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Effectiveness of Video on Knowledge Gain Regarding Sugarcane Cultivation Practices among the Farmers

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ABSTRACT

Information and communication technology in agriculture provides solutions to agricultural challenges. The study was conducted in Athani taluk of Belagavi District in Karnataka state during 2020-21. 'Before-After' without control group experimental design was used to determine the effectiveness of video on knowledge gain regarding sugarcane cultivation practices among farmers. Video developed on "Sugarcane cultivation practices" was the subject matter selected for the study and tested for their effectiveness and acted as treatment for the study. 50 Sugarcane growers were selected for the treatment randomly. The results revealed that highest mean difference 3.72 was observed in case of integrated disease management, followed by integrated pest management (3.62) and weed management (2.38). The farming experience, land holding, achievement motivation, risk orientation, scientific orientation and cosmopoliteness were found to be positive and significantly related with knowledge gain. Therefore, efforts should be taken up to disseminate knowledge about recommended scientific farming practices by using information and communication technology tools especially video to educate farmers and thereby maximizing their benefits. Hence "Video" might be helpful for making the 'sugarcane grower' into 'resource rich farmers'

INTRODUCTION

Sugarcane (*Saccharum officinarum* L.) is an important commercial crop of the world and is cultivated in about seventy five countries, the leading countries being Brazil, India, China and Thailand. The sugar industry plays an important role in the agricultural economy of India. Today, sugarcane cultivation and sugar industry stands as supporting pillars of Indian economy. India occupies the second rank in production of sugarcane in the world. The area under sugarcane in India is 46.02 lakh hectares during the year 2019-20 and production of 370.50 million tonnes and yield is 80497 kg/ha. India's annual consumption of sugar is around 28.00 million tonnes. (Anonymous, 2019-20). Karnataka is blessed with a favourable climatic conditions for the cultivation of sugarcane, hence the area under sugarcane has expanded to 6.91 lakh ha with a production of 381.81 lakh tonnes and productivity of 89000 kg/ha (Anonymous, 2019-20). The leading sugarcane growing districts are Belagavi, Bagalkote, Mandya and Kalaburagi. Belagavi being one of the leading sugarcane growing district in Karnataka has an area of 2.21 lakh ha under sugarcane with production of 15.33 lakh tonnes and productivity of 102 t/ha (Anonymous, 2017-18).

Agriculture continues to be the occupation and way of life for more than half of Indian population even today, making single largest contribution to the GDP of our nation. Sustainable prosperity of the farmers and the agricultural labourers holds the key for improving the overall human resource development scenario in the country. Indian agriculture had been on traditional lines till the first

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waves of green revolution in the late 1960s. The green revolution gave a sudden boost to the production and productivity by making India self sufficient. Though India has achieved self sufficiency in food grain production, we cannot be complacent with the increasing population. There is a need to increase production and productivity of agriculture. Hence, the Indian farmers need to be updated with the latest knowledge about new techniques of farming, new cultivars, farm machinery, market and trade situation, etc. The extension personnel of the department of agriculture disseminated the technologies and messages to the farmers through various extension methods. But these approaches have not been able to reach the majority of the farmers spread across the country as the ratio between farmer and extension worker is 1000:1 (Chitra & Shankaraiah, 2012). This gap remains a challenge for extension system even today. To reach 120 million farmers spread over more than 500 districts is an uphill task. The diversity of agro-ecological situations adds to this challenge further. Farmers' needs are much more diversified and the knowledge required to address them is beyond the capacity of the grass root level extension functionaries. In this context, Video plays an important role in reaching the unreached, supplement and reinforce the extension efforts. Keeping this in view, the present study was conducted with a specific objective to effectiveness of video on knowledge gain regarding sugarcane cultivation practices among farmers.

METHODOLOGY

The experimental study was conducted in Athani taluk of Belagavi District in Karnataka state. 'Before-After' without control group experimental design was used to determine the effectiveness of video on knowledge gain regarding sugarcane cultivation practices among farmers. Video developed on "Sugarcane cultivation practices" was the subject matter selected for the study. Video acted as treatments for the study. Based on the highest area under sugarcane cultivation Ugar Khurd village from Athani taluk of Belagavi district was randomly selected for the study. 50 Sugarcane growers were selected for treatment on the basis of random sampling. The effectiveness was studied in terms of knowledge gain for video by conducting pre test and post test. The standardized interview schedule as suggested by Kumar et al., (2016) was used for data collection which was done through personal interview technique. Collected data were tabulated and analyzed using mean, paired 't' test, correlation and other statistical tools.

