P-ISSN: 2618-0723
E-ISSN: 2618-0731

NAAS Rating: 5.04
www.extensionjournal.com

International Journal of Agriculture Extension and Social Development

Volume 7; Issue 4; April 2024; Page No. 616-622

Received: 02-02-2024
Accepted: 16-03-2024

Indexed Journal
Peer Reviewed Journal

Multiple media outlets' impact on farmers' knowledge enhancement about pest of sugarcane and their socio-b profile

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DOI: https://doi.org/10.33545/26180723.2024.v7.i4h.580

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Abstract

India's agriculture sector, which accounts for 20% of the country's GDP (Gross Domestic Product), is crucial for socioeconomic growth. A study in five villages in SAS Nagar, Mohali, focuses on the socioeconomic dynamics of farming communities and the role of multimedia technologies in promoting sustainable practices and agricultural knowledge. The study emphasizes the importance of staple crops like sugarcane in fostering economic prosperity and food security, and the need for evidence-based solutions to pest infestation. A video-questionnaire survey was used to increase farmer awareness of sugarcane cultivation. Common pests, such as termites, gurdaspur borer, black bug, Pyrilla, early shoot borer, and Pyrilla, significantly affect sugarcane yield and quality. Effective pest management strategies, including chemical, biological, and cultural approaches, are necessary to reduce risks and ensure sustained sugarcane production. The main goal is to educate farmers about and control these pests.

Keywords: Socio-profile, Video-questionnaire, sugarcane, pests, survey

Introduction

In India, around 58 percent of the population and about 70 percent of rural households solely depend on agriculture. The agriculture industry plays a significant role in the country's economy, accounting for about 20 percent of GDP (Gross Domestic Product). Agriculture plays a vital role in socioeconomic development. Historically, agriculture was only done for domestic use. However, as time went on, advances in agronomic techniques and new technologies were made to increase crop productivity, and people began to make a living from it as well. Nevertheless, a number of socioeconomic challenges and environmental risks also emerged. Agriculture technology plays a critical role in the sustainability of food systems. The Green Revolution is an example of how scale-independent technology has transformed agricultural productivity India is the world's leader in net cultivated land, although the proportion of the economy devoted to agriculture is steadily declining as the global economy expands as a whole (Kaur *et al*, 2023) [3].

Farmers must be educated in order to use modern agricultural technologies to tackle local problems. The effective execution of developmental programs is hampered by the requirement for detailed information on the socioeconomic situation of the target group. Increasing agricultural productivity-mostly through improved technique-is the main objective of rural development, which aims to boost living standards. Socio-economic surveys, which provide data on housing patterns, agricultural practices, monthly earnings and expenses, and population trends, are essential for creating and improving policies that address the specific needs of community members. (Singh *et al*., 2023) [3].

Modern technology is being used for rural development by state agricultural universities, non-governmental organisations, the government, and private businesses. As the extension of self-sustainable development into rural regions, as well as giving people autonomy over decisions, are all made possible by the integration of new communication Technologies. In order to guarantee an accountable, responsive, and citizen-friendly environment for rural residents, scientific and technological developments in the fields of agriculture, education, health care, women's welfare, and grassroots development can be implemented. Given that 70% of human communication is non-verbal, visual aids such as presentations can help people overcome language and literacy obstacles (Adams 1992). Videos that showcase innovative farming methods seem like a suitable means of providing information. Given the notable advancements over the past 10 years, there is a continuing need to increase the video films' content. Video films' usefulness in real life will be considerably improved when the movies are shown in accordance with the audience's responses and degree of satisfaction. Informational videos about agriculture can be extremely helpful in spreading the word in order to achieve the goal. It describes the respondents' increased knowledge both before and after watching a film on sugarcane pest attack and their management.

The production and quality of sugarcane are significantly impacted by pests. Termites, early shoot borer, black bug, Pyrilla, stem borer and gurdaspur borer are common pests. These pests attack different sections of the sugarcane plant,

which lowers yield and costs farmers money. It takes effective pest management techniques, such as chemical, biological, and cultural methods, to reduce these hazards and guarantee sugarcane production that is sustainable. Here our main objective is to make farmers aware about different pests of sugarcane and their management.

