



Digital Marketing Adoption Between Rice Farmer and Farm Trader

Yogi Makbul

School of Architecture, Planning, and Policy Development
Institut Teknologi Bandung, Indonesia

Siti Herni Rochana

School of Architecture, Planning, and Policy Development
Institut Teknologi Bandung, Indonesia

Deni Nugraha

School of Architecture, Planning, and Policy Development
Institut Teknologi Bandung, Indonesia

Sudrajati Ratnaningtyas

School of Business and Management
Institut Teknologi Bandung, Indonesia

ABSTRACT

Rice marketing, largely, is still traditional, wherein farmers sell their products to traders, who then sell them to consumers. On the other hand, the use of digital media is fast developing in society currently. It is also growing in rice marketing. Digital media can be utilized by farmers to shift from traditional marketing channels to direct online marketing to consumers. The question is which category, i.e., farmers, or traders, can better adopt digital marketing. The purpose of this study is to compare the adoption rate of digital marketing between farmers and traders. If this adoption is higher, then there is a possibility of direct online marketing replacing the traditional ways of rice marketing. The research was conducted by surveying farmers and traders in certain rice production centers in Indonesia. The location of the research was Gantar District in Indramayu Regency, West Java province. The location was chosen because Gantar District is the highest rice producer in Indramayu Regency; furthermore, this Regency is the largest rice producer in West Java. The province of West Java is the ultimate rice producer in Indonesia. The results show that the digital media adoption of traders is higher than that of farmers. So, the possibility of a shift to online marketing from farmers to consumers is low possibility.

Keywords: Adoption of digital media; Online marketing; Rice Marketing; Rice Farmers and Traders.

INTRODUCTION

Increasing access to marketing is one of the most important factors in increasing farmers' income and reducing poverty in rural areas (Mgale & Yunxian, 2020). Marketing access is, generally, still traditional in rice farming, wherein marketing channels are controlled by

wholesalers; therefore, rice marketing is not efficient. Yaser Feizabadi's research (Feizabadi, 2011) reveals that wholesalers and middlemen play a large role in rice marketing in Iran. Mgale's research (Mgale & Yunxian, 2020) on rice marketing in Tanzania reveals that farmers still sell to middlemen or traders. This is because it is difficult for farmers to sell directly in the market. Therefore, it is necessary to improve marketing information systems to enable farmers to transact directly with end-consumers. Mukson's research (Mukson et al., 2021) on rice marketing in Central Java reveals that farmers need to improve marketing information for them to enhance their farming profits. Several international studies on the marketing of paddy or rice find that, largely, it still relies on collectors and wholesalers. In this marketing channel system, farmers are in a weak bargaining position and, therefore, usually at a disadvantage. Within this traditional marketing system, it is difficult for farmers to increase their income.

The current era has witnessed the development of online or digital marketing whereby producers can sell directly to buyers, without depending on traditional marketing channels. According to Chaffey (Chaffey et al., 2006) online marketing is the application of the internet and related digital technologies to achieve marketing goals. Thus, digital marketing is an internet application used in marketing. According to Kaukab (Kaukab, 2021) internet use has expanded significantly, with more than four billion people connected to the internet globally. In Indonesia, around 132 million people are already connected to the internet. Currently, the use of the internet has become a basic need for most people in Indonesia, whereby they can shop, study, find information and bank online, among other things.

Online marketing is being used extensively in Indonesia; according to BPS, as many as 90.18 percent of businesses in Indonesia have used online marketing (BPS, 2021; BPS Indramayu, 2020). Marketing is conducted through various platforms, for example, through Tokopedia, Shopee, Lazada, and so on. The following graph depicts the monthly number of visits on each platform.

