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AGRICULTURAL COMMUNICATION WITHIN THE FRAMEWORK OF THE UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS: A REVIEW OF THE YOUTUBE ACCOUNTS OF THE REPUBLIC OF TÜRKİYE MINISTRY OF AGRICULTURE AND FORESTRY AND THE REPUBLIC OF TÜRKİYE MINISTRY OF ENVIRONMENT, URBANIZATION AND CLIMATE CHANGE[1]

BİRLEŞMİŞ MİLLETLER SÜRDÜRÜLEBİLİR KALKINMA AMAÇLARI ÇERÇEVESİNDE TARIMSAL İLETİŞİM: T.C. TARIM ve ORMAN BAKANLIĞI ve T.C. ÇEVRE, ŞEHİRCİLİK ve İKLİM DEĞİŞİKLİĞİ BAKANLIĞI YOUTUBE HESAPLARININ İNCELENMESİ

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ABSTRACT: In 2015, at the United Nations (UN) Sustainable Development Summit held in New York, "Agenda 2030: UN Sustainable Development Goals (SDGs)" were adopted as 17 goals and 169 targets. The development plans in our country emphasize the importance of agricultural communication for achieving the agricultural-related targets of the UN 2030 Sustainable Development Goals and set out policies and measures related to agriculture in this context. One of the items outlined under the policies and measures related to agricultural communication is the goal of increasing educational and extension activities in the field of agriculture, including the effective use of information and communication technologies, including social media. The main purpose of this research is to outline a general framework concerning the concept of agricultural communication aimed at internal and external target audiences in the field of agriculture, which is one of the important subheadings of sustainable development, and to emphasize the importance of this concept. Another purpose of the research is to determine which of the sustainable development goals are utilized and to what extent in the videos directly related to agriculture, published on the official YouTube accounts of the "Republic of Türkiye Ministry of Agriculture and Forestry" and the "Republic of Türkiye Ministry of Environment, Urbanization and Climate Change", which are the sample of the study. In this study, which employs a qualitative research design, the official YouTube accounts of the ministries within the sample were examined using the descriptive analysis method.

[1] This study is an extended version of the oral presentation presented at the 8th Economic Research and Financial Markets Congress with International Participation (IERFM-2024).

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Key Words: Agricultural communication, agriculture, sustainability, sustainable development

ÖZ: 2015 yılında New York'ta gerçekleştirilen Birleşmiş Milletler (BM) Sürdürülebilir Kalkınma Zirvesi'nde 17 amaç ve 169 alt hedef olarak "Gündem 2030: BM Sürdürülebilir Kalkınma Hedefleri (SKH)" kabul edilmiştir. Ülkemizdeki kalkınma planları aynı zamanda BM 2030 Sürdürülebilir Kalkınma amaçlarında tarımla ilgili hedeflerin gerçekleştirilmesine yönelik tarımsal iletişimin önemine değinmekte ve bu konuda tarım ile ilgili politika ve tedbirleri ortaya koymaktadır. On İkinci Kalkınma Planında yer alan tarım alanındaki pek çok konuya yönelik eğitim ve yayım faaliyetlerinin sosyal medya dâhil bilgi ve iletişim teknolojilerinden etkin bir şekilde faydalanılarak artırılması hedefi tarımsal iletişim ile ilgili politika ve tedbirler kapsamında ortaya konan maddelerden biridir. Bu araştırmanın ana amacı sürdürülebilir kalkınmanın önemli alt başlıklarından biri olan tarım alanında iç ve dış hedef kitlelere yönelik yürütülen tarımsal iletişim kavramı ile ilgili genel bir çerçeve çizmek ve bu kavramın önemine değinmektir. Araştırmanın diğer amacı ise çalışmanın örneklemi olan T.C. Tarım ve Orman Bakanlığı ve T.C. Çevre, Şehircilik ve İklim Değişikliği Bakanlığı resmi YouTube hesaplarında yayınlanan videoların içerisinde BM 2030 sürdürülebilir kalkınma amaçları kapsamında doğrudan tarım ile ilgili olan başlıklara yönelik videolarda kalkınma amaçlarından hangilerinin ne oranda kullanıldığını tespit etmektir. Nitel araştırma deseninin tercih edildiği bu çalışmada örneklem kapsamındaki bakanlıkların resmi YouTube hesapları betimsel analiz yöntemi ile incelenmiştir

Anahtar Kelimeler: Tarımsal iletişim, tarım, sürdürülebilirlik, sürdürülebilir kalkınma

EXTENDED ABSTRACT

The concept of sustainability has become more frequently mentioned in recent years due to the increase in environmental problems and disasters. Environmental issues such as global warming and climate change caused by industrialization and urbanization, rapid deforestation, drought, desertification, loss of biodiversity, pollution of the seas, and the reduction of water resources are now more prominently on the global agenda than ever and are seen as areas requiring global cooperation and action. Consequently, states and international organizations are also providing solutions to these problems. The United Nations is one of these organizations (Gürtepe and Birpınar, 2023). The concept of sustainable development was first defined in the Brundtland Report (Our Common Future), which was prepared as a final report by the World Commission on Environment and Development in 1987. In the report, sustainable development is defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" and proposes an environmental development strategy that prioritizes the long-term interests of future generations over short-term economic gains. The Brundtland Report laid the foundations for the institutionalization of sustainable development on a global scale (Karabıçak, 2015: 45).