Materials and Methods

The study was carried out in the SAS district of Kharar block. Five villages-Sahauran, Hasanpur, Radiala, Ghataur and Allahpur-were chosen at random. A total of 60 farmers were chosen for the interview on a random basis. The purpose of this study was to evaluate the socioeconomic standing of farmers in the Punjabi villages of Sahauran, Hasanpur, Radiala, Ghataur and Allahpur in SAS Nagar. Using a primary data source, a questionnaire-based methodology was used. The study adopted a quantitative research design to collect data. The primary data collecting method was a census that was done in these villages, involving 60 households that included self-employed company owners, government employees, and farmers. Direct observation, focus groups, and community groups were added to the systematic surveys and in-person door-to-door interviews. Senior and neighboring villagers were personally interviewed to get qualitative data (Pandey and Upadhayay, 2012) [4].

For better understanding, percentages are given in the data below where we applied the following formula:

Percentage (%) = N/ n*100

Where,

N: Total no. of respondents from all the 5 villages i.e., 60 respondents.

N: The no. of respondents from each village.

Results and Discussion

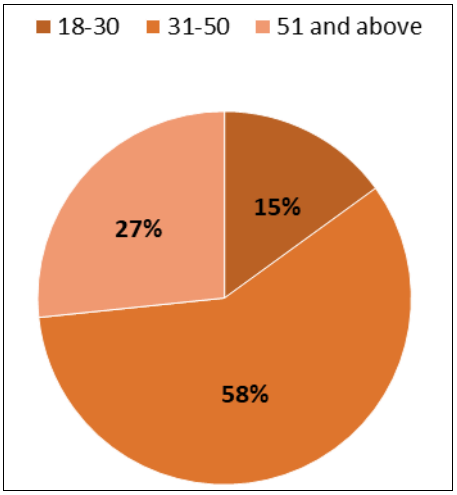

Image 1: Age

The primary factors influencing each and every career are age and qualifications. As seen in Table 1 and Figure 1, the majority of farmers (58, 33%) fall into the 31–50 age group. Then, 15% of farmers fall into the 18–30age group, and 6.66% into the 51 and above age group.

Table 1: Education

S. No	Parameters	Sahauran n=10	Hasanpur n=12	Radiala n=14	Ghataur n=13	Allahpur n=11	Overall% n=60
1.	10th	3	5	3	4	7	36.66
2.	12th	6	5	7	4	2	40
3.	Graduated	1	2	4	5	2	23.33

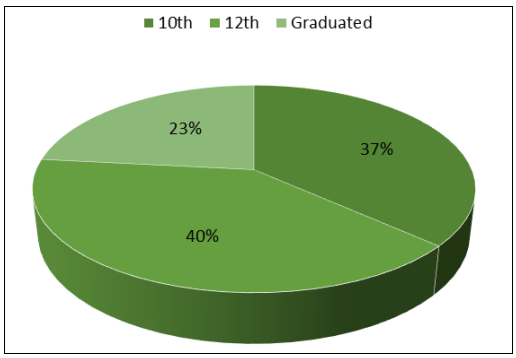

Image 2: Education Qualification

Based on the education records of 60 farmers from all five villages, figure 2 illustrates that 36.66% had completed SSLC, 40% had completed higher secondary education, 23.33% had finished their graduation. Among the farmers, there weren't many illiterates. They clarified that this was because, although they had not placed as much value on education in the past, they had come to do so over time and had pushed their children to pursue higher education by enrolling them in universities and other educational institutions mentioned in TABLE-2 below and shown in IMAGE- 2.

Land Holdings

Table 2: Land Holdings

S. No	Parameters	Sahauran n=10	Hasanpur n=12	Radiala n=14	Ghataur n=13	Allahpur n=11	Overall% n=60
1.	1-2 HECTARE	4	2	7	7	4	40
2.	ABOVE 2(Ha)	6	10	7	6	7	60

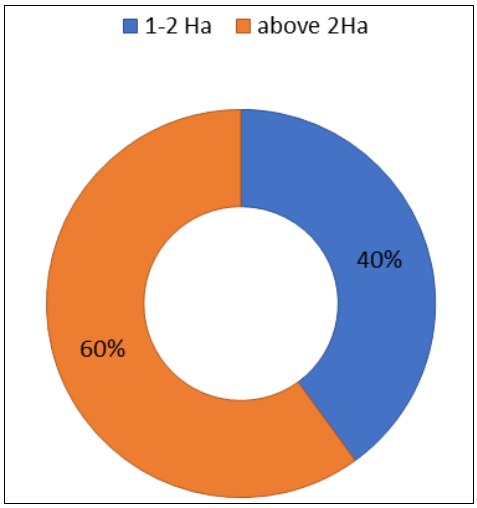

Image 3: Land Holdings

According to table 3, which is shown below, From the 60 farmers, 40% are having land 1-2 hectares and 60% having land more than 2 hectare.

