***Original Research Article***

**Symbolic Adoption of Professor Jayashankar Telangana Agricultural University (PJTAU) Agricultural Videos Channel on YouTube: A Study of Telangana Farmers**

**ABSTRACT**

The swift spread of new ideas via modern communication channels is crucial to address the increasing demand for information. Social media platforms are instrumental in supporting farmers by providing updates on weather changes influenced by climate change, which significantly impact agriculture. Widely used platforms such as Twitter, Facebook, WhatsApp, and YouTube serve as key tools for educating farmers across the country. Additionally, many farmers seek detailed knowledge and insights through books and online resources. Among these platforms, YouTube stands out as a valuable resource for farmers, students, universities, researchers, and professionals. It offers content that shares farming techniques based on the experiences of progressive farmers, scientists, and agricultural experts. These platforms offer valuable information on farm operations, equipment usage, daily routines, farm marketing strategies, organic farming practices, vegetable cultivation, and the application of organic pesticides and fertilizers. YouTube offers abundant opportunities for individuals involved in agriculture, all at no cost. An experimental study conducted on the YouTube channel of Professor Jayashankar Telangana State Agricultural University analyzed the symbolic adoption of improved practices among farmers. The results indicated that farmers expressed a readiness to embrace practices they had previously been hesitant to adopt. This highlights the crucial role of social media in strengthening agricultural extension initiatives and its effectiveness in spreading advanced technologies to farmers.

***Keywords:*** Agricultural videos, Farmers, Symbolic adoption, Telangana, YouTube channel

**Introduction**

As agriculture transitions into modern practices, updated information is crucial for enhancing production and productivity. Farming has significantly advanced with technology, addressing many challenges farmers face. Technology helps in more accurate climate predictions, reducing water usage, increasing yields, and improving profit margins. Among these advancements, electronic communication is vital for rapidly disseminating agricultural knowledge. Broadcasting through electronic media is much easier compared to traditional methods, offering innovative approaches like motion pictures and animations. This medium includes technologies powered by electricity, such as digital presentations, video and audio recordings, CD-ROMs, online content, and platforms like television, radio, telephone, and computers. Social media plays a crucial role in providing relevant agricultural information. Platforms like Twitter, Facebook, WhatsApp, and YouTube are extensively used to educate farmers across the country. YouTube serves as a significant platform for sharing agricultural content with students, research scholars, farmers, agricultural universities, and research institutes. It allows users to freely share videos on various topics, including farming techniques, through personal channels where they can upload, view, and share video clips. This platform enables learning from the experiences of growers, scientists, and agriculture officers, making it a valuable resource for the agricultural community. These channels offer valuable information on farm operations, equipment handling, daily tasks, marketing strategies, solutions to marketing challenges, organic farming methods, vegetable cultivation, and the application of organic pesticides and manures, among other subjects. Content creators with an agricultural background can produce meaningful and authentic content (Farabi *et al.,*2023).

Symbolic adoption towards agricultural videos refers to the process by which farmers and other stakeholders perceive these videos not only for the sake of knowledge but as their desire to learn and implement practices/technologies to enhance productivity. It also emphasizes how crucial it is to make agricultural information available to everyone, promoting the production and dissemination of more content that meets a range of agricultural configurations and requirements. By embracing YouTube agricultural videos, the farming community acknowledges a modern, contemporary and cooperative approach to learning and development, promoting a more interconnected and informed agricultural sector.

Professor Jayashankar Telangana Agricultural University (PJTAU), located in Rajendranagar, Hyderabad, has made significant advancements in research and developed numerous farmer-friendly technologies. Although these technologies have demonstrated success in field conditions, many farmers do not adopt or implement them in their own practices. The primary reason for this is the farmers' and farming communities' limited understanding of these technologies. So, there is a pressing need for information which demands the quick dissemination of cutting-edge ideas by modern media platforms. To address this, University has started PJTAU agricultural videos-YouTube channel in the year 2017, aiming to disseminate information on all aspects of agriculture and extend its reach to those who are otherwise inaccessible. Videos in the channel included crop production and protection, farm mechanization, general university videos, agricultural innovations and success stories. The videos were presented to farmers, and symbolic adoption was assessed afterward to determine whether the practices resonated with the farmers' beliefs and values, as well as to identify potential obstacles to their full adoption in the future.

