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Impact of climate change on agriculture and allied activities

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Abstract

The present study "Impact of climate change on agriculture and allied activities" was carried in two blocks of Kanpur Nagar; in each block three villages were randomly selected in each village 25 respondents were randomly selected so 150 respondents were selected randomly. Out of total respondents 53.3 per cent of farmers belonged to 50 years and above age group, whereas, 31.3 per cent of the respondents were educated up to primary level. It was found that 66 per cent respondents belonged to OBC group, whereas, 92 per cent respondents belongs to Hindu religion with 65.3 per cent respondents involved in agriculture as their main occupation while 67.3 per cent respondents holds marginal land area. The 82 per cent respondents agreed that area of some crops has decreased and 96 per cent respondents agreed that air and water pollution has increased. The study reveals the impacts on agriculture and allied activities as level of ground water has decreased leading to improper supply of water to irrigation canal for proper growth. And Increase in water and air pollution causing migration of birds and animals as well as decrease in drinking water availability. So Changes occurred in flowering and fruiting time of crops causing scarcity of fodder in area was affected most impact on Climate Change.

Keywords: Agriculture, allied activities, climate change, impact, migration, scarcity

Introduction

Climate change is one of the biggest environmental challenges in all countries in the world. It refers to any change in climate overtime, whether due to natural variability or a result of human activity. Climate change and agriculture are interrelated processes, both of which take place on a global scale. It is projected to have significant impact on conditions affecting agriculture including temperature, precipitation and glacial run-off. Agriculture places heavy burden on the environment in the process of providing humanity with food and fiber, which climate is primary determinant of agriculture and livelihood of population, where large part depends on climate sensitive sector like agriculture and forestry for livelihood. By adversely affecting freshwater availability and quality, biodiversity, climate change tends disproportionately affects the poorest in the society, worsening inequities in access to food, water and health for human as well as animals.

Research methodology

The study was conducted in district Kanpur Nagar with two blocks during the year 2018-2019. From each block three villages were selected randomly and 25 respondents were selected randomly from each village. Thus, 150 beneficiaries were selected. Dependent and independent variables, namely age, educational qualification, caste, religion, type of family, size of family, type of house, annual income, occupation, land holding, social participation, awareness, constraints, suggestions, etc. were used. The data collected were subjected to statistical analysis for which statistical tools, such as percentage, rank weighted mean correlation coefficient and standard deviation.

Results

Table 1: Distribution of respondents according to age group. (N=150)

Age group	Frequency	Per cent
Up to 30 years	8	5.3
30 to 40 years	25	16.7
40 to 50 years	37	24.7
50 years and above	80	53.3
Total	150	100.0

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Table 1 reveals that the distribution of respondents according to age group, 53.3 per cent of farmers belonged to 50 years and above age group followed by 24.7 per cent of farmers

belonged to 40 to 50 years age group. 16.7 per cent of farmers were found to be 30 – 40 years age group, whereas, 5.3 per cent of farmers belonged to age group up to 30 years.

Table 2: Distribution of respondents according to education. (N=150)

Education	Frequency	Per cent
Illiterate	24	16
Up to primary	47	31.3
High School	40	26.7
Intermediate	27	18.0
Graduate and above	12	8
Total	150	100.0

Table 2 reveals that the distribution of the respondents according to educational qualification, 31.3 per cent of the respondents were educated up to primary level followed by 26.7 per cent of the respondents were educated up to High

School. 18.0 per cent of the respondents passed intermediate, 16 per cent of respondents were illiterate, whereas 8 per cent of respondents were graduate and above.