Table 3: Parameters

S. No	Parameters	Sahauran n=10	Hasanpur n=12	Radiala n=14	Ghataur n=13	Allahpur n=11	Overall% n=60
1.	Leased in	1	0	0	0	0	1.66
2.	Leased out	5	4	6	7	7	48.33

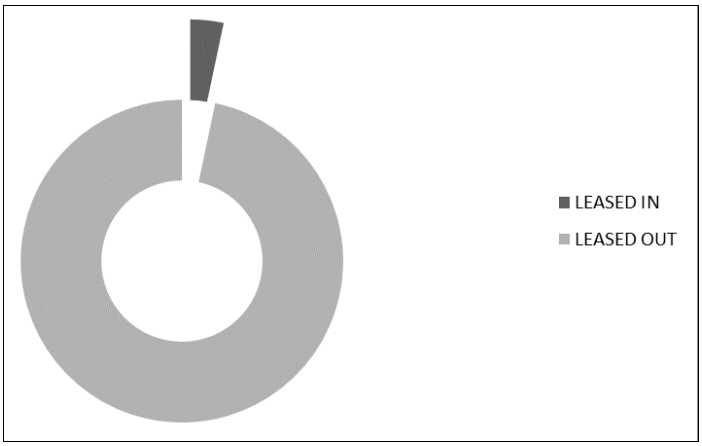

Image 4: Leased in and out

Among these 1.66% comes under leased in and 48.33% in leased out.

Table 4: Head of the Family

S. No	Parameters	Sahauran n=10	Hasanpur n=12	Radiala n=14	Ghataur n=13	Allahpur n=11	Overall% n=60
1.	Farmer	3	6	5	7	3	40
2.	Father	6	5	8	6	8	55
3.	Mother	1	0	0	0	0	1.66
4.	Elder Siblings	0	1	1	0	0	3.33

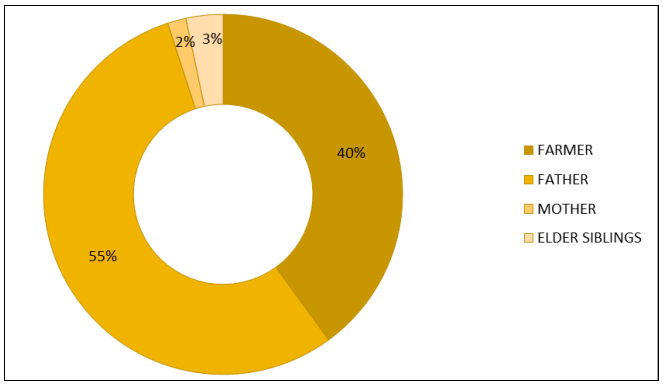

Image 5: Head of the family

The person with the most power and last say in family matters is the head of the household. Families where there is shared responsibility allow various family members to assume varying leadership positions based on the circumstances. Figure illustrates that majority of the responsibility held by father (55%), then farmer (40%), elder brother (3.33%) and last mother (1.66).

Table 5: Access to mobile phone and internet connectivity

S. No	Parameters	Sahauran n=10	Hasanpur n=12	Radiala n=14	Ghataur n=13	Allahpur n=11	Overall% n=60
1.	Mobile phone	10	12	14	13	11	100
2.	Internet access	10	10	12	10	8	83.33

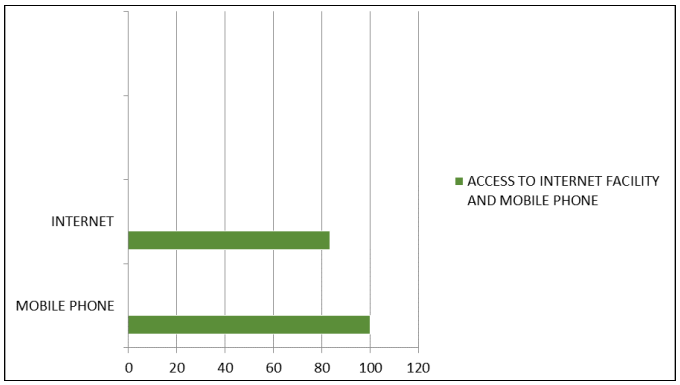

Image 6: Access to internet facility and mobile phone

In all, 100% of those surveyed own a mobile phone, and 83.33% of those have internet access on their devices.

