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NEXUS BETWEEN SOCIO-CONTEXTUAL FACTORS AND CRISIS AWARENESS OF SUGARCANE GROWERS

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ABSTRACT

A study has been conducted in 2022-23 to analyse the level of awareness among the sugarcane growers regarding the crisis in sugarcane cultivation and its association with various socio contextual factors. The Mandya and Mysore districts of Karnataka were purposively selected for the study with total sample size of 120 sugarcane growers. Data was collected through farm and home visits using structured interview schedule. Statistical tools like frequency, percentage, range, mean, SD, correlation and stepwise regression were used to analyse the data. The study revealed that 48.33 per cent, 35.83 per cent, 44.17 per cent, 43.33 per cent and 40.83 per cent of respondents possess moderate level of awareness regarding production crisis, price crisis, flood crisis and input crisis respectively. Majority (67.50 %) of the respondents have low awareness regarding drought crisis. The study concludes that 40.83 per cent, 31.67 per cent and 27.50 per cent of respondents were found to possess overall moderate, low and high level of crisis awareness respectively. The socio contextual factors like age, farming experience, annual income, cosmopoliteness and scientific orientation have shown positive and significant association with overall crisis awareness among the sugarcane growers at one per cent level of significance. Whereas, information seeking behaviour, innovativeness and attitude towards crisis are found to be positively and significantly associated with overall crisis awareness among the sugarcane growers at five per cent level of significance. The scientific orientation, age, annual income and farming experience together found to have explained 39.80 per cent variance in overall crisis awareness.

Keywords*: awareness, crisis, drought crisis, flood crisis, price crisis, sugarcane*

INTRODUCTION

Sugarcane is one of the most important cash crops in India. India being a major consumer of sugar stands second in production, next to Brazil. The agro-climatic condition of India is highly congenial for sugarcane cultivation, serves as a fundamental resource for various products and by products. The sugarcane crop is cultivated in 5.0 million hectares, i.e. 2.57 per cent of the gross cropped area and supporting over 7 million farmers and their families, along with workers and entrepreneurs of over 550 sugar mills. The domestic demand is around 27 million tons per annum (Solomon, 2022). Karnataka stands 3rd in production and 2nd in sugar recovery in India (Anonymous, 2021 a). Mandya and Mysore districts are the two major sugarcane producing districts of the southern region of Karnataka.

However, due to diverse geographic, climatic conditions and its significant socio-economic vulnerabilities, India is considered as one of the most crisis susceptible countries in the world. The crisis is a situation of concentrated period of disturbance caused by the changed climatic factors affecting the farm yields and thus the farmers' income (Vinaya and and Shivamurthy, 2018). Crisis disrupt farmers' livelihoods, introducing additional risks that lead to significant losses and heightened stress in managing these adverse conditions. Crisis can affect all segments of society caused by a wide range of reasons. Production and income uncertainty due to the crisis creates serious consequences on the income and future production planning of the crop (Raval *et al.* 2023). The practice of crisis management involves attempts to eliminate technological failure to avoid or to manage crisis situations (Kumbhani *et al*. 2023). Despite, many efforts by both the Central and State Governments, India's sugarcane sector is grappled with lot of issues by varying degree and nature.

In sugarcane growing states, farmers are facing various crisis, including floods, droughts, rising input costs, pest and disease outbreaks, excessive use of chemical fertilizers, and prolonged irrigation, all of which have led to a decrease in sugarcane yields (Sanjay *et al*. 2024). In the Kaveri River basin, Karnataka, most of the farmers depend on agriculture for their livelihood and faces significant challenges throughout the year. These challenges sometimes become crisis situations such as floods and droughts. The

irregular rainfall patterns, along with the frequent and severe floods and droughts have affected the sugarcane cultivation and the cultivators.

Both, Mandya and Mysore faces these challenges frequently, jeopardizing and limiting the sugarcane production. Earlier studies suggests that the study of crisis awareness helps in improving crisis preparedness, mitigation through formulation of suitable and location-specific strategies and policies by the concerned departments and other stakeholders (Anonymous, 2021 b). The adoption of highly sustainable crop-based cropping system and crisis management practices will make livelihood of farmers more comfortable and stable (Tavethiya *et al*. 2021). So, awareness among the farmers about crisis is a precursor for adoption of crisis management practices.

Thus, the present study has attempted to find out the awareness level of sugarcane growers regarding the overall crisis and different dimensions of crisis in sugarcane cultivation. It is also important to understand the factors having an impact on the crisis awareness of sugarcane growers for facilitating development strategies, intervention, policies and mitigating mechanisms to address the crisis. Thus, the association between the profile of sugarcane growers with their overall crisis awareness is also being studied.

