

7. It was also recorded that increased hactarage of rice cultivation is due to shifting of current fellow, sorghum, arhar & maize in marginal farmers, current fellow, sorghum, arhar, maize, urd, moong, til & pearl millet (partial) crops in small farmers and current fellow, sorghum, arhar, maize & pearl millet (partial) in large farmers in Kanpur Nagar whereas in Kanpur Dehat current fellow, sorghum, arhar, maize, til & pearl millet (partial) in marginal, sorghum, arhar, maize & pearl millet (partial) in small farmers and sorghum, arhar, maize, til (partial) & pearl millet in large category farmers.

8. It was also revealed that as area coverage in sample villages of both representative districts increased over the year by replacing sugarcane (largely), sorghum, maize, pearl millet, urd, moong and til crops.

9. it is concluded that there is drastic chance in area coverage of rice (Kanpur Nagar 13.54% & Kanpur Dehat 14.12%) due to availability of family migrant members (labours). It is also observed that increased acreage in rice replaced area coverage of major Kharif crops (sorghum, arhar, maize, sugarcane, urd, moong, til) beside reduction in current fellow in sample villages of representative districts.

INTRODUCTION

Rice is one of the most versatile plants, classified primarily as a tropical and subtropical crop. Rice is the staple food for more than 50% of the population across the globe. As a labour-intensive crop, the rice cultivation provides livelihood and employment to millions of people. The Green Revolution enabled many countries across the globe to increase the production and in India besides increasing production, the country entered into a new era of input use

Rice is the most important agricultural crop in India, contributing to more than 40% of the country's total food grain production. It is grown in 43.78 million ha with the production level is 117million tones during 2019-20. It is grown under diverse soil and climatic conditions the productivity level of rice is low compared to the productivity levels of many countries in the world.Also about 90 % of the cultivated land belongs to marginal, Small and medium farmers which are another constrain in increasing the productivity of rice in the country. It is grown either by direct sowing—broadcast or drilled—or by transplanting and under diverse water regimes : as an upland crop where there is no standing water and the rains are the sole source of moisture, or under lowland conditions whereby water, derived either from rain or irrigation systems, is impounded in the fields. It is, therefore, there is

ample scope to increase the productivity of rice in the country.

The potential of agricultural production in U.P. is far greater than what is being realized while a major cause of rice yields appears to be the uncertainty about the availability of water in the rainfed fields, even the yields of irrigated rice are low. Uttar Pradesh ranked second with the production of 140.22 lakh ton during 2019-20. During 2020-21 hectarage under rice cultivation has been increased causing the replacement important *kharif* crop. With the view, present study was conducted in Kanpur Nagar & Kanpur Dehat to investigate the cause of area expansion rice in Uttar Pradesh.

METHODOLOGY

Study area

Central Plain zone of Uttar Pradesh is consists of 14 districts covering 22.16 per cent acreage of rice with production 3588.52 thousand metric tons. Out of fourteen district of central plain zone, two districts *viz;* Kanpur Nagar and Kanpur Dehat were randomly selected for study. District Kanpur Nagar is consists of four Tehshil *viz;* Bilhaur, Kanpur Nagar, Narwal and Ghatampur; ten blocks i.e. Shivrajpur, Kakwan, Chaubepur, Bilhaour, Patara, Ghatampur, Bidhanu, Bhitargaon, Sarsaul and Kalyanpur with 902 revenue villages whereas Kanpur Dehat is consists of six Tehshil *viz;* Akhbarpur, Bhognipur, Derapur, Rashulabad, Sikandra and Maitha; Ten blocks i.e. Rashulabad, Maitha, Jhijhak, Derapur, Sandalpur, Akbarpur, Sarvan Khera, Rajpur, Amraudha, & Malasha with 640 revenue villages. One block from each districts i.e. **Sample Districts** Shivrajpur from Kanpur nagar and Maitha from Kanpur dehat were also selected randomly. Ten villages i.e. five from each blocks were randomly selected covering 150 farmer samples as detailed below;