Table 6: Family Composition

S. No	Parameters	Sahauran n=10	Hasanpur n=12	Radiala n=14	Ghataur n=13	Allahpur n=11	Overall% n=60
1.	Nuclear family	5	7	9	10	7	63.33
2.	Joint family	5	5	5	3	4	36.66

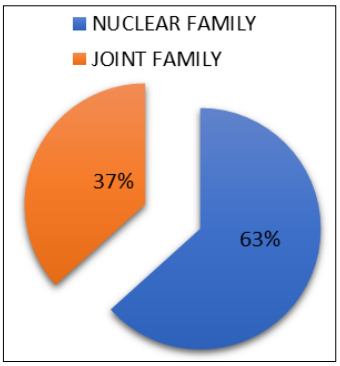

Image 7: Family composition

According to the methodology used for the poll, the majority of participants-99% from each of the chosen villages-belong to the General category. While these villages do have additional categories, the majority of them do not belong to the landowner or farmer groups. Some other occupation occupied their time. This group includes the majority of farmers. Not a single farmer owns a kaccha or even a Semi-Kaccha house; they are all pucca homes. A mere 36.66% of farmers reside in joint families, whereas the majority, 63.33 percent, are part of nuclear households.

Table 7: Source of information

S. No	Parameters	Sahauran n=10	Hasanpur n=12	Radiala n=14	Ghataur n=13	Allahpur n=11	Overall% n=60
1.	Newspaper	4	5	2	7	3	35
2.	Agricultural workshops	3	5	6	4	3	35
3.	Progressive farmers	4	4	8	6	5	45
4.	Social media	2	3	3	6	2	26.66
5.	Kisan Mela	6	8	9	7	5	58.33

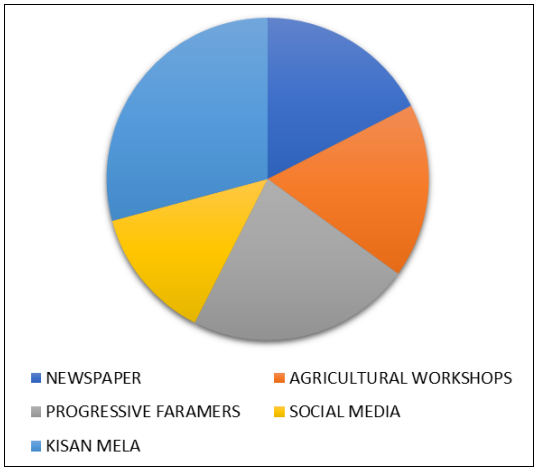

Image 8: Agricultural

Each respondent has a unique set of extension connections and information sources. Contact with progressive farmers, who primarily serve as excellent sources of information for farmers regarding new crops and agrochemicals, is reported by 45% of all respondents. In addition, 35% of farmers get information from newspapers, and 58,33% of respondents visit Kissan Melas, which are held in the farmers' surrounding areas (Mohali, Kharar, Ludhiana). These visits help farmers improve their skills. 26.66% of young farmers have downloaded agriculture apps on their phones to create information.

Table 8: Extension Contacts

S. No	Parameters	Sahauran n=10	Hasanpur n=12	Radiala n=14	Ghataur n=13	Allahpur n=11	Overall% n=60
1	Sau	0	2	2	3	2	15
2	Veterinary Department	6	4	3	1	3	28
3	Kvk	5	6	7	1	1	33.33
4	Private Agencies	9	7	11	8	6	51.66

