International Journal of Home Science 2020; 6(3): 01-03

International Journal of Home Science

ISSN: 2395-7476
IJHS 2020; 6(3): 01-03
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www.homesciencejournal.com
Received: 01-07-2020
Accepted: 05-08-2020

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Suggestions to overcome the constraints faced by farmers due to climate change

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Abstract
The present study "Suggestions to overcome the constraints faced by farmers due to climate change" 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. 39.4 per cent of the respondents belonged to those families whose annual income was Rs. 1,20,000 and above. The study reveals that the constraints faced by farmers due to climate change can be reduced by recommendations and suggestions to the respondents which will create awareness among the farmers about the appropriate adaption measures against climate change. Regular training programs should be organized on disaster management in order to minimize the risk of crop failure.

Keywords: Agriculture, awareness, climate change, disaster management

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, worsting 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

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 the educational qualification. (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 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 who were educated up to High School.18.0per 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: Distribution of respondents according to the suggestions to overcome constraints. (N=150)

S. No.	Statements	Agree	Undecided	Disagree	Mean Score	Rank
1.	Early warning has to be given to the farmers about environmental changes	94.0	6.0	-	2.94	V
2.	Creating awareness among farmers about appropriate adaptation measures against climate change	94.0	6.0	-	2.94	V
3.	Development department should ensure supply of production inputs at appropriate times in the village	91.3	8.7	-	2.91	VI
4.	Subsidies have to be given for the crops to make up the cost of cultivation due to weather changes	94.0	6.0	-	2.94	V
5.	Insurance has to be extended to all crops	87.3	12.7	-	2.87	VIII
6.	Providing financial support for soil nutrient enrichment	87.3	12.7	-	2.87	VIII
7.	Incentives/ support for increasing the green manuring	85.3	14.7	-	2.85	IX
8.	Support price has to be given to all the crops produce based on cost of cultivation	90.7	9.3	-	2.91	VI
9.	Creating awareness/ support for adoption of organic farming technologies	88.0	12.0	-	2.88	VII
10.	Regular training programme should be organised on disaster management	87.3	12.7	-	2.87	VIII
11.	Availability of agriculture inputs at village level on time	98.0	2.0	-	2.98	III
12.	Need based water supply in canal should be ensured	100.0	0.0	-	3.00	I
13.	Government policies should be made to support the farmers during natural calamities	98.7	1.3	-	2.99	II
14.	Location specific water storage structure should be developed for effective utilization of rainwater	96.0	4.0	-	2.96	IV
15.	Electricity supply should be proper	100.0	-	-	3.00	I

Table 3 reveals the distribution of respondents according to suggestions to overcome the constraints, 100 per cent of respondents agreed that need based water supply in canal should be ensured and electricity supply should be proper with mean score value 3and rank I. 98.7 per cent of respondents agreed that government policies should be made by government to support the farmers during natural calamities and 1.3 per cent of respondents were undecided with mean score value 2.99 and rank II. 98.0 per cent of respondents agreed that there should be availability of agriculture inputs at village level on time while 2.0 per cent of respondents were undecided with mean score value 2.99 and rank III. 96.0 per cent of respondents agreed that location specific water storage structure should be developed for effective utilization of rainwater and 4.0 per cent of respondents were undecided with mean score value 2.96 and rank IV. 94.0 per cent of respondents agreed that early warning has to be given to the farmers about environment changes, 6 per cent were undecided with mean score 2.94 and rank V. 96 per cent respondents agreed on creating awareness among the farmers about appropriate adaptation measures against climate change and subsidies has to be given for the crops to make up the cost of cultivation due to weather change while 6 per cent of respondents were undecided with mean score value 2.94 and rank V. 91.3 per cent of respondents agreed development department should ensure supply of production inputs at appropriate times in the villagewhile8.7 per cent of respondents were undecided with mean score value 2.91 and rank VI. 90.7 per cent of respondents agreed that support price has to be given to all the crops produce based on cost of cultivation and 9.3 per cent of respondents were undecided with mean score value 2.91 and rank VI. 88.0 per cent of respondents agreed that creating awareness / support for adaption of organic farming technology and 12 per cent of respondents were undecided with mean score value 2.88 and rank VII. 87.3 per cent of respondents agreed that insurance has to be extended to all crops, providing financial support for soil nutrients enrichment and regular training programme should be organized on disaster management and 12.7 per cent of respondents were undecided with mean score value 2.87 and rank VIII. 85.3 per cent of respondents agreed that incentives/ support for increasing the green manuring and 14.7 per cent of respondents were undecided with mean score value 2.85 and rank IX.

Conclusion

The study indicates that the constraints faced by the farmers due to climate change can be minimized by adopting suggested agricultural measures like crop diversification, adoption of new crop varieties, drought and flood management, restoration of waste and degraded lands. In nearly every step of meat, egg, and milk production, climate-changing gases are released into the atmosphere, potentially disrupting weather, temperature, and ecosystem health. Mitigating these serious problem requires immediate and far-reaching changes in agriculture as well as animal agriculture practices and consumption patterns.

Recommendations and Suggestions

1. Participatory and formal plant breeding to develop climate-resilient crop varieties that can tolerate higher temperature, salinity and drought conditions.
2. Developing short-duration crop varieties that can mature before the peak heat phase set in.
3. Seasonal weather forecast could be used as a supportive measure to optimize planting and irrigation patterns.
4. Adoption of resource conservation technologies which would help in reducing the global warming potential.
5. Organic farming should be used as organic and sustainable techniques brings additional benefits for farmers such as increased soil health, fertility, which leads to additional climate friendly benefits.

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