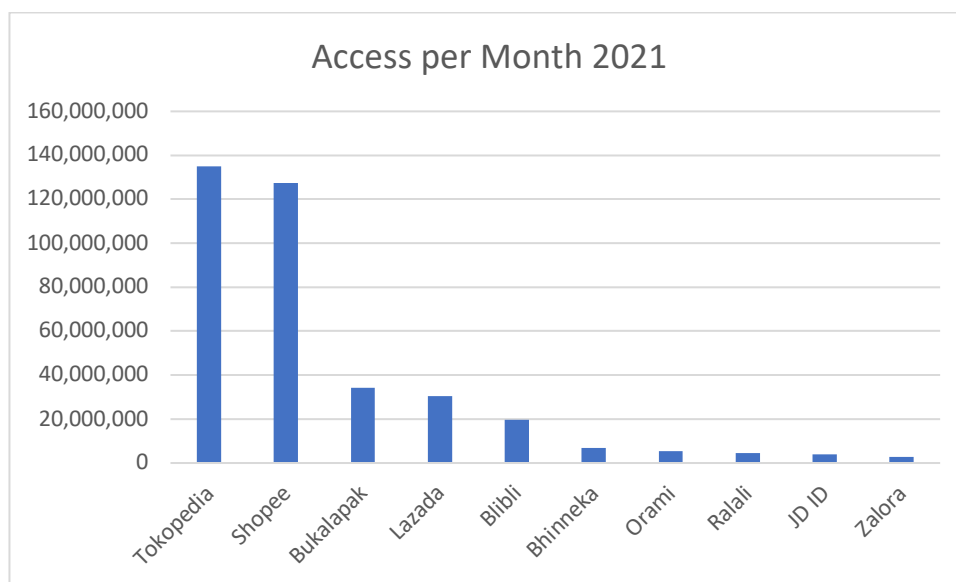


Figure 1 Access per Month on various platforms

As seen from the figure, Tokopedia is the most widely used platform in Indonesia, followed by Shopee, Bukalapak and so on. With so many online transactions, can this situation be used by

farmers to market their rice online? According to Dodik Ridho (Ridho, 2018) if farmers sell rice online, they will earn huge profits. This is because the current marketing chain from farmers to consumers is very long. Many people and institutions that are part of this chain, make money at various stages. This causes farmers to receive low prices for their goods, even though consumers pay high prices for them. Online marketing of rice is expected to benefit both, farmers and consumers, by raising prices for the former, and lowering them for the latter.

The research questions for this study are:

1. How much do rice farmers use online marketing?
2. How much do rice traders use online marketing?
3. How does online marketing adoption compare between farmers and rice traders?

If farmers' adoption of online trade is higher than that of traders, then there is the possibility of farmers being able to transact directly with consumers, without going through traders.

If farmers' adoption of online trading is lower than that of traders, then rice marketing will remain in its current state, wherein farmers will continue to depend on traders to market rice more efficiently to consumers.

This research is important, because it suggests a breakthrough for improving the welfare of farmers. As is known, rice farmers in Indonesia are currently facing many problems with traditional rice marketing. Traditional rice marketing causes farmers to receive a low price even when consumers are paying high prices, while high profits are obtained by middlemen and wholesalers.

Research Objectives

The research objectives are:

1. Identifying the level of adoption of online marketing by rice farmers
2. Identifying the level of adoption of online marketing by rice traders
3. Comparing online adoption rates between farmers and traders

The remainder of this paper is structured as follows. Section 2 discusses the methodology of the analysis, while Section 3 describes the key findings of the study. The next section constitutes the Discussion of the results, while the last section, i.e., Section 5 concludes the study.

METHODOLOGY

Research sites

The research method used is the analysis of the results of a survey conducted on rice farmers and traders. The research location is in Gantar District, Indramayu Regency. Gantar Subdistrict was chosen because it has the highest rice production in Indramayu (BPS Indramayu, 2020), while Indramayu Regency was selected because this district has the largest rice production in West Java Province (BPS Jabar, 2020). The logic behind selecting the location with the highest rice production is that it is expected to be representative of all rice farmers in Indonesia.

Number of Samples

Sampling of farmers was conducted by simple random sampling, with the number of farmers as respondents, in accordance with the formula proposed by Bartlett (Bartlett et al., 2001), as follows:

$$n = \frac{t^2 \times S^2}{d^2}$$

n = Number of Samples

t = t table at =0.05

S = Standard deviation

d = Deviation

This study categorized respondents into two groups, namely farmers and traders. To determine the number of respondent farmers, the first step was to randomly select 30 farmers and traders, each. The selection of 30 respondents is assumed to be within the amount of data distribution according to the normal curve. Furthermore, the 30 respondents were asked the selling price of their products, whereby the standard deviation of the selling price of products from farmers and traders, was obtained. The standard deviation calculated for the selling price of products for farmers and traders was 452.89 and 215.77, respectively. Thus, the number of samples for farmers is

$$n = \frac{1,96^2 \times 452.89^2}{50^2}$$

$$n = 315.18$$

t = t table =0.05 = 1.96

S = Standard deviation = 452.89

d = 50 (price tolerance IDR. 50/kg)

This is the minimum value, so 316 respondents are considered.