The agricultural sector, which has four different important sub-components (agricultural production, livestock production, forest products production, and aquaculture production) (Özdemir, 2021: 30), is a significant element of sustainable development. Agriculture, closely related to the environment, concerns countries in many aspects including ecological, economic, and social areas. This versatility forms the core vision of sustainable

development today. Agriculture is a vital economic activity for many countries. Currently, development is assessed holistically, not only from an economic perspective but also from environmental and social dimensions. In Türkiye's Development Plans, agriculture and food are prioritized areas. Globally, climate change, global warming, and increasing environmental disasters negatively affect agricultural activities, impacting farmers and individuals trying to meet their basic physiological needs for nutrition, thus affecting many actors in society, countries, and, broadly, the world.

The sustainability of agriculture is closely related to elements such as informing, educating, raising awareness, and fostering attitude and behaviour changes among agricultural producers. It also involves increasing agricultural literacy among all individuals in society, raising sensitivity and public awareness on agricultural and environmental issues, and meeting information needs. All these point to an important concept: agricultural communication. Agricultural communication is a vital area utilized to achieve the aforementioned goals for both internal and external agricultural target audiences. Today, agricultural communication is carried out by public administrations, the private sector, and non-governmental organizations. Various communication tools, including traditional and new media, are used in the agricultural communication process. YouTube, an online video-sharing platform, is one of these new media tools. Ensuring the correct use of new techniques to achieve agricultural development and increasing agricultural production through the widespread effective use of resources are seen as important elements in these countries. The information and behaviour of those engaged in agricultural activities and those directing these activities inevitably affect this development (Birkhaeuser, Evenson & Feder, 1991: 657; Özçatalbaş, Budak, Boz, Karaturhan, 2010:13). Agricultural communication plays a crucial role not only in informing the public but also in strengthening the organic connection among agricultural producers through new information and technologies for development (Altın, 2022:63). The concept of agricultural communication, which encompasses all human communication related to agriculture, food, natural resources, and rural areas, connects two important fields: agriculture and communication (Zumalt, 2007:44) and refers to the process of sharing agricultural information between agricultural and non-agricultural stakeholders (Ergeç, 2022:2).

The main purpose of this research is to outline a general framework regarding the concept of agricultural communication aimed at internal and external target audiences in the field of agriculture, one of the important subtopics of sustainable development, and to emphasize the importance of this concept. Another purpose of the research is to determine which sustainable development goals are utilized and to what extent in the videos directly related to agriculture, published on the official YouTube accounts of the Republic of Türkiye Ministry of Agriculture and Forestry and the Republic of Türkiye Ministry of Environment, Urbanization and Climate Change, which are the sample of the study. In this study, which employs a qualitative research design, the official YouTube accounts of the ministries within the sample were examined using the descriptive analysis method.

1. INTRODUCTION

Agriculture and agricultural activities, which are fundamental to meeting one of the basic physiological needs of humans, nutrition, have always been a significant topic throughout world history. The Turkish Language Association (TDK) defines agriculture as "the production of plant and animal products, the improvement of their quality and yield, their preservation under suitable conditions, their processing and marketing, agriculture, culture" (https://sozluk.gov.tr, access:31.03.2024). While the agricultural sector is generally evaluated within the scope of agricultural lands and the agricultural products obtained from them, agriculture has four different important sub-components: agricultural production, animal production, forestry products production, and aquaculture production (Özdemir, 2021: 30). Agriculture, which is also closely related to the science of ecology, encompasses a broad field that includes economic, sociological, cultural, and political processes (Ergeç, 2022:2). At the United Nations (UN) Sustainable Development Summit held in New York in 2015, "Agenda 2030: UN Sustainable Development Goals (SDGs)" were adopted as 17 goals and 169 targets. Many of these goals are directly or indirectly related to the field of agriculture. Agricultural communication refers to the process of sharing agricultural-related information between agricultural and non-agricultural stakeholders (Ergeç, 2022:2). This process, aimed at target audiences within and outside agriculture, serves many purposes. These include ensuring the flow of information related to increasing agricultural production and productivity, implementing this information practically through educational processes, raising awareness among agricultural producers about risks in the agricultural sector and potential crises they may cause, increasing the level of knowledge, creating changes in attitudes and behaviours, and enhancing agricultural literacy.

A literature review revealed that international literature on agricultural communication includes studies on agricultural education and extension (Birkhaeuser, Evenson, & Feder, G: 1991; Tucker, Whaley, & Cano: 2003), the historical development process and future of agricultural communication (Boone, Meisenbach, & Tucker: 2000; Irani & Doerfert: 2013), among other subtopics. In the national literature, relatively fewer studies are found. These include studies on agricultural development, communication between farmers and local governments (Altın: 2022), agricultural extension and education (Özçatalbaş and Gürgen: 1998; Çukur and Karaturhan: 2011; Ergeç: 2022). However, no studies have been found regarding the use of new media tools in agricultural communication. This study aims to fill this gap, starting from the goal in the Twelfth Development Plan to increase the use of social media in extension activities within the agricultural communication process.

The Development Plans in our country also include certain targets and policies related to the field of agriculture. Subtopics such as efforts to develop agricultural

information systems, digitization, the creation of an artificial intelligence and data-based agricultural system, reducing production costs for farmers, technology use, producing quality, efficient, and healthy products, and increasing agricultural education and extension activities in the Eleventh Development Plan, and the promotion of smart agriculture practices through digitalization, artificial intelligence, and data-based business models, enhancing the effectiveness of agricultural research, education, and extension activities through inter-institutional coordination, strengthening the link between agricultural R&D and extension, awareness-raising activities to prevent food loss and waste, and increasing educational and extension activities, including social media, to ensure food safety and reliability, particularly in the use of inputs in agriculture, plant and animal health, organization, marketing, and irrigation in the Twelfth Development Plan, can be evaluated within the scope of agricultural communication policies and measures.

