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Communication Behavior of Farmers in Accessing Information on Banana Cultivation in the Industrial Revolution 4.0

Okta Hermawati Surya, Sriroso Satmoko and Agus Subhan Prasetyo
Faculty of Animal Husbandry and Agriculture, Diponegoro University, Semarang, Central Java
Correspondence e-mail: oktahermawati@gmail.com

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Abstract

Agricultural information plays an important role in agricultural sector. Information is used as the main source in making top-down decisions. Farmers can access information from both formal and informal sources. Farmers' decisions in accessing information according to their needs and reliable sources are influenced by farmer communication behavior. This study aims to analyze and describe the communication behavior and barriers of farmers in accessing information on banana cultivation in order to compete in global market. This research was conducted in December 2019-January 2020 at Bareng Mukti Farmer Group, located in Ponggok Hamlet, Sidomulyo Village, Bambanglipuro District, Bantul Regency, Special Region of Yogyakarta. This study surveyed ten informants from active members and administrators. The data were analyzed using descriptive qualitative analysis with Miles and Huberman analysis model. The results shows that farmers are still being passive in accessing information on banana cultivation and lack of awareness about the latest communication technology.

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INTRODUCTION

Relevant information that meets the needs of farmers has an important role in every farmer's decision making related to farming by increasing their knowledge of production inputs to market prices (Mittal & Mehar, 2015). The 2018 International Conference on Information and Science highlights that cell phones have an important role in facilitating communication for farmers in Iraq (Al-Hamdani et al., 2018). In addition, the results of the conference showed that farmers who own cell phones in Iraq exchange information via voice calls and text messages such as SMS and Whatsapp. This condition is different from farmers in India. The communication behavior of farmers in India varies according to the plants planted. They still rely on mass media channels such as radio and TV for information because the farmers have little interest in using gadgets (Parthasarathi & Alauddin, 2017).

Based on the research conducted by Engotoit et al. (2016), Uganda commercial farmers use cellular-based communication technology to disseminate and access market information. This communication behavior (cellular-based communication technology) gives an influence and offers greater performance in their daily transactions. The communication behavior of farmers in Uganda is inversely proportional to conditions in Punjab. Farmers in Punjab still rely on formal sources to access information. Singh et al. (2016) stated that about 85.29% of farmers in Punjab obtain the information needed from formal institutions, television, and newspapers. The communication behavior of farmers in each country is different, this is due to farmers' awareness of the latest technology, government policies, and other resources that support information and communication technology used to penetrate into the villages where the majority of farmers live.

Age and education issues have a significant influence nowadays. Indonesia is currently in the era of industrial revolution 4.0, where everything use internet-based technology. The farmers without adequate knowledge and are at a less productive age typically have harder time in adopting technology. According to Schlechtendahl et al. (2014), industrial revolution 4.0 prioritizes the speed of information availability, where all objects can be connected and information can be exchanged between one another. The main goal in applying technology is to maximize results, both in terms of quality and quantity as well as efficiency in the use of existing resources. In addition, there are several sites that can be accessed to obtain information; Therefore, farmers may consider the available information to make decisions about their farming activities. Various information presented on several sites can be easily accessed by farmers. In the industrial revolution 4.0 the development of information and communication based on IOT (Internet of Things) is very rapid.

The ease of accessing the internet results in unlimited communication. Changes in data updates and transmission of various sites that provide information that should be useful for farmers, in reality, cannot be used by farmers in reality. One factor that causes the inability of farmers in accessing information is their low involvement, especially in banana cultivation.

According to Rogers (2003), the routine of individuals or groups in getting or exchanging messages in a broad scope, relationships with social systems, as well as contributing and accessing mass media information and new things is called communication behavior. Fuady et al. (2012) stated that organic farming,

interpersonal communication with agricultural instructors, NGOs, lecturers, and researchers are significantly related to farmer communication behavior, while increasing farmer insight is related to media spread. This is reinforced by Krisnasiwi (2017) that obtaining and disseminating information that functions to make decisions can be done through interpersonal, mass, and group media. This is related to farmer communication behavior.