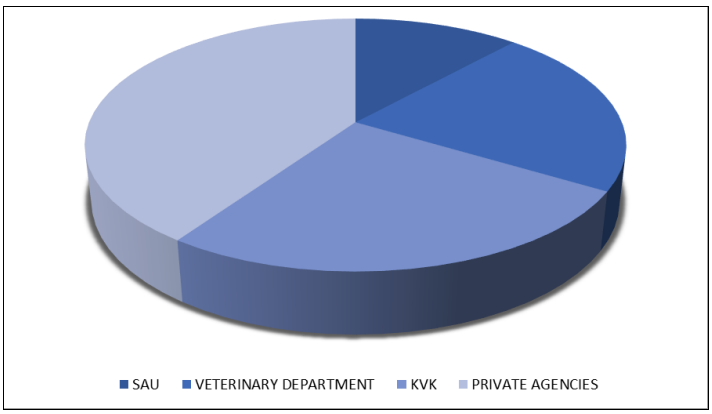

Image 9: Sau and KVK

Someone or an organization that acts as a liaison between farmers and resources and knowledge derived from research. They are essential in establishing a connection between scientific discoveries and the real-world implementation of agricultural techniques. From the available details, Private agencies (51.66%), SAU (15%), Veterinary department (28.33%) and KVK (33,33%).

Table 9: Livestock

S. No	Parameters	Sahauran n=10	Hasanpur n=12	Radiala n=14	Ghataur n=13	Allahpur n=11	Overall% n=60
1.	having livestock	7	8	8	7	10	66.66
2.	no livestock	3	4	6	6	1	33.33

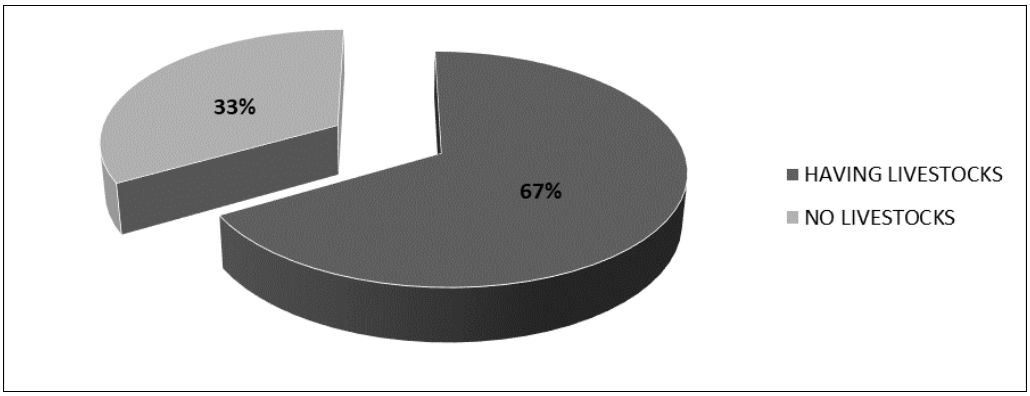

Image 10: Livestock

Domesticated animals are raised in agricultural settings as livestock in order to supply humans with a variety of goods and services. Here the result is that 33%of the farmers are not having any kind of livestock while 67% of farmers are having livestock.

Video Questionnaire

A video can be a powerful tool for communication, helping viewers grasps complicated concepts that are difficult to grasp through spoken words alone. It also leaves a strong impression on those who watch it. This study was done to determine how much farmers' understanding of advised agricultural practices had increased as a result of watching videos. Upon seeing the video clips, farmers' level of knowledge on the identification and treatment of sugarcane pests increased significantly.

Using movies and related questionnaires, the survey raised awareness of insect infestation in sugarcane. A well-crafted questionnaire was used to gauge the farmers' level of comprehension. The farmers were asked the same questions both before and after the film were shown to them. The score achieved both before and after watching the video is shown in Figure 11. Hasanpur village respondents had the most increase in awareness, followed by Sahauran, Radiala, Allahpur and Ghataur.