RESULTS AND DISCUSSION

The Table 1 depicts the gain in knowledge level of sugarcane growers on sugarcane cultivation practices due to Video exposure. The paired 't' test was calculated to find out the mean difference before and after the treatments. The knowledge gain on soil and land preparation was 2.22 after the Video exposure. The mean score before the treatment was 1.32 and it was increased to 3.54 after the treatment. The paired 't' value is 18.69 which is significant at 1 per cent level. The mean knowledge gain on planting season and varieties was 2.18 after the Video exposure. The mean score before the treatment was 1.76 and it was increased to 3.94 after the treatment. The paired 't' value is 19.91 which is significant at 1 per cent level. The mean knowledge gain on seed setts was 2.26 after the Video exposure. The mean score before the treatment was 1.54 and it was increased to 3.80 after the treatment. The paired 't' value is 26.65 which is significant at 1 per cent level. The mean knowledge gain on organic manure was 2.24 after the Video exposure. The mean score before the treatment was 1.04 and it was increased to 3.28 after the treatment. The paired 't' value is 24.13 which is significant at 1 per cent level. The mean knowledge gain on chemical fertilizer was 1.96 after the Video exposure. The mean score before the treatment was 1.84 and it was increased to 3.80 after the treatment. The paired 't' value is 39.87 which is significant at 1 per cent level. The mean knowledge gain on green leaf manure was 1.66 after the Video exposure. The mean score before the treatment was 0.78 and it was increased to 2.44 after the treatment. The paired 't' value is 22.60 which is significant at 1 per cent level. The mean knowledge gain on micronutrients was 2.26 after the Video exposure. The mean score before the treatment was 0.88 and it was increased to 3.14 after the treatment. The paired 't' value is 22.10 which is significant at 1 per cent level. The mean knowledge gain on irrigation was 2.24 after the Video exposure. The mean score before the treatment was 1.42 and it was increased to 3.66 after the treatment. The paired 't' value is 18.71 which is significant at 1 per cent level. The mean knowledge gain on inter cultivation was 1.98 after the Video exposure. The mean score before the treatment was 0.98 and it was increased to 2.96 after the treatment. The paired 't' value is 21.40 which is significant at 1 per cent level. The mean knowledge gain on weed management was 2.38 after the Video exposure. The mean score before the treatment was 1.38 and it was increased to 3.76 after the treatment. The paired 't' value is 34.32 which is significant at 1 per cent level. The mean knowledge gain on integrated pest management was 3.62 after the Video exposure. The mean score before the treatment was 2.66 and it was increased to 6.28 after the treatment. The paired 't' value is 25.92 which is significant at 1 per cent level. The mean knowledge gain on integrated disease management was 3.72 after the Video exposure. The mean score before the treatment was 3.68 and it was increased to 7.40 after the treatment. The paired 't' value is 27.13 which is significant at 1 per cent level. The mean knowledge gain on harvesting was 1.32 after the Video exposure. The mean score before the treatment was 1.24 and it was increased to 2.56 after the treatment. The paired 't' value is 15.04 which is significant at 1 per cent level.

It is observed in Table 1 that highest mean differences 3.72 was observed in case of integrated disease management, followed by integrated pest management (3.62) and weed management (2.38). The fact that under Video treatment the sugarcane cultivation practices focused more on integrated pest management and integrated disease management practices which resulted in the high knowledge gain of farmers. Further, in sugarcane crop, pest and disease management is very important for the farmers to follow in order to get good yield and farmers are most accustomed to the Video and they view regularly and hence the result. The crucial factor in cultivation is the weed management or otherwise it will reduce the yield drastically. Hence, the farmers were motivated to get more knowledge on the quantity of herbicides to be used. The study supported by the results of Dechamma (2015) & Sowjanya (2017).

Table 1. Knowledge gain of farmers on exposure to video on sugarcane cultivation practices

S.No.	Sugarcane cultivation practices	Scores	Video		Paired 't' value
			Mean Knowledge gain		
			Mean	SD	
1	Soil and land preparation	4	2.22	0.03	18.69**
2	Planting season and varieties	5	2.18	-0.34	19.91**
3	Seed setts	5	2.26	-0.16	26.65**
4	Organic manure	4	2.24	-0.10	24.13**
5	Chemical fertilizer	5	1.96	-0.06	39.87**
6	Green leaf manure	3	1.66	0.08	22.60**
7	Micronutrients	6	2.26	0.05	22.10**
8	Irrigation	7	2.24	0.27	18.71**
9	Inter cultivation	3	1.98	-0.42	21.40**
10	Weed management	4	2.38	-0.17	34.32**
11	Integrated pest management	8	3.62	0.01	25.92**
12	Integrated disease management	10	3.72	-0.47	27.13**
13	Harvesting	3	1.32	0.11	15.04**
	Mean Knowledge gain		30.00		49.08**