The novelty of this research is to examine in depth the responses of farmers when accessing information related to banana cultivation in recent digital era. This study aims to (1) analyze and describe the communication behavior of farmers in accessing information on banana cultivation, (2) to analyze and describe the obstacles faced by farmers in accessing information on banana cultivation.

RESEARCH METHODS

The concept of this research is the influence of industrial revolution 4.0 to the development of information and communication technology. The advantages in agriculture of this era are easy access to information needed by farmers and agricultural development that is carried out with the concept of smart farming based on IOT (Internet of Things). These two benefits can be felt by farmer groups throughout Indonesia. One of the beneficiaries is the Bareng Mukti farmer group. However, the unpreparedness of farmers in facing the industrial revolution 4.0 resulted in several problems. The problems that arise include: the majority of farmers are not in their productive age, have low education, are inactive in seeking information, and depend on extension workers/instructors. The benefits provided and the problems that occur in farmer groups shall affect the communication behavior of farmers in accessing information. The domain of communication behavior is divided into three, namely attitudes, knowledge and skills. In addition, access to information is also influenced by the type of information, sources, and media of information.

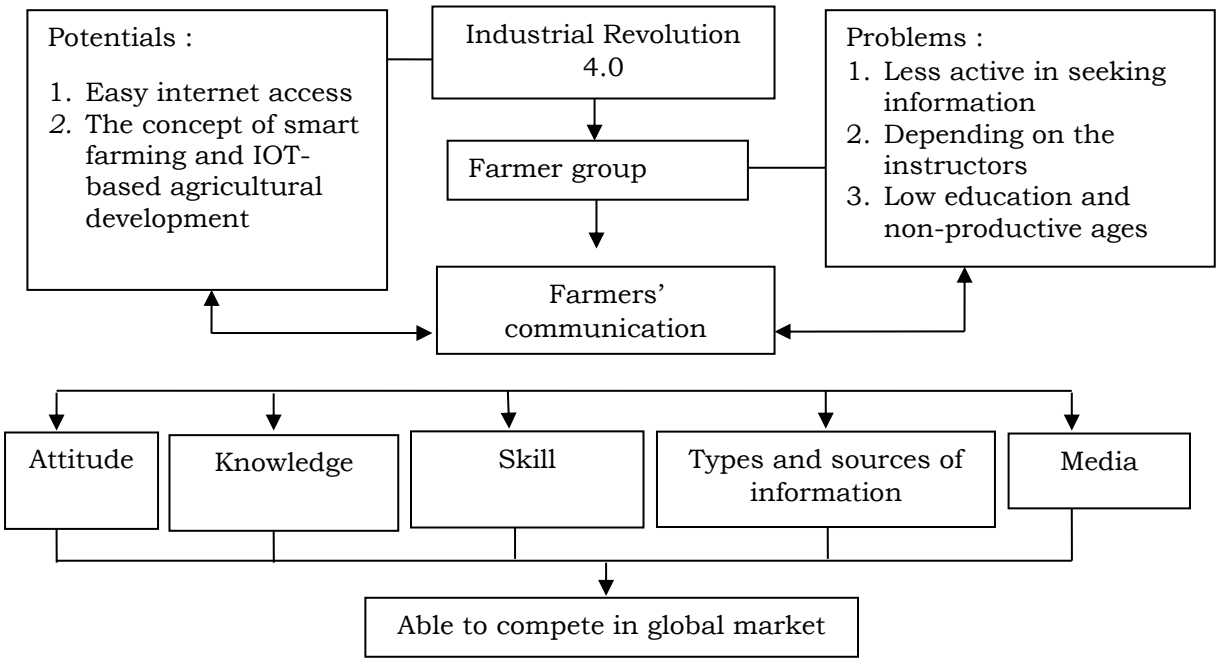

Figure 1. Thinking Framework

Information :