The main purpose of this research is to outline a general framework regarding the concept of agricultural communication aimed at internal and external target audiences in the field of agriculture, one of the important subtopics of sustainable development, and to emphasize the importance of this concept. Another purpose of the research is to determine which sustainable development goals are utilized and to what extent in the videos directly related to agriculture, published on the official YouTube accounts of the Republic of Türkiye Ministry of Agriculture and Forestry and the Republic of Türkiye Ministry of Environment, Urbanization and Climate Change, which are the sample of the study. In this study, which employs a qualitative research design, the official YouTube accounts of the ministries within the sample were examined using the descriptive analysis method.

2. SUSTAINABILITY and SUSTAINABLE DEVELOPMENT

2.1. Sustainability

The Turkish Language Association defines the term "sustainable" as "capable of being maintained at a certain level or rate," while it defines "sustainability" as "the state of being sustainable" (https://sozluk.gov.tr, access:31.03.2024). The Oxford English Dictionary defines sustainability as "the quality of being able to continue at a certain rate or level" (https://www.oed.com). Although the concept of sustainability, in its contemporary sense, was first used at the 1972 United Nations Conference on the Human Environment in Stockholm, concerns about environmental issues and awareness of sustainability can be traced back to ancient times, with various philosophers and scientists addressing these concerns and using related concepts. For example, the renowned philosopher Plato, in the 5th century BC, highlighted that human activities such as farming, deforestation, and mining could lead to environmental degradation (Yakışık and Mustafazade, 2023: 3609). The idea of sustainability initially emerged in relation to renewable resources such as agriculture, forests, and fisheries (Bozlağan, 2005: 1011). For instance, in 1713,

a German miner and accountant named Hans Carl von Carlowitz used the concept of "nachhaltende Nutzung" (sustainable use), referring to a balance between cutting down mature trees and planting new ones for future use. He later produced a work related to forestry that included this concept (Göcen, 2023: 11). In the early 1800s, the English economist Thomas Malthus, based on the view that the world's limited resources would not be sufficient to meet the needs of the growing human population, published his work "An Essay on the Principle of Population" (1798) (Gedik, 2020: 199).

The idea of ecological sustainability can be traced back to the "development" mindset of the 1960s and the environmental movements that began to develop from the 1970s onwards. The Club of Rome, established in 1968, commissioned a study by the Massachusetts Institute of Technology (MIT), which emphasized the extremely important and strong relationship between economic development and the environment. The study, which focused on five variables—population, industrial production, food (nutrition), raw materials, and environmental pollution—and the relationships between them, stated that if current development policies continued, humanity would face the threat of extinction due to raw material shortages and environmental problems. The results of the study were presented in a book titled "Limits to Growth" (Bozlağan, 2005: 1015). While the environmental movement began to take shape in the 1960s, it started to deepen from the 1980s and began to be evaluated within the axis of sustainable development. This new perspective was driven by increased awareness of the ozone hole detected over Antarctica in 1984 and the potential adverse effects it could cause, as well as the growing support from businesses and economists for studies in this area. Thus, over time, studies on sustainable development have focused on the economic, social, and environmental dimensions of the concept (Yeni, 2014: 185).

2.2. Sustainable Development and the United Nations Sustainable Development Goals

The concept of sustainable development was first defined in the Brundtland Report (Our Common Future), which was prepared as a final report by the World Commission on Environment and Development in 1987. In the report, sustainable development is defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" and proposes an environmental development strategy that prioritizes the long-term interests of future generations over short-term economic gains. The Brundtland Report laid the foundations for the institutionalization of sustainable development on a global scale (Karabıçak, 2015: 45).

At the United Nations Sustainable Development Summit held in New York in 2015, "Agenda 2030: UN Sustainable Development Goals (SDGs)" were adopted as

17 goals and 169 targets forming the basis of sustainable development (https://www.un.org/en/conferences/ environment/newyork2015).

Figure 1: United Nations Sustainable Development Goals
Source: https://turkiye.un.org/en/sdgs (Access Date: 03.04.2024)

With Agenda 2030, a new global development framework was outlined, incorporating environmental issues such as sustainable cities, climate change, combating drought, and the conservation of biodiversity into the sustainable development agenda (https://www.kureselamaclar.org). Table 1 lists these 17 goals established by the UN along with their key targets.

Table 1: UN Sustainable Development Goals

Goal 1: End poverty in all its forms everywhere
Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture
Goal 3: Ensure healthy lives and promote well-being for all at all ages
Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
Goal 5: Achieve gender equality and empower all women and girls
Goal 6: Ensure availability and sustainable management of water and sanitation for all
Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all
Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
Goal 10: Reduce inequality within and among countries
Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable
Goal 12: Ensure sustainable consumption and production patterns
Goal 13: Take urgent action to combat climate change and its impacts*
Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development
Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
Goal 17: Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

Source: https://turkiye.un.org/en/sdgs (Access Date: 03.04.2024)

Most of the UN 2030 Sustainable Development Goals (SDGs) are directly or indirectly related to the field of agriculture. This study examines the goals that are directly related to agriculture: Goals 2, 6, 7, 13, 14, and 15.

3. AGRICULTURAL COMMUNICATION

The Turkish Language Association (TDK) defines communication as "the transmission of emotions, thoughts, and information to others by any means conceivable, communication, news exchange" and "the exchange of information carried out using tools such as telephone, telegraph, television, radio, etc., communication" (https://sozluk.gov.tr, access:31.03.2024). The concept of communication, defined differently across various scientific disciplines, is referred to as "communication" in English, originating from the Latin words "communis" and "communicare," meaning "common, to make common, to share, and to inform" (Gürüz and Eğinli, 2008:5). The word "communication" (komünikasyon), borrowed

from French and used in Turkish with its French pronunciation, was primarily used to mean "news exchange" until recently. However, today, the concept of communication has expanded to encompass a broader understanding of interaction, exchange, and sharing that includes the act of news exchange, reflecting a social interaction (Zıllıoğlu, 2018:22).