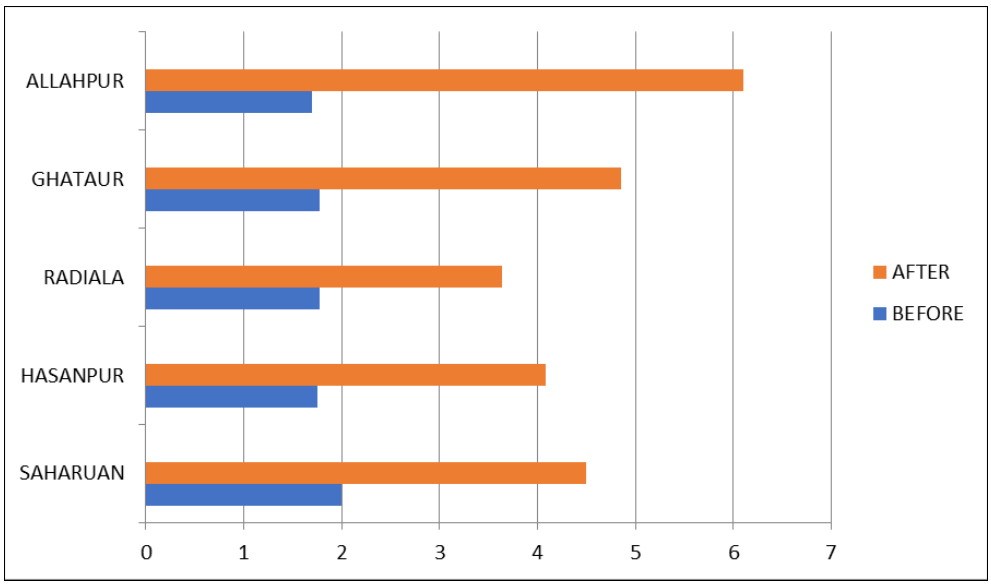

Image 11: Represents before and after scores of video questionnaire

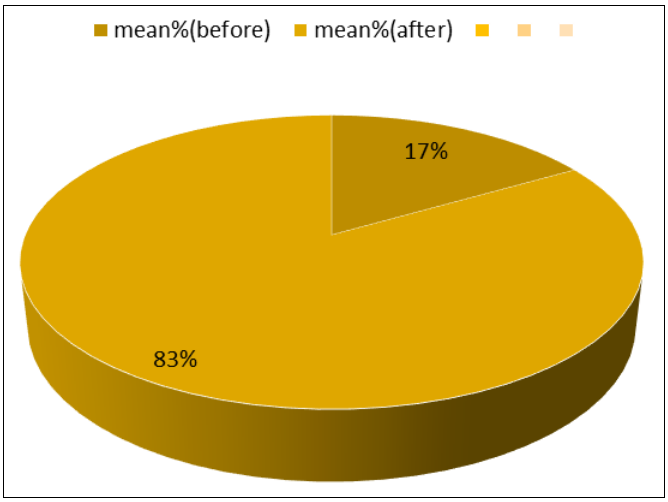

Image 12: Increase in awareness

Table 10: Represents increase in awareness through videos

SL. No.	Video Questionnaire	Before(n=60)	After(n=60)
1	Shoot borer is appeared in which month? (April – June)	15(25%)	30(50%)
2	Leaves of damaged crop by pyrille turned into which colour? (Yellow)	10 (16.6%)	37 (61.6%)
3	In which month pyrilla appeared? (April- May)	5 (8.33%)	39 (65%)
4	Which part of the plant get more damage by the gurdaspur borer? (Central Leaves)	9 (15%)	33 (55%)
5	How can we control gurdaspore borer? (chlorophyipose)	3(5%)	43 (71.6%)
6	Which trap is used for early shoot borer? (Pheromone)	2 (3.33%)	36 (60%)
7	What is the primary symptom caused by termites? (Destroying germinating buds)	6 (10%)	30 (50%)
8	Which organic manure is used to lower attack of termites? (Rotten farm yard)	3 (5%)	43 (71.6%)
Mean % (before) = 7(12%)			
Mean % (after) = 36(60%)			

Conclusion

In conclusion, agriculture is the main source of food, as demonstrated by Punjab's status as the "Granary of India."This research explores the socio-economic dynamics of farming communities in five villages—Sahauran, Hasanpur, Radiala, Ghataur, and Allahpur—in SAS Nagar, Mohali area, acknowledging the critical role that multimedia technologies play in promoting sustainable practices and spreading agricultural knowledge. Furthermore, it is impossible to overestimate the importance of staple crops like sugarcane in promoting both economic success and food security, underscoring the necessity of evidence-based approaches to problems like pest infestation. Raising farmer awareness of sugarcane growing through the use of a video questionnaire survey has shown to be a successful method of spreading important knowledge and information. Through the use of contemporary multimedia technologies, we have

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