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Prospects and problems of YouTube and virtual video channels in agricultural content dissemination

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Received 3 August 2023, Revised 26 November 2023, Accepted 25 December 2023, Published online 31 December 2023

ABSTRACT

Farmers need new technologies and information to cope with the challenges and difficulties of agricultural extension. YouTube, a low-cost tool, offers opportunities for farmers' feedback, interaction, and networking. In order to utilize this tool for the benefit of farmers, it is necessary to learn the prospects and problems of YouTube and virtual video channels in agricultural content preparation and dissemination. Data were collected from 105 respondents under the Khulna Metropolitan Agriculture Office (both Metro 1 and 2) and from the 3 content creators from February to May 2023. However, the majority of respondents (94.30%) perceive YouTube as a promising tool for agricultural content dissemination. Besides, the majority of the respondents (64.80%) perceive problems with YouTube and virtual video channels in agricultural content dissemination. Age, farm size, experience, extension media contact, and training received positively impact respondents' perceptions of YouTube. The findings suggest that the public extension system and policymakers may consider reducing internet costs and providing low-cost devices for both respondents and content creators. Additionally, other virtual video platforms like YouTube can be made more accessible, allowing audiences to access information from diversified virtual video channels.

Keywords: Content Dissemination, Content Preparation, Problems, Prospects, YouTube

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Cite this article as: Farabi, T., Islam, M.M. and Ahmed, M.B. 2023. Prospects and problems of YouTube and virtual video channels in agricultural content dissemination *Int. J. Agril. Res. Innov. Tech.* 13(2): 31-40. <https://doi.org/10.3329/ijarit.v13i2.70851>

Introduction

YouTube is a popular social media platform that enables users to interact, create, share, and exchange information and ideas in various forms. As the second largest search network after Google, it has an extensive audience reach (Johnson, 2017). Being a great popular and highly used channel, it can be the best option for spreading agricultural information (Holt-Day *et al.*, 2020).

In this modernized world, YouTube secures a crucial position in farming because it creates the scope to connect with farmers and content creators from around the world over large geographical distances. It also allows businesses and organizations direct access to consumers and their genuine thoughts, giving up-to-date and relevant information on trends and preferences (Chui *et al.*, 2012). The most visited agri-related YouTube channels such as "Shykh Seraj", "Deepto Krishi", "Krishi Bioscope" and "Math Krishi" contribute to enhancing interactions and information flows among actors involved in agricultural innovation. These channels also remove geographical limitations, enabling a

platform that shares knowledge and contributes to the economic status of the agricultural sector. In the global context, the agricultural sector is progressively involved in agriculture-based YouTube content creation to promote relevant information and knowledge. Information has become a critical factor in agricultural production (Rao, 2007). This information must be relevant and meaningful to farmers, in addition to being packaged and delivered in a way preferred by them (Diekmann *et al.*, 2009). YouTube can be beneficial in agricultural marketing to create an image of authority (Khou and Suresh, 2018), build credibility and trust, and engage with the audience, more so than many other forms of media (Agrawal, 2016).

Virtual video channels are contemporary channels of digital communication for discussion and sharing of information among people. Besides YouTube, other Virtual video channels such as Aistube (www.aistube.com), Akkdb (<https://akkdb.com>) and greeniculture (<https://greeniculture.com>) also play a crucial role in agricultural information and technology



dissemination. From the above background and facts, it can be seen that using YouTube and other virtual video channels is a blessing for agricultural information dissemination, but very little research work has been done on it. That's why the researcher felt the necessity to conduct research. The research aims to introduce YouTube and virtual video channels to agricultural stakeholders and identify the limitations and problems faced by viewers and content creators.

In view of the above circumstances, the following objectives were formulated to give proper direction to the study to:

- Scrutinize the status and prospects of YouTube and virtual video channels in the provision of agricultural content preparation and dissemination.
- Find out the problems faced by the content creators during content preparation and the problems faced by the respondents while watching any content.
- Ascertain the relationship between the selected characteristics of the respondents and the perception of the respondents towards both prospects and problems of YouTube in agricultural content dissemination.

Materials and Methods

Design of the study

The design of the study was descriptive and diagnostic survey research. The study was conducted based on the collection of data through the face-to-face interview method. The Likert-type scale was used for the relevant statements to know the status, prospects, and problems of YouTube in content preparation and dissemination.

