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Unearthing the Knowledge of Natural Farming through Content Analysis of English YouTube Videos

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ABSTRACT

Amidst the vast realm of digital content, YouTube covers agricultural videos that exhibit the marvels of natural farming. This content analysis, conducted in 2023, encompasses a comprehensive synopsis of YouTube videos communicated in English on natural farming. By employing a meticulously prepared checklist, the study delved into both qualitative and quantitative aspects of the videos. A total of 150 videos were selected through systematic random sampling, assuring recurrent themes and subthemes. An accurate and consistent analysis was ensured by conducting intra-coder reliability. The analysis includes categorization in respect of type of enterprise, type of crop, place of program, shot type, Type of operational practices, type of manure, type of mulching, type of compost, type of soil water conservation techniques, type of pest management techniques, the theme of the channels, number of subscribers, and type of content. The analysis focused on YouTube's coverage of promoting knowledge about natural farming practices by serving as a comprehensive resource for empowering and motivating people on their sustainable agricultural journeys.

Keywords: *Social Media; Agricultural Videos; YouTube; Natural Farming; Content Analysis; Intra-Coder Reliability.*

INTRODUCTION

One of the four essential requirements of humans, along with food, housing, and clothing, is communication. With the advancement of communication technology, social media became an integral part of communication and has recently been added to the list of ICT. Social media are internet-based platforms that enable communication between users through the exchange of information. It describes the user-generated information, commentary, audio, video, and multimedia that is distributed and discussed across digital networks (Andres et al. 2013). Social media, according to Merriam-Webster (2015), are electronic communication channels that allow users to establish online communities where they can exchange information, ideas, private messages, and other content. Chmielewski (2011) asserts that social media is not about what each individual does or says but rather about what we all do and say collectively to communicate with each other in any direction at any time using any available digital medium. Social media tools include social networking websites, video and photo sharing websites, social bookmarking services, email, and instant messaging, socially integrated mobile text messaging services, blogs and microblogs, forums,

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discussion boards, and groups. (Saravanan et al., 2014).

Information is vital to agricultural development (Kalusopa, 2005). Development communication had to come up with creative ways to use the internet to reach the vast number of internet users. Several studies describing the use of videos in formal (Berk, 2009; Green et al., 2003; Mitra et al., 2010; Reynolds et al., 2002), informal (Bo-Kristensen et al., 2009; Morrissey, 1991), and non-formal (Lewis, 1977) educational contexts have been published in the past few years, and it has changed significantly since the launch of platforms like YouTube, an online video platform that enables users to upload, distribute, and watch videos that generate discussion (Jina et al., 2012; Snelson et al., 2009).

Extension services are required to improve agricultural productivity by providing farmers with the requisite information (Muyanga et al., 2006; Singh et al., 2017). Information and Communication Technologies (ICTs) can reach a large number of people simultaneously (Sandhu et al., 2012). It is observed that young farmers and practitioners utilize YouTube as a social media tool for teamwork and inspirational self-learning (Albahiri et al., 2020). Natural farming videos on YouTube are capturing the attention of viewers worldwide, considering their appeal and relevance. Through their attractive videos, the content creators explore a variety of topics, including organic farming, permaculture, regenerative agriculture, urban farming, and many more. With their passion, knowledge, and relatable content, they promote a harmonious relationship between humans and nature. Analysis of this video content enables evaluation of the veracity and quality of the information being disseminated, finds important individuals or channels that can promote awareness, and aids in the dissemination of content about sustainable agricultural practices within the YouTube community. Ultimately, the content analysis of these videos plays a critical role in promoting and advancing sustainable agricultural practices through effective communication and education.

There is a notable research gap in understanding the contents of these videos and disseminating accurate and practical information on natural farming techniques. Therefore, the current study was carried out on YouTube videos (English-language) dealing with natural farming for generating information about themes, crops, operational practices, the input used, etc., duration, the time distribution of contents, and other videography-related attributes.

