Jurnal Sain Peternakan Indonesia
Available at https://ejournal.unib.ac.id/index.php/jspi/index
DOI: https://doi.org/10.31186/jspi.id.18.2.111-119

P-ISSN 1978-3000
E-ISSN 2528-7109
Volume 18 Issue 2 April-June 2023

Economic Value and Utilization of social media in Fertilizer Sales in Taruna Mandiri Ngemplak Sleman, Yogyakarta

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ABSTRACT

Taruna Mandiri is a farmer's group that sells cattle and organic fertilizer. Since the Foot and Mouth Disease outbreak, they have relied more on selling organic fertilizers. This research aims to analyze the economic value of selling organic fertilizers and understand the use of social media in selling fertilizers. Selection of the location in the Taruna Mandiri farmers group, Ngemplak District, Sleman Regency. Purposive sampling of 15 out of 40 members who are administrators and manage the manufacture and processing of fertilizers for sale. The research was conducted in a quantitative descriptive method. Primary data retrieval through direct interviews using a questionnaire tool. The primary data taken include respondents' characteristics, livestock ownership, and understanding of the use of social media. The results showed that with 55 cattle ownership, the economic value of selling fertilizer was IDR. 535,000/period or IDR. 2,140,000/month. Farmers' groups are interested in selling online because it helps expand the market, adds information, and at the same time, promotes products. The social media platforms that farmers want are WhatsApp business, Instagram, and Facebook, but due to limited knowledge, farmers use the unique WhatsApp platform. With a touch of technology in labelling and the proper use of social media platforms, the group needs to improve product quality and expand the consumer market.

Keywords: Economic value, organic fertilizer, social media platform, Taruna Mandiri farmers group

INTRODUCTION

Taruna Mandiri group is a livestock group located in Ngalian, Widodomartani, Ngemplak, Sleman Regency. It is a Focus group on Ongole Breed Cattle. Taruna Mandiri group was established on November 23rd 2006 and was inaugurated as a beginner group on May 11th 2007, and then the group was upgraded to an advanced class on April 20th 2013.

Since the outbreak of Foot and Mouth Disease (FMD), based on the initial survey results, livestock sales in the herd have decreased by up to 40%. FMD is a highly contagious disease and causes enormous economic losses. This disease causes a decrease in animal productivity and trade restrictions (Jamal and Belsham, 2013; Mayet et al., 2020). The causative agent of FMD is the Foot Mouth Disease Virus (FMDV). FMD first occurred in Indonesia in 1887, to be precise, in Malang, and in 1983 it occurred again in Blora, Central Java. In 2013 the Indonesian government determined that FMD is a strategic infectious animal disease (PHMS) that must be watched out for and prevented (Adjid, 2020).

Indirect losses due to FMD are the cost of controlling FMD, especially vaccination, poor access to markets and the limited use of better production technology (Jones and Rushton, 2013). The distribution of livestock traffic, weak biosecurity in livestock pens and cattle transport facilities for sending livestock to or from animal markets are factors in FMD (Sudarsono, 2022). Livestock herds reduce mobility and visits and transportation from outside so that livestock are not infected. To prevent FMD outbreaks, the group administers vaccines to livestock, bathes livestock every three days, sprays the cages every week using Benzaklin and Eco enzymes, and liming the manure to prevent fly eggs from hatching so that the livestock group enters the FMD green zone. Eco enzyme is a solution of complex organic substances produced from the fermentation process of organic residues, sugar and water. This environmentally friendly product is useful as a disinfectant (Rochyani et al., 2020).

During the Foot and Mouth Disease (FMD) endemic outbreak, the group earned income by relying on Pupuk Organik Ngalian (PON) sales. In August 2022, the group received an award from the Regent of Sleman for evaluating the climate village program (PROKLIM) at the peak of Environment Day. Forming group pens and processing livestock manure is one of the efforts to maintain environmental comfort. So far, the group's revenue has come from selling livestock and fertilizer directly.

Opportunities for developing information technology, among others, can be through social media. Social media is a virtual connection regardless of geographical distance, where media presents images, prosperous textual content, video and audio online (Madakam and Tripathi, 2021). The choice of social media as the technology to be used is a simple solution. It can be understood easily because the number of social media users in Indonesia, who number in the millions, can be used as marketing targets.

