

## Conference Paper

# Young Farmers' Cooperation Behavior and the Role of Social Media in Developing Agribusiness

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### Abstract

In conducting agribusiness, young farmers are connected with each other in a farmer group. Cooperation becomes the major requirement for maintaining their existence. Furthermore, in the digital era, many people use the internet to help their work and present it to the public through social media. Additionally, to develop their agribusiness, young farmers develop good relationships with extension workers who assist them and connect them to the government. Meanwhile, the government develops policies and supporting materials for young farmers such as fertilizer. Therefore, based on this phenomenon, this quantitative research is aimed at understanding young farmers' cooperation behavior, especially in using social media in supporting their agribusiness and whether there is difference in cooperation between those utilizing social media and those who do not. It employed 39 young farmers in Kalasan and Prambanan Subdistrict who plant chili as horticulture commodities. It showed that young farmers' cooperation was described in their activities on seedling, irrigation, crops maintaining, and marketing, but their cooperation practice was not high. On the other hand, they did not always use social media and Kolmogorov Smirnov's analysis resulted that there was not any difference in cooperation practice due to the social media application. Moreover, not all of them were familiar with social media in the implementation of agribusiness. In this case, they need more assistance from extension workers so they should introduce social media as part of agribusiness to all of young farmers through agricultural extensions to connect young farmers worldwide.

**Keywords:** Young Farmers' Cooperation, Social Media on Agribusiness, Agricultural Extension, Extension Workers

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## 1. Introduction

Industrial revolution 4.0 has become a trigger for all businessmen to develop themselves and their business. In this era, besides food, technology becomes a basic needs of humans. Media for communication such as face to face meetings can be replaced by gadgets and social media. In the agricultural sector, farmers do not need to walk for kilometres to buy seeds. They only need to use their fingers to access the online market

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and wait for the seeds to be delivered. Much information can be searched for on internet and discussed with their partners online on social media.

Differing from criticism of teenagers' habit that social media can develop some risks such as sexting, cyberbullying or decreasing real interaction; social media in agriculture is, however, developed. The internet based access helps farmers, young farmers included, to find information in a short time. Furthermore, the extension through social media is also an alternative platform for extension workers and farmers to hold online discussion. In Kerala, Sudhakar (2018) stated that the e-commerce portal help farmers to market their products and Whatsapp and Facebook is also becoming the media for regular e-extension. Barau and Afrad (2017) mentioned Facebook as the most popular social media used to deliver the extension. Youtube has also become a favourite social media platform for farmers to gather information about agribusiness, particularly applications (Balkrishna and Deshmukh, 2017 and Thakur and Chander, 2018). In addition, they explained that social media could enhance some points of extension beginning with time, trendiness, effectiveness, public relations, community building, publicness, connectedness, and communication speed as the highest benefit. Time consuming activities is a common problem for farmers, especially when information needs to be transferred to other farmers in different area and the messaging on mobile phones is not sufficient as it cannot share pictures. Thakur and Chander (2018) explained that problem of physical boundaries in transferring information can be solved quickly by the use of social media indicating that time consumption is decreasing. Additionally, Balkrishna and Deshmukh (2017) reported that social media helps farmers to access the weather report because it saves time and cost as well. Alongside this, social media use improves the information finding and overcomes access problems caused by place and time boundaries which reduces other difficulties such as high costs of delivering information through printed media.

To aid farmers', especially young farmers', to engage with social media daily, it is necessary to explore their psychological condition. Rogers (1983) explained that after the diffusion or dissemination process, individuals begin to adopt innovation but they still need to confirm their behavior based on success or failure to reach the long-term adoption. When young farmers are experienced in overcoming problems through their own research, it is hard to believe information obtained from outside, as stated by Kurt Lewin (1935) *cit.* Johnson and Johnson (2012) on his Experiential Learning Theory.

Young farmers in Prambanan and Kalasan involved in horticulture usually work in groups and build both internal and external cooperation networks. It has happened since the planting of paddy as the main commodity. This research paper looked to explore

whether young farmers in the locations in Prambanan and Kalasan are active in their social media to develop their horticulture agribusiness and if it is so, once experienced in the use of social media, how does this effect or develop their cooperation. Therefore, this study aimed at understanding the cooperation and social media used in agribusiness development and analyzing the coordination between young farmers who use social media and those who do not apply it.