The communication process begins when the source (sender) encodes a message into perceivable and understandable symbols and sends it to the receiver (target) through a channel (medium). If the receiver can perceive the symbols, they decode the message, interpret it, and provide feedback by encoding their response (Tutar and Yılmaz, 2010:28). Noise is an element that negatively affects the entire communication process. For example, loud sounds can be considered physical noise, while there are also semantic, psychological, and social noise elements. Another critical element in the communication process is the context/environment. Communication always occurs within a context. For example, the concrete environment in which communication takes place is considered the physical context, while there are also cultural, historical, and other types of contexts. Communication is categorized into various types based on several characteristics, such as the environments in which the parties involved communicate, the channels they use to send and receive messages, whether they use tools, the positions and numbers of the source and receiver, and the purpose of communication. Communication is addressed on both individual and societal levels, including intrapersonal communication, interpersonal communication, group communication, organizational communication, mass communication, intercultural communication, and international communication (Güngör, 2013). Communication is accepted as a process that occurs both among individuals and at the societal level. Everything perceived initiates a communication process, and two people perceiving the same stimulus establish a social relationship through this stimulus. Therefore, social interaction largely begins to function as a communication process (Oskay, 2017: 397). Communication has many functions aimed at meeting psychological, social, cultural, and practical needs in daily life (Güngör, 2018: 119).

Agriculture is considered one of the most important economic activities providing income, employment, and foreign exchange for many developing countries. Ensuring the correct use of new techniques to achieve agricultural development and increasing agricultural production through the widespread effective use of resources are seen as important elements in these countries. The information and behavior of those engaged in agricultural activities and those directing these activities inevitably affect this development (Birkhaeuser, Evenson & Feder, 1991: 657; Özçatalbaş, Budak, Boz, Karaturhan, 2010:13). Agricultural communication plays a crucial role not only in informing the public but also in strengthening the organic connection among agricultural producers through new

information and technologies for development (Altın, 2022:63). The concept of agricultural communication, which encompasses all human communication related to agriculture, food, natural resources, and rural areas, connects two important fields: agriculture and communication (Zumalt, 2007:44) and refers to the process of sharing agricultural information between agricultural and non-agricultural stakeholders (Ergeç, 2022:2).

Today, the agricultural sector, which affects states and societies in various ways, is an area that necessitates communication among different stakeholders on different issues. While typically considered within the scope of food production and supply, the agricultural sector actually affects many areas of life and appears as a component of various industries. This situation highlights the importance of the right to accurate information for all segments of society regarding this field. Therefore, agricultural communication has become increasingly important today (Haller, Specht & Back 2019:1). Social and demographic changes in the current century, advancements in communication technologies, and increased awareness of animal rights, environmental, and agricultural issues have directed public attention to this field (Godfrey and Wood, 2003). Agriculture and the environment encompass many important topics, from the preservation of rural heritage to biodiversity and agricultural employment, covering a broad range of activities with economic, ecological, and social dimensions. This situation creates a need for information in various fields for producers and stakeholders involved in agricultural activities (Çukur and Karaturhan, 2011:152). Moreover, with technological advancements, the scope of agricultural communication has also changed, becoming a sector responsible for developing and distributing news and marketing messages related to food, agriculture, and environmental systems in recent years (Tucker, Valley & Cano, 2003:22). The agricultural communication process, which serves many different areas such as conveying information to individuals about agricultural issues, raising awareness, creating attitude and behavior changes, increasing agricultural literacy, and forming public opinion, is dynamic. This situation necessitates frequent reviews of the elements and functioning of the agricultural communication process.

Over time, significant changes have occurred in the agricultural communication process concerning the source/sender, target audience, content of messages, and the tools used. For example, in the early periods of the concept, the source/sender in the agricultural communication process was primarily public institutions and authorities, while today, private organizations, non-governmental organizations, and other groups can also initiate this communication process. In the early years of agricultural communication, the target audience was primarily farmers engaged in agriculture and livestock, whereas today, consumers have also become an important target audience. The content of messages in agricultural communication

has also changed from the early periods to today. From the 1700s to the 1900s, messages were created for the education of individuals engaged in agriculture and livestock in rural areas, focusing on increasing productivity. Today, messages are created to include individuals not involved in agriculture. The main reason for this is that agriculture closely relates to many areas in social life, such as economy, environment, health, politics, and management. Therefore, today's agricultural messages are produced to encompass both agricultural and non-agricultural target audiences and are directed at consumers, policymakers, and various groups that can influence agricultural policies through their decisions. The channels/tools through which messages are conveyed have also changed over the years in parallel with technological advancements. Until the early 1900s, traditional communication tools and face-to-face communication were generally preferred, while today, with technological advancements, the internet and new media tools are used in agricultural communication (Telg and Irani, 2012:11).

