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Biseshwar Saxena
Assistant Professor, College of Agriculture and Research Station, Janjgir-Champa, Indira Gandhi Krishi Vishwavidyalaya, Ripur, Chhattisgarh, India

MA Khan
Professor, Department of Agricultural Extension, College of Agriculture, Indira Gandhi Krishi Vishwavidyalaya, Ripur, Chhattisgarh, India

Sunil Narbaria
Guest Faculty College of Agriculture and Research Station, Kurud, Indira Gandhi Krishi Vishwavidyalaya, Ripur, Chhattisgarh, India

HK Awasthi
Professor, Department of Agricultural Extension, College of Agriculture, Indira Gandhi Krishi Vishwavidyalaya, Chhattisgarh, India

KNS Banafer
Dean, College of Agriculture and Research Station, Janjgir-Champa, Indira Gandhi Krishi Vishwavidyalaya Ripur, Chhattisgarh, India

Corresponding Author
Biseshwar Saxena
Assistant Professor, College of Agriculture and Research Station, Janjgir-Champa, Indira Gandhi Krishi Vishwavidyalaya, Ripur, Chhattisgarh, India

Wet and dry seasons rice cultivation in Chhattisgarh: A farmers perspective analysis of constraints and their suggestions

Biseshwar Saxena, MA Khan, Sunil Narbaria, HK Awasthi and KNS Banafer

Abstract
The present study was conducted in the state of Chhattisgarh's plain agro-climatic zone of Chhattisgarh state during the year 2020. The purpose of this study is to evaluate information on rice farming during the wet and dry seasons. The research was carried out in 18 villages chosen randomly from six blocks in three districts in the Chhattisgarh Plains Agro-Climatic Zone. The information was gathered through a personal interview with the use of an interview schedule. The information gathered was examined using appropriate statistical methodologies and tools. Maximum percentage of the respondents stated that the non-availability of labor during peak season for different operations, low price of rice in the market, high price of fertilizers and agro-chemical and less amount of credit provided by the cooperative society. Most of the respondents suggested that government should provide labour through MGNAREGA on hire basis, government should procure rice at the rate of Rs.25,00.00 in dry season also, limit of selling rice should be increase to 65 q/ha, low price and effective agro-chemical should be available in the market and the amount of credit provided by the cooperative society should be increased, respectively.

Keywords: rice farming, wet season, dry season, problems and suggestions

Introduction
The agriculture's contribution to global GDP is decreasing, it continues to support the livelihoods of more than 2.6 billion people worldwide, and the majority of whom live in rural regions (Anonymous, 2016) [1]. The state is divided into three agro-ecological zones: the plains of Chhattisgarh, the plateau of Bastar, and the Northern hills of Surguja. This zone has a wide range of soil topography, rainfall intensity and distribution, irrigation, and agricultural production system adoption, resulting in a wide range of rice productivity in these areas. In Chhattisgarh, the absence of adequate rainfall and reliable irrigation water are major factors in the low cultivation of rabi or dry season rice. Modern agriculture necessitates a cutting-edge technology that applies scientific knowledge to farming in a methodical manner (Gbegeh and Akubuilo, 2013) [2]. Higher earnings and lower poverty have been linked to the adoption of new agricultural technologies, as well as improved nutritional status, cheaper staple food prices, more work options, and earnings for landless labourers (Mwangi and Kariuki, 2015) [3].

Material and Methods
The present study was carried out in Chhattisgarh Plains Agro-Climatic Zone of Chhattisgarh State. On the basis of maximum area coverage of dry season rice cultivation, the three districts in the zone i.e. Janjgir-Champa, Dhamtari, and Raipur were undertaken for the study. Two blocks from each of the selected district were selected randomly for this investigation. In this way a total of 6 blocks were taken for this study, from each selected block, 3 villages were selected randomly for the selection of respondents and from each selected village, 15 farmers were selected randomly. In this way, a total of 270 farmers were considered as respondent to respond as per the interview schedule design for the study.
The interview schedule was designed on the basis of objectives and independent and dependent variables considered for this investigation. To facilitate the respondents, the interview schedule was framed in “Hindi”. Each question was thoroughly examined and discussed with the experts before finalizing the interview schedule. Adequate precautions and care were taken into consideration to formulate the questions in a manner that they were well understood by the respondents and would find it easier to respond.