⟶ : One-way Influence

⟷ : Influence each other

——— : Relationship

This research was conducted in December 2019-January 2020 at *Bareng Mukti* Farmer Group, located in Ponggok Hamlet, Sidomulyo Village, Bambanglipuro District, Bantul Regency, Special Region of Yogyakarta. The availability of internet access was the reason why this location was chosen. This study used survey method by collecting information obtained from ten informants (members and administrators of the *Bareng Mukti* farmer group). The informants and key informants were determined by purposive sampling, by determining research subjects based on certain considerations needed. The research data were collected in two ways, namely primary and secondary data. The primary data were obtained from in-depth interviews with members and administrators of the *Bareng Mukti* farmer group in a structured manner by the researcher. The method of data collection in this study was in-depth interviews to the key informants (instructors, ten members, and administrators of the *Bareng Mukti* farmer group), documentation, and observation.

The data analysis method in this research is descriptive qualitative. The data analysis method used is the Miles and Huberman model analysis method which consists of data collection, data reduction, data presentation and conclusion drawing. According to Miles & Huberman (1994), the steps of qualitative data analysis techniques are data reduction which include simplification, selection, and focus of raw data into meaningful information. Data collection was carried out to collect data obtained from the results of depth interviews, observations, documentation, and literature reviews. Data reduction aimed to extract data digest from recorded interviews, observations, and documentation in accordance with the focus of the study. Presentation of data was used to display data in a structured and easy to understand narrative form. The final step is composing the conclusion by comparing one another to compose the conclusion in response to existing problems

RESULT AND DISCUSSION

General Description of Bareng Mukti Farmer Group

The Bareng Mukti farmer group is one of the farmer groups belonging to the Puspita Hati farmer group. The Bareng Mukti farmer group operates in the banana commodity and was founded in 2010. The Bareng Mukti farmer group was formed at the initiative of a resident after the earthquake that hit Yogyakarta, especially in Sidomulyo Village, Bantul Regency.

The first step taken by the village head was to provide support to the community with a new breakthrough. Families that plant at least fifty banana trees would be given assistance in the form of seeds and if it is less than 50 then the assistance would not be given. The seeds given consisted of four varieties, namely plantain, kepok, ambon (Gros Michel) and kujo. This breakthrough was finally successful because it was well received by the community and they was able to make it happened, thus triggering the formation of banana farmer groups.

After seeing the enthusiasm of the community in banana planting movement and the formation of farmer groups in each hamlet, the village government developed these farmer groups by providing non-formal education to farmers on banana cultivation. The government provided counseling to the farmers four times. The extension was held in stages and carried out at the farmers' house in rotation. Extension materials provided to farmers included seed breeding, good cultivation practices such as spacing, plant care, pest and plant disease management. In addition, materials on post-harvest which include processing and marketing was also given.

All knowledge and information that had been provided from this non-formal education had a positive impact. Farmers were able to understand and practice the knowledge in banana cultivation activities. Therefore, the banana farmer group in Sidomulyo Village continues to develop.

For the success achieved by banana farmers, the government built a banana tree monument as a symbol that bananas are the superior commodity in Sidomulyo Village. In fact, bananas are currently the superior commodity in Bantul Regency. Banana varieties cultivated by the majority of farmers are plantain, kepok kuning and ambon kuning.

The farmers cultivate bananas at their respective houses, leased land, and group's land. The land used to grow bananas also varies, depending on the area of land the farmer owns and leases. The majority of farmers have a land area of between 200-1,000 m^2.

Informants' Condition

The informants in this study were banana farmers. The members of the *Bareng Mukti* farmer group took a variety of formal education, from elementary to undergraduate. The formal education pursued is dominated at middle school level. The limitations of high formal education were influenced by many problems. Farmers who were unable to continue their education and only went to elementary school were due to poor economic condition of their parents; Therefore, they are forced to quit school at elementary level.

This condition required them to help their parents, who were mostly farmers. Starting from there, farmers learn about agriculture, especially banana cultivation. The knowledge possessed by farmers in banana cultivation is obtained from experiences and traditions passed down from generation to generation as well as from counseling held by the agriculture agencies.

