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Adoption level of mitigating strategies by progressive farmers of climate change in south Gujarat

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Abstract
Climate system is unequivocal, as any increase in temperature, diurnal variations and changes in patterns and intensity of rainfall have massive effects on agriculture. Therefore, climate change is being considered as a serious threat to the livelihood of farmers. It is essential for the farmers to adopt mitigating strategies for climate change effects to sustain the agricultural production. The present study was conducted in seven districts of South Gujarat. District wise lists of recognized progressive farmers were obtained from the KVKs, ATMA and the Line Departments of South Gujarat. The data was collected from 350 respondents by following personal interview method and using structured interview schedule. After the analysis of the collected data it was observed that Major strategies adopted by progressive farmers for mitigating the adverse effects of the climate change on agriculture were change of crops (96.86%) and stands at first rank, followed by change of sowing dates of crops (88.58%) ranked second, animal health care practices (87.71%) ranked third, organic farming (86.28%) ranked fourth, soil and water conservation practices (85.14%) ranked fifth and Majority (67.71%) of the progressive farmers belonged to category of higher adoption of mitigating strategies for the adverse effects of climate change.

Keywords: Adoption, mitigating strategies, progressive farmers, South Gujarat

1. Introduction
Agriculture is the one of sensitive areas upon which society depends for the food, feed and fiber that enables sustainable livelihoods. It is one of the sectors that are most vulnerable to climate change. It poses a major threat to food security. Climate system is unequivocal, as any increase in temperature, diurnal variations and changes in patterns and intensity of rainfall have massive effects on agriculture. Therefore, climate change is being considered as a serious threat to the livelihood of farmers. Adaptation is the principal way to deal with the impacts of a changing climate. It means anticipating the adverse effects of climate change and taking appropriate action to prevent or minimize the damage (Sahu and Mishra, 2013) [2]. Mitigation refers to efforts to reduce or prevent emission of greenhouse gases (Anon., 2006) [1]. Adaptation and mitigation are two basic solutions to avoid the ill effects of climate change, but with distinctly different responses. With this background Adoption is a decision to make full use of an innovation as the best course of action available. Studies suggest wider scope for adoption of mitigating strategies helps to reduce vulnerability to improve their "socio-economic status" and "well-being". Therefore, farmers need adopted to mitigate strategies of adverse effects of climate change. The present study was adoption level of mitigating strategies Among progressive farmers of climate change in south Gujarat.

2. Objective
1. To study the profile of progressive farmers of South Gujarat.
2. To study level of adoption of strategies for mitigating the adverse effects of climate change.

3. Methodology
The present study was conducted in seven districts of South Gujarat. Ex-post-facto research design was used in the present study. District wise lists of recognized progressive farmers were obtained from the KVKs, ATMA and the Line Departments of South Gujarat. A simple random sampling technique was followed to avail 50 progressive farmers from each district. This way, 350 progressive farmers were obtained for the study. In standardized and adoption quotient was also used the procedure suggested by Sengupta (1967) [3], the adoption quotient for each respondent was calculated to measure the adoption of strategies for mitigating the adverse effects of climate change. The formula of adoption quotient is as under.

$$\text{Adoption Quotient} = \frac{\text{Number of mitigation strategies used}}{\text{Total number of mitigation strategies}} \times 100$$

Based on the adoption quotient, the progressive farmers were classified into three categories *viz.*; lower, medium and higher adoption of strategies for mitigating the effects of climate change. Scoring procedure for this aspect was followed as zero score for non-adoption, 1 for partial adoption and 2 score for adoption was assigned. The maximum score was 60 and minimum was zero. An arbitrary method was used for categorization. Later on, the same data were used to find out the correlation with independent variables. The statistical tools and methods were used to analyze the data.