Locale of the study

In the metropolitan area of Khulna, there are two Metro Agriculture Offices. The study's location included both Metro Agriculture Offices (Metro 1 and 2). Comparatively speaking, the literacy rate is higher in urban areas than in rural areas. This indicates that they are more aware and that urban or semi-urban residents are more technologically savvy than rural residents. It was assumed that city dwellers who were partially or entirely involved in agricultural activities were more exposed to YouTube and virtual video channels than farmers in the countryside. That's why metropolitan areas were selected to conduct this study.



Figure 1. Khulna Metropolitan 1 and 2, location icon indicating the sampling sites of Khulna district ($22^{\circ} 48' 59.76''$ N) and ($89^{\circ} 33' 57.96''$ E).

Population and sampling technique

All the respondents and stakeholders in Metropolitan Areas 1 and 2 under Khulna district were considered as the population of the study. A number of 105 respondents were selected randomly to execute the research. The researcher remained unbiased while selecting respondents

for the interview. Three content creators were selected to conduct this research. The number of content creators was low due to the scarcity of content creators. Therefore, the sample size for the respondents was 105 and for the content creators, it was 3.

Specification of variables

Independent and focus variables were used in this research study. Independent variables included age, family size, education, monthly family income, farm size, training received, extension contact, organizational participation, cosmopolitanism, farming experience, and YouTube knowledge level. The status and prospects of YouTube and virtual video channels in agricultural content preparation and dissemination and the problems of YouTube and virtual video channels in agricultural content preparation and dissemination were the focus variables in the study.

Measurement of the focus variable

For measuring the focus variables, the Respondent Perception Index (RPI) for the agricultural content preparation and dissemination was calculated by using the following formula:

$$RPI = N_{sa} \times 5 + N_a \times 4 + N_u \times 3 + N_{da} \times 2 + N_{sda} \times 1$$

Where,

RPI= Respondent Perception Index

N_{sa} = Number of respondents rated the statements as strongly agree

N_a = Number of respondents rated the statements as agree

N_u = Number of respondents rated the statements as undecided

N_{da} = Number of respondents rated the statements as disagree

N_{sda} = Number of respondents rated the statements as strongly disagree

Respondent Perception Index (%)

$$= \frac{\text{observed highest scores}}{\text{possible scores}} \times 100$$

The severity of the problem of YouTube in agricultural content preparation and dissemination was determined based on the Problem Severity Index (PSI). It was determined by the following formula:

$$PSI = N_a \times 0 + N_b \times 1 + N_c \times 2 + N_d \times 3$$

Where,

PSI= Problem Severity Index

N_a = Number of respondents did not extent the problem at all

N_b = Number of respondents extended the problem and rated as less severe

N_c = Number of respondents extended the problem and rated as severe

N_d = Number of respondents extended the problem and rated as highly severe

After determination of PSI, the severity of the problem was determined by the following formula:

Problem Severity Index (%)

$$= \frac{\text{observed highest scores}}{\text{possible score}} \times 100$$

Data analysis

Data were analyzed using the Statistical Package for Social Science (SPSS). By using this software, frequency, mean, standard deviation, minimum, maximum, and percentage were measured to describe the dependent and independent variables. Spearman's rank-order correlation coefficient is a nonparametric statistical measure of the strength and direction of association that exists between two variables measured on at least an ordinal scale. To measure the relationship between the selected characteristics and their perception of YouTube in agricultural content preparation and dissemination, Spearman's rank-order correlation coefficient was used.

Results and Discussion

Respondent's perception of the status of YouTube and virtual video channels on prepared content

Results shown in Table 1 reveal that 92.38% of the respondents agreed with the statement that "YouTube provides retrievable agricultural information" and it was ranked in first position, followed by "Farmers watch YouTube content to learn and adopt new technologies" ranked second (83.04%) and "YouTube helps in increasing farming production" ranked third (82.85%). The majority of respondents stated that they generally search on YouTube for forgotten items. Whereas statements such as "views, likes, durations can be considered to judge the agri-contents quality of YouTube" emerged as ninth (52.38%).