The historical roots of agricultural communication can be traced back to the Morrill Act of 1862 in the United States and even earlier to the early period of agricultural societies (Telg and Irani, 2012:7). Agricultural communication, which can be seen in its early applications in the early 1800s, originated from agricultural journalism, a special type of written and visual news journalism focused on providing information about agricultural practices and techniques to those living in rural areas (Irani and Doerfert, 2013:1; Boone, Meisenbach & Tacker, 2000). Some of the first communicators writing for agricultural publications were scientists at universities. These scientists wrote about their agricultural research at land-grant universities (Boone et al., 2000). In the 1900s, major newspapers began hiring agricultural writers and publishing magazines reaching wide audiences. With the development of radio broadcasting in the 1920s and later the increase in television broadcasting, agricultural programs began to gain momentum. Iowa State University was the first institution to offer a bachelor's degree in agricultural journalism. Agricultural journalism programs saw significant growth and increased in number in the 1960s. By 1975, most university programs had renamed themselves from agricultural journalism to agricultural communication (Irani and Doerfert, 2013:1; Weckman, Witham & Welg, 2020: 42). Agricultural journalism, based on mass communication tools, evolved in a new direction with the increase in the use of personal computers from the 1980s onwards, changing the way agricultural communicators conveyed their messages (Telg and Irani, 2012). Additionally, the development of the internet and the World Wide Web in the 1980s and 1990s led agricultural-related organizations in both the public and private sectors to hire communication specialists and journalists, believed to manage agricultural communication more professionally (Tucker et al., 2003; Irani and Doerfert, 2013).

In Türkiye, the concepts of agricultural extension and agricultural communication are used interchangeably by extension experts and academics, and the target audience of communication activities within the discipline of agricultural extension and communication is seen as farmers. In this context, agricultural extension and agricultural communication focus on activities conducted under farmer education. Generally, the public and other agricultural stakeholders are not included as target audiences in this communication process. However, in markets such as the United States and India, where the agricultural industry plays a significant role in the national economy, agricultural communication activities serve purposes beyond just educating farmers/producers, such as promotion, marketing, creating new organizations, and reaching the public (Altın, 2022:62). Today, agricultural communication also encompasses various fields of communication such as strategic communication, new media communication, public relations, marketing, mass communication, advocacy, and public opinion formation (Irani and Doerfert, 2013:3).

4. METHOD

4.1. Research Purpose and Importance

Agriculture and its related fields hold a significant place in the UN's Sustainable Development Goals (SDGs). Agricultural activities are evaluated holistically within the economic, social, and environmental dimensions of sustainability. The development plans in our country also highlight the importance of agricultural communication in achieving the agricultural-related targets of the UN 2030 Sustainable Development Goals and set forth policies and measures related to agriculture. One of the items in the Twelfth Development Plan is to increase educational and extension activities for agricultural producers, making effective use of information and communication technologies, including social media, as part of policies and measures related to agricultural communication.

The primary purpose of this research is to outline a general framework regarding the concept of agricultural communication aimed at internal and external target audiences in the field of agriculture, one of the important subtopics of sustainable development, and to emphasize the importance of this concept. Another purpose of the research is to determine which sustainable development goals are utilized and to what extent in the videos directly related to agriculture, published on the official YouTube accounts of the Republic of Türkiye Ministry of Agriculture and Forestry and the Republic of Türkiye Ministry of Environment, Urbanization and Climate Change, which are the sample of the study. In this study, which employs a qualitative research design, the official YouTube accounts of the ministries within the sample were examined using the descriptive analysis method.

4.2. Research Design

The unique dynamics of social sciences, the view that phenomena and events should be examined in their specific contexts and conditions, and the need for researchers to delve deeply into these phenomena and events to explain and interpret them, have led to the frequent use of qualitative research methods in recent years (Gürbüz and Şahin, 2018: 408). In this study, a case study, one of the qualitative research designs, was chosen. Also known as a case study, it is defined as "a method in which one or more cases, environments, social groups, or interrelated systems are examined in depth" (Büyüköztürk, Çakmak, Akgün, Karadeniz & Demirel, 2019:23). The case study, which aims to present results related to a specific situation, can focus on an individual, an institution, a group, an event, a process, or an environment. It aims to understand the factors related to this situation and how these factors affect and are affected by the situation in a holistic approach (Yıldırım and Şimşek, 2021:83).

4.3. Research Population and Sample

There are 950 videos from the Ministry of Agriculture and Forestry and 1,220 videos from the Ministry of Environment, Urbanization, and Climate Change, totaling 2,239 videos. For this study, the criterion sampling method, one of the non-random (purposeful) sampling methods used in qualitative research, was employed. The criterion in this study is the number of views for videos categorized as popular. The sample of the research includes videos on the official YouTube accounts of the Republic of Türkiye Ministry of Agriculture and Forestry and the Ministry of Environment, Urbanization, and Climate Change, which have a view count of one thousand or more in the popular video category. Based on this criterion, 153 videos from the Ministry of Agriculture and Forestry and 212 videos from the Ministry of Environment, Urbanization, and Climate Change were analysed using the descriptive analysis method. This analysis was conducted between April 1, 2024, and June 5, 2024.

4.4. Research Questions

1.How many videos in the sample from the YouTube accounts of the Republic of Türkiye Ministry of Agriculture and Forestry and the Ministry of Environment, Urbanization, and Climate Change directly relate to Sustainable Development Goals (SDGs) 2, 6, 7, 13, 14, and 15, which are directly associated with the agricultural sector?

2.What are the view counts, number of likes, and total number of comments for the videos related to SDGs 2, 6, 7, 13, 14, and 15 in the agricultural sector from the YouTube accounts of the Republic of Türkiye Ministry of Agriculture and Forestry and the Ministry of Environment, Urbanization, and Climate Change?

4.5. Data Collection Technique and Data Analysis

In qualitative research, three main data collection techniques are typically used: interviews, observations, and document analysis (Baltacı, 2019:374). In this study, document analysis was utilized as the data collection technique. Document analysis includes written materials containing information about the phenomenon/phenomena being studied. The importance of which documents are crucial and can be used as data sources is closely related to the research problem. In addition to written sources, visual materials such as photographs, films, and videos can also be used in qualitative research. Documents can be obtained electronically via the internet. Electronic data include various types of data such as web pages, emails, written and visual documents, messages, e-groups, personal comments, and blogs (Baş and Akturan: 2013:118-119; Yıldırım and Şimşek; 2021:218-219).