Meanwhile, the number of trader respondents is:

$$n = \frac{t^2 \times S^2}{d^2}$$

t = t table =0.05 = 1.96

S = Standard deviation = 215.77

d = 50 (price tolerance IDR. 50/kg)

$$n = \frac{1,96^2 \times 215,77^2}{50^2}$$

$$n = 71,54$$

$$n=71.54$$

This value is minimal, so it was decided to consider 72 respondent traders. The selection of Indramayu Regency is by virtue of it being the largest rice producer in West Java Province (BPS Jabar, 2020). The location with the highest rice production is expected to represent all the rice farmers in Indonesia.

DATA ANALYSIS

Data analysis was conducted, using the unpaired ordinal difference Man-Whitney U Test. If the significance level is less than 0.05, it can be concluded that there are significant differences in the adoption of online usage between farmers and traders.

RESEARCH RESULTS

The results of the study regarding the adoption score of digital use by farmers and traders can be observed in the following table.

Table 1. Adoption of Digital Marketing

Adoption of Digital mode	Score	
	Farmer	Trader
Use of Mobile Phone	186	230
Use of social media	189	219
Observing the state of agriculture	181	256
Observing the price of grain	196	190
Observing the price of rice	193	203
Discussion on Agricultural problem via WhatsApp	182	248
Discussion on rice and rice issues via WhatsApp	180	260
Discussion on rice and rice marketing issues via WhatsApp	178	267
Analysis of the estimated price of grain	170	302
Analysis of rice price forecast	168	310
Analysis of the relationship between grain prices and rice prices	171	299
Analysis of the relationship between local grain prices and those in other areas	172	292
Analysis of the relationship between local rice prices and those in other regions	168	309
Contacting seller or buyer via WhatsApp	180	258
Make a bargain via WhatsApp	174	283
Planning rice marketing online	183	247
Planning rice sales through Online Store	189	220
Advertising rice online	193	199
Advertising rice through Online Store	193	201
Creating a website	194	199
Possible developments of online marketing	181	253
Possibility of selling online	178	269
Percentage of online sales	186	231
Average	182	250

As seen from the table, traders score higher than farmers in digital use. Thus, it can be concluded that traders' rate of adoption of digital marketing is higher than that of farmers. Furthermore, it is tested whether the level of adoption of these traders is significant. The significance test can be seen in the following table.

Table 2. Statistics Test

Adoption of Digital Mode	Mann-Whitney U	Wilcoxon W	Z	Significant
Use Mobile Phone	8785	58871	-3.153	0.0020
Use of social media	9587	59673	-2.157	0.0310
Observing the state of agriculture	6976	57062	-5.312	0.0000
Observing the price of grain	11040.5	13668.5	-0.467	0.6400
Observing the price of rice	10769.5	60855.5	-0.893	0.3720
Discussion of agricultural problem via WhatsApp	7499.5	57585.5	-4.747	0.0000
Discussion of rice and rice issues via WhatsApp	6654.5	56740.5	-5.834	0.0000
Discussion of rice and rice marketing issues via WhatsApp	6183.5	56269.5	-6.394	0.0000
Analysis of the estimated price of grain	3663.5	53749.5	-9.408	0.0000
Analysis of rice price forecast	3057.5	53143.5	-10.256	0.0000
Analysis of the relationship between grain prices and rice prices	3821	53907	-9.175	0.0000
Analysis of the relationship between local grain prices and those in other areas	4349.5	54435.5	-8.409	0.0000
Analysis of the relationship between local rice prices and those in other regions	3119	53205	-10.277	0.0000
Contacting seller or buyer via WhatsApp	6787	56873	-5.499	0.0000
Make a bargain via WhatsApp	5019	55105	-7.655	0.0000
Planning rice marketing online	7620	57706	-4.898	0.0000
Planning rice sales through Online Store	9506	59592	-5.976	0.0000
Advertising rice online	11026.5	61112.5	-0.995	0.3200
Advertising rice through Online Store	10937.5	61023.5	-2.918	0.0040
Creating a website	11060	61146	-2.967	0.0030
Possible developments of online marketing	7161	57247	-5.222	0.0000
Possibility of selling online	6011	56097	-6.561	0.0000
Percentage of online sales	8768	58854	-3.401	0.0010
Digital product sales in the future	7469	57555	-5.065	0.0000
Development of online sales of agricultural products	7393	57479	-4.881	0.0000

As seen from the table, the overall adoption of digital media by traders is higher than that by farmers, except for certain activities like observing the price of grain and rice. This is due to the observation that grain and rice prices have almost the same score. Next is advertising rice online, which is no different. This is because traders find it difficult to advertise rice online.