Regarding experience in banana cultivation, the farmers have approximately 20-30 years of experience since the age of the farmers ranges from 42 to 78 years old. This age group is in the productive and unproductive age groups. This refers to the Labor Law no. 13 of 2013 which states that the age composition for productive age measures is between 15-64 years and unproductive ages between 0-14 years and over 64 years. However, the age of the banana farmers is dominated by the productive age group. They still have sufficient energy in banana farming activities and are easier to receive new information.

Farmers' Communication Behavior in the Industrial Revolution 4.0

Communication in the *Bareng Mukti* farmer group occurs every day between one farmer and another. The communication that occurs aims to exchange information such as on how to deal with pests and diseases, information about the results of routine meetings held or other conversations besides banana cultivation. Communication carried out aims to get to know each other better. Communication can occur by accident, when farmers accidentally meet in the fields, on the road, or in the yard. The intensity of communication between farmers is usually due to the habit of getting information about banana cultivation from fellow farmers. Farmers who are more successful than other farmers are considered teachers but not patronizing.

Communication is also carried out using everyday language and is done face to face. The communication that occurs in *Bareng Mukti* farmer group is known as interpersonal communication. According to Mulyana (2010), interpersonal communication is a communication between two people which is done face-to-face and respond directly to each other either verbally, in writing, or in sign language. This was supported by Prasetyo et al. (2017) stated that interpersonal communication can minimize misunderstandings and farmer groups can be more productive to achieve the goals.

Other condition indicates that the communication occurs in *Bareng Mukti* farmer group is not only carried out by interpersonal communication, but also through group communication. According to Wiryanto (2004), group communication occurs between individuals and a group of more than three people. Group communication occurs during regular farmer group meetings. Regular meetings are held every Wednesday *Wage* or often called *selapanan* meetings (every 35 days). The meeting is usually a place to discuss problems that are happening in carrying out banana cultivation.

Regular meetings held by *Bareng Mukti* farmer group have a positive impact. It can be seen from the level of participation and active members of the group in sharing their opinions and experiences in banana cultivation. This condition was confirmed by Prasetyo et al. (2017); where information exchanges occur regularly, the farmers shall increase their knowledge and skills and change their attitudes for the better. In addition, the regular farmer group meetings include the village extension agents. The participation of extension agents in meetings is aimed as an intermediary between farmers and their groups. With extension agents, farmers can ask for solutions to their farming problems. Extension agents also have as role as a trusted source for farmers on the latest innovations.

Based on actual conditions in the field, farmers in *Bareng Mukti* farmer group access information from a few sources. This is because they rely on information from fellow farmers, extension agents, and academics; Therefore, the information they received is also limited. The majority of farmers are unable to access internet-based information, as many farmers do not have sophisticated communication tools such as smartphones. The communication behavior of farmers in *Bareng Mukti* farmer group is not much different from the communication behavior of farmers in Bangladesh and India; the majority of farmers are still unable to adapt to the latest technological developments.

Based on the results of research by Ravichamy & Nandakumar (2017), the banana farmers in Tiruchirapalli easily access information on banana cultivation with fellow farmers, relatives, and neighbors in their environment. Mass media such as newspapers, magazines, TV, radio, journals and cell phones are in the second position as sources of information. Devarani et al. (2018) showed that the farmers in Meghalaya still access a lot of information through local channels; However, the majority of farmers have a fairly good attitude towards cellular services. The conditions in Indonesia and India are not much different from the communication behavior of farmers in Bangladesh. The results of research conducted by Rahman et al. (2018) showed that farmers fall into two categories, first, the majority of farmers who have few cellphone contacts and the second, the majority of farmers that have no cellphone contact with extension agents. This is due to the lack of awareness of farmers in receiving information via cell phones. Following are the factors and obstacles that occur in the communication behavior of farmers in *Bareng Mukti* farmer group:

Farmers' Attitude

Banana farmers as the recipients of information in *Bareng Mukti* farmer group have positive attitude when receiving information from extension agents. Farmers shall practice whatever has been taught by the extension agents because they have trust in them. Informant 5 stated that the farmers had a positive attitude towards the extension agents, which was shown by feeling delighted since the government pays attention to them through extension activities. Through counseling, it is able to change the attitude of farmers for the better which in turn will affect farmers' cultivation habits.