4.6. Research Findings

Findings Related to the YouTube Account of the Republic of Türkiye Ministry of Agriculture and Forestry

Upon examining the main page of the official YouTube channel of the Republic of Türkiye Ministry of Agriculture and Forestry, it is observed that the ministry's logo and contact information are displayed. The ministry launched its YouTube channel on November 5, 2019. The channel has 11.7K subscribers and a total of 950 videos. The total number of views for these videos is 3,819,560. In the popular video category, there are a total of 706 videos.

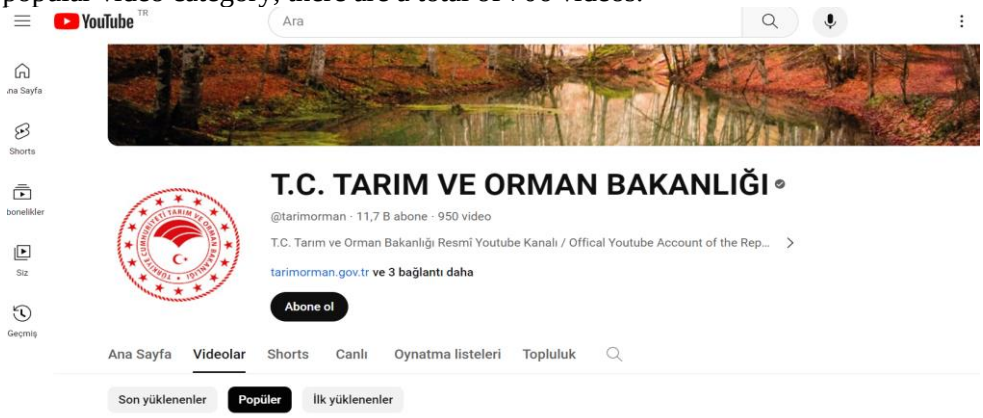

Figure 2: Republic of Türkiye Ministry of Agriculture and Forestry, YouTube channel

Source: https://www.youtube.com/channel/UCq0ojLlKO4ssS5cQd5E9yZg(AccessDate:03. 04.2024)

In the scope of the research, the popular video category consists of videos with a view count of one thousand or more, totaling 153 videos. When examined by year, there were 9 videos in 2019, 51 videos in 2020, 72 videos in 2021, 11 videos in 2022, and 10 videos in 2023. There are no videos with a view count of one thousand or

more in the popular video category for the year 2024. Within the framework of the UN 2030 Sustainable Development Goals, there are 144 videos directly related to goals 2, 6, 7, 13, 14, and 15.

Table 2: Analysis of Videos within the Scope of the UN 2030 Sustainable Development Goals

	Goal 2	**Goal 6**	**Goal 7**	**Goal 13**	**Goal 15**
Total number of videos	71	45	2	2	24
Total duration	137:32 mn	56:30 mn	3:23 mn	3:22 mn	88 mn
Total number of likes	2.416 B	1.204 B	63	15	1.721B
Total number of comments	156	129	4	-	182

There are a total of 71 videos under Goal 2. The most-watched video is titled "Agriculture Forest Council / I Have an Idea," with a total of 124K views. This video has a total duration of 1:58 minutes, 14 likes, and 6 comments. The longest video is titled "Türkiye Seed Gene Factory" with a duration of 17:37 minutes. This video has 51.1K views, 107 likes, and 14 comments. The most-liked video is titled "How to Prepare Bordeaux Mixture" with a duration of 2:19 minutes. This video has 340 likes, 57K views, and 7 comments. There are a total of 45 videos under Goal 6. The most-watched video is titled "The Value of Water Should Be Known," with a total of 721K views. This video has a total duration of 1:31 minutes, 42 likes, and 4 comments. The longest video is titled "Konya Plain 1st, 2nd, and 3rd Part Irrigation Commissioning Ceremony" with a duration of 6:04 minutes. This video has 2K views, 43 likes, and 3 comments. The most-liked video is titled "Mardin Main Canal / The Power of Water Meets the Nation" with a duration of 0:57 seconds. This video has 33K views, 406 likes, and 56 comments. There are a total of 2 videos under Goal 7. The most-watched video is titled "Renewable Energy Grant Support from Us, Producing for a Cleaner World From You" with a total of 3.3K views. This video has a total duration of 1:07 minutes, 31 likes, and 4 comments. The most-liked and longest video is titled "Mobile Solar Panel Irrigation Machine" with a duration of 2:16 minutes. This video has 2.3K views, 32 likes, and 4 comments. There are a total of 2 videos under Goal 13. The most-watched video among these two is titled "We Completed the Rehabilitation of the Tigris River Passing Through the Center of Cizre District of Şırnak," with a total of 2K views. This video has a total duration of 0:08 seconds and 6 likes. The longest video is titled "Selinos Stream Rehabilitation Work" with a duration of 3:14 minutes. This video has 1.1K views and 9 likes. There are no videos with over a thousand views under Goal 14. There are a total of 24 videos under Goal 15. The most-watched video is titled "On April 23, Our 13 Million Students Are Breathing Life into the Future with 13 Million Saplings" with a total of 362K views. This video has a total duration of 0:20 seconds, 6 likes, and 1

comment. The longest video is titled "Chestnut; A Majestic Tree with Enchanting Appearance in Every Season" with a duration of 6:33 minutes. This video has 2.3K views, 30 likes, and 2 comments. The most-liked video is titled "Special Afforestation Projects with 65% and 25% Grant Support" with a duration of 2:00 minutes. This video has 360 likes, 25K views, and 35 comments