Table 3 (A): Distribution of respondents according to impact of climate change on agriculture. (N=150)

S. No.	Statements	Agree	Undecided	Disagree	Mean Score	Rank
1.	Area of some crops has decreased	82.0	18.0	-	2.82	I
2.	Use of traditional crop varieties decreased	62.0	35.3	2.7	2.59	IV
3.	Changes occurred in flowering and fruiting time of crops	68.0	31.3	0.7	2.67	III
4.	Cropping pattern has changed	58.7	38.7	2.7	2.56	VI
5.	New species of seasonal weeds seen in recent years	38.7	58.7	2.7	2.36	VIII
6.	Conditions getting favourable to flourish weeds/ insects/ diseases	54.7	45.3	-	2.55	VII
7.	Investment in agriculture has increased	78.0	19.3	2.7	2.75	II
8.	Traditional irrigation sources like pond has reduced	58.0	40.7	1.3	2.57	V
9.	Level of ground water has decreased	76.0	23.3	0.7	2.75	II

Table 3 (A) reveals that distribution of respondents according to impact of climate change on agriculture activities, 82.0 per cent of respondents agreed that area of some crops has decreased, whereas 18.0 per cent of respondents were undecided with mean score value 2.82 and rank I. 78.0 per cent of respondents agreed that investments in agriculture has increased, whereas, 19.3 per cent of respondents were undecided and 2.7 per cent of the respondents disagreed with mean score value 2.75 and rank II. 76.0 per cent of respondents agreed that level of ground water has decreased, whereas, 23.3 per cent of respondents were undecided and 0.7 per cent of the respondents disagreed with mean score value 2.75 and rank II. 68.0 per cent of respondents agreed that changes occurred in flowering and fruiting time of crops, whereas, 31.3 per cent of respondents were undecided and 0.7 per cent of the respondents disagreed with mean score value 2.67 and rank III. 62.0 per cent of respondents agreed that use of traditional crop varieties decreased, whereas, 35.3 per cent

of respondents were undecided and 2.7 per cent of the respondents were disagree with mean score value 2.59 and rank IV. 58.0 per cent of respondents agreed that traditional irrigation sources like pond has reduced, whereas, 40.7 per cent of respondents were undecided and 1.3 per cent of the respondents disagreed with mean score value 2.57 and rank V. 58.7 per cent of respondents agreed that cropping pattern has changed, whereas, 38.7 per cent of respondents were undecided and 2.7 per cent of the respondents disagreed with mean score value 2.56 and rank VI. 54.7 per cent of respondents agreed that conditions getting favourable to flourish weed/ insects/ diseases, whereas, 45.3 per cent of respondents were undecided with mean score value 2.55 and rank VII. 38.7 per cent of respondents agreed that new species of seasonal weeds seen in recent years, whereas, 58.7 per cent of respondents were undecided and 2.7 per cent of the respondents disagreed with mean score value 2.36 and rank VIII.

Table 3 (B): Distribution of respondent according to Impact on allied activities. (N=150)

S. No.	Statements	Agree	Undecided	Disagree	Mean Score	Rank
1.	Species of some animal and bird has extinct	56.0	33.3	10.7	2.45	VI
2.	Behavioral changes and adverse effect on health of livestock	58.7	41.3	-	2.59	V
3.	Scarcity of fodder in area	63.3	34.7	2.0	2.61	IV
4.	New fish species found and old species has extinct in rivers	46.0	45.3	8.7	2.37	VII
5.	Investment on physical facilities increased	76.7	22.0	1.3	2.75	III
6.	Human health problems are increasing	92.0	8.0	-	2.92	II
7.	Migration of birds and animals has increased	38.0	58.7	3.3	2.35	VIII
8.	Drinking water availability decreased	92.0	8.0	-	2.92	II
9.	Air pollution and water pollution is increasing	96.0	4.0	-	2.96	I
10.	Drudgery of farmers/ farm women has increased	58.7	41.3	-	2.59	V