** Significant at 1% level, * Significant at 5% level

The data regarding the overall knowledge gained as a result of exposure to video format are presented in Table 1. The computed 't' value was positive and significant at 0.01 level of significance for gain in knowledge. Hence, it can be concluded that there was a positive and significant difference in the knowledge levels of respondents before and after exposure to the treatments. The mean knowledge score of video of the respondents before exposure was 20.52 and after exposure it was 50.52, thus there was mean knowledge gain of 30.00. This might be due to their need and interest towards scientific practices, validity of information and the contents in the vernacular language (Kannada). The present finding supports the 'axiom' one picture worth a thousand words and the visual literacy is given priority as one could see and learn thereby integrate all sensory experiences. Thus, the text, photos, videos and audios in the MCD combinedly attracted and created interest among the respondents and it was found to be the most effective in ensuring knowledge gain of the farmers. These findings were in accordance with the results obtained by Kadian & Gupta (2006) who stated that as compared to "lecture only", "audio only" and "literature only" educational methods, the Video Compact Disc (VCD) found to be most effective for imparting knowledge related to dairy calf management practices. Similarly these results are in concordance with the findings of Radhakrishnan (2000) who inferred that the distribution of respondents based on knowledge gain, showed that majority (82.00 per cent) of the respondents was in high category after exposure to Instructor Controlled Interactive Video. Similarly Vidya & Manivannan (2010) also pointed out that Video presentation had produced remarkable impact on gain in knowledge of the technology disseminated. Marshall (2002) established that people remember only 10 per cent of what they read, 20 per cent of what they hear, 30 per cent of what they see and 50 per cent of what they hear and see. With the advent of such technologies which combines images, texts and audio all in one can make the percentage even higher than 50 per cent. Learners can see it in their comfort zone and time convenient for them. Further Bansal and Joshi (2014) reported in their study that 73 per cent students found learning anytime, anywhere convenient.

Relationship between selected socio-economic characters with knowledge gain

It is apparent from Table 2 that the variables such as farming experience, land holding, achievement motivation, risk orientation, scientific orientation and cosmopoliteness were found to be positive and significant relationship with knowledge gain at 0.05 per cent level. Other variables viz., age, education, extension participation, extension contact, mass media exposure, innovative proneness, economic motivation and management orientation had a non significant relationship with knowledge gain of the respondents. Farming experience was found to be positive and significant relationship with knowledge gain. The possible reason might be that farmers are involved in farming activities for a long time, they

Table 2. Relationship of socio-economic characteristics with knowledge gain after exposure to Video format

S.No.	Variables	Video (T_2)
1	Age	-0.125 ^{NS}
2	Education	0.122 ^{NS}
3	Farming experience	0.323*
4	Land holding	0.302*
5	Extension participation	0.177 ^{NS}
6	Extension contact	0.265 ^{NS}
7	Mass media exposure	0.159 ^{NS}
8	Innovative proneness	0.033 ^{NS}
9	Achievement motivation	0.308*
10	Economic motivation	-0.131 ^{NS}
11	Risk orientation	0.288*
12	Management orientation	-0.039 ^{NS}
13	Scientific orientation	0.326 *
14	Cosmopoliteness	0.295 *

*Significant at the 0.05% level, **Significant at the 0.01% level, NS- Non significant

try to know more about new technologies with interest, thus farming experience has high significance. The findings are in agreement with the findings of Dechamma (2015); Vandana (2016) & Mohanakumar (2018). Land holding had found positively and significantly correlated with knowledge gain. The probable reason for this kind of results may be that farmers with larger holdings will have more opportunities and potentialities to try and adopt large number of technological innovations. As a result, it is quite possible that farmers with larger holdings evince keen interest to know about new farm practices and be more receptive to such ideas, thus leading to better acquisition of knowledge. Therefore, size of land holdings might have shown positive and significant relationship with knowledge gain. The findings are in agreement with the findings of Dechamma (2015) & Mohanakumar (2018). Achievement motivation was found to be significantly related, the reason might be that the interest of the individual to decide and complete the tasks in certain directions, which in turn helps in achieving the desired crop yield and income. These findings are in agreement with the findings of Chandra & Reddy (2004). The relationship between risk orientation and knowledge gain was found to be significant. Risk orientation is expressed as the degree to which a farmer is oriented to take risk and has courage to face uncertainties in sugarcane cultivation. Those who have this particular trait normally will have better knowledge. This might be the possible reason for significant relationship between knowledge gain and risk orientation. These findings are in agreement with the findings of Anandaraja (2002); Senthil Kumar (2003); Dechamma (2015); Kumar et al., (2020). Scientific orientation had positive and significant relationship with knowledge gain of sugarcane cultivation practices. The possible reason might be that sugarcane cultivation practices with scientific orientation could be more receptive to the latest technologies, employ scientific methods on making the decisions as well as, acquire and adopt efficient factors of management of enterprise. The findings are supported by the results of Priyanka (2016). The significance of cosmopoliteness is might be due to the fact that the farmers who make frequent visits to outside places will be exposed to new ideas, technologies and awareness. The farmers who have higher exposures to different mass media have better opportunities to get exposed to new ideas, hence mass media is significantly related. The finding was in conformity with the findings of Nain & Chandel (2012); Dechamma (2015); Ghanghas et al., (2015); Priyanka (2016) & Sowjanya (2017).

CONCLUSION

The videos have the potential to improve awareness, knowledge acquisition and technology adoption. There was a significant gain in knowledge from before to after exposure mean scores which inferred that the informative videos had significant effect on the knowledge gain on sugarcane cultivation practices. By proving that an image is worth a thousand words, seeing the images makes the information clearer and more complete, which helps to create lasting impressions in the minds of the respondents. Therefore, efforts should be taken up by the extension agents to disseminate knowledge about recommended scientific farming practices by using information and communication technology tools especially Video to educate farmers and there by maximizing their benefits. Hence “Video” might be helpful for making the ‘sugarcane grower’ into ‘resource rich farmers’

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