Before using prepared interview schedule for collection of data it was pre-tested by 20 non-sample respondents and also checked its reliability and validity. On the basis of experience gained in pre-testing, the necessary modifications and suggestions were incorporated before giving a final touch to interview schedule. The collected data were analyzed with the help of suitable statistical methods like Frequency, Percentage, etc.

Results and Discussion

Constraints faced by the respondents in wet and dry season's rice cultivation

The data regarding constraints faced by the respondents in wet season rice cultivation are presented in Table No.1.The data shows that the majority (80.74%) of the respondents faced the non-availability of labor during peak season for different operations, followed by 75.18 per cent of respondents reported that high price of fertilizers and agro-chemical, 74.45 per cent of them faced less amount of credit provided by the cooperative society, 72.96 per cent reported that limit of selling product in regulated market, 71.11 per cent faced more infestation of weed and diseases, 67.40 per cent of them faced uncontrolled grazing in recent year, 63.33 per cent reported low availability of advanced farm machineries on hire basis 60.37 per cent of them reported that more infestation of stem borer at seedling stage of crop, 58.89 per cent faced high price of seed and 54.81 per cent of respondents reported low availability of irrigation water due to late rainfall.

Table 1: Distribution of respondents according to constraints faced by them in Wet season rice cultivation

Sl. No	Constraints	F	%
1	Non availability of labour during peak season for different operation	218	80.74
2	More infestation of stem borer at seedling stages of crop	163	60.37
3	Low availability of advanced farm machinery on hire basis	171	63.33
4	More infestation of weed and disease	192	71.11
5	Low availability of irrigation water due to late rainfall	148	54.81
6	Uncontrolled grazing in recent years	182	67.40
7	Limit of selling product in regulated market	197	72.96
8	High price of fertilizers and agro-chemical	203	75.18
9	High price of seed	159	58.89
10	Less amount of credit provided by cooperative society	201	74.45

*Data are based on multiple responses, F= Frequency and %= percentage

The data regarding constraints faced by the respondents in dry season rice cultivation are presented in Table No.2. The data shows that all the respondents said that very low price of rice in the market, followed by 98.15 per cent of the respondents faced non-availability of labour during peak season for different operations, 75.18 per cent of faced that high price of fertilizers and agro-chemical, 74.07 per cent of them faced uncontrolled grazing in recent year, 73.70 per cent of them said less amount of credit provided by the cooperative society, 70.00 per cent of respondents faced frequent attack of stem borer at seedling stage, 61.85 per cent of them said low availability of advanced machinery on hire basis, 52.96 per cent of them faced release of canal water not available at proper time, 51.48 per cent faced low availability of insect, pest and disease resistant variety and 44.81 perceived that the price of seed is high, respectively. These findings find support from the work of Tyagi *et al*. (2003) & Rani kumar *et al*. (2004) [5, 4].

Table 2: Distribution of respondents according to constraints faced by them in Dry season rice cultivation

Sl. No	Constraints	F	%
1	Very low price of paddy in the market	270	100.00
2	Non availability of labour during peak season for different operations	265	98.15
3	Release of canal water not available at proper time	143	52.96
4	Low availability of improved farm machinery on hire basis	167	61.85
5	Frequent attack of stem borer at seedling stage of crop	189	70.00
6	Uncontrolled grazing in recent years	200	74.07
7	Low availability of insect or disease resistance high yielding varieties	139	51.48
8	High price of fertilizers and agro-chemical	203	75.18
9	High price of seed	121	44.81
10	Less amount of credit provided by cooperative society	199	73.70