4. Findings and Discussion

4.1. Socio-economic Profile of the progressive farmers

The profile study reveals that Majority of (66.86%) the progressive farmers had completed their higher secondary education and (63.14%) of the progressive farmers used to irrigate their land through bore well. More than half of the progressive farmers (52.86%) had moderate level of fatalism, (57.43%) had moderate level of information seeking behavior and (55.43%) had moderate level of economic motivation. of the progressive farmers (47.72%) were in old age, More than two fifth of the progressive farmers (43.14%) had medium level of farming experience, Less than one third of the progressive farmers (30.29%) were members of more than one organization, (44.58%) had moderate access of weather forecast, Less than one third of the progressive farmers (34.00%) possessed small land holding, Less than three fifth of the progressive farmers (59.14%) had adopted agriculture and animal husbandry as the major occupation. Less than three fifth of the progressive farmers (59.43%) had moderate level of annual income. Less than half of the progressive farmers (45.14%) used cropping pattern in kharif. Less than two fifth of the progressive farmers (39.14%) had not taken insurance from any institution. Near to half of the progressive farmers (49.42%) had moderate innovativeness. Near to half of the progressive farmers had (48.28%) moderate level of management efficiency. Less than half of the progressive farmers (45.72%) had moderate level of risk orientation. (46.86%) had moderate level of scientific orientation, (47.43%) had moderate level of economic orientation, (43.15%) had moderate decision making, (46.00%) had moderate vulnerability, (46.86%) had moderate level of crisis management, (46.86%) did not received any trainings.

4.2. To study adoption of strategies for mitigating the adverse effects of climate change.

Adoption is a decision to make full use of an innovation as the best course of action available. The scale of Sengupta (1967) [3] was used with some modifications and results were presented simultaneously as follows. It is the action or fact of choosing to take-up, follow or use something. On the opinion of experts and agro-meteorologist of the university, thirty strategies were assorted which may help the farmers for mitigating the adverse effects of climate change on crops of South Gujarat region. The responses of progressive farmers were collected through structured schedule and were converted in to percentage obtained for each strategy and later they were ranked in descending order. The data presented in table 1 clearly shows that the strategies adopted by progressive farmers for mitigating the adverse effects of climate change were change of crops (96.86%) and stands at first rank, followed by change of sowing dates of crops (88.58%) ranked second, animal health care practices (87.71%) ranked third, organic farming (86.28%) ranked fourth, soil and water conservation practices (85.14%) ranked fifth, high yielding varieties (82.00%) ranked sixth, crop diversification (80.85%) ranked seventh, drought tolerant varieties (79.72%) ranked eighth, agro-forestry (78.00%) ranked ninth and mulching (76.85%) ranked tenth**.**

Table 1: Strategies adopted by progressive farmers for mitigating the adverse effects of climate change (n=350)

Sr. No.	Mitigation Strategies	Frequency	Percentage	Rank
1.	Change of crops	339	96.86	I
2.	Change sowing dates of crops	310	88.58	II
3.	Animal health care practices	307	87.71	III
4.	Organic farming	302	86.28	IV
5.	Soil and water conservation practices	298	85.14	V
6.	High yielding varieties	287	82.00	VI
7.	Crop diversification	283	80.85	VII
8.	Drought tolerant varieties	279	79.72	VIII
9.	Agro-forestry	273	78.00	IX
10.	Mulching	269	76.85	X
11.	Using of drip / sprinkler irrigation system	243	69.42	XI
12.	Early sowing while shortage of rainfall	239	68.28	XII
13.	Late sowing to cope with the delayed rainfall	231	66.00	XIII
14.	Application of FYM	229	65.42	XIV
15.	Growing profitable crops	220	62.85	XV
16.	Insure the crops and livestock	213	60.86	XVI
17.	Use of alternate horticultural crops	209	59.71	XVII
18.	Adopt additional income generating activities	206	58.85	XVIII
19.	Use of renewable instead of conventional energy	201	57.42	XIX
20.	Use of wind break and shelter belt	192	54.82	XX
21.	Proper application of fertilizers	190	54.28	XXI
22.	Judicious use of insecticides / pesticides	174	49.71	XXII
23.	Growing forest in waste land	166	47.42	XXIII
24.	Meeting out the postharvest losses	156	44.57	XXIV
25.	Contract sale before harvest	151	43.14	XXV
26.	Establishment of shade trees to avoid heat	149	42.58	XXVI
27.	Construct rainwater harvesting structures	141	40.28	XXVI I
28.	Growing crops in greenhouse	138	39.42	XXVI II
29.	Ridge and furrow method	81	23.14	XXIX
30.	Contour bunds	52	14.85	XXX