Another condition that exists is that farmers have no clue about internet as they distrust the information obtained from the internet. Farmers think that the information circulating through the internet does not necessarily mean that the results will match what is written on it. It shows that the farmers have negative attitude towards information on the internet, since the attitude category considers several components, one of which is trust. According to Ahmad & Widuri (2017), attitude is a tendency that is positive or negative towards psychological objects. This is also supported by Notoatmodjo (2007) which stated that there are three main components of attitude: beliefs, ideas, and concepts towards objects; evaluation of objects and propensity to take action.

Farmers' Knowledge

The knowledge possessed by farmers is gained from experience, cultivation traditions, and counseling organized by agriculture agencies. Based on the conditions in the field, it is known that the counseling provided is able to increase farmers' knowledge in order to master banana cultivation techniques since the farmers understand the information provided by the extension agents well. This condition is in line with the opinion of Mardikanto (2009) which stated that counseling aims to help farmers get a better life by changing their behavior so that they are able to make their own decisions.

Although the farmers have sufficient knowledge of banana cultivation practices, they lack knowledge of the internet or smartphones. The low level of farmers' knowledge about the internet resulted in their low knowledge of technological developments. Currently talking about the industrial revolution 4.0 is rife. Broadly speaking, farmers are aware of the changing times that are increasingly sophisticated with modern technologies; however, most of them are still unfamiliar with the industrial revolution 4.0.

Based on interviews with Informant 2 who only have the elementary education background, he had no clue about the term 4.0; However, if one day he is given a briefing on what should be done in accordance with the current era, he will learn until he really understands and able to run it. However, this condition do not occur for all informants; it turns out that there are still some informants who are aware about the current era. As stated by informant 1, he knows about industrial revolution 4.0 and he is also aware that smartphones are a technology that is still developing until today. He knows about the current technological developments since he owns the media used to access information. Based on these conditions, it can be seen that the difference in the level of education affect the level of knowledge.

If an individual is sensitive to the change, he will think about how to be in line with the recent development. This is in accordance with the opinion of Sudarta (2005) that a farmer with higher knowledge of new technology, especially in the agricultural sector, will make the benefits of this technology to be effective and ultimately produce satisfactory results.

Farmers' Skill

Farmers in *Bareng Mukti* farmer group have good communication skills in seeking and obtaining information from fellow farmers through interpersonal communication. However, they have difficulty in accessing information using the latest technology. Farmers are passive in seeking or accessing personal information, yet active in receiving and filtering information. When the farmers get the information, it will be practiced and applied continuously in their banana farming activities.

As stated by Informant 4, the farmers were very enthusiastic and skilled in applying the information provided by the department and extension agents. This is because the related agencies are not only providing theory, but also put it into practice right away. This makes it easier for farmers to understand and practice the knowledge in their daily activities.

The communication skill possessed by farmers is quite good. They are able to implement the information that has been received. Such communication skills are what the farmers need; if the farmers lack in skills, the information received will not have a positive impact on them. This is in accordance with the opinion of Santrock (2007) that communication skills are needed in terms of speaking, listening, overcoming verbal and non-verbal obstacles, and be able to solve problems practically. This opinion is also supported by Sugianto (2015) that communication skills are not only needed in public communication, but also in interpersonal and group communication.

Types and Sources of Information

The type of information needed by banana farmers is related to spacing, maintaining excellent plants, making seeds, controlling pests and diseases. The information needed by farmers can be given in the form of oral, visual, and audiovisual. Conditions in the field indicate that farmers understand better and will be more receptive to the information when it is obtained directly. In addition, information that is trusted by farmers is information that can be proven. Based on this, the types of information needed by farmers are varied and more intense in upstream activities. Farmers get information from sources they think are reliable. The source of information that is often accessed by farmers is from the agriculture agency.