DISCUSSION

The results of the study reveal that the adoption of digital marketing by traders is higher than that by farmers. This implies that expectations of online marketing directly from farmers to consumers, are difficult to realize. There is a larger likelihood of merchants marketing online to consumers.

The relative adoption of digital media between farmers and traders can be observed from several cases, for instance, traders use mobile phones more often than farmers. This can be seen in Figure 2.

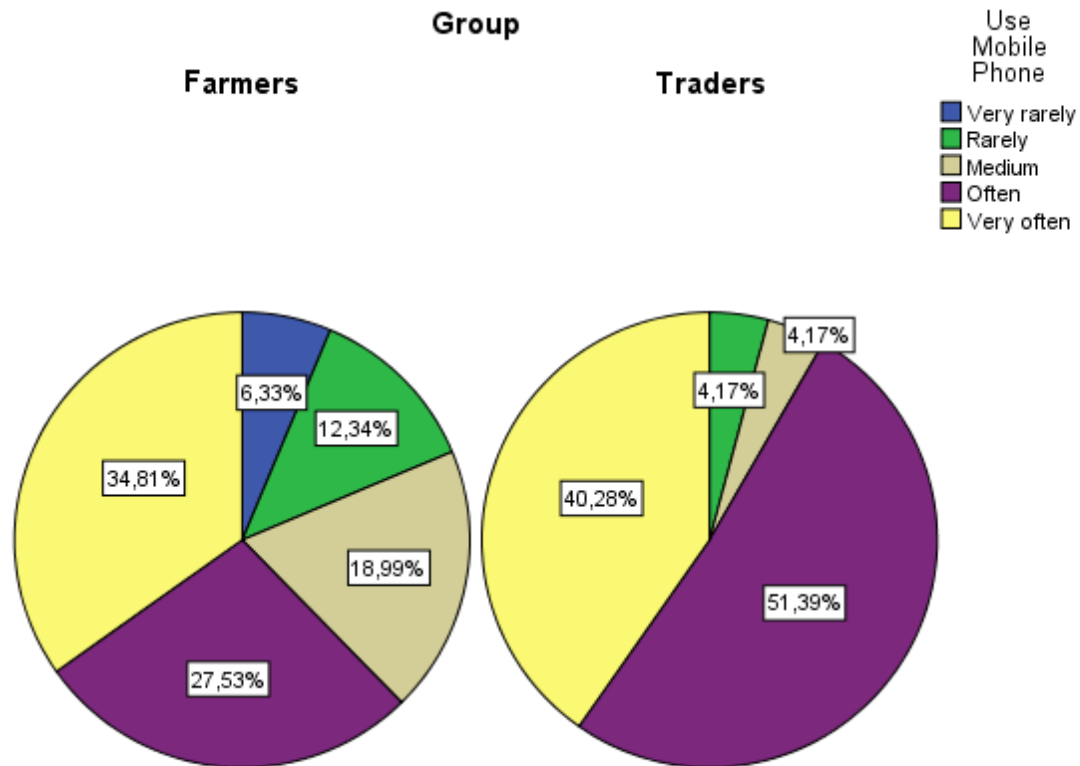


Figure 2 Mobile Phone Usage

From the figure, the frequency of mobile phone use by traders is higher than that by farmers. 51 percent of traders use their cell phones frequently, while only about 27 percent of farmers do so. On the other hand, the proportion for infrequent cellphone use is 4 percent for traders and 12 percent for farmers. Thus, it can be seen that the adoption of the use of digital tools by traders is higher than that of farmers.

As observed from the following figure, traders also appear to be conducting discussions on rice and paddy marketing more often.