## 2. Research Method

This study adopted a quantitative approach. The data was collected through direct observation, interview, and questionnaire. Thirty nine young farmers aged between 20 to 35 living and working as horticultural farmers in Prambanan and Kalasan Subdistrict were selected through census because the number of young farmers within this criteria was very limited.

The object of this research were to look to their cooperation behavior and the use of social media in developing their agribusiness. The data of behavior cooperation belongs to nominal data consisting of four degree of frequency. The use of social media is served in nominal data collected through closed-question.

The data was analyzed by using non-parametric analysis, developed by Kolmogorov Smirnov, to find out if there is difference in cooperation behavior between those who access social media for their agribusiness and those who do not implement it. It is the effective analysis for this study as the limited samples are directed to the normality of the data. To answer the second objective of the research, hypotheses were stated:

1.  $H_0$ : The cooperation behavior of young farmers who use social media in developing their agribusiness and those who do not is not different.

$H_a$ : The cooperation behavior of young farmers who use social media in developing their agribusiness and those who do not is different.

2. Significance level:  $\alpha=5\%$  (0.05)

3. Accepting or rejecting  $H_0$ :

$H_0$  will be rejected if  $\text{sig} < \alpha$

$H_0$  will be accepted if  $\text{sig} > \alpha$

4. Conclusion:

$H_0$  is rejected so that the cooperation behavior of young farmers who use social media in developing their agribusiness and those who do not is different.

$H_0$  is rejected so that the cooperation behavior of young farmers who use social media in developing their agribusiness and those who do not is not different.

### 3. Result and Discussion

In managing their horticulture agribusiness, young farmers cooperate with each other in group specifically for farmer. Through this farmer group, fertilizer is provided and government support can be accessed. In addition, there are several stakeholders involved in the process of agribusiness development. Among the other stakeholders, agricultural extension workers are the most active in assisting the young farmers to enhance their productivity. The agricultural extension workers give assistance through farmer group meetings which is then directed to a group discussion. It is one of the way of cooperation to find the solution to overcome their current problems. When cooperation is not in place, it is more likely that young farmers will take the most effective cultivation to gain high productivity only for themselves without paying attention to the environment, shown by the dependence of chemical fertilizer and chemical pesticides. As is widely accepted, the high implementation of chemical fertilizer or pesticide can diminish land fertility. As the horticulture agribusiness is aimed at implementing the organic practice of agriculture, they are concerned not only about yields but also surrounding environment health and this is realized through group cooperation. Information on how to produce the organic fertilizer and pesticide can be accessed on internet and be discussed through social media.

Based on the daily behaviors of informants, it was found that cooperation appears in some activities such as seedling, irrigation, crops maintaining, and marketing with the weakest cooperation is found in the process of finding seedling. In chili cultivation, farmers tend to buy the seeds or seedlings because almost half of them have another occupation so use of the available seeds or seedlings is more effective. The others who only work as farmer usually prepare seedlings for their own agribusiness. When the government distribute aid such as fertilizer and certified seeds, they manage the distribution and discuss the time to grow the seeds, especially for those who plant mixcrops, In the context of seeds and seedlings, there is no problem of availability so farmers rarely use social media to find out new information or ask for seeds.

Another type of cooperation is irrigating the land which is always done by a small group coordinated in farmer group. They also cooperated with the village leader to arrange the schedule of irrigation. Those who do not belong to this group never participate in the process of irrigation. Cooperation about irrigation still happens in

group communication and personal communication through social media although the frequency is low because they usually plant chili in the early of rainy season. The planting time is discussed in group meetings and they consider it as a prominent decision because the improper time can cause damage from pest and disease attacks.

Disease attacks in chili can be extremely harmful, therefore all farmer cooperate to control the disease, particularly in the case of anthracnose which affects the quality of fruit and seeds. Together they begin to apply organic pesticide in the early stages of cultivation. In this case, extension and social media becomes the proper media to transfer knowledge. As is accepted within the group, not all farmers focus solely on their farm so they occasionally cannot attend the meetings. When this happens, the information which is missed will be forwarded through social media such as Whatsapp. It is considered the most effective media to share information, especially if farmers want to receive an information quickly. The young farmer group in Kalasan always share the results of their meetings and activities on their official Facebook page. In addition, they also upload pictures representing their activity as their report. They understand the benefit of the use of social media to promote their farmer group in having a relationship with stakeholders such as scholars and students from universities. If they want cooperation with the farmer group, they can learn about the group's profile and their previous activities or their products. It can also attract the consumers to pay attention on their products and purchase them.