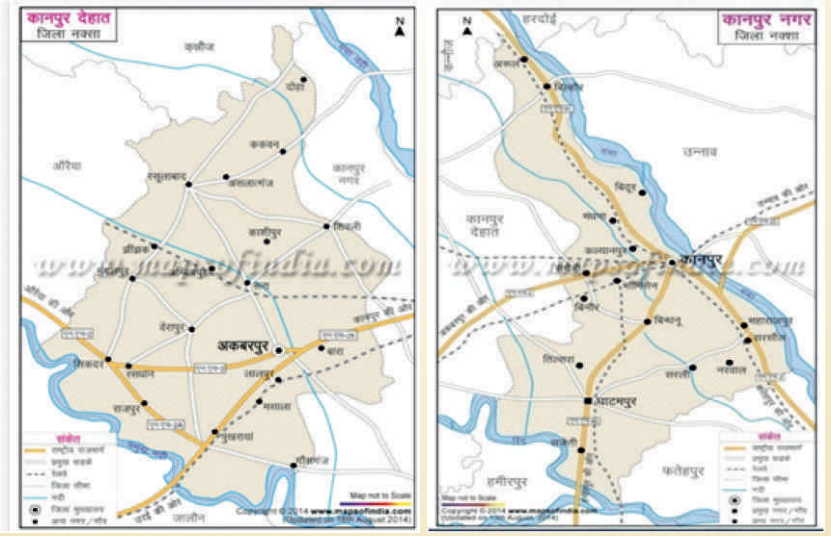


Table1: samples districts & Villages

S.No.	Districts			
	Kanpur Nagar		Kanpur Dehat	
	Block Shivrajpur		Block Maitha	
	Name of Village	No. of farmers (samples)	Name of Village	No. of farmers (samples)
1.	Daleepnagar	15	Aurangabad	15
2.	Basen	15	Sahtawanpur	15
3.	Surja niwada	15	Fattepur	15
4.	Bhaisana	15	Malikpur	15
5.	Rautapur	15	Makarndpur	15
Total	5	75	5	75

Secondary data collected from Uttar Pradesh Ke Krishi Akare Annual Publication Department of Uttar Pradesh, Government of Uttar Pradesh. Primary data was collected from farmers practicing the rice cultivation. For selection of sample farmers, two districts (Kanpur Nagar and Kanpur Dehat) were selected. From each district, two blocks and from each block five villages was selected randomly. All the farmers in a village were grouped into three categories *viz;* marginal, small and large on the basis of their size of holdings. A total of 15 farmers from each village were selected. Thus, a total of 150 farmers were selected for the detailed farm survey.

Collection primary data in villages

Estimation of area under rice cultivation

In this investigation, the secondary data on land use pattern and rice production trend of sample district was collected from Department of Agriculture where as primary data on acreage expansion of rice crop was recorded by interview with selected farmers on structured schedule.

RESULTS AND DISCUSSION

Size of holding of sample farmers

Sample farmers from each district were grouped into marginal, small and medium farmers. Perusal of table 2 it revealed that out of total sample farmers (150), there was 55 marginal, 60 small and 35 large farmers having average size of holdings are 0.74, 1.38 and 2.65 ha, respectively.

S. No.	Block Shivrajpur (Kanpur Nagar)			Block Maitha (Kanpur Dehat)			No. of Farmers (samples)	Ave. size of holding (ha)
	Size of holding	No. of farmers	Average (ha)	Size of holding	No. of farmers	Ave. (ha)		
1.	Marginal	28	0.71	Marginal	27	0.76	55	0.74
2.	Small	29	1.48	Small	31	1.29	60	1.38
3.	Large	18	2.69	Large	17	2.61	35	2.65

It was also observed from table 3 that there were 968 in house family member in all sample farmers and 323 migrant family members. Total migrant family members were 25.34 per cent of in house family members. Maximum migrant family members were observed in marginal category of farmers sample villages in both the districts. Lower numbers of migrant family members were recorded in large category of farmers in both the districts.

Land use pattern in sample districts:

Land use pattern of sample districts is depicted in table 4. Data revealed that in Kanpur nagar, total reported area, forest, ussar uncultivable, present fellow, other fellow , net sown area, area sown more than once is 301326, 5627, 13964, 29346, 7448, 184898, and 77034 ha, respectively corresponding to 314984, 5796,15082, 28088, 8409, 219823 and 749044 ha, respectively in Kanpur Dehat.

Table 3: Average no. of members in family

Parti-culars	Marginal		Small		Large		Total
	Shivr ajpur (Kanp ur Nagar	Maitha (Kanpur Dehat)	Shivra jpur (Kanp ur Nagar	Maitha (Kanp ur Dehat)	Shivra jpur (Kanp ur Nagar)	Maitha (Kanp ur Dehat)	
No. of farm families	28	27	29	31	18	17	150
No. of in house family members	155	134	152	173	163	191	968
No. of migrant family members	98	62	48	28	11	9	284
% increased in migrant Member	63.23	42.27	31.58	16.18	6.75	4.71	25.34

Table 4: Land use pattern in sample districts

S. No.	Particulars	Samples districts		U.P.
		Kanpur Nagar	Kanpur Dehat	
1.	Total reported area (ha)	301326	314984	24170454
2.	Forest (ha)	5627	5796	1658608
3.	Ussar uncultivable (ha)	13964	15082	461683
4.	Present fellow (ha)	29346	28088	1121550
5.	Other fellow (ha)	7448	8409	509192
6.	Net sown area (ha)	184898	219823	16598043
7.	Area sown more than once (ha)	77034	749044	9449073