Indonesia is ranked fifth worldwide for Twitter users after the USA, Brazil, Japan, and the UK. There are 63 million internet users in Indonesia (Kominfo, 2022). The existence of information technology from various social media helps develop livestock and by-product sales markets. The role of social media, as one of the tools used in digital marketing, is a vital medium for increasing sales (Rachmawaty, 2021). Using social media to sell livestock and fertilizer during the COVID-19 pandemic has been carried out by researchers before (Ilmi *et al*., 2013, Anonim, 2020). The sale of livestock and fertilizer when FMD occurs has never been studied. Therefore, this topic is novelty research. Therefore this study aims to measure the economic value of making organic fertilizer and farmers' understanding of the use of social media in selling fertilizer in the Taruna Mandiri group.

MATERIALS AND METHODS

The research location was in the Mandiri Cattle Cattle Group, Ngalian, Widodomartani Village, Ngemplak District, Sleman Regency. The research was carried out in June-July 2022.

The research material was 15 respondents who were members of the "Taruna Mandiri" farmers group taken purposively considering that they were administrators who processed fertilizer and used mobile phones in social communication with members. The sampling technique in this study used purposive sampling, namely the selection of samples based on specific considerations under the research objectives (Mashudi, 2016).

Data analysis was carried out in a quantitative descriptive manner. The results of the analysis are written in tabular form. Primary data was taken through direct interviews with farmers using a questionnaire. The data includes the characteristics of the respondents, livestock ownership, and farmers' understanding of the use of social media in fertilizer sales. Analysis of chemical content to determine the quality of Pupuk Organik Ngalian (PON) produced and sold by the group has been compared with Indonesian National Standard (SNI). Solid fertilizer is an artificial fertilizer in solid form containing nutrients, mainly nitrogen, phosphorus and potassium (SNI, 2010). The analysis was conducted in the Leather Technology Laboratory, By-Products and Livestock Waste, Faculty of Animal Science Universitas Gadjah Mada. WhatsApp is the most widely used social media platform by Indonesian people. The percentage was recorded at 88,7% (Data Indonesia, 2022). This analysis is vital to promote the quality of by-products through social media platforms.

RESULTS AND DISCUSSION

The characteristics of the respondents indicate the potential of human resources in carrying out livestock rearing. The mean group members are of productive age (58.13 ± 14.47 years). Productive age supports innovation and the development of the cattle business. The farmer's age is also a factor in the development of the cattle business. Getting younger the person is, the easier to accept changes from the outside because farmers always want to try something new to improve knowledge and skills in business diversification.

Table 1. Characteristics of respondents

Component	X ± SD
Age (year)	58.13 ± 14.47
Education (%)	
Elementary School	33.33
Junior High School	13.33
Senior High School	46.67
College (%)	6.67
Experience (year)	15.77 ± 10.28
Families that use Handphones (people)	3.80 ± 0.77

Elderly farmers are usually fanatical about tradition and hard to understand given the change in their way of thinking, possibly, the way of working and their life, and like to be apathetic towards new technology (Ananta *et al*., 2015). The average age of Ongole Breed cattle in Grobogan and Kebumen, Central Java, is between 48-49 years (Kusuma et al., 2017; Sutrisno et al., 2018). The education of the group members is equivalent to high school (46.67%) with more than ten years of farming experience and 3 to 4 families who can use mobile phones.

Livestock Ownership

The average Ongole Breed cattle ownership is generally 2.1 heads or the equivalent of 1.84 Animal Units (AU)/farmer (Supartini and Darmawan, 2014). The scale of ownership of Ongole Breed cattle in Playen and Wonosari sub-districts, Gunungkidul, as the source areas for livestock breeds, is between 1-6 heads, or an average of 2.78 heads per farmer (Zuljisman et al., 2022). Judging from the composition of Taruna Mandiri livestock ownership, the most significant number of male calves will be used for fattening. On the other hand, a heifer is also because the group wants to maintain the sustainability of Ongole Crossbreed cattle which are germplasm and must be maintained so that their population does not decrease. Taruna Mandiri farmer's group can maintain the existence of Ongole Crossbreed Cattle because of the support for business existence, the use of manure to increase income, and the Willingness to Pay farmers (Ernanto et al., 2022).

Table 2. Livestock ownership

Type of Cow	Head (X ± SD)	AU (X ± SD)
Bull	1.00 ± 0.49	1.00 ± 0.49
Heifer	1.22 ± 0.70	1.22 ± 0.70
Young male	1.00 ± 0.35	0.60 ± 0.21
Young female	1.00 ± 0.41	0.60 ± 0.25
Calves male	1.75 ± 0.92	0.44 ± 0.23
Calves female	1.20 ± 0.63	0.30 ± 0.16

Economic Value of Organic Fertilizer Sales

The organic fertilizer business makes a sizable contribution to the total income of farmer groups and is worth cultivating (Irvan et al., 2015; Selviatun et al., 2021). The group's processing of organic fertilizers per week generates a net income of IDR 535,000/week or IDR 2,140,000/month. The time it takes to make organic fertilizer and the number of livestock owned is still relatively small, with average ownership of 2-3 heads, causing the group to buy manure to meet market demand.