OBJECTIVES

(1) To find the crisis awareness among the sugarcane growers of southern Karnataka

(2) To find the association between profile of sugarcane growers with their crisis awareness

METHODOLOGY

The present study was conducted in Mandya and Mysore District of Karnataka, selected purposively due to prominence of sugarcane cultivation. Two talukas of Mandya district and two talukas of Mysore district were randomly selected for the study. Two villages from each taluka and 15 farmers from each village with minimum of five years' experience in sugarcane cultivation were randomly selected as respondents for the study making a sample size of 120 respondents. Talukas, villages and respondents are randomly selected through multistage simple random sampling. Ex-post facto research design was used in the present investigation since the crisis event already occurred. Structured and pretested interview schedule was used as tool for data collection. Data was collected by personal interview method through farm and home visits, during October 2022 to February 2023. In addition to the primary data, secondary data for the study was collected from reference books, research papers, journals, reports and postgraduate thesis related to sugarcane. Statistical tools like mean, frequency, percentage, standard deviation, equidistant method, Karl Pearson correlation, stepwise regression to draw conclusion. MS Excel and SPSS software were used for tabulation and data analysis.

RESULTS AND DISCUSSION

Table 1: Level of awareness among sugarcane growers regarding various dimensions of crisis (n=120)

Crisis awareness	Category	Range	Frequency	Per cent	Mean	SD
Production Crisis	Low aware	<7	29	24.17	10.30	1.39
	Moderate aware	≥7 to <14	58	48.33		
	High Aware	≥14	33	27.50		
Price Crisis	Low aware	<6	35	29.17	8.60	1.32
	Moderate aware	≥6 to <12	43	35.83		
	High Aware	≥12	42	35.00		
Drought Crisis	Low aware	<4	71	67.50	3.92	2.27
	Moderate aware	≥4 to <8	39	24.17		
	High Aware	≥8	10	8.33		
Flood Crisis	Low aware	<4	35	29.17	5.47	1.14
	Moderate aware	≥4 to <8	53	44.17		
	High Aware	≥8	32	26.67		
Input Crisis	Low aware	<6	36	30.00	9.38	1.33
	Moderate aware	≥6 to <12	52	43.33		
	High Aware	≥12	32	26.67		
Overall Crisis Awareness	Low aware	<64	38	31.67	40.35	3.15
	Moderate aware	≥64 to <90	49	40.83		
	High Aware	≥90	33	27.50		

It was found that 48.33 per cent, 35.83 per cent, 44.17 per cent and 43.33 per cent of sugarcane growers possess moderate level of awareness regarding production, price, flood and input crisis respectively. Majority (67.50 %) of the respondents have shown low level of awareness towards drought crisis.

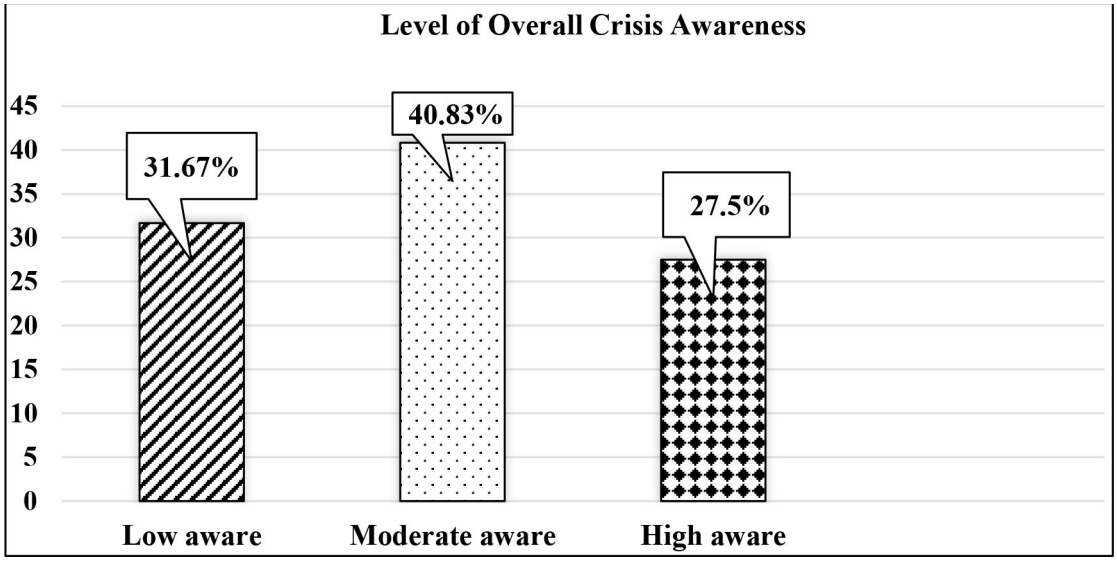

Fig 1: Crisis awareness among the sugarcane farmers

Further the study reveals that 40.83 per cent of the farmers have overall moderate level of crisis awareness followed by 31.67 per cent having overall low level of crisis awareness and 27.50 per cent of farmers possess overall high level of crisis awareness towards crisis in sugarcane cultivation. The results are in congruence with the findings of Aravind (2011), Gohil (2010) and Mutteppa Chigadolli *et al* (2021).