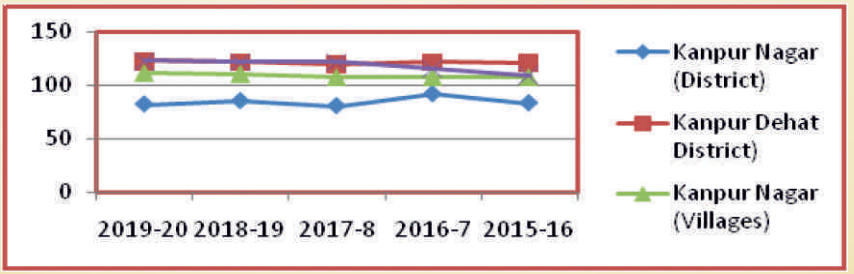
Trend in net sown area under *Kharif*

Trend in *Kharif* sown area in sample districts and villages is depicted in table 5 & figure1. Perusal of data it was evident that during *Kharif*, sown area in Kanpur Nagar was 82184, 85365, 80559, 91816 and 83305 ha during 2019-20, 2018-19, 2017-18, 2016-17, and 2015-16, respectively corresponding to 123000, 121975, 120000, 122250 and 121189 ha, respectively in Kanpur Dehat. In sample villages of Kanpur Nagar 112, 111, 108, 108 and 108 ha in 2019-20, 2018-19, 2017-18, 2016-17 and 2015-16, respectively corresponding to 123, 122, 122, 116 and 109 ha in sample villages of Kanpur Dehat which follows similar trends of representative districts.

Table 5: Trend in sown area (ha) under *Kharif* in sample districts

Districts	Year				
	2019-20	2018-19	2017-18	2016-17	2015-16
Kanpur Nagar (District)	82184	85365	80559	91816	83305
Kanpur Dehat (District)	123000	121975	120000	122250	121189
Kanpur Nagar (Villages)	112	111	108	108	108
Kanpur Dehat (Villages)	123	122	122	116	109

Fig.1: Trend in sown area under Kharif in sample districts



Trend in acreage (ha) of rice in sample districts

Perusal of results recorded during survey of sample district and district data, it revealed that hactarage under rice cultivation was in 34679, 34187, 32298, 35119 and 31182 ha during 2019-20, 2018-19, 2017-18, 2016-17 and 2015-16, respectively corresponding to 42937, 42328, 42800, 42797and 14895 ha in Kanpur Dehat (table 6).

Table 6: Trend in acreage (ha) of rice in sample districts

Districts	Year				
	2019-20	2018-19	2017-18	2016-17	2015-16
Kanpur Nagar (District)	34679	34187	32298	35119	31182
Kanpur Dehat (District)	42937	42328	42800	42797	14895

Trend in acreage (ha) of rice in sample villages

Trend in acreage (ha) of rice in sample farmers is presented in table 7. Analysis of data, it observed that there was increasing trend in acreage of rice cultivation in villages of both the districts. Cultivation of rice was initiated in sample villages district Kanpur during 1964 with 2.4 ha while in Kanpur Dehat, it was initiated in 1960. Area under rice cultivation during *Kharif 2020* is 13.54 per cent more than 2019-20 in Kanpur Nagar whereas it has increased by 14.12 per cent in Kanpur Dehat. It was also revealed that as area coverage in sample villages increased over the year by replacing sugarcane (largely), sorghum, maize, pearl millet, urd, moong and til crops.

Particulars	Year					
	2020-21	2019-20	2018-19	2017-18	2016-17	2015-16
Kanpur Nagar	71.30	62.8	59.4	50.5	39.9	18.9
Kanpur Dehat	86.5	75.8	70.3	62.2	45.7	27.6