METHODOLOGY

The term "Natural Farming in English" was searched on YouTube on April 4, 2023. In response to the keyword searches, 0.12 million results were found with active links. For each search, YouTube can only provide up to 1,000 videos due to capacity limitations. As a result, even though more than 0.1 million results were discovered, there were only 1,000 videos for the mentioned keyword. Every fifth video on the list was selected using a systematic random sampling approach. 200 entries with live links were produced as a result. Furthermore, 50 videos were omitted from the video lists because they were either irrelevant or overlapped. Thus, 150 YouTube videos were finally included, which represented 15 percent of the total number of videos. Based on a model developed by the authors, content analysis (Berelson, 1952) was applied to generate both qualitative and quantitative data. The lead author went through each video and recorded quantitative aspects of the content. It covered the number of subscribers, total number of videos in the channel, total number of speakers, duration of videos, duration of sub-content of videos, and duration of advertisements. The qualitative

aspects of the content analysis include the theme of the video, type of crops, place of programmes, type of shots, type of input used, and type of advertisements. In order to pre-test the coding technique, the primary researcher underwent training and practiced with 30 non-sample videos (Wimmer et al., 2005). The accuracy of the categorization by the researcher according to different themes and subthemes was ascertained with the intra-coder reliability technique using the formula (Bower, 1972) with a 15-day interval.

K= (Po−Pe)/ (1−Pe)

Where,

Po= proportion of items agreed

Pe= proportion of items disagreed.

The intra-coder reliability coefficient for all the variables was 0.88. By calculating their frequency and percentage of occurrences, the contents of the videos were examined. After calculating the means and standard deviations from the data sets, frequency distribution tables were created using the mean split.

FINDINGS AND DISCUSSION

The content of the communication materials vis-à-vis YouTube videos was analysed after generating the data.

YouTube Videos According to Type of Enterprise included in Natural Farming

The distribution of YouTube videos according to the type of enterprises included in natural farming is presented in Table No 1.

Table 1. Distribution of YouTube Videos According to Type of Enterprise included in Natural Farming (N= 150)

Sl. No.	Type of Enterprise	Frequency	Percentage	Rank
1	Agriculture	148	98.67	1
2	Horticulture	144	96	2
3	Animal husbandry	141	94	3
4	Fishery	92	61.33	4
5	Poultry	78	52	5
6	Bee keeping	13	8.67	6

It can be noted that most of the videos (98.67 percent) covered agriculture as an enterprise, followed by 96 percent, 94 percent, 61.33 percent, 52 percent, and 8.67 percent of the videos, which covered horticulture, animal husbandry, fishery, poultry, and beekeeping, respectively, as enterprises.

YouTube Videos According to Type of Crops

The distribution of YouTube videos according to the type of crops included in natural farming is presented in Table No 2.

Table. 2 Distribution of YouTube Videos According to Type of Crops used for Natural Farming (N= 150)

Sl. No.	Type of crop	Frequency	Percentage	Rank
1	Cereal	146	97.33	1
2	Vegetable	137	91.33	2
3	Fruit	129	86	3
4	Pulse	110	73.33	4
5	Oilseed	102	68	5

Table 2 shows that 97.33 percent of the videos were made on cereals, whereas 91.33 percent, 86 percent, 73.33 percent, and 68 percent of the videos were made on vegetables, fruits, pulses, and oilseeds, respectively. Evident observations can be made regarding the predominant preferences of YouTubers, as rice, maize, and wheat within the cereal category, tomato, carrot, and spinach among vegetables, blueberries, pomegranate, and papaya within the fruit category, as well as lentil, chickpea, and green gram within pulses, and sunflower, mustard, and safflower within oilseeds emerged as the top three most favored choices. YouTubers preferred cereals the most to film videos, followed by vegetables, fruits, pulses, and oilseeds, respectively.

YouTube Videos according to Shooting Place

The distribution of YouTube videos according to the shooting place of the programme is mentioned in Table 3.

Table 3 Distribution of YouTube Videos According to Shooting Place of Programme (N= 150)

Sl. No.	Place of programme	Frequency	Percentage
1	Homestead land / Kitchen Garden	26	17.33
2	Farm land	124	82.66
Total		150	100

The distribution of YouTube videos according to the shooting place of the programme denotes that 17.33 percent of the videos were shot on either homestead land or kitchen garden, whereas 82.67 percent of the videos were shot on farmland.

YouTube Videos according to Type of Operational Practices

The details of the distribution of YouTube videos according to the type of operational practices are represented in Table 4.