The majority of respondents had positive perceptions of their status and future prospects, and this was the discussion's primary concern. According to them, agriculture and farming-related YouTube channels provide valuable information on several topics, such as crop cultivation, livestock management, sustainable practices, irrigation techniques, and so on. It is filled with tutorial videos that demonstrate step-by-step processes related to agriculture. Moreover, agricultural researchers and institutions occasionally use YouTube to share their findings and studies with a broader audience. These videos can provide viewers with ongoing information on the most recent developments in agriculture due to this the respondents strongly agreed with the statement that was ranked first. On the other hand, most of the respondents did not agree with the statement, "Views, likes, durations can be considered to judge the agri-contents quality of YouTube". According to them, subjectivity and information should be considered to judge the agri-contents quality on YouTube that's why it emerged as last.

Table 1. Rank order of the statements related to the respondent's perception of the status of YouTube and virtual video channels on prepared content.

Sl. No.	Status	RPI (%)	Rank
1	All time good quality content is published on YouTube	71.43	5 th
2	Views, likes, and durations can be considered to judge the agri-content quality of YouTube	52.38	9 th
3	Content is made according to farmer's need and demand	79.43	4 th
4	The educational background of content creators is agriculture-based	59.24	8 th
5	Farmer watches YouTube content to learn and adopt new technologies	83.04	2 nd
6	Regular activities of different agri-institutions are found on other virtual media besides YouTube	69.52	6 th
7.	YouTube helps in increasing farming production	82.85	3 rd
8.	The latest update on farming is found on the YouTube channel	66.29	7 th
9	Farmers are satisfied with the message on YouTube	79.43	4 th
10.	YouTube provides retrievable agricultural information	92.38	1 st

Respondent's perception of the status of YouTube and virtual video channels in agricultural content dissemination

Results mentioned in Table 2 stated that among ten statements "agricultural new technologies can be easily disseminated through YouTube" secured the first rank (95.43%) followed by "For young farmers and professional agriculturists, YouTube is a popular medium for information seeking", "People quickly get solutions of the problem related to farming from YouTube" emerged as second (93.52%) and third (88.00%) position, respectively whereas 47.80% of the respondents agreed with the statement "any new technology first shares on YouTube." It was ranked in the last position, which was tenth.

The respondents stated that YouTube is a suitable platform for sharing and promoting agricultural innovation that often features experts, farmers,

agronomists, and researchers who share their knowledge and experiences. These videos often showcase innovative and practical solutions to common agricultural challenges. Farmers from around the world use YouTube to share their insights into specific farming practices and techniques that have worked well for them. A similar observation was also reported by Holt-Day et al. (2020) who stated that being a great popular and highly used channel, YouTube could be the best option for disseminating agricultural information.

Many of the respondents thought that any new information and technology was first shared on Facebook, and many of them were undecided about whether the new technology was first shared on YouTube or not, that's why it appeared as last among the statements.

Table 2. Rank order of the statements related to the respondents' perception of the status of YouTube and virtual video channels in agricultural content dissemination.

Sl.	Status	RPI (%)	Rank
1.	For young farmers and professional agriculturists, YouTube is a popular medium for information-seeking	93.52	2 nd
2.	Agricultural new technologies can be easily disseminated	95.43	1 st
3.	Any new technology first shared on YouTube	47.80	10 th
4.	Farmers usually adopt agricultural information from YouTube and other virtual video channels	74.48	8 th
5.	YouTube can raise commercial interest in farming	79.8	6 th
6.	People quickly get solutions to the problems related to farming from YouTube	88.00	3 rd
7.	Farmers regularly watch agri-based videos and other virtual channels	57.33	9 th
8.	YouTube publishers can establish a personal brand and generate money	82.48	5 th
9.	All types of content related to farming can be found on YouTube and virtual video channels	75.80	7 th
10.	Virtual video channels can be used as agricultural advertising and marketing places.	83.62	4 th

Prospects of YouTube and virtual video channels in agricultural content preparation

To know the content creator's perception of the prospects of YouTube, the researcher talked with the content creators, and the findings were presented in the following Table 3. Results showed that among the six statements related to prospects of YouTube and virtual video channels in agricultural content preparation, the following four "Many people watch YouTube videos", "Many people can be reached in a limited time", "International coverage is possible", and "Knowledge can be disseminated at a very low cost" ranked in the first position secured 100%. That means all three content creators strongly agree with those statements. On the contrary, between the remaining two statements "Content creators feel happy to do this work" emerged as second securing 93.30%. In contrast, "Necessary editing can be done easily" appeared as third obtaining 60.00%. Video editing takes a lot of

time. It is not a simple task to complete. That's why they ranked the statement "Necessary editing can be done easily" in the last position (60.00%).