Table 7: Trend in acreage (ha) of rice in sample farmers

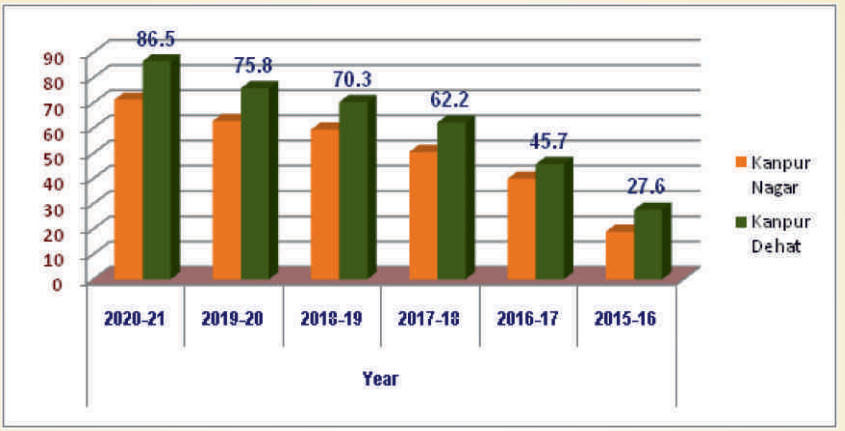


Figure2: Trend in acreage (ha) of rice in sample farmers

Trend in acreage (ha) of rice in category wise sample farmers

Result of the study revealed that the maximum increase in area coverage during *Kharif* 2020 under rice cultivation was increased by 16.67 per cent in small farmers over *Kharif* 2019 followed by large farmers (14.20 %) and marginal farmers (7.75 %) in district Kanpur Nagar whereas 17.86% increased area under rice coverage was also recorded in small farmers of sample villages of Kanpur Dehat followed by 14.80% in large and 6.34% in marginal category farmers. It followed similar trend in both the sample villages of representative districts. Perusal of data (table -8 and

figure-3), it revealed that increased area coverage in rice is due to availability of excess migrant family labour (42 % respondents), less losses due to heavy rains (9% respondents), less losses due stray cattle (08% respondents), availability of irrigation (07% respondents), assured production (09% respondents), assured market (09% respondents), cultivation rice by neighboring farmers (08% respondents), and fodder availability (08% respondents).

	Paddy cultivation					
Farmers	Shivrajpur			Maitha		
	Kharif -2019	Kharif -2020	% increase	Kharif -2019	Kharif-2020	% increase
Marginal	12.9	13.9	7.75	14.2	15.1	6.34
Small	16.8	19.6	16.67	22.4	26.4	17.86
Large	33.1	37.8	14.20	39.2	45.0	14.80
Total			13.54			14.12

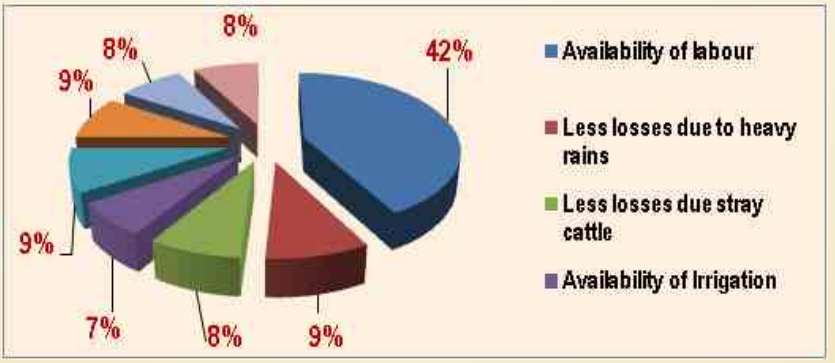


Table 8: Trend in acreage (ha) of rice in category wise sample farmers

Diversion of Non-paddy crop to paddy

Perusal of data collected from sample villages, it envisaged that increased hactarage of rice cultivation is might be due to shifting current fellow, sorghum, arhar, maize, in marginal farmers, current fellow, sorghum, arhar, maize, urd, moong, til, pearl millet (partial) crops in small farmers and current fellow, sorghum, arhar, maize, pearl millet (partial) in large farmers in Kanpur Nagar whereas in Kanpur Dehat current fellow, sorghum, arhar, maize, til pearl millet (partial) in marginal, sorghum, arhar, maize, pearl millet (partial) in small farmers and sorghum, arhar, maize, til (partial), pearl millet in large category farmers (Table 9).

Table 9: Diversification of crops in rice acreage

Marginal	Shivrajpur	Current fellow, Sorghum, Arhar, Maize
	Maitha	Current fellow, Sorghum, Arhar, Maize, Til, Pearl millet (partial)
Small	Shivrajpur	Current fellow, Sorghum, Arhar, Maize, Urd, Moong, Til, Pearl millet (partial)
	Maitha	Sorghum, Arhar, Maize, Pearl millet (partial)
Large	Shivrajpur	Current fellow, Sorghum, Arhar, Maize, Pearl millet (partial)
	Maitha	Sorghum, Arhar, Maize, Pearl millet, Til (partial)

CONCLUSION

Perusal of survey data, it is concluded that there is 13.54% increase in area coverage of nice in Kanpur nagar where as it is 14.12% in Kanpur Dehat due to availability of migrant family members (labours), It is also observed that increased acreage in rice resulted reducion in area coverage of major *Kharif* crops (sorghum, arhar, maize, sugarcane, urd, moong, til) beside reduction in current fellow in sample villages of representative districts.

Note

Published by

Dr. D. R. Singh
Vice Chancellor

Dr H.G. Prakash
Director Research

Contact us: 05122534128 (O)
e-mail: directoraes@csauk.ac.in
vc@csauk.ac.in
Chandra Shekhar Azad University of Agriculture & Technology, Kanpur