The visuals related to the most-watched videos under the reviewed goals are provided below:

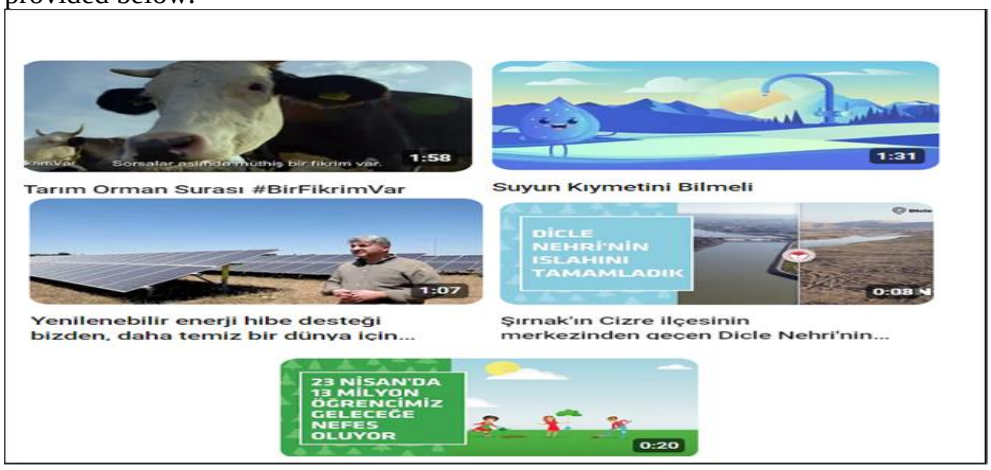

Figure 3: The Most Watched Video Thumbnails of the Republic of Türkiye Ministry of Agriculture and Forestry

Source: https://www.youtube.com/channel (AccessDate:03. 04.2024)

In the popular video category, there are a total of 153 videos with over a thousand views. Out of these, 144 videos are directly related to agriculture under the UN 2030 Sustainable Development Goals framework, specifically Titles 2, 6, 7, 13, 14, and 15. Among these, the most videos are related to Goal 2 (71 videos). The fewest number of videos are under Goal 13 (2 videos). There are no videos with over a thousand views under Goal 14.

Findings Related to the YouTube Account of the Ministry of Environment, Urbanization and Climate Change of the Republic of Türkiye

When looking at the homepage of the official YouTube channel of the Ministry of Environment, Urbanization and Climate Change of the Republic of Türkiye, the logo and contact information are displayed. The Ministry launched its YouTube channel on October 15, 2012. The channel has 6.68K subscribers. There are a total of 1,220 videos on the channel. The total number of views for the videos is 52,864,546. On the homepage, the videos are categorized into three sections: most recent uploads, popular, and first uploads. There are a total of 712 videos in the popular video category.

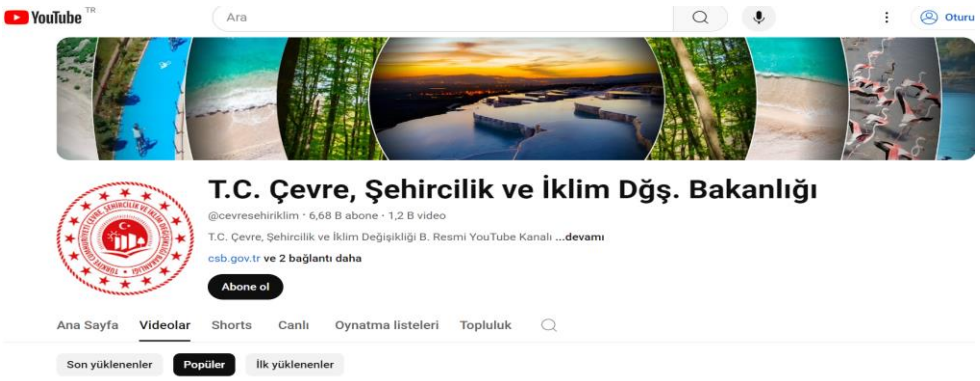

Figure 4: Republic of Türkiye Ministry of Environment, Urbanization and Climate Change, YouTube channel

Source: https://www.youtube.com/channel (Access Date: 03.04. 2024)

There are 212 popular videos with more than a thousand views. Within the scope of the research, videos in the popular video category with over a thousand views were found as follows: 1 in 2013, 3 in 2014, 1 in 2015, 4 in 2016, 2 in 2017, 12 in 2018, 31 in 2019, 66 in 2020, 30 in 2021, 31 in 2022, 26 in 2023, and 5 in 2024. A total of 69 videos related to Goals 2, 6, 7, 13, 14, and 15 under the UN 2030 Sustainable Development Goals framework, which are directly related to agriculture, have been identified.

Table 3: Analysis of Videos within the Scope of the UN 2030 Sustainable Development Goals

	Goal6	**Goal 7**	**Goal 13**	**Goal 14**	**G15**
Total number of videos	1	2	18	16	32
Total duration	0:24 sc	9:21 mn	57:50 mn	38:02 mn	89:24 mn
Total number of likes	15	14	562	2.063 B	1.171 B
Total number of comments	2	-	56	153	206

Under Goal 2, there are no videos with over a thousand views. Under Goal 6, there is one video titled "We Protect Every Drop of Our Indispensable Resource Water" with a duration of 0:24 seconds. This video has a total of 361K views, 15 likes, and 2 comments. Under Goal 7, there are a total of 2 videos. The most-watched video is titled "My Friend Nature / Episode 5 - Renewable Energy" with a total of 1.3K views. This video has a total duration of 8:04 minutes and 14 likes. The other video under Goal 7 is titled "Save Energy" with a total of 1.2K views, a duration of 1:17 minutes, and 5 likes. Under Goal 13, there are a total of 18 videos. The most-watched video is titled "We Extended the Duration of Our Zero Waste Short Film Contest" with a total of 296K views. This video has a total duration of 0:43 seconds, 19 likes, and 17 comments. The longest video is titled "My Friend Nature / Episode