According to the respondents, YouTube and other virtual video channels are global platforms with a huge user base that can help disseminate agricultural knowledge and best practices worldwide. However, creating and uploading videos on YouTube is relatively cost-effective compared to traditional media, that's why content creators can use simple video production tools to create informative videos without substantial financial investments. They can demonstrate new tools, methods, and sustainable practices, inspiring other farmers to adopt modern techniques. Due to all those reasons the above-mentioned statements ranked first, while content creators expressed that video editing is a time-consuming task. It cannot be done very easily, that's why they kept it in the last position.

Table 3. Rank order of the statements related to content creators' perception of prospects of YouTube and virtual video channels in the agricultural content preparation.

Sl. No.	Prospects	CPI (%)	Rank
1.	Many people watch YouTube videos.	100.00	1 st
2	Content creators feel happy to do this work.	93.30	2 nd
3	Many people can be reached in a limited time.	100.00	1 st
4	International coverage is possible.	100.00	1 st
5	Necessary editing can be done easily.	60.00	3 rd
6	Knowledge can be disseminated at a very low cost.	100.00	1 st

Prospects of YouTube and other virtual video channels in agricultural content dissemination

According to the respondents' opinion in case of prospects of YouTube and other virtual video channels in agricultural content dissemination, the statement "YouTube can be used anywhere" ranked first position (97.50%) followed by "Learning by watching videos makes it easier to remember" and "Information can be stored and used as per one's need" that emerged as second (92.60%) and third (92.80%) position among the six statements mentioned in the table (Table 4). Most of the respondents stated that if internet data is available, it can be used anywhere using a mobile phone and the installation process is also very simple to run YouTube that's why this statement emerged as first. Meanwhile, only 55.80% of them agreed with the statement "Maintenance costs are not so high", which secured the sixth position.

The respondents expressed that as the mobile phone can be carried out anywhere it is possible to watch videos on YouTube anywhere and anytime if the internet package is available. YouTube is an audio-with-video-sharing platform at a time. Agriculture often involves practical skills and techniques that are best understood through visual demonstrations, so watching videos makes any information easier to remember. Video content allows for an immersive and engaging learning experience, making it easier for viewers to grasp complex concepts. Farmers can learn from the experiences of others, leading to the adoption of more efficient and sustainable farming methods. Most of the respondents informed that maintenance costs can be reduced to make it more available to all people. Purchasing internet package comparatively high. Therefore, most of them disagreed with that statement, and the statement "Maintenance cost is not so high". Although some of the respondents agree with this statement who were Wi-Fi users. This statement was ranked in the sixth position.

Table 4. Rank order of the statements related to the respondent's perception regarding prospects of YouTube and virtual video channels in agricultural content dissemination.

Sl. No.	Prospects	RPI (%)	Rank
1.	YouTube provides new concepts about agricultural technology.	71.00	5 th
2	Maintenance cost is not so high.	55.80	6 th
3	YouTube can be used anywhere.	97.50	1 st
4	Information can be stored and used as per one's need.	92.80	3 rd
5	Media coverage can be achieved to an extent that is not possible by the Extension Department.	76.80	4 th
6	Learning by watching videos makes it easier to remember.	92.60	2 nd

Content creator's perception regarding problems of YouTube and virtual video channels in agricultural content preparation

Respondents' perceptions regarding problems of YouTube and virtual video channels in agricultural content preparation were collected through six statements in the interview schedule mentioned in Table 5. Results presented in the table revealed that the content creators confronted the most serious problem in "Internet purchasing is not cheap in our country". That's why it was ranked first position obtaining 38.80% followed by "Content making is a time consuming" together with "There is no peer-reviewed system that ultimately defects the quality of content" ranked second (33.33%). On the other hand, according to the respondents, "Smartphone is needed to make content that is not affordable all the time by the content creators" emerged as a minor problem among the six statements, that's why it ranked last (5.56%).