The biggest target market for fertilizer sales is paddy, secondary crops and horticulture farmers in the Ngalian hamlet and around Yogyakarta. The pricing system is based on price discrimination whereby the same quality of fertilizer produced will be sold to group members at the lowest prices and the highest prices at ornamental plant shops with packaging without including the name of the livestock group. The market network at ornamental plant shops is expected to be able to serve as an information agent for the use of organic fertilizers while at the same time meeting the increasing needs for agricultural production facilities (Sudirman and Suryanto, 2022).

Table 3. Analysis of Ngalian organic fertilizer sales revenue

Components	Unit	Price	Total
Revenue			
Selling to farmers (70%) (sack)	60	17,500	1,050,000
Selling to group members (15%) (sack)	13	15,000	195,000
Selling to a plant shop (15%) (sack)	13	20,000	260,000
Total revenue	75		1,505,000
Cost			
Raw material			
Manure (kg)	3000	200	600,000
Dolomites (chalk) (kg)	20	1,250	25,000
Lactobacillus Bacteria (IDR/l)	0.5	38,000	19,000
Packaging (sack)	86	2,000	172,000
Urea (kg)	4	3,500	14,000
Molasses (l)	4	10,000	40,000
Labour (IDR/hour/person)	5	20,000	100,000
Total cost			970,000
Total income/week			535,000
Total income/month			2,140,000

The pricing system is based on price discrimination where the raw material for making organic fertilizer in the group is cow manure, as much as 3 tons/production period. Manure per head produces approximately 10-12 kg of wet and 7.5 kg of dry form used as raw material for making organic fertilizer. It is under Huda and Wikanta (2017), where one cow daily produces 8-10 kg of manure or 2.6-3.6 tons per year or the equivalent of 1.5-2 tons of organic fertilizer. Cow manure is made with a thickness of approximately 25 cm and then doused with water, molasses, urea, Lactobacillus bacteria, and dolomite (lime) which has been diluted. Then the manure is covered again as high as 25 cm with the same treatment up to 4 layers.

The next step is to cover the manure with plastic; after seven days of composting, it is stirred up to 3 times. The fertilizer is ready to be packaged and sold within 25 days. The fertilizer produced with the same quality will be sold to group members at the lowest and highest prices at ornamental plant shops with packaging without including the name of the livestock group. The market network at ornamental plant shops is expected to be able to serve as an information agent for the use of organic fertilizers while at the same time meeting the increasing needs for agricultural production facilities (Sudirman and Suryanto, 2022).

Table 4. Content of Ngalian Organic Fertilizer (PON)

Components	Microbial Enriched SNI	Group	Explanation
Water content (%)	10-25	19.88	All components comply with SNI
N total (%)	Min 0.4	1,59	requirements
C organic (%)	Min 15	22,17	
C/N ratio	≤25	13,94	

Source: Analysis in the Leather Technology Laboratory, By-Products and Livestock Waste, Faculty of Animal Science Universitas Gadjah Mada.

The content of fertilizer in the Taruna Mandiri farmer's group is under quality standards based on the Decree of the Minister of Agriculture of the Republic of Indonesia No: 261/PPTS/SR.310/M/4/2019 concerning the minimum technical requirements for organic fertilizers, biological fertilizers and soil conditioners. The introduction of fertilizer processing, according to SNI, is expected to increase the price of fertilizer according to the quality of the fertilizer produced. On the other hand, knowledge about the correct fertilizer content and the importance of labelling for increasing selling prices must be disseminated to farmers through collaboration with the Animal Husbandry Service or Agriculture Service and educational institutions (Kusumastuti et al., 2022).

Characteristics of Fertilizer Sales

The primary consumers in selling fertilizers are food crops and horticulture farmers and are not used to selling through Online social media. They have started to increase their online sales since the FMD endemic outbreak. Usually, farmers sell fertilizer by calling directly to the intended consumer. Farmers think that the critical factors consumers want in purchasing fertilizers are price and type of packaging, while consumers still do not pay attention to certification and labelling (Table 5). In addition, information about farmer prices has not taken advantage of the use of mass media such as radio or the internet.