To comprehend the significance and key factors influencing the symbolic adoption of agricultural videos, a comprehensive study was undertaken with the following objective:

* *To study the respondent’s level of symbolic adoption of improved practices in selected crops disseminated through PJTAU Agricultural videos of YouTube channel*

Several studies have explored symbolic adoption to assess the feasibility of adopting recommended practices and the potential for further implementation. Adam (1994) found that 74% of farmers had a medium level of symbolic adoption for cotton practices, with 20% showing high adoption and 5% low adoption. Sathiyaseelan (1998) observed high symbolic adoption among participants exposed to mass campaigns, videos, and field visits on sunflower cultivation. Srinivas (2002) reported that 49.17% of televiewers had medium symbolic adoption, 35.8% had high, and 15% had low adoption. Vikram (2004) noted that 57.5% of respondents exhibited high symbolic adoption of groundnut and mango practices after exposure to telecasts, while 26.6% had medium and 15% low adoption. Sasikala et al. (2011) found that 48% of respondents had high symbolic adoption of modern pig farming technologies, 38% had low, and 14% had medium levels. Neelarani (2013) observed that in the experimental group exposed to farm video programs on castor cultivation, 71.88% of rural women had medium symbolic adoption, followed by 15.62% with high and 12.50% with low levels, while in the control group, 62.50% had medium, 27.50% high, and 10% low levels. Shivani (2015) reported high symbolic adoption for tomato crop production practices, with 42% for television treatment, 37.1% for DVD treatment, and 35.10% for the e-Krishi Agri portal.

**Materials and Methods**

The present study was conducted in the state of Telangana, in year 2021 using an experimental approach (one group pre-test and post-test design). The main focus of the study was to examine the level of symbolic adoption of PJTAU Agricultural videos-YouTube channel as considered by the respondents, specifically regarding crop protection and production videos of paddy and cotton crops. The study took place in the districts of Warangal, Khammam and Medak of Central zone of Telangana state. Among these, six mandals, two from each of the district were chosen randomly. For the study, two villages were randomly selected from each mandal, resulting in a total of twelve villages. All of these villages were considered experimental, following a one-group pre-test and post-test design. From each village, ten respondents were randomly chosen, making a total of 120 participants.

In this study, the level of symbolic adoption of agricultural videos, as perceived by the respondents, was assessed after exposure to the videos (post-treatment). Data on the level of symbolic adoption was collected through structured statements from 60 paddy farmers and 60 cotton farmers, each group having viewed the videos separately. The frequency and percent was computed for both paddy and cotton crops, and the possible range of symbolic adoption levels for the videos was determined.

**Results and discussions**

***Paddy***

Level of symbolic adoption was operationalized as the mental acceptance or willingness and positive decision taken by an individual respondent to accept and adopt the improved practices after exposure to the paddy videos uploaded in the PJTAU Agricultural Videos-YouTube Channel. The videos featured a total of twenty recommended practices for paddy crop cultivation.