According to the respondents, the main problem faced by content creators was the high

purchasing price of internet data packs. The reason behind a huge amount of data requires making a good-quality video on YouTube and other virtual channels. Moreover, creating high-quality agricultural content can be time-consuming and require significant effort, especially for detailed tutorials or in-depth explanations. They thought that content creators with agricultural backgrounds could make more knowledgeable content than non-agricultural content creators. They also informed that smartphone is not a major issue in making content because now a days it is readily available to all levels of people.

Similar findings were also reported by Barua (2021) who investigated the problems confrontation of the respondents in using YouTube through six problems. Data indicate that the respondents confronted the highest problem in "high price of internet package" as indicated. In contrast, the second and third problems confronted by them are "unavailability of smartphones" and "ignorance of using a smartphone", respectively.

Table 5. Rank order of the statements related to the content creator's perception of the problems of YouTube and virtual video channels in the agricultural content preparation.

Sl.	Problems	CPI (%)	Rank
1.	Content creators do not have vast knowledge of agriculture.	16.67	3 rd
2.	Internet purchasing is not cheap in our country.	38.8	1 st
3.	Content-making is time-consuming.	33.33	2 nd
4.	Smartphone is needed to make content that is not affordable all the time by the content creators.	5.56	4 th
5.	There is no peer-reviewed system that ultimately defects the quality of content.	33.33	2 nd
6.	Agricultural YouTube content cannot be monitored.	16.67	3 rd

Respondent's perception of the problems of YouTube and virtual video channels in agricultural content dissemination

Among ten statements displayed in Table 6 regarding respondent's perception of the problems of YouTube and virtual video channels in agricultural content dissemination indicated that the most serious problem was "Limited viewers; old-age farmers have no access to see videos on YouTube because of illiteracy or the unavailability of smartphones" appeared as first position (78.40%) followed by "Anyone can share

videos on the virtual platform, so there remains a gap to disseminate authentic information," and "People are more interested to see recreational videos rather than farming videos" ranked as second (75.90%) and third (72.40%), respectively whereas the statement "Most of the time, viewers download content to see later on, but the maximum time they miss it" observed as minor problems that's why ranked last (28.30%) among the below mentioned ten statements.

Based on the information of the respondents, older farmers are not familiar with digital technology, including smartphones and internet usage thus; they find it challenging to use online platforms like YouTube and other virtual video channels. Moreover, older farmers do not have their smartphones, computers, or other devices required to access YouTube and they are not able to purchase such devices, especially if they are on a limited income. They prefer traditional media sources, such as radio, newspapers, or in-person interactions for obtaining agricultural

information, and for this, the statement "Limited viewers; old age farmers have no access to see videos on YouTube because of illiteracy or unavailability of smartphone" emerged as the major problems. Whereas "Most of the time, viewers download content to see later on, but the maximum time they miss it" was observed as a minor problem because most of the respondents said that this is not a severe problem. Besides, the frequency of missing downloaded files to see later on is very rare that's why it ranked last.

Table 6. Rank order of the statements related to the respondent's perception regarding problems of YouTube and virtual video channels in agricultural content dissemination.

Sl. No.	Problems	PSI (%)	Rank
1	Internet and smartphones are not available to all levels of rural farmers.	45.0	8 th
2	Relevant videos are not found by the farmers in some cases.	49.5	7 th
3	Agricultural universities do not have any YouTube channels to disseminate their research or technologies.	45.0	8 th
4	Misleading information used in the videos can cause extensive damage at the field level.	57.8	5 th
5	Anyone can share videos on the virtual platform, so there remains a gap in disseminating authentic information.	75.9	2 nd
6	Most of the time, viewers download content to see later on, but maximum the time they miss it.	28.3	9 th
7	People are more interested in seeing recreational videos rather than farming videos.	72.4	3 rd
8	Poor internet connection in rural areas hinders agricultural content dissemination.	70.5	4 th
9	Limited viewers: Old-age farmers have no access to videos on YouTube because of illiteracy or the unavailability of smartphones.	78.4	1 st
10	People show interest more in those videos which have more views.	53.7	6 th

Content analysis of five different YouTube channels

A content analysis of five agri-based YouTube channels, including "Shykh Seraj", "Deepto TV", "Math Krishi", "Krishi Bioscope" and "Amader Krishi Diginto" was conducted from January to March 2023 to understand audience preferences, attitudes, and adoption patterns.