Based on the results of the interview, the type of information received is in accordance with the farmers' needs. They feel sufficient and no longer need to access information. In addition, based on Informant 5's statement, interpersonal communication is still well established. This is because the farmers still apply the *getok thular* concept, which means that information from one farmer will spread to the other farmers. This concept is still highly trusted by the village community. This is supported by Narti (2015) that sources of information for farmers are from the mass media, community leaders, and formal institutions.

Sources of information used by members of *Bareng Mukti*farmer group are television, radio, magazines and newspapers. However, the source of information that is trusted by farmers is information from the agricultural department, extension agents, and among farmers. Informant 3 stated that farmers have more confidence in the information provided by the PPL (Field Agricultural Extension Instructors) since they directly demonstrate the information they provide. This makes it easier for farmers to understand and apply it in their daily agricultural activities. In addition, farmers also feel difficult when accessing information obtained from the internet, as they have to read in detail from beginning to end to be able to understand the meaning of the article.

Based on the results of interviews and observations, it is known that the source of information that is trusted by farmers apart from extension agents and fellow farmers are from mass media such as television. There are still some farmers who watch one of the television channels about agriculture and trust the information reported. According to them, the programs on television are real news or in accordance with reality. As stated by informant 10, although farmers believe in the source of information that comes from television, farmers rarely access it. This is because farmers are preoccupied with activities in the fields and the yard to take care of their crops rather than watching agricultural programs broadcast on television. The belief of farmer information sources is supported by Hakim & Sugihen (2009). They stated that the source of information for farmers is from extension agents, informal figures, formal figures, relatives and neighbors, as well as partly from mass media such as television, radio, newspapers and other sources.

Media

Media information that is often received and accessed by farmers in *Bareng Mukti* farmer group are leaflets, brochures, and audio visuals where the media is

given according to farmers' needs. Farmers usually get these media during group meetings. Kusumadinata (2016) states that farmers have more confidence in accessing personal information than the media, since they think that the media change information quickly, which creates bias.

However, the farmers dislike the written media because sometimes the words are difficult to understand and unclear to put into practice. Meanwhile, mass media such as radio is no longer used. This happens because most farmers do not have the tools to access information via radio and farmers are already busy with their farming activities. Thus, farmers have no time to access information via radio.

Apart from those mentioned above, another medium is regular meetings. As revealed by informant 10 that every Wednesday *Wage* banana farmers get information from field agricultural instructors (PPL). They are usually invited by the head of the farmer group to fill in or provide the farmers with the latest information about banana plants. The information is generally about solutions to farmer problems, government policies, and the latest information. Farmers are also more enthusiastic when they get information that is conveyed directly. This is supported by the opinion of Tologbonse et al. (2009) that in accessing information, farmers prefer personal media.

Barriers to Farmer Communication Behavior in Accessing Information

The obstacles encountered by the informants include internal factors from within the informant and external factors from the environment and available facilities. Internal factors are caused by the fact that the majority of farmers are elderly and lack curiosity about current developments. The majority of farmers are also unaware of information technology. Therefore, the farmers have not been able to fully access the information available. As stated by informant 4, he knows what a cell phone is, yet he could not use it. The farmers only know and never even use it to communicate. Therefore, farmers also cannot access information via internet-based smartphones.

Another condition shows that the majority of farmers do not have a means of communication in the form of cell phones. This causes farmers to become passive in accessing information and more dependent on the agricultural instructors because the information obtained from the instructors is more trusted for them than the information from other sources. In addition, farmers who can access information via the internet have another obstacles; the difficulty of the network to access information due to inconsistent signals.