Table 1: Association between socio contextual factors and overall crisis awareness of the farmers (n=120)

Factors	Sr. No.	Independent variables	Correlation value
Socio-Personal	X_1	Age	0.438**
	X_2	Farming Experience	0.348**
	X_3	Formal Education	0.138^{NS}
Socio-Economic	X_4	Land Holding	0.048^{NS}
	X_5	Annual Income	0.380 **
	X_6	Credit Support	0.042^{NS}
Socio-Communicational	X_7	Information seeking Behaviour	0.220*
	X_8	Cosmo-politeness	0.332**
	X_9	Social Participation	-0.047^{NS}
Socio-Psychological	X_{10}	Innovativeness	0.222 *
	X_{11}	Scientific orientation	0.450 **
	X_{12}	Farming commitment	0.019^{NS}
	X_{13}	Self Confidence	0.067^{NS}
	X_{14}	Deferred gratification	0.071^{NS}
	X_{15}	Perception towards crisis	0.059^{NS}
	X_{16}	Attitude towards crisis	0.203*

*5% significance level ** 1% significance level ^{NS} Non-significant

Factors like age, farming experience, annual income, cosmopoliteness and scientific orientation are found to have positively and significantly associated with the overall crisis awareness among the sugarcane growers at one per cent level of significance. Whereas, information seeking behaviour, innovativeness and attitude towards crisis have

shown positive and significant association with overall crisis awareness among the sugarcane growers at five per cent level of significance.

Elderly farmers with past experience and knowledge regarding vagaries of nature, disasters and calamities are likely to have greater awareness of potential risks associated with different dimensions of crisis. Farmers with better income, having access and control over resources are better informed and aware about crisis situation. Farmers who are cosmopolite are exposed to more information, trends and situations which makes them wiser. Farmers with a greater scientific orientation are innovative, believe in modern and improved technology, practices and ideas. They are more progressive thus more aware. Farmers who are curious and information seeking are more learned. Farmers who are more innovative are open to new ideas and practice. Overall, a positive attitude towards confronting crises can lead to better awareness. The results are in congruence with the findings of Jyothi (2000) and Vinay Kumar (2015).

Table 2: Factors defining the variance embedded in the predicted variable (Crisis awareness among the sugarcane growers) (n=120)

Model	Predictors variables	R	R Square	Adjusted R square	Std. Error
1	Scientific Orientation (X_{11})	0.450[a]	0.202	0.196	8.486
2	Scientific Orientation (X_{11}), Age (X_1)	0.562[b]	0.316	0.304	7.892
3	Scientific Orientation (X_{11}), Age (X_1) Annual income (X_5)	0.628[c]	0.395	0.379	7.458
4	Scientific Orientation (X_{11}), Age (X_1) Annual income (X_5), Farming experience (X_2)	0.647[d]	0.418	0.398	7.341

The R value keeps on increasing from model-1 to model-4 indicating a strong positive relationship between the joint effect of combined predictor variables and crisis. Standard error in the model-1 is 8.486 and it keeps on decreasing as more predictor variables were added in each step indicating that the model's predictions are more precise with the inclusion of predictor variable in successive model.

Scientific orientation alone explained 19.60 per cent of the variance in the variable overall crisis awareness in model-1 and when age is added in the model-2 their combined effect increased to 30.40 per cent and similarly annual income in model-3 gave a combined effect of 37.90 per cent variance. In the final model with the addition of farming experience, a combined effect could be seen and 39.80 per cent variance in the variable crisis awareness among the sugarcane growers could be explained.

Scientific orientation found to play a significant role in explaining greater crisis awareness among sugarcane growers because farmers with a more scientific approach are likely to be more informed and prepared for crises. Age old farmers with more experience and knowledge of past crises, enhancing their awareness when combined with greater scientific orientation. Farmers with higher incomes are likely to have better access to resources, that contributes positively to their crisis awareness. Experienced farmers are more likely to have encountered various crises before, which enhances their awareness. The combination of scientific orientation, age, income and experience gives the most comprehensive model for predicting crisis awareness. This progression shows that while scientific orientation is the most important predictor, adding age, income, and farming experience increases the model's explanatory power. Each new variable brings joint effect to understanding what drives crisis awareness among sugarcane growers.