Many external cooperations will help them to overcome their agribusiness problem. As an example, when there has been a serious attack of disease, they need to use a chemical pesticide to slow the yield loss. According to the extension workers, this information of the last alternative use of chemical pesticide through the group meeting was shared on the social platforms. The group leaders also reminded those who have the access of social media such as Whatsapp about the types of pesticide. They do not worry about apply the pesticide due to the suggestion from others, only in particular case. In addition, the farming community has an agreement surrounding the doses and frequency of chemical pesticide use. It is avoided that the residue of the pesticide is absorbed by the other members' plants. They also do not worry about adopt the organic pesticide for every commodity. They realize that creating a purely organic farming enterprise takes long time and they are prepared to endure with the process.

Marketing becomes the final activity in which cooperation is implemented and social media is used. Whatsapp is used as the media to share the information of auction market in Kalasan and the bargaining process which also happens online. Afterwards, they meet in the auction market to check the quality and do the transaction. Some

of their clients are middlemen but in this market they have power as to whether they agree or disagree with the middlemen's bargaining. They physically meet each other to ensure or compare the real condition of yields with the picture sent through social media and pay it in cash. This condition is different with the common traditional market where the seller and buyer or customer do not have any appointment to meet for the transaction. Therefore, the risks that products will not be sold can be minimized.

Besides the consolidation among the group members and stakeholders, social media supports them to ensure themselves about the "take and give" process of organic agribusiness. That process happens during several periods of organic agribusiness, from the planning through to marketing process. If they desire to enhance their profit, they should increase the quality or the value of the product. In improving the quality, they focus on organic horticulture and they also understand that they should repair the soil by reducing chemical fertilizer and adding some which is organic. Local wisdom becomes the choice to produce the fertilizer. From the knowledge gained from extension workers and internet, they can make several types of organic fertilizers.

In the beginning during the learning process, the costs of running such a system were comparatively high, both economically and in energy investment. Therefore, they needed to develop further strategies to improve the value of raw product to become processed food to replace the high capital. In this stage, cooperation with women in the farmer group is necessary so that they can focus on the productivity enhancement and raw materials processing. Youtube is one of the media platforms which has helped them find the ideas and innovative recipes. Furthermore, as women tend to like being socialized in social media, mostly there is no difficulty in the marketing process.

Not all young farmers are familiar with the use of social media in developing their agribusiness. Although all of them have, at least, Whatsapp, many young farmers in Prambanan and some of them in Kalasan only use social media to communicate with family and friends. From Table 1, it can be calculated that more than half young farmers do not take an advantage of social media to find information or market their products.

In the table below, data is displayed about both young farmers who use social media and those who do not engage with it for agriculture purposes. The level of cooperation between those who engage in social media and those who don't is similar, indicating that no difference was found between young farmers who apply social media on their agribusiness and those who do not. In general, both are sometimes involved in cooperation as the highest number of young farmers chose "sometimes" to explain their cooperation with others.

TABLE 1: The difference of cooperation behavior between young farmers who use social media and those who do not.

| Cooperation Behavior | Use Social Media on Agribusiness Development | Do Not Use Social Media on Agribusiness Development |
|----------------------|--|---|
| Always               | 0  | 0   |
| Often                | 4  | 3   |
| Sometimes            | 5  | 13  |
| Seldom               | 3  | 10  |
| Never                | 0  | 1   |
| <b>Total</b>         | <b>12</b>                                    | <b>27</b>   |

Source: Primary data analysis, 2018

Surprisingly, the analysis shows that there is no difference of cooperation behavior between young farmers who use social media and those who do not (see Table 2). The value of asymp.sig. is 0.807 and it is higher than  $\alpha$  (0.05) so that  $H_0$  is accepted. It can be stated that the cooperation behavior of young farmers who use social media in developing their agribusiness and those who do not is not different.