Internal factors become an obstacle in farmers' communication behavior since they have low curiosity and quickly feel satisfied. They feel the information they have received is already sufficient. Therefore, farmer participation in accessing information is low. This is in accordance with Sudjana's (2006) theory that participation is an internal barrier where the majority of people do not have the desire to be directly involved. External factors that become obstacles for farmers are the lack of understanding of information access, especially via the internet. Besides, the farmers are blind to the latest technology. The news about banana farming is also still very few, both in print, electronic, and internet media.

CONCLUSION

Communication behavior is seen from the way farmers access information. Communication behavior consists of two types, namely interpersonal communication and group communication. Farmers have a positive attitude towards reliable sources of information received from extension agents, the agricultural agency, and academics. Farmers' knowledge is still low regarding the flow of information and technology use. Farmers' skills are good when it comes to applying the information obtained, however, they are lacking when it comes to accessing information. The type of information is in accordance with the farmers' needs; it is done through direct meetings (not through the media) so that the direct contribution made by farmers in accessing information is still low. Lack of awareness and low curiosity about the flow of information and technology as well as lack of education from related parties are obstacles for farmers to access information.

RECOMMENDATION

Dissemination and systematic deviation from renewal agents such as extension agents, lecturers, and researchers to the management and members of the Bareng Mukti farmer group is expected to increase the contribution of farmers in accessing information on banana cultivation. Therefore, farmers can make decisions from the information received and can compete in the global market.

REFERENCES

Al-Hamdani, M. H. S., Al-Khazarji, R. M. I., & Jasim, O. K. (2018, November). Effecting of Mobile Applications in Control Farmers' Communication Behavior in Iraq. In 2018 1st Annual International Conference on Information and Sciences (AiCIS) (pp. 102-106). IEEE.

Ahmad Rahsan Jani, Widuri Susilawati, A. I. (2017). Jurnal Agri Sains Vol, 1 No.02 (2017). 02(02), 1–10.

Ardi, Supriyono dan Efrianto, E. (2017). Perilaku Petani Dalam Budidaya Kedelai Di Kecamatan Tebo Ilur Kabupaten Tebo. J. Agri Sains, 1(2), –10.

Devarani, L., Pandey, D. K., Singh, R., & Singh, R. (2018). Communication Behaviour of Farmers Registered Under m4agriNEI. Indian Research Journal of Extension Education, 18(3), 1-5..

Engotoit, B., Kituyi, G. M., & Moya, M. B. (2016). Influence of performance expectancy on commercial farmers' intention to use mobile-based communication technologies for agricultural market information dissemination in Uganda. Journal of Systems and Information Technology, 18(4), 346–363. https://doi.org/10.1108/JSIT-06-2016-0037

Hakim, L dan Sugihen, B. G. (2009). Keberdayaan Petani Sayuran Dalam Mengakses Informasi Pertanian Di Sulawesi Selatan. Jurnal Penyuluhan, 5(1), 54–62.

Ikhsan Fuady , Djuara P. Lubis, R. W. E. L. (2012). Perilaku Komunikasi Petani dalam pencarian Informasi Pertanian Organik (Kasus Petani bawang merah Di Desa Srigading Kabupaten Bantul). Perilaku Komunikasi Petani Dalam Pencarian Informasi Pertanian Organik (Kasus Petani Bawang Merah Di Desa Srigading Kabupaten Bantul), 10(2), 10–18.