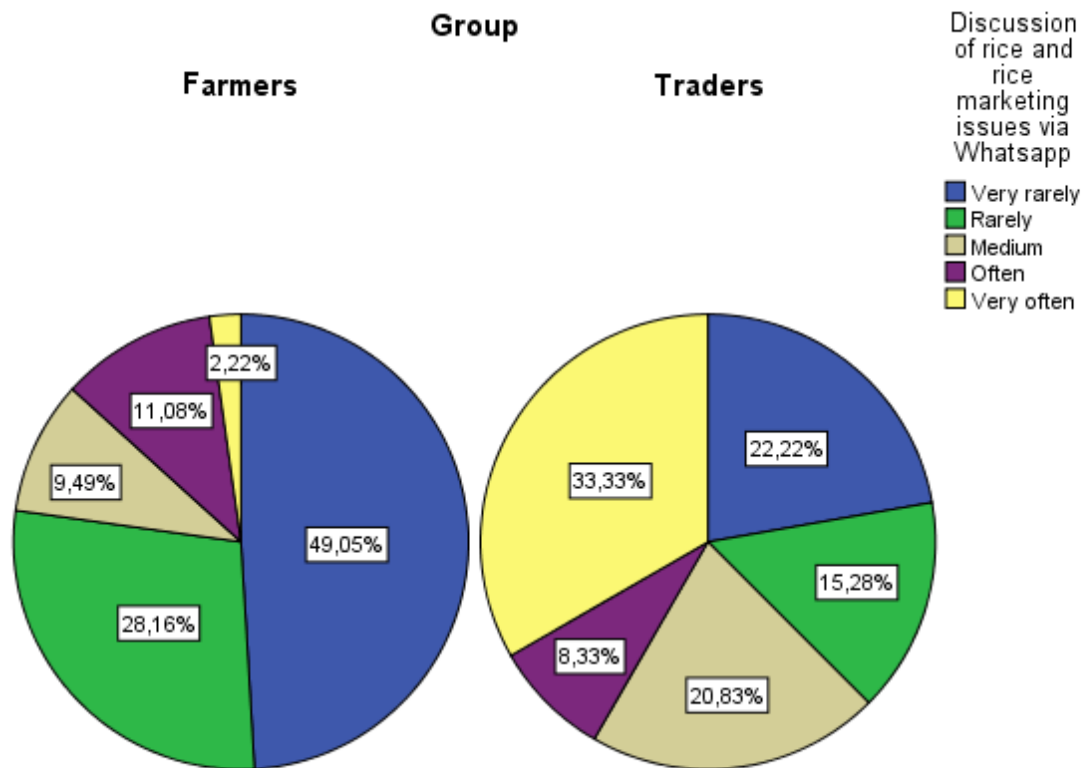


Figure 3 Discussion of rice and paddy marketing

From the figure, 33 percent of traders discuss the marketing of rice and paddy with their colleagues very often, while the farmers only 2.22 percent do so. This shows that traders using social media more actively to discuss rice marketing issues.

In addition, traders also estimate the price of rice using digital media more often. An example of a website that provides rice price data every day is the website of the National Strategic Food Price Information Center (<https://hargapangan.id/tabel-harga/pasar-modern/komoditas>). The website provides daily prices for various types of rice in various regions. From this website, farmers can estimate the increase or decrease in rice prices in various regions. The use of digital media by farmers and traders can be seen in the following figure.