**Table 1. Distribution of respondents according to their level of symbolic adoption in Paddy**   **(n=60)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **S. No.** | **Practices** | **Fully to be adopted** | | **Partially to be adopted** | | **Not to be adopted** | |
|  |  | **f** | **%** | **f** | **%** | **f** | **%** |
| 1. | Recommended seed rate (20 kg/acre) | 36 | 60.0 | 24 | 40.0 | 0 | 0 |
| 2. | Recommended time for transplanting of paddy (25-30 DAS) | 10 | 16.6 | 50 | 83.3 | 0 | 0 |
| 3. | Recommended laying of alley ways of 20 cm width for every 2m crop to control BPH | 25 | 41.6 | 35 | 58.3 | 0 | 0 |
| 4. | Recommended  incorporation of Green  manure crops (Sun-hemp,  Sesbania, Green gram ) | 20 | 33.3 | 40 | 66.6 | 1 | 1.6 |
| 5. | Recommended harvesting after reaching 80% maturity | 27 | 45.0 | 33 | 55.0 | 0 | 0 |
| 6. | Recommended application of Chloranthaniliprole 4G granules @ 4kg or cartap hydrochloride 4G granules @ 8kg/acre along with mud for stem borer infestation | 34 | 56.6 | 24 | 40.0 | 2 | 3.3 |
| 7. | Recommended application of Acephate-1.5gm or thiomethoxam-0.3gm/Lt water for BPH infestation | 35 | 58.3 | 24 | 40.0 | 1 | 1.6 |
| 8. | Recommended application od carbofuran granules @ 10Kg/acre or Phorate granules @ 5kg/acre or Chloropyriphos @ 2.5ml/L water for Gall midge infestation | 27 | 45.0 | 30 | 50.0 | 3 | 5.0 |
| 9. | Recommended application od carbofuran granules @ 10Kg/acre or Cartap hydrochloride granules @ 8kg/acre for Leaf folder infestation | 34 | 56.6 | 26 | 43.4 | 0 | 0 |
| 10. | Recommended dose of Zn for basal application ZnSo4-20kgs/acre | 31 | 51.6 | 29 | 48.3 | 0 | 0 |
| 11. | Recommended 33 hills/sq mt during Kharif | 26 | 43.3 | 32 | 55.0 | 1 | 1.6 |
| 12. | Recommended fertilizer application (main field)- N-P-K (kg/acre)-Kahrif- (40:20:16) | 26 | 43.3 | 32 | 53.3 | 2 | 3.3 |
| 13. | Recommended dose of foliar spray for Fe deficiency- Annabedi @ 2gm+Lime salt @1gm/L | 28 | 46.6 | 31 | 51.6 | 1 | 1.6 |
| 14. | Recommended installation of Pheromone traps@ 3/acre | 24 | 40.0 | 35 | 58.3 | 1 | 1.6 |
| 15. | Recommended bird perches (15-20/acre) | 39 | 65.0 | 20 | 33.3 | 1 | 1.6 |
| 16. | Recommended covering the nursery beds with plastic sheets in order to protect it from cold injury | 24 | 40.0 | 36 | 60.0 | 0 | 0 |
| 17. | Recommended clipping of leaf tips to reduce stem borer infestation | 21 | 35.0 | 39 | 65.0 | 0 | 0 |
| 18. | Recommended holding water in the nurser during night time and removing in the morning to protect it from chilling temperature | 36 | 60.0 | 24 | 40.0 | 0 | 0 |
| 19. | Recommended seed treatment (carbendazim) | 39 | 65.0 | 21 | 35.0 | 0 | 0s |
| 20. | Recommended installation of light traps to know the level of infestation | 22 | 36.0 | 38 | 63.3 | 0 | 0 |

The results in the table 1 indicated that, among the practices mentioned in the videos, majority of the respondents perceived recommended bird perches and seed treatment with carbendazim as fully to be adopted (65%) whereas recommended time for transplanting paddy within 25-30 DAS as partially to be adopted (83.3%) and recommended application for carbofuran or Phorate granules for Gall midge infestation (5%) as not be adopted.

**Table 2. Overall Distribution of respondents according to their of symbolic adoption in Paddy**  **(n=60)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S.No.** | **Category** | **Class interval** | **Frequency** | **Percentage** |
| 1 | Low | 40-45 | 04 | 6.7 |
| 2 | Medium | 46-51 | 50 | 83.3 |
| 3 | High | 52-57 | 06 | 10.0 |
|  | **Total** | | **60** | **100.0** |