Understanding the Use of social media in Fertilizer Sales

Farmers are interested in selling Online because it helps expand the market, add information, and at the same time, product promotion. Fertilizer sales mostly use the unique WhatsApp platform. WhatsApp is a subscription messaging service via smartphone and can access information directly, and is fast and easy to use (Kumar and Sharma, 2017). WhatsApp is known through family or neighbours. Online media such as Facebook and WhatsApp are used by businesses to promote product sales, which are then continued with sales transactions through the WhatsApp online chat application (Beddu et al., 2021). On the other hand, WhatsApp as a marketing medium or product promotion is not optimal because only people who see the promotion see the owner's contact, so the marketing process does not run optimally (Aulia et al., 2021). In addition to selling products, WhatsApp is used to communicate about work and build social relationships to form teams and market adequate communication flows (Sugiyantoro et al., 2022; Shahid, 2018).

Table 5. Characteristics of fertilizer sales

Kinds of Questions	Frequency	%
Fertilizer selling		
• At the stables, farmers visit	15	100.00
• Ornamental plant seller	10	66.67
• Through online social media (IG, FB, WA, telegram, etc.)	7	46.67
During the FMD outbreak, how to sell fertilizer		
• Directly	7	46.67
• Via social media (Online)	8	53.33
Before the FMD outbreak, he had sold fertilizer Online (internet)		
• Yes	8	53.55
• No	7	46.67
So far, most buyers of fertilizers are		
• Farmer	12	80.00
• Ornamental plant seller	2	13.33
• Member of group	10	66.67
How do you contact the buyer?		
• By visiting the buyer's house	10	66.67
• By telephone	11	73.33
• Ask for help from other people to sell fertilizer to buyers	4	26.67
According to you, an essential part of selling fertilizer that buyers want is :		
• Sack weight	10	66.67
• Price	13	86.67
• Type of packaging	13	86.67
• Label (writing as information material)	8	53,33
• Fertilizer certification	9	60.00
Apart from livestock groups, where did you get the news about fertilizer prices?		
• Listening to the radio	2	13.33
• Via the internet	5	33.33
• From the cattle market	10	66,67
• From another cattle group	14	93,33

According to farmers, the information that is important to convey to consumers is the price, packaging weight and pictures of fertilizers. The name of the livestock group is not listed on the packaging sold at ornamental plant shops for reasons of business ethics. The name of the group cannot be written on the package. The social media platforms that farmers want are WhatsApp business, Instagram and Facebook, but due to limited knowledge, farmers cannot use these platforms. Facebook, WhatsApp, and Instagram social media tend to be preferred by Micro, Small, and Medium Enterprises (MSME) actors because of the ease of sharing information and attracting the attention of the target market and building business relationships with customers (Rohmadi et al., 2022; Naneetha, 2018).

The benefits of using the WhatsApp Business and Instagram applications, apart from product promotion and educational information, also increase sales based on products promoted through the catalogue and broadcast message features (Pittman and Reich, 2016; Elizabeth et al., 2022). Promoting organic fertilizer on social media such as Instagram and Facebook can increase sales turnover (Suryandari et al., 2020).

WhatsApp Business and WhatsApp Personal are two different applications. The step to provide information about product sales is to enter the location of the livestock herd on Google Maps. It is because there is no information on the location of livestock herds on Google Maps. WhatsApp Business includes services including location sharing, documents, contact lists, and website access. Additional business features include 1. A business profile displays company profile information starting from address, business description, email address and website;

Table 6. Understanding of the use of social media

Kinds of Questions	Frequency	%
If you have ever sold Online, the media you usually use		
• Facebook	3	20.00
• WhatsApp	7	46.67
• Instagram	5	33.33
If selling fertilizer Online, what will be conveyed to the buyer:		
• Pictures of fertilizers	15	100.00
• Package weight	15	100.00
• Name of farmer's group	10	66.67
• Selling price	15	100.00
Where can you use Online media to sell fertilizer?		
• Learn from children or families	10	66.67
• Learn from neighbours	1	6.67
• Being taught by fellow farmers	8	53.33
• Learn on my own	4	26.67
If you are interested in selling Online, what type of media do you want?		
• Instagram	6	40.00
• Facebook	6	40.00
• WhatsApp Business	14	93.33
• YouTube	1	6.67
Why are you not interested in using social media? :		
• Can not how use social media	4	26.67
• Regular buyers through direct sales	11	73.33
In your opinion, what are the benefits of using social media :		
• Add information	11	73.33
• Fertilizer promotion	10	66.67
• Add Friend	7	46.67
• Expanding the market	13	86.67

2. Chat labels, with chat labels in the category of incoming communication messages, can improve the ability to organize and guide the management of contacts and conversations; 3. The automatic message when the consumer conveys a message, this function will respond automatically. There are three functions available: out-of-hours message, quick reply, and welcome message; 4. Message statistics, namely the ability to determine messages sent and received so that the process of sorting messages to reach the intended audience, can be observed (Hendriyani et al., 2020).