https://doi.org/10.29244/jurnalkmp.10.2.%p
Krisnasiwi, J. A. (2017). Perilaku Komunikasi Petani dalam Mewujudkan Program Ketahanan Pangan di Kabupaten Kulon Progo. Gadjah Mada University.
Kusumadinata, A. A. (2016). Penggunaan Internet di Kalangan Petani Sayur dalam Memperoleh Informasi Pertanian di Kabupaten Cianjur. Indonesian Journal of Agricultural (IJAE), 7(1), 13–24.
Mardikanto, T. (2009). Sistem Penyuluhan Pertanian. Edisi Pertama. Surakarta: Sebelas Maret University Press.
Miles, M.B., Huberman, A.M., Huberman, M.A., and Huberman, M. (1994). Qualitative Data Analysis. Sage: An Expanded Sourcebook.
Mittal, S., & Mehar, M. (2016). Socio-economic factors affecting adoption of modern information and communication technology by farmers in India: Analysis using multivariate probit model. The Journal of Agricultural Education and Extension, 22(2), 199-212.
Mulyana, L. W. (2010). Komuikasi Bisnis Lintas Budaya. Bandung: Rosda Karya.
Narti, S. (2015). Hubungan Karakteristik Petani Dengan Efektivitas Komunikasi Penyuluhan Pertanian Dalam Program Sl-Ptt (Kasus Kelompok Tani di Kecamatan Kerkap Kabupaten Bengkulu Utara). Jurnal Professional FIS UNIVED, 2(2), 41–52. https://doi.org/10.3923/ijss.2017.32.38
Notoatmodjo. (2007). Definisi Pengetahuan dan Faktor-Faktor yang Mempengaruhinya. Jakarta: Rineka Cipta.
Parthasarathi, S., & Alauddin, A. S. (2017). Communication Behaviour of Farmers Adopting Rice Fallow Pulse Technologies. Journal of Extension, 29(2), 5864-5869.
Prasetyo, A., Safitri, R., & Hidayat, K. (2017). Effectiveness of Interpersonal Communication of Head of Farmer Group To Maintaining Existence Sidodadi Farmer Group. Habitat, 28(3), 99–105. https://doi.org/10.21776/ub.habitat.2017.028.3.14
Prasetyo, A. S., Safitri, R., dan Hidayat, K. (2019). Strategi Komunikasi Ketua Dalam Meningkatkan Eksistensi Kelompok (Kasus di Kelompok Tani Sidodadi di Desa Junrejo, Kecamatan Jumrejo Kota Batu Jawa Timur). J. HABITAT, 30(1), 26-34.
Rahman, Hammadur Mohammad, Uddin, Nasir Mohammed, K. M. S. (2018). Communication Behaviour of Farmers with the Agricultural. 8(3), 121–127.
Ravichamy, P., & Nandakumar, S. (2017). An explorative study on communication behaviour of banana growers in Tiruchirapalli district of Tamil Nadu An explorative study on communication behaviour of banana growers in Tiruchirapalli district of Tamil Nadu. (January).
Rogers, E. M. (2003). Diffusion of Innovation (third Edit). New York: The Free Press.
Santrock, J. W. (2007). Perkembangan Anak Jilid 1. Jakarta: Erlangga.
Schlechtendahl, J., Keinert, M., Kretschmer, F., Lechler, A., & Verl, A. (2014). Making existing production systems Industry 4.0-ready: Holistic approach to the integration of existing production systems in Industry 4.0 environments. Production Engineering, 9(1), 143–148. https://doi.org/10.1007/s11740-014-0586-3
Singh Nirmal, Puneet Malhotra, J. S. (2016). Information needs and seeking

behaviour of dairy farmers of Punjab. (January), 150.

Sudarta, W. A. Y. A. N. (2005). Pengetahuan dan Sikap Petani Terhadap Pengendalian Hama Tanaman Terpadu. Http://ejournal.unud.ac.id/abstrak/(6)%soca-sudarta-pks%20pht(2).pdf.

Sudjana, D. (2006). Evaluasi Program Pendidikan Luar Sekolah. Bandung: PT. Remaja Rosdakarya.

Sugianto, V. (2015). Keterampilan Komunikasi Interpersonal Konselor dalam Terapi Pengobatan Rawat Jalan kepada Pasien di BNNP Jawa Timur. Jurnal E-Komunikasi Program Studi Ilmu Komunikasi Universitas Kristen Petra, 3(2), 1–7.

Tologbonse, D., Fashola, O., & Obadiah, M. (2009). Policy Issues in Meeting Rice Farmers Agricultural Information Needs in Niger State. Journal of Agricultural Extension, 12(2). https://doi.org/10.4314/jae.v12i2.47053

Wiryanto. (2004). Pengantar Ilmu Komunikasi. Jakarta: Grasindo.