The data presented in Table 2 shows that the majority of respondents (83.3%) fell into the medium category of symbolic adoption, followed by 10% with a high level and 6.7% with a low level of symbolic adoption regarding the practices demonstrated in the paddy crop videos on the PJTAU Agricultural Videos YouTube Channel. Based on this information, it can be concluded that the majority (83.3%) of respondents belonged to the medium symbolic adoption group. This can be attributed to the convincing nature of treatment of a particular message in crop production and protection videos of Paddy in PJTAU Agricultural videos YouTube channel. However, the percentage of high symbolic adoption (10.0%) was more compared to low symbolic adoption group (6.6%). This might be due to that video presentation as a teaching device had motivated the respondents to an extent and possibility might also be due to active participation and mental acceptance of practical applications of new technologies. The low symbolic adoption is due to following of more traditional practices, unavailability of seed in time, unaware of recommended high yielding varieties for timely cultivation were viewed as a reason by the respondents to appear relevant because knowledge is the pre- condition for the adoption of recommendations. Furthermore, it could be inferred that the exposure to PJTAU Agricultural videos of YouTube channel motivated them to have the willingness and desire to take up improved practices which they never had previously. The presented results are consistent with the findings of Adam (1994).

**Figure 1: Frequency distribution of respondents according to their level of symbolic adoption of practices of Paddy crop (n=60)**

***Cotton***

The variable symbolic adoption was operationalized as the mental acceptance or willingness and positive decision taken by an individual respondent to accept and adopt the improved practices after exposure to the cotton videos uploaded in the PJTAU Agricultural Videos YouTube Channel. The videos featured a total of twenty recommended practices for cotton crop cultivation.

**Table 3. Distribution of respondents according to their level of symbolic adoption in Cotton**

**(n=60)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **S. No.** | **Practices** | **Fully to be adopted** | | **Partially to be adopted** | | **Not to be adopted** | |
|  |  | **f** | **%** | **f** | **%** | **f** | **%** |
| 1. | Recommended spacing (Varieties:2seeds/hill) and (Hybrids:1 seed/hill) | 54 | 90.0 | 5 | 8.3 | 1 | 1.6 |
| 2. | Recommended Stem application- Imidacloprid in 1:20 ratio with water for sucking pests infestation | 5 | 8.3 | 52 | 86.6 | 3 | 5.0 |
| 3. | Recommended Gap filling- 10 DAS | 24 | 40.0 | 36 | 60.0 | 0 | 0 |
| 4. | Recommended depth of sowing (2-3cm) | 16 | 26.6 | 44 | 73.3 | 0 | 0 |
| 5. | Recommended number of pickings re 4-5 | 29 | 48.3 | 29 | 48.3 | 2 | 3.3 |
| 6. | Recommended spraying of Chlorpyriphos @2.5ml or Quinalphos @20ml or Emamectin benzoate @0.5g or Thiodicarb @1.5g/L water for PBW infestation | 20 | 33.3 | 29 | 48.3 | 11 | 18.3 |
| 7. | Recommended dose of Urea @20g/L water or KNO3 @ 10g/L to rectify reddening of plants | 30 | 50.0 | 27 | 45.0 | 3 | 5.0 |
| 8. | Recommended trap crops- Castor (20 plants/acre), chrysanthemum (100 plants/acre) | 20 | 33.3 | 34 | 56.6 | 6 | 10.0 |
| 9. | Recommended crop rotation (Green gram, Black gram, Maize) | 24 | 40.0 | 32 | 53.3 | 4 | 6.6 |
| 10. | Recommended applicaction of MgSo4 @ 10g/L | 23 | 38.3 | 34 | 56.6 | 3 | 5.0 |
| 11. | Recommended application of Borax @ 1-1.5 g/L | 17 | 28.3 | 39 | 65.0 | 4 | 6.6 |
| 12. | Recommended Thinning (within 3 weeks of sowing) | 32 | 53.3 | 28 | 46.6 | 0 | 0 |
| 13. | Recommended applicaction of soap2 1g or Dhanuvit @1ml or Sandovit @ 1ml or Methyl parathion @ 3ml or Profenophos @3ml or Acephate @3g/l water for mealy bugs infestation | 22 | 36.6 | 31 | 51.6 | 7 | 11.6 |
| 14. | Recommended weed management- (applicaction of Pendimethalin/Fluchloralin/ Quizalofapethyl) | 30 | 50.0 | 25 | 41.6 | 5 | 8.3 |
| 15. | Recommended erection of bird perches @ 15-20/acre | 18 | 30.0 | 41 | 68.3 | 1 | 1.6 |
| 16. | Recommended sowing of non bt cotton in the boundaries along with bt cotton | 30 | 50.0 | 29 | 48.3 | 1 | 1.6 |
| 17. | Recommended application of poison bait (10kg paddy husk+2kg jaggery+ 750ml Chlorpyriphos or 300g Thiodicarb) for Spodoptera infestation | 24 | 40.0 | 31 | 51.6 | 5 | 8.3 |
| 18. | Recommended seed treatment (Imidacloprid Thiamethoxam) | 33 | 55.0 | 26 | 43.4 | 1 | 1.6 |
| 19. | Recommended installation of pheromone traps @4/acre | 45 | 75.0 | 14 | 23.3 | 1 | 1.6 |
| 20. | Recommended application of Plano fix @ 1ml/5L to control flower and fruit drop | 20 | 33.3 | 36 | 60.0 | 4 | 6.6 |