Table 4 Distribution of YouTube Videos according to Type of Operational Practices (N = 150)

Sl. No.	Operational Practices	Frequency	Rank	Percentage
1	Pest management	149	1	99.33
2	Soil water conservation	148	1.5	98.67
3	Manuring	148	1.5	98.67
4	Mulching	147	3	98
5	Inter cropping	146	4	97.33
6	Composting	145	5	96.67
7	Crop rotation	143	6	95.33
8	Companion Cropping	132	7	88
9	Trap crop	131	7.5	87.33
10	Weed management	131	7.5	87.33
11	Zero tillage	129	9	86
12	Physical Barrier	123	10	82

The details of the distribution of YouTube videos according to the type of operational practices are represented in Table 4. It can be stated that 99.33 percent of the videos focused on Pest management techniques, followed by 98.67 percent, 98.67 percent, 98 percent, 97.33 percent, 96.67 percent, 95.33 percent, 88 percent, 87.33 percent, 87.33 percent, 86 percent, and 82 percent of the videos focused on soil water conservation, manuring, mulching, intercropping, composting, crop rotation, companion cropping, trap crop, weed management, zero tillage, and physical barriers.

YouTube Videos According to Type of Manure Used in Natural Farming

The distribution of YouTube videos according to the type of manure used in natural farming is revealed in Table 5.

Table 5. Distribution of YouTube videos According to Type of Manure Used in Natural Farming (N= 148)

Sl. No.	Type of manure	Frequency	Percentage	Rank
1	Cow Manure	148	100	1
2	Ship and Goat manure	144	97.29	2
3	Poultry manure	138	93.24	3
4	Pig manure	132	89.18	4
5	Ship and Goat manure	144	97.29	2
6	Rabbit manure	3	2.02	6

The distribution of YouTube videos according to the type of manure used in natural farming is revealed in table number 5, which signifies that 100 percent of the videos highlighted cow manure, whereas 97.29 percent, 93.24 percent, 89.18 percent, 97.29 percent, and 2.02 percent of the videos were concentrated on Ship and Goat manure, Poultry manure, Pig manure, Ship and Goat manure, and Rabbit manure correspondingly.

YouTube Videos according to Type of Mulching Used in Natural Farming

The details of the distribution of YouTube videos according to the type of mulching used in natural farming are depicted in Table 6.

Table. 6 Distribution of YouTube Videos according to Type of Mulching Used in Natural Farming (N= 147)

Sl. No.	Type of mulching	Frequency	Percentage	Rank
1	Straw mulching	145	98.63	1
2	Live mulching	132	89.78	2
3	Grass mulching	131	89.11	3
4	Leaf mulching	129	87.75	4
5	Woodchip mulching	121	82.31	5
6	Sheet mulching	103	70.06	6

The details of the distribution of YouTube videos according to the type of mulching used in natural farming are depicted in Table 6. It is observed that 98.63 percent of the videos dealt with straw mulching, whereas 89.78 percent, 89.11 percent, 87.75 percent, 82.31 percent and 70.06 percent focused on live mulching, grass mulching, leaf mulching, woodchip mulching and sheet mulching respectively. Straw mulching, live mulching, and grass mulching were the priorities of the YouTubers, followed by leaf mulching, woodchip mulching, and sheet mulching, respectively.

YouTube Videos according to Type of Soil Water Conservation Techniques

Table 7 shows the distribution of YouTube videos according to the type of soil and water conservation techniques used in natural farming.

Table .7 Distribution of YouTube videos according to Type of Soil Water Conservation Techniques Used in Natural Farming (N= 148)

Sl. No.	Type of water conservation techniques	Frequency	Percentage	Rank
1	Mulching	141	95.27	1
2	Organic matter incorporation	140	94.59	2
3	Drip irrigation	139	93.91	3
4	Rainwater harvesting	132	89.18	4
5	Cover cropping	127	85.81	5

Table 7 shows the distribution of YouTube videos according to the type of soil and water conservation techniques used in natural farming. It is observed that most of the videos (95.27 percent) concentrated on mulching, whereas 94.59 percent, 93.91 percent, 89.18 percent, and 85.81 percent of the videos focused on organic matter incorporation, drip irrigation, rainwater harvesting, and cover cropping, respectively.

YouTube Videos According to Type of Pest Management Techniques Used

The distribution of YouTube videos according to the type of pest management techniques used in natural farming is revealed in Table 8

Table No: 8 Distribution of YouTube Videos According to Type of Pest Management Techniques Used in Natural Farming (N= 149)

Sl. No.	Type pest management techniques	Frequency	Percentage	Rank
1	Cultural practices	148	99.32	1
2	Use of organic substances	147	98.65	2
3	Mechanical and physical control	141	94.63	3
4	Companion cropping	134	89.93	4
5	Crop rotation	129	86.57	5
6	Trap cropping	126	84.56	6
7	Biological control	113	75.83	7

The distribution of YouTube videos according to the type of pest management techniques used in natural farming is revealed in Table 8, which highlighted that most of the videos (99.32 percent) focused on cultural practices, whereas 98.65 percent, 94.63 percent, 89.93 percent, 86.57 percent, 84.56 percent, and 75.83 percent of videos emphasized the use of organic substances, mechanical and physical control, companion cropping, crop rotation, trap cropping, and biological control, respectively.