The sales process consists of seven steps, namely prospecting for prospects, namely prospects in qualification, initial approach, approach, presentation and demonstration, handling objections, closing, and following up (Kotler and Armstrong (2018). The initial step in the sales process is identifying potential customers. The livestock group has a database of customer contacts who have purchased fertilizer or livestock so that the data is categorized as a potential customers. The Taruna Mandiri group can share its promotional content with potential customer contacts using WhatsApp Business as its marketing channel.

The prospecting and qualification process is conducted with pre-approach opinion; namely, a salesperson must prepare a strategy for communicating with customers, such as the characteristics and habits of customers and also collect information or make direct sales. After the application user has made a pre-approach, the following process is to enter a greeting sentence at

the beginning of the conversation using the greeting message feature on the WhatsApp Business automatic message.

The approach is an activity where the salesperson must know how to meet, greet and start a good relationship. This approach can be made Offline or Online in person or through digital conferences or social media. This step involves the sales pitch, opening line, and follow-up. WhatsApp Business users also approach online using WhatsApp Business. WhatsApp Business users always provide an opening sentence at the beginning of the conversation, asking for the customer's name and the information needed, and users of this application also provide chat labels to customers as categories that must be executed, such as follow-up, pending payment labels on the WhatsApp Business feature.

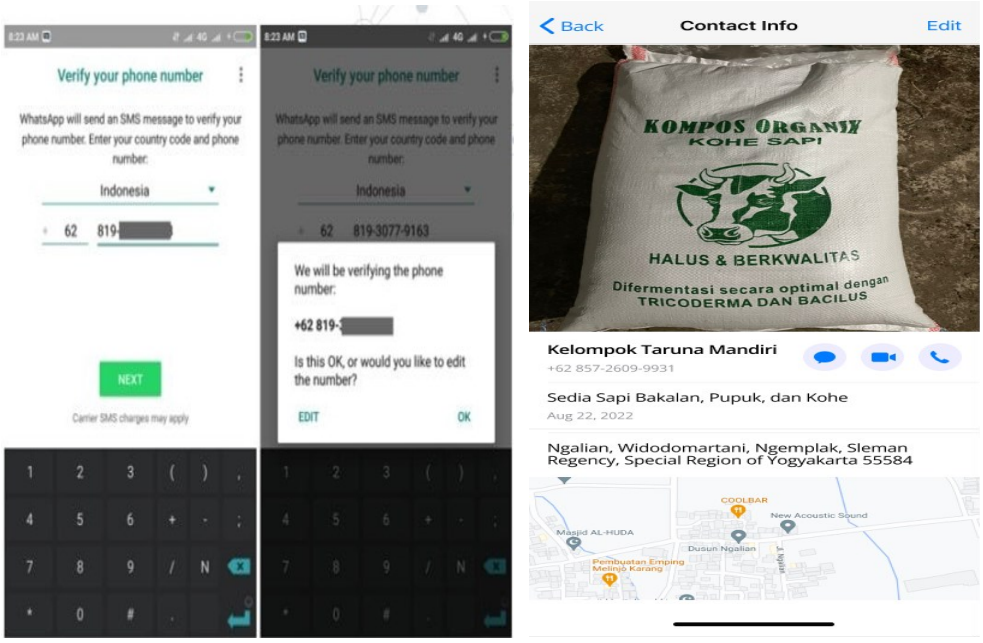

Figure 1. An example of a WhatsApp Business design, namely creating an account and business profile for selling fertilizer in the Taruna Mandiri Group

After the WhatsApp Business platform is formed, to reach the market, several factors must be considered, namely the purpose of social media needs, who the target market (fertilizer users) is intended to be, product readiness, delivery methods and consistency in updating information.

CONCLUSION

The economic value of fertilizer sales is IDR 535,000/week or IDR 2,140,000/month. The social media platforms that farmers want are WhatsApp business, Instagram and Facebook, but due to limited knowledge, farmers use the unique WhatsApp platform. The existence of a touch of technology in both labelling and using the right social media platform is needed by livestock groups to improve product quality and expand the consumer market.

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