The results in the table 3, indicate that, among the practices mentioned in the videos, majority of the respondents perceived recommended spacing for the varieties and hybrids as fully to be adopted (54%) whereas recommended stem application for sucking pests’ infestation as partially to be adopted (52%) and recommended spraying of chlorpyriphos for PBW infestation as not to be adopted.

**Table 4. Overall Distribution of respondents according to their level of symbolic adoption in Cotton (n=60)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S.No.** | **Category** | **Class Interval** | **Frequency** | **Percentage** |
| 1 | Low | 31-40 | 3 | 5.0 |
| 2 | Medium | 41-50 | 44 | 73.3 |
| 3 | High | 51-60 | 13 | 21.7 |
|  | **Total** | | **60** | **100.00** |

The results in Table 4 show that the majority of respondents (73.3%) fell into the medium category of symbolic adoption, followed by 21.7% with high and 5.0% with low levels of symbolic adoption of the recommended cotton crop practices shown in the videos on the PJTAU Agricultural Videos YouTube Channel. Based on Table 4, it can be concluded that most respondents (73.3%) exhibited medium symbolic adoption, indicating that they gained symbolic adoption in various aspects of cotton crop cultivation through the YouTube channel videos. This is due to that the respondents were practicing all the farm operations on field, they were not knowing the scientific reason involved in the following appropriate procedure, advantages, and disadvantages. When the videos were shown, they were told regarding significance of all the crop production, protection aspects and scientific ways of adopting new practices. However, the percentage of high symbolic adoption (21.6%) was more in comparison to low symbolic adoption group (5.0%). This might be because PJTAU Agricultural videos had convinced the respondents in better way to mentally accept the new technologies and adopt them in future. The low symbolic adoption might be due to lack of motivation about the recommendations, practicing more traditional methods, more labour requirement to follow the recommended practices. Hence the local extension officials should put more efforts in educating the farmers regarding the new practices and technologies. The results align with the findings of Srinivas (2002).

**Figure 2: Frequency distribution of respondents according to their level of symbolic adoption of recommended practices in Cotton crop (n=60)**

***Correlation analysis between independent variables with symbolic adoption (Paddy and Cotton) towards PJTAU agricultural videos of YouTube channel***

**Table 5. Relationship of selected variables with symbolic adoption (Paddy and cotton) of PJTAU Agricultural Videos of YouTube channel (n=120)**

|  |  |  |  |
| --- | --- | --- | --- |
| **S.No.** | **Independent variables** | **PADDY**  **Symbolic adoption** | **COTTON**  **Symbolic adoption** |
| 1. | Age | 0.170 | 0.103 |
| 2. | Education | 0.571\* | 0.481\* |
| 3. | Fram size | 0.255 | 0.093 |
| 4. | Farm experience | 0.096 | -0.061 |
| 5. | Socio economic status | -0.234 | 0.391 |
| 6. | Achievement motivation | 0.055 | 0.450\* |
| 7. | Social media viewing behaviour | 0.465\* | 0.409\* |
| 8. | Audio visual material possession | 0.408\* | 0.453\* |
| 9. | Source of information utilized | 0.573\* | 0.445\* |
| 10. | Scientific orientation | 0.421\* | 0.599\* |