Table 3 (B) denotes that distribution of respondents according to impact of climate change on allied activities, 96.0 per cent of respondents agreed that air pollution and water pollution

has increased, whereas, 4.0 per cent of respondents were undecided with mean score value 2.96 and rank I. 92.0 per cent of respondents agreed that human health problems are

increasing, whereas 8.0 per cent of respondents were undecided with mean score value 2.92 and rank II. 92.0 per cent of respondents agreed that drinking water availability, whereas, 8.0 per cent of respondents were undecided with mean score value 2.92 and rank II. 76.7 per cent of respondents agreed that investment on physical facilities increasing, whereas, 22.0 per cent of respondents were undecided and 1.3 per cent of the respondents disagreed with mean score value 2.75 and rank III. 63.3 per cent of respondents agreed that scarcity of fodder in area, whereas, 34.7 per cent of respondents were undecided and 2.0 per cent of the respondents disagreed with mean score value 2.61 and rank IV. 58.7 per cent of respondents agreed that behavioral changes and adverse effect on health of livestock, whereas, 41.3 per cent of respondents were undecided with mean score value 2.59 and rank V. 58.7 per cent of respondents agreed that drudgery of farmers/ farm women has increased, whereas 41.3 per cent of respondents were undecided with mean score value 2.69 and rank V. 56.0 per cent of respondents agreed that species of some animal and bird has extinct, whereas 33.3 per cent of respondents were undecided and 10.7 per cent of the respondents disagreed with mean score value 2.45 and rank VI. 46.6 per cent of respondents agreed that new fish species found and old species has extinct in rivers, whereas, 45.3 per cent of respondents were undecided and 8.7 per cent of the respondents disagreed with mean score value 2.37 and rank VII. 38.0 per cent of respondents agreed that migration of birds and animals has increased, whereas 58.7 per cent of respondents were undecided and 3.3 per cent of the respondents disagreed with mean score value 2.35 and rank VIII.

Conclusion

The study indicates that the fluctuating climatic pattern have a direct impact on livelihood of people as 80% depends on marginal agriculture. The increase of rainfall, temperature, and extreme events has been observed. The area of some crops has decreased leading to increase in investment in agriculture, level of ground water has decreased as well as it has become polluted which causes soil salinity and improper crop growth. Scarcity of fodder in an area has occurred, which lead to migration of animals and many health problems to them. Thus it is an evident that climate change plays an important role as it has great impact over agriculture and allied activities which can be met by bringing desirable changes in technologies and agricultural practices.

Recommendation and Suggestions

1. Assist farmers in coping with current climate risk by providing value added weather services to farmers.
2. Developing short-duration crop varieties that can mature before peak heat phase set in.
3. Efficient water use such as frequent but shallow irrigation, drip and sprinkle irrigation for high value crops, irrigation at critical stages.
4. Adopt resource conservation technologies such as laser land leveling, direct seeding and crop diversification which help in reducing global warming potential.
5. Develop a long term land use plan for ensuring food security and climatic resilience.

References

1. Budhathoki N, Bhatta GD. Climate change Impact on Value of Land in Nepal. *Economic Journal of Nepal*. 2012, 35(138).

2. Salvo MD, Begalli D, Signorello G. Measuring the effect of climate change on agriculture: A literature review of analytical models. *Journal of Development and Agricultural Economics*. 2013; 5(12):499-509.
3. Gupta S, Sen P, Srinivasan S. Impact of climate change on Indian economy: evidence from food grain yields. *Climate Change Economics*. 2014; 5(2):1450001.
4. Kumar A, Sharma P, Ambrammal SK. Climate effect on food grain productivity in India: A Crop Wise Analysis. *Journal of studies in Dynamics and Change*. 2014; 1(1):38-48.
5. Amin MR, Zhang J, Yang M. Effect of climate change on the yield and cropping area of major food crops: a case of Bangladesh. *Sustainability*. 2015; 7(1):898-915.
6. Iizumi T, Ramankutty N. How do weather and climate influence influence cropping area and intensity? *Global Food Security*. 2015; 4:46-50.
7. Reddy AA. Food Security indicators in India compared to similar countries. *Current science*. 2016; 111(4):632-640.
8. Bisbis MB, Gruda N, Blanke M. Potential impact id climate change on vegetable production and product quality. *Journal of Cleaner Production*. 2018; 170:1602-1620.