Moreover, by following the methodology of scale developer, all thirty strategies were grouped into three categories as, (i) lower adoption (up to 20 score), (ii) medium adoption (21 to 40 score), and (iii) higher adoption (above 40 score). The data in regards are presented in Table 2.

Table 2: Distribution of progressive farmers according to adoption of mitigating strategies for climate change (n=350)

Sr.	Categories	Frequency	Percentage
1.	Lower adoption	21	06.00
2.	Medium adoption	92	26.29
3.	Higher adoption	237	67.71
Total		350	100.00

On perusal of the data in table 2 shows that majority (67.71%) of the progressive farmers belonged to category of higher adoption, followed by 26.29 and 06.00 per cent of them had medium and lower adoption of mitigating strategies for the adverse effects of climate change, respectively. It is clear from the data that majority (94.00%) of the progressive farmers were found in medium to higher categories of adoption. This might be due to their farming experience, innovativeness, decision making, information seeking behaviour, training received and knowledge about the effects of climate change.

This finding is in line with the findings Vidyadhara (2015) [5], Shanabhoga *et al.* (2020) [4] and Tanwar (2021) [6].

Conclusions

Findings of the study presented above can be concluded that the majority of the respondents were with Majority of the progressive farmers had completed their higher secondary education and used to irrigate their land through bore well. More than half of them had moderate level of fatalism, information seeking behavior and economic motivation. Less than half were in old age, had medium level of farming experience, membership in more than one organizations, possessed small land holding, adopted agriculture and animal husbandry as the major occupation, moderate level of annual income, used cropping pattern in kharif, not taken insurance from any institution, moderate level of innovativeness, management efficiency, risk orientation, scientific orientation, economic orientation, decision making, vulnerability, access of weather forecast, crisis management and did not receive any training. Major strategies adopted by progressive farmers for mitigating the adverse effects of the climate change on agriculture were change of crops and stands at first rank, followed by change of sowing dates of crops ranked second, animal health care practices ranked third, organic farming ranked fourth, soil and water conservation practices ranked fifth, high yielding varieties ranked sixth, crop diversification ranked seventh, drought tolerant varieties ranked eighth, agro-forestry ranked ninth, mulching ranked tenth and Majority of the progressive farmers had higher level of adoption of mitigating strategies for climate change.

References

1. Anonymous. Climate change Mitigation. United Nations environment programme, 2006. Retrieved from: URL:http://www.unep.org. [Accessed 12 march, 2022].
2. Sahu NC, Mishra D. Analysis of Perception and Adaptability Strategies of the Farmers to Climate Change in Odisha, India. APCBEE Procedia. 2013;5:123-127.
3. Sengupta T. A simple adoption scale used for farmers for high yielding programme of rice. Indian J. Extn Edu. 1967;3(3):107-115.
4. Shanabhoga MB, Bommaiah K, Suresha SV, Echamma S. Adaptation strategies by paddy growing farmers to mitigate the climate crisis in Hyderabad Karnataka region of Karnataka state. India Int. J. climate change strategies and management. 2020;12(5):541-556.
5. Vidyadhara B. Study on agricultural risk management strategies adopted by the farmers of eastern dry zone of Karnataka. Thesis M. Sc. (Agri.), U.A.S, Bengaluru, 2015.
6. Tanwar R. Consequences of climate change on agriculture and animal husbandry enterprise owners of South Gujarat region. Thesis Ph.D., N.A.U. Navsari, 2021.