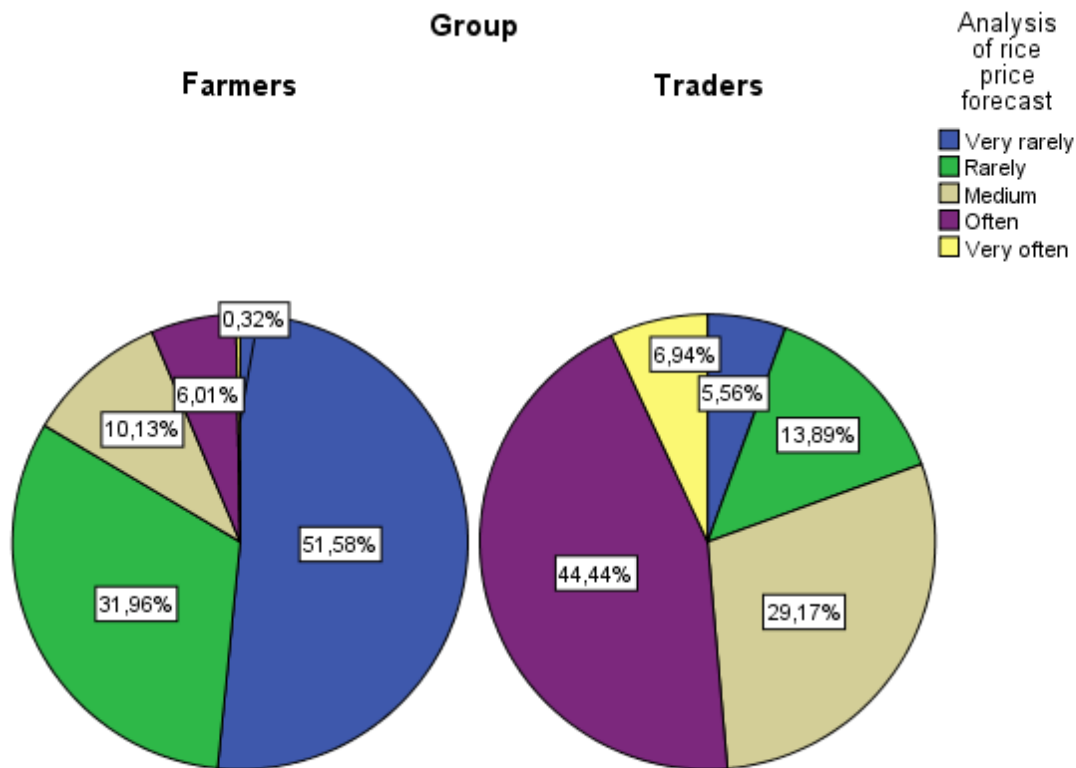


Figure 4 Frequency of estimating rice prices through digital media

From the figure, 44 percent traders often estimate rice prices through digital media, as opposed to only six percent of the farmers. In general, farmers very rarely estimate rice prices through digital media. Farmers 'very rarely' and 'rarely' estimating the price of rice through digital media, respectively, constitute 52 and 32 percent of the total, i.e., 84 percent for both categories. From this fact, it can be anticipated that farmers will always be unable to compete with traders in online marketing of rice.

Traders often contact rice buyers and sellers via WhatsApp. The frequency of contacting sellers or buyers by both, traders and farmers can be observed in the following figure.