The table 5 clearly shows that variables such as Age, Farm size, Farm experience, Socio-economic status, and Achievement motivation were not significantly associated with symbolic adoption in paddy crop. Similarly, variables like Age, Farm size, Farm experience, and Socio-economic status were also found to be non-significant in relation to symbolic adoption of PJTAU agricultural videos for cotton crop. Age and farm experience were found to be non-significant with symbolic adoption of the videos because the experience of young age group category was low. Farm size and socio-economic status was found to be non-significant with the symbolic adoption. Achievement motivation was found be significant with symbolic adoption in case of cotton but non-significant in paddy crop because as paddy is a staple crop, most of them were following recommended practices but whereas cotton is a commercial crop, so they had that zeal to know about the new practices to adopt them. Scientific orientation was found to be positively correlated and significant with symbolic adoption in paddy due to their following of location-specific recommended practices and same in case of cotton for following more scientific procedures in a systematic manner. Audio visual material possession and social media viewing behavior was positively correlated and significant with symbolic adoption due to easy access to TV, radio and internet which engages multiple senses that attracted the users to acquire the relevant and reliable information to adopt the updated technologies. Source of information utilized was found to be positively correlated due to access to local extension officials regarding the location-specific recommendations and prevailing situations.

**Conclusion**

The study clearly made it apparent that agricultural videos are essential in closing the knowledge and skill gap by offering farmers with up-to-date and useful information. As observed, that the level of symbolic adoption varies depending on several circumstances, including digital literacy, access to tools and technologies, and the content's applicability to local farming conditions. With its extensive reach and diverse content, YouTube plays a crucial role in promoting the adoption of new agricultural knowledge, enabling farmers to symbolically embrace modern techniques and innovations. Nonetheless, improvements are needed from government officials due to the dearth of concentrated efforts from public extension systems, high internet costs, and limited accessibility to the network. To enhance content quality, it is crucial to provide incentives, training on tool usage, reduce internet costs, and expand device availability.

**References**

Adam P, Veera RRM. Symbolic adoption behavior of Palnadu cotton Lambadi tribal farmers of Guntur district [Master’s thesis]. Guntur, India: Acharya N.G. Ranga Agricultural University; 1994.

Farabi T, Islam MM, Ahmed MB. Prospects and problems of YouTube and virtual video channels in agricultural content dissemination. Int J Agric Res Innov Technol. 2023;13(2):31-40.

Neelarani R, Rao IS. Impact of farm video programmes of Acharya NG Ranga Agricultural University on rural women: an experimental study [PhD thesis]. Hyderabad, India: Acharya N.G. Ranga Agricultural University; 2013.

Sasikala V, Kumaravel P, Mathaialagan P, Saravanan M. Symbolic adoption of modern pig farming technologies by rural pig farmers through uniterractive multimedia module. Int J Anim Sci Res. 2011;5(3):95-100.

Sathiyaseelan R, Chandrakandan K. An experimental study on sunflower extension methodology [PhD thesis]. Coimbatore, India: Tamil Nadu Agricultural University; 1998.

Shivani D, Govinda GV. Relative effectiveness of different information and communication technology (ICT) gadgets on knowledge and symbolic adoption of tomato crop production practices among farmers of Karnataka: an experimental study [master’s thesis]. Bengaluru, India: University of Agricultural Sciences, GKVK; 2015.

Srinivas RK, Srinivasulu RM. A critical analysis of Annadata-Velugubata farm telecast programme in Andhra Pradesh [master’s thesis]. Hyderabad, India: Professor Jayashankar Telangana Agricultural University; 2002.

Vikram KC, Ramchandra RD. Impact of Annadata Velugubata programme on the televiewers in Chittoor district of Andhra Pradesh. Indian J Ext Educ. 2004;40(2):37-39