TABLE 2: Kolmogorov Smirnov’s analysis result in identifying the difference of two groups of young farmers.

|                          |          | Cooperation |
|--------------------------|----------|-------------|
| Most Extreme Differences | Absolute | 0.222       |
|                          | Positive | 0.222       |
|                          | Negative | 0.000       |
| Kolmogorov-Smirnov Z     |          | 0.641       |
| Asymp. Sig. (2-tailed)   |          | 0.807       |

Source: Primary data analysis, 2018

It is different from the early hypothesis assuming that social media would show differencea between young farmers’ cooperation. In fact, both populations has the same cooperation level due to the transmission of information from several sources occurring through diffusion and “social learning” processes and dissemination. The four processes of social learning stated by Bandura happened for young farmers both during the group meeting and in daily activities in the field. Through the farmer group, they can learn from other members. The ones who are active to look for information through social media are the group leaders. They always try to find new information and often have cooperation with the extension workers to examine new technology. Young farmers who are not active in social media have more leisure time to talk to the extension workers in the field and they also have routine activities to meet the other members in a stall in the evening. Mostly, the members of a farmer group are in one neighbourhood.

There is adequate opportunity to learn and find information from their peers, especially about agriculture, sport, and politic.

In this case, the Bandura's processes of attention, retention, motoric reproduction, and motivation occur in sequence. The agricultural topic is discussed in group meeting so that the other young farmers know the more complete information, known as "attention". When they think that it is interesting, they try to analyze whether it will bring advantages for them and is affordable and this belongs to "retention". The increase of yields becomes one of considerations besides the availability of innovation related to materials and tools. In Prambanan and Kalasan, young farmers have a culture to adopt the technology in a group in which at least, they take the result of discussion into consideration. When the group decides to adopt, they tend to have the same decision. When they agree to try the innovation, young farmers prepare the seedling and grow it in a small area then sell it in few numbers called as "motoric reproduction". If they gain an advantage from the process of cultivation including the increasing production, high quality, and effective marketing, they will be motivated to adopt that innovation and this is the "motivation process". This last process becomes the individual thought of young farmers instead of the group decision. Young farmers who have high motivation and are supported by family adopt the innovation for a longer time. Additionally, those who are active in social media also show their success in adopting innovation to other farmers with evidence to persuade them to behave the same. Thus, Whatsapp story help their existence although not all of them are aware with its function.

The diffusion of innovation happens unconsciously in their daily activity. Through social learning and confirmation processes on adopting the innovation, they begin to consider it as a habit. Over time, that habit affects their experiential learning. The experience is not obtained only from what they do but also from what they observe by other young farmers' experience through social learning. In this case, organic fertilizer is one example in which young farmers are interested. Before they received the education through extension and information from social media, they used to apply the raw materials from animal waste because they thought that it was originally organic. Two to five years later, due to the information disseminated from the group leaders and extension workers, they have realized that the use of processed organic fertilizer is important to hinder the pest and disease. They began to try, and finally have adopted this new method until today. The additional information comes from the use of the internet and is shared through Whatsapp and face to face communication as not all of them are active in social media. Realizing that processing the animal waste individually will take much

time, they work together in the group to collect, process, and distribute the organic fertilizer.

Therefore, it cannot be concluded that social media does not perform its function. It changes the farmer group leaders' knowledge and behavior so that they can disseminate the technology to other young farmers through the assistance of the extension workers; however, it needs a much longer time than if the information is directly accessed by the individuals. Therefore, the practice of using social media is required to be developed through the extension.

#### 4. Conclusion and Recommendation

Most young farmers in Kalasan and Prambanan are involved in cooperation. They work in groups and have coordination with stakeholders such as university students and extension workers as well. Some horticulture agribusiness processes managed by the groups are seedlings, irrigation, crop maintenance, and marketing. During these processes, some of them usually use social media to communicate and find information to develop their agribusiness, however still not all of them do. Despite this, there is not any difference in cooperation between young farmers with social media and those with no social media. In this case, social learning becomes the effective diffusion process in addition to experimental learning and extension workers also play role in disseminating the technology through the extension.

To maximize the development on time management, all young farmers should access social media as the tools to help them develop their agribusiness, especially chilli business. Extension will be the best media for them to practice and access some agricultural applications. In practice, farmer group leaders and extension workers as role models should enhance their use of social media and manage a group study with another farmer group which is successful due to social media. For the first step, creating a farmers' group chat will be an advantage until they are familiar to find any information from their mobile phone. After this, the existence of agricultural website as the source of information should be also introduced to all of young farmers.

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