The five YouTube channels provide time and resource-demanding information on vegetables, fruits, and crop cultivation. Content producers aim to provide high-quality content with satisfied audiences and creators learning from comments. This digital information service system provides information to people of all levels with limited time.

A Quasi-Case Study of the Content Creators

A phone interview was conducted with three content creators of three YouTube channels, focusing on their perception of YouTube and its role in sharing content. The content creators, who are Department of Agricultural Extension personnel, believe that YouTube is organized for sharing content and sharing it with others. However, creating accurate content is challenging

due to a lack of knowledge and activation on YouTube. They believe that content creators with an agricultural background can create meaningful and authentic content. They also emphasize the importance of constructive negative comments to improve their content.

YouTube's popularity and worldwide viewership make it a valuable platform for sharing agriculture-related knowledge. However, content creators face challenges such as high internet purchasing costs and time-consuming content creation and editing. They encourage the young generation to create clear, meaningful, and demandable content to benefit their fields and farms.

Selected characteristics of the respondents

Data presented in Table 7 showed the distribution of respondents according to their socioeconomic characteristics.

Age: The majority of the respondents were middle-aged (46.7%) and young aged (44.8%).

Family size: The majority of the families were small sized (51.4%) to medium sized.

Educational status: The highest portion of the respondents was undergraduate (28.6%) to postgraduate 26.7%.

Farm size: The majority of the respondent's farm size was marginal (48.6%) to small farms (35.0%).

Monthly family income: The major proportion of the respondents (53.3%) had medium income to high income 23.8%.

Training Exposure: The majority of the respondents (66.0%) did not receive any training.

Extension media contact: Most of the respondents (52.4%) were rarely to occasionally (41.0%) exposed to extension media. The minimum extension media exposure was 5 and the maximum extension media exposure was 35.

Cosmopolitanism: The majority of the respondents had a medium (68.6%) score of cosmopolitanism.

Organizational Participation: A major portion of the respondents had no participation (69.5%) in any organization and 30.5% participated in the organization.

Experience in farming: The majority of the respondents were medium experienced (43.0%) then low experienced 30.5% and high experienced 28.6%, respectively.

Knowledge Level: The majority of the farmers had a high (66.7%) level of knowledge about YouTube, and 33.3% had a medium level of knowledge about YouTube.

Table 7. Distribution of respondents according to their socioeconomic characteristics.

Characteristics	Categories	Score (Years)		N=105	Mean± SD ($\bar{x} \pm \sigma$)	Range	
			%			Min.	Max.
Age	Young aged	≤35	44.8	39.4±12.50	18	67	
	Middle aged	36-55	46.7				
	Old aged	>55	8.6				
Family size	Small sized	≤4	51.4	4.5±1.42	2	10	
	Medium sized	5-7	46.37				
	Large sized	>7	1.9				
Educational status	Illiterate	0	0	11.47±3.196	0.5	17	
	Can sign only	0.5	2.9				
	Primary	1-5	8.6				
	Secondary	6-10	19				
	Higher Secondary	11-12	14.3				
	Undergraduate	13-16	28.6				
Farm size	Landless	<0.02	0	0.51±.65	0.03	3.36	
	Marginal	0.02-0.20	48.6				
	Small	0.21-1.0	33.3				
	Medium	1.01-3.00	17.1				
	Large	>3	1				
Monthly family income	Low income	≤ 20000	22.9	35089.52±53878.25	11000	57000	
	Medium income	20001-35000	53.3				
	High income	>35000	23.8				
Training received	No training	0	62.9	0.75±1.19	0	5	
	Low training exposure	1-2	23.8				
	Medium training exposure	3-4	11.4				
	High training exposure	>4	1.9				
Extension media contact	Rare	0-10	52.4	12.07±5.86	5	35	
	Occasional	11-20	41.0				
	Often	21-30	3.8				
	Regular	31-45	2.9				
Cosmopolitanism	Low	0-5	21.9	7.11±1.91	3	12	
	Medium	5-10	68.6				
	High	11-15	9.5				
Organizational participation	No participation	0	69.5				
	Participation	1	30.5				
Experience in farming	Low experience	<10	30.5	16.41±10.94	0.50	40	
	Medium experience	10-20	41				
	High experience	>20	28.6				
Knowledge Level	Low	0-3	0	8.03±1.45	4	10	
	Medium	4-7	33.3				
	High	8-10	66.7				