Stepwise regression showed that only 39.80 per cent variance explained by four predictor variables scientific orientation, age, annual income and farming experience in predicting crisis awareness. But still, there are still many variables that have defined the overall crisis awareness, but not included in the study and further study can be done by including more variables.

CONCLUSION

The study concludes that 48.33 per cent, 35.83 per cent, 44.17 per cent and 43.33 per cent of sugarcane growers possess moderate level of awareness regarding production, price, flood and input crisis respectively. Majority (67.50 per cent) of the respondents have shown low level of awareness towards drought crisis. 40.83 per cent of the farmers have overall moderate level of crisis awareness followed by 31.67 per cent having overall low level of crisis awareness and 27.50 per cent of farmers possess overall high level of crisis awareness towards crisis in agriculture. Socio contextual factors like age, farming experience, annual income, cosmo-politeness and scientific orientation are found to have positively and significantly association with the overall crisis awareness among the sugarcane growers at one per cent level

of significance. Whereas, information seeking behaviour, innovativeness and attitude towards crisis have shown positive and significant association with crisis awareness among the sugarcane growers at five per cent level of significance. Four factors namely scientific orientation, age, annual income and farming experience together with their combined effect could explains about 39.80 per cent variance in predicted variable, crisis awareness, among the sugarcane growers.

RECOMMENDATION

To improve crisis awareness among sugarcane farmers, extension services should offer targeted training that strengthens scientific orientation, enhances access to timely information, and builds problem-solving skills. Additionally, providing subsidies to encourage the adoption of scientific methods and participation in workshops or on-field demonstrations will support continuous learning, equipping farmers with practical strategies to manage crises more effectively.

CONFLICT OF INTEREST

There is no conflict of interest among any authors regarding publication of the research paper in the journal as well as in the content

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REFERENCES

Anonymous (2021 a). Directorate of economics and statistics Dept of Agriculture, Cooperation and Farmers Welfare, Estimation of production of food-grains for 2020-21, Karnataka.

Anonymous. (2021 b). Improving crisis prevention and management criteria and strategies in the agricultural sector, Wageningen Economic Research and Ecorys, European Commission.

Aravind Dabaddi, (2011). Disaster management in agriculture: An analytical study of floods in Kurnool district of Andhra Pradesh. M.Sc. Thesis (Unpub.) IARI, New Delhi.

Gohil, G. R., 2010, Crisis management adopted by cotton growers of south Saurashtra agro climatic zone, Ph.D. Thesis (Unpub.), Junagadh Agric. Univ., Junagadh.

Jyothi, V., (2000). Information source consultancy as an approach to crisis management by tomato growers. M.Sc. (Agri.) Thesis (Unpub.,), Univ. Agric. Sci., Bangalore.

Kumbhani, S. R., Timbadia, C. K. and Bhuva, R. M. (2024) Scale to measure the perception of farmers and researchers about crop crisis and its management in crops. *Gujarat Journal of Extension Education,* 37(2):38-42. https://doi.org/10.56572/gjoee.2024.37.2.0007.

Mutteppa Chigadolli *et al*. (2021). Awareness of Crisis Management Among the Sugarcane Growers of Northern Karnataka. *Mysore J. Agric. Sci.,* **55**(3): 142-152

Raval, K. N., Patel, J. K. and Chaudhary, K. V. (2023) Crisis management practices adopted by cumin growers. *Gujarat Journal of Extension Education,* 36(2):115-119. https://doi.org/10.56572/gjoee.2023.36.2.0021.

Sanjay V. C, Sabita Mondal and Chandan Kumar Hui. (2024). Crisis mitigation mechanism and training need of sugarcane growers - an empirical study. 37(1): 152-156. https://doi.org/10.56572/gjoee.2024.37.1.0026

Sanjay, V. C., Mondal, Sabita and Hui, Chandan Kumar (2024) Crisis mitigation mechanism and training need of sugarcane growers- An empirical study. *Gujarat Journal of Extension Education,* 37(1): 152-156. https://doi.org/10.56572/gjoee.2024.37.1.0026.

Solomon. S. and Swapna. M. (2022) Indian Sugar Industry: Towards Self-reliance for Sustainability, *Springer.* 24(3):630–650. https://doi.org/10.1007/s12355-022-01123-5

Tavethiya, B. H., Savaliya. V. J. and Kumbhani. S. R. (2021). Adoption level of crisis management practices of castor growers. *Guj. J. Ext. Edu.* 32(2):85-90.

Vinaya Kumar, H. M. and Shivamurthy, M. (2018). Adaptation to Mitigate Climate-Induced Crisis by Farmers in Coastal Zone of Karnataka, India. *Current Journal of Applied Science and Technology,* 30(5): 1-13, 2018. DOI: 10.9734/CJAST/2018/41134

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