*Data are based on multiple responses F= frequency & %= percentage

Suggestions made by the respondents to overcome the constraints

The findings pertain to suggestions made by the respondents to overcome the various constraints faced in wet season rice cultivation are presented in Table No.3. The finding indicates that majority (81.48%) of the respondents suggested that government should provide labour through NAREGA on hire basis, followed by 77.40 per cent of them said that low price and effective agro-chemical should be available in the market, 77.04 per cent of them said that the amount of credit provided by the cooperative society should be increased, 74.07 per cent of them said limit of selling rice should be increase 65 qt/ha, 71.85 per cent of them suggested that disease resistant and high yielding variety should be available, 70.37 per cent of respondents said that cooperation based control over un-controlled grazing should be maintain at village level, 69.58 per cent of them said that high yielding varieties and stem borer resistant varieties should be available, 66.67 per cent of the said that government should ensure the availability of improved farm machinery on hire basis, 59.62 per cent of respondents suggested that rate of seed should be subsidized on affordable amount and 55.56 per cent of respondents said that water conservation technology should be implemented at village level.

Table 3: Distribution of respondents according to their suggestions to overcome the various constraints in Wet season rice cultivation

Sl. No	Suggestions	F	%
1	Government should provide labour through NREGA on hire basis	220	81.48
2	High yielding and stem borer resistance variety should be available	167	69.58
3	Government should ensure the availability of advanced farm machinery on hire basis	180	66.67
4	Disease resistance and high yielding variety should be available	194	71.85
5	Water conservation technology should be implemented at village level	150	55.56
6	Cooperation based control over uncontrolled grazing should be maintain at village level	190	70.37
7	Limit of selling rice should be increase up to 65 q/ha	200	74.07
8	Low price and effective agro-chemical should be available in the market	209	77.40
9	Rate of seed should be subsidized on affordable amount	161	59.62
10	The amount of credit provided by the cooperative society should be increased	208	77.04

*Data are based on multiple responses, F=frequency & %= percentage

The data regarding suggestions made by respondents to overcome the various constraints in dry season rice cultivation are presented in Table No.4. The findings indicate that majority (80.74%)of the respondents said that government should procure rice at the rate of Rs.25,00.00 in dry season, followed by 75.18 per cent of them suggested that low price and effective agro-chemical should be available in the market, 74.45 per cent of them suggested that the amount of credit provided by the cooperative society should be increased, 72.18 per cent suggested that the fertilizers should be made available at affordable price, 71.11 per cent of them suggested that the insect & diseases resistant and high yielding varieties should be available, 67.40 per cent of them suggested that the cooperation based control over uncontrolled grazing should be maintain at village level, 63.33 per cent suggested that release of canal water should be on time, and 58.89 per cent suggested that the rate of seed should be subsidized on affordable amount, respectively.

Table 4: Distribution of respondents according to their suggestions to overcome the various constraints in Dry season rice cultivation

Sl. No	Constraints	F	%
1	Government should fix MSP for summer rice	218	80.74
2	Government should provide labour through NREGA on hire basis	163	60.37
3	Release of canal water should be on time	171	63.33
4	Insect &Disease resistance and high yielding variety should be available	192	71.11
6	Cooperation based control over uncontrolled grazing should be maintain at village level	182	67.40
7	The fertilizers should be available at affordable price	197	72.96
8	Low price and effective agro-chemical should be available in the market	203	75.18
9	Rate of seed should be subsidized on affordable amount	159	58.89
10	The amount of credit provided by the cooperative society should be increased	201	74.45

*Data are based on multiple responses F=frequency & %= percentage

Conclusion

From the above research findings it can be concluded that Maximum percentage of the respondents stated that the non-availability of labor during peak season for different operations, low price of rice in the market, high price of fertilizers and agro-chemical and less amount of credit provided by the cooperative society. Most of the respondents suggested that government should provide labour through MGNAREGA on hire basis, government should procure rice at the rate of Rs.25,00.00 in dry season also, limit of selling rice should be increase to 65 q/ha, low price and effective agro-chemical should be available in the market and the amount of credit provided by the cooperative society should be increased, respectively.

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