Relationship between the selected characteristics of respondents and the perception of prospects and problems regarding YouTube in agricultural content preparation and dissemination

The correlation displayed in Table 7 illustrated that age, farm size, training, extension media contact, and farming experience had significant effects on respondent's perceptions about "YouTube's prospects in agricultural content dissemination" whereas, in case of family size, educational status, cosmopolitanism, organizational participation, and knowledge level, no significant relation was observed. It means that the higher the age, farm size, training received, extension media contact, experience in farming, and the clearer the respondent's perception of prospects in agricultural content dissemination. According to the respondents, younger farmers are more comfortable using digital platforms like YouTube, while older farmers might face challenges in accessing and utilizing online content due to limited literacy or technology access; higher educational levels may be more likely to use digital media effectively and have the skills to create and share agricultural videos on YouTube; larger farm operations may have more resources in creating and disseminating agricultural content on YouTube, while small-scale farmers might face limitations in terms of resources and technology access; training on digital media and content creation may be better equipped to utilize YouTube effectively for agricultural content preparation and dissemination; regular contact with agricultural extension services and media may have more exposure to YouTube as a platform for accessing and sharing information. Whereas,

Family size, cosmopolitanism, and knowledge level had a positive but non-significant relationship with their perception of YouTube in agricultural content dissemination. Educational status and organizational participation had a negative non-significant and negative relationship.

Barua (2021) observed that there was a significant contribution of the farmers' annual family income and innovativeness were the most contributing factors whereas effective farm size, farming experience, agricultural extension media contact and agricultural knowledge were the second contributing factors that had a significant relation in agricultural technology diffusion through YouTube.

On the contrary, farm size, training received, extension media contact, and experience had a significant and positive relation with the problems of YouTube from the respondent's point of view. It means that the higher the farm size, training received, extension media contact, and experience, the higher the ability to identify the problems of YouTube in agricultural content dissemination. Educational status, monthly income and organizational participation had a significant but negative relationship. This means, that the higher the educational status, monthly income and organizational participation the lower the problems. Age and family size had a positive relationship but were non-significant. Cosmopolitanism and knowledge level negative but non-significant relationship with the problems of YouTube in content dissemination from the respondent's point of view.

Table 8. Relationship between the selected characteristics of respondents and the perception of prospects and problems regarding YouTube in agricultural content dissemination.

Characteristics (Independent variables)	Focus variables	
	Prospects of YouTube in content dissemination	Problems of YouTube in content dissemination
1. Age	.333*	.065 NS
2. Family size	.012 NS	.091 NS
3. Educational status	-.190NS	-.435**
4. Farm size	.350**	.382**
5. Monthly income	.000	-.227*
6. Training received	.302**	.403**
7. Extension media contact	.387**	.325**
8. Cosmopolitanism	.127 NS	-.018 NS
9. Organizational participation	-.135 NS	-.351**
10. Experience in farming	.205*	.252**
11. Knowledge level	.127 NS	-.069 NS

NS= Non significant, *Correlation is significant at 0.01 level (2-tailed), **Correlation is significant at 0.05 level (2-tailed)

Conclusion

Agriculture is a concept that is expanding, but dynamic communication channels like YouTube can be helpful for spreading agricultural content more rapidly. The government can offer technical assistance for efficient participation on YouTube, which would improve the agricultural environment. Most respondents (66.70%) have a high knowledge of YouTube and perceive it as a valuable source for agricultural content dissemination. However, there is a lack of organized efforts from public extension systems, internet cost, and network availability, which require policymakers to improve. For improving content quality, training, incentives, reducing internet costs and device availability are needed.

Acknowledgements

The author thanks the Omnipresent Creator for giving her the knowledge, power, and health she needed for her research. She also expresses gratitude to the Ministry of Science and Technology (MoST) for funding the National Science and Technology (NST) fellowship as well as to the supervisor and co-supervisor. She also expresses gratitude to the teachers of the Agrotechnology Discipline for their assistance, direction, and cooperation.

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