YouTube Channels According to Number of Subscribers

The details of the distribution of YouTube videos according to the number of subscribers to the channel are stated in Table 9.

Table .9 Distribution of YouTube Channels According to Number of Subscribers: (N= 75)

Sl. No.	Number of subscribers (in thousand)	Frequency	Percentage	Rank
1	20 - <35	13	17.33	1
2	35- <50	11	14.67	2
3	5- <20	9	12	2.5
4	50 - <65	9	12	2.5
5	65 - <80	8	10.67	3.5
6	95 - <110	8	10.67	3.5
7	110 - <125	6	8	5
8	80 - <95	5	6.67	6
9	125 - <140	3	4	6.5
10	140 - < 155	3	4	6.5

The details of the distribution of YouTube videos according to the number of subscribers to the channel are stated in Table 9. The frequency distribution table was prepared according to the mean split technique. It represents that 17.33 percent of the channels had subscribers ranging from 20 thousand to less than 35 thousand, followed by 14.67 percent, 12 percent, 10.67 percent, 8 percent, 6.67 percent, and 4 percent of the videos had subscriber bases ranging from 35 thousand to less than 50 thousand, 5 thousand to less than 20 thousand, 50 thousand to less than 65 thousand, 65 thousand to less than 80 thousand, 95 thousand to less than 110 thousands, 110 thousand to less than 125 thousand, 80 thousand to less than 95 thousand, 125 thousand to less than 140 thousands, 140 thousand to less than 155 thousand respectively.

YouTube Videos According to Types of Content

The details of the distribution of YouTube videos according to types of content are represented in Table 10.

Table 10 Distribution of YouTube Videos According to Types of Content (N=150)

Sl. No.	Types of content	Frequency	Percentage	Rank
1	How- to- do- type	146	97.33	1
2	What –to- do- type	132	88	2
3	When – to-do-type	129	86	3
4	Why – to-do-type	105	70	4
5	Where -to –get- type	78	52	5

The details of the distribution of YouTube videos according to types of content were represented in Table 10. Most of the videos focused on content related to how-to-do-type (97.33 percent), followed by What –to- do- type (88 percent), when-to-do-type (86 percent), Why- to- do- type (70 percent), and where–to–get–type (52 percent). It can be interpreted that messages regarding "how-to-do- type" (e.g. How to do mulching?, How to make vermicompost ?, etc.), "what-to-do- type" (What are the crops to be grown as trap crops for pest control ?, What are the various types of compost to be used?, etc.) "When-to-do-type" (e.g., time of planting, time of manure application, etc.) were presented, but comparatively fewer messages were conveyed regarding "Why-to-do-type" (Why straw mulching was preferred over live mulching?, Why biological pest control method was preferred over mechanical method.) and "Where-to-get-type" (where to get quality seed? where to sell the produce? etc.).

This content analysis has revealed that most of the YouTube videos had covered agriculture, were made on cereals, were shot on farmlands, focused on pest management techniques, highlighted cow manure, dealt with straw mulching, concentrated on mulching as a water conservation technique , focused on cultural practices as a pest management technique. and focused on content related to 'how-to-do-type'.

Extension professionals can take these findings in to account, identify the gaps where they can fill-in and make videos accordingly.

CONCLUSION

This study catalyzed improvement and innovation in the production of YouTube content, ensuring its continued growth as a valuable medium for sharing agricultural information and fostering sustainable practices. It is recommended to incorporate more sustainable farming methods, successful real-life case studies, an appealing introduction, thought-provoking questions, on-screen polls to encourage real-time participation, combining the content with clickable timestamps for easy navigation, the integration of eye-catching visuals, graphics, and animations, and above all, inviting comments to encourage viewer engagement. It is recommended that Research Institutes, Agricultural Universities, and Public and Private Extension organizations be instrumental in fostering natural farming by utilizing YouTube videos that deliver focused and relevant content.

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