2 Zero Waste" with a duration of 8:18 minutes. This video has 3.7K views, 31 likes, and 2 comments. The most-liked video is titled "Zero Waste Pilot District Kızılcahamam" with a total of 4.1K views, a duration of 0:45 seconds, 75 likes, and 5 comments. Under Goal 14, there are a total of 16 videos. The most-watched video is titled "Sea Turtles / Caretta Caretta" with a total of 107K views. This video has a total duration of 4:29 minutes, 534 likes, and 20 comments. The longest video is titled "Invasive Species - Zero Waste Blue" with a duration of 5:01 minutes. This video has 9.3K views, 157 likes, and 14 comments. The most-liked video is also "Sea Turtles / Caretta Caretta" with a duration of 4:29 minutes. This video has a total of 107K views, 534 likes, and 20 comments. Under Goal 15, there are a total of 32 videos. The most-watched video is titled "We Are Meeting Atatürk Airport with Its First Saplings" with a total of 1.6M views. This video has a duration of 1:07 minutes, 15 likes, and 3 comments. The longest video is titled "Special Environmental Protection Areas" with a duration of 14:39 minutes. This video has 3.2K views, 31 likes, and 2 comments. The most-liked video is titled "Nation Gardens are Opening" with a total of 154 likes. This video has 8.1K views, a duration of 1:32 minutes, and 33 comments.

The visuals related to the most-watched videos under the reviewed goals are provided below:

Figure 5: The Most Watched Video Thumbnails of the Republic of Türkiye Ministry of Environment, Urbanization and Climate Change

Source: https://www.youtube.com/channel (Access Date:03. 04.2024)

Among the total of 212 videos in the popular video category with over a thousand views, 69 videos are directly related to agriculture under the UN 2030 Sustainable Development Goals, specifically Goals 2, 6, 7, 13, 14, and 15. Among these, the most videos are related to Goal 13 (18 videos). The least number of videos are under Goal 6 (1 video). There are no videos with over a thousand views under Goal 2.

5. CONCLUSION and RECOMMENDATIONS

This research aimed to outline the general framework of agricultural communication and to determine which of the development goals (2, 6, 7, 13, 14, 15) under the UN 2030 Sustainable Development Goals framework were utilized in the videos directly related to agriculture on the official YouTube accounts of the Ministry of Agriculture and Forestry and the Ministry of Environment, Urbanization, and Climate Change. The study examined videos in the popular video category with over a thousand views.

Both ministries have videos directly related to agricultural goals. The proportion of these videos varies within the scope of the ministries' work areas. The Ministry of Agriculture and Forestry focuses more on the goals of "ending hunger, achieving food security and improved nutrition, and promoting sustainable agriculture" (Goal 2), "ensuring availability and sustainable management of water and sanitation for all" (Goal 6), and "protecting, restoring, and promoting sustainable use of terrestrial ecosystems, sustainably managing forests, combating desertification, and halting and reversing land degradation and halting biodiversity loss" (Goal 15). On the other hand, the Ministry of Environment, Urbanization, and Climate Change focuses on "climate change impacts and action plans" (Goal 13), "conserving and sustainably using the oceans, seas, and marine resources for sustainable development" (Goal 14), and "protecting, restoring, and promoting sustainable use of terrestrial ecosystems, sustainably managing forests, combating desertification, and halting and reversing land degradation and halting biodiversity loss" (Goal 15).

Based on these results, it is recommended that the Ministry of Agriculture and Forestry and the Ministry of Environment, Urbanization, and Climate Change increase the number of videos related to Goal 7, "ensuring access to affordable, reliable, sustainable, and modern energy for all." Agriculture and the environment are interrelated fields. Raising awareness and knowledge about renewable energy sources that mitigate the negative impacts of climate change in the agricultural sector, the need for a sustainable agricultural system to rely on clean energy sources that produce less fossil fuel, and the importance of investment in renewable energy, energy infrastructure, and clean energy technology highlight the need for communication on this topic. The Ministry of Agriculture and Forestry can also increase the number of videos related to Goal 14, "conserving and sustainably using

the oceans, seas, and marine resources for sustainable development," as agricultural activities also encompass aquaculture. Protecting and sustainably using marine resources is important both environmentally and for producers who make their living from fishing and aquaculture. Additionally, the Ministry of Environment, Urbanization, and Climate Change can increase the number of videos related to Goal 6, "ensuring availability and sustainable management of water and sanitation for all," as its sub-goal 6.3, "by 2030, improve water quality by reducing pollution, eliminating dumping, and minimizing the release of hazardous chemicals and materials, halving the proportion of untreated wastewater, and substantially increasing recycling and safe reuse globally," is a crucial environmental issue.

Every study has its limitations. Within the scope of this study, due to time constraints and available resources, it was not possible to examine all videos in the research universe. Therefore, videos in the popular video category with over a thousand views were analysed, representing a limitation of this study. Future researchers are advised to conduct studies comparing different social media platforms regarding this topic.

Ethical Declaration

In this study, all the rules stated in the "Higher Education Institutions Scientific Research (Türkiye) and Publication Ethics Directive" were followed.

Ethics Committee

Approval The author declare that the research is one of the studies that does not require ethical committee approval.

Conflict of Interest and Funding

No conflict of interest and funding has been declared by the authors.

Authorship Contribution Declaration

All stages of the study were designed and prepared by the authors.

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