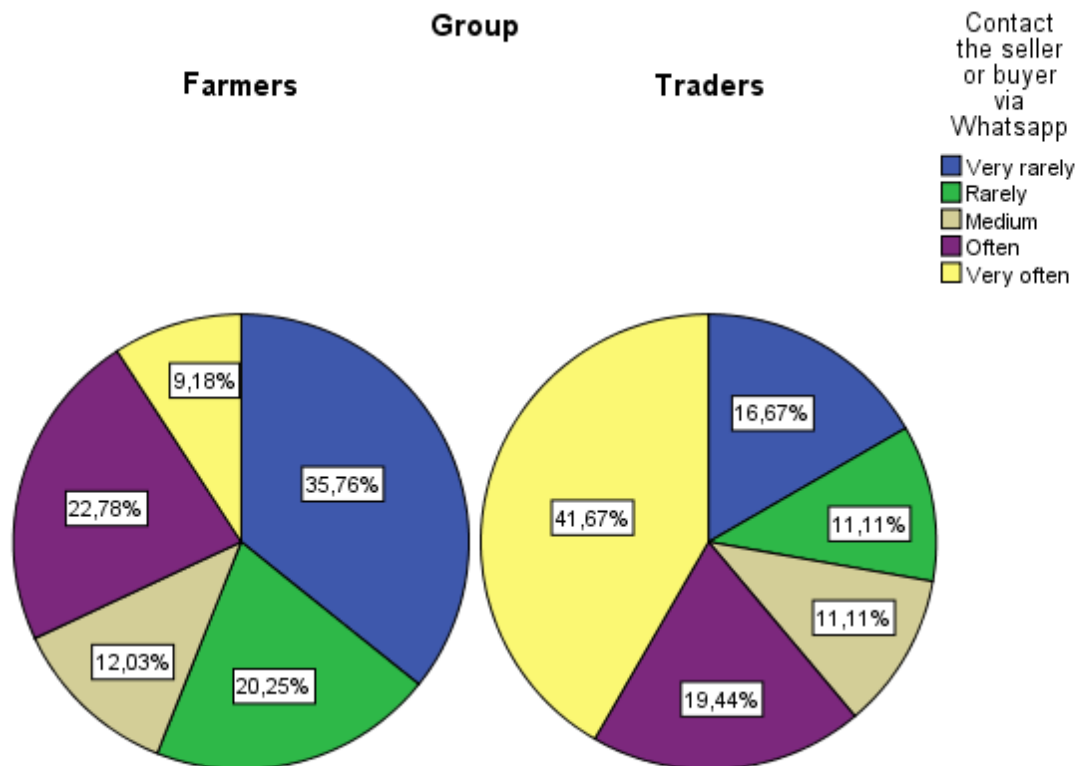


Figure 5 Frequency of Contacting Buyers or Sellers via WhatsApp

From the figure, 41.67 percent traders and 9.18 percent farmers contact rice buyers or sellers very often. This shows that the level of adoption of digital media usage by traders is higher than that by farmers.

Therefore, the three research questions of this study, regarding extent of adoption of digital marketing by rice farmers and traders, and a comparison between the two, have been answered. From the results of the discussion, it can be seen that adoption of digital media in rice marketing by farmers is lower than that by traders. This discourages hopes that farmers would switch from inefficient traditional rice marketing to digital rice marketing. The opposite is true for traders, who are observed to be more active in digital marketing, as compared to farmers.

CONCLUSION

From the results of the study, it can be concluded that the adoption of digital media by traders is higher than that by farmers. Thus, traders are better prepared to conduct online marketing, as compared to farmers.

It is difficult for farmers to shift from traditional to digital marketing, whereby they can directly sell their products online to consumers. The primary reason for this is that, currently, farmers are not ready to engage in online marketing, because the adoption of digital means is still low in this sector.

Merchants appear to be more prepared for online marketing. This is due to higher use of digital media among them. From the results of this study, it is predicted that marketing from farmers to traders will still be implemented in a traditional way. Meanwhile, there is the possibility of traders using online marketing to transact with consumers.

References

- Bartlett, J. E., Kotrlik, J. W., & Higgins, C. (2001). Organizational Research: Determining Appropriate Sample Size in Survey Research. *Information Technology, Learning, and Performance Journal*, 19(1), 43–50.
- BPS. (2021). *Statistik E-Commerce 2020*.
- BPS Indramayu. (2020). *Harvested area, Productivity, and Total Production of Paddy in Indramayu, 2017*.
Harvested area, Productivity, and Total Production of Paddy in Indramayu, 2017
- BPS Jabar. (2020). *Produksi Padi Sawah Menurut Kabupaten/Kota di Jawa Barat (Ton), 2010-2015 [Paddy Rice Production by Regency / City in West Java (Ton), 2010-2015]*.
<https://jabar.bps.go.id/statictable/2016/10/17/136/produksi-padi-sawah-menurut-kabupaten-kota-di-jawa-barat-ton-2010-2015.html>
- Chaffey, D., Chadwick, F. E., Mayer, R., & Johnston, K. (2006). *Internet Marketing Strategy, Implementation and Practice (Third Edit)*. Pearson Education Limited.
- Feizabadi, Y. (2011). *Study of Rice Marketing System in Iran*. 85th Annual Conference of the Agricultural Economics Society Warwick University, 1–9.
- Kaukab, E. (2021). *Pemasaran Produk Berbasis Teknologi Informasi Sederhana*. Fakultas Ekonomi dan Bisnis Universitas Sains Al-Qur'an Wonosobo.
- Mgale, Y. J., & Yunxian, Y. (2020). Marketing efficiency and determinants of marketing channel choice by rice farmers in rural Tanzania: Evidence from Mbeya region, Tanzania. *Australian Journal of Agricultural and Resource Economics*, 64(4), 1239–1259. <https://doi.org/10.1111/1467-8489.12380>
- Mukson, Setiadi, A., Pangestuti, M. D., & Prayoga, K. (2021). Factors affecting market efficiency of unhusked rice in Central Java. *IOP Conference Series: Earth and Environmental Science*, 759(1), 012059. <https://doi.org/10.1088/1755-1315/759/1/012059>
- Ridho, D. (2018). *Petani Jual Beras Online Bisa Untung Besar*. *Republika.Co.Id*.
<https://www.republika.co.id/berita/nasional/daerah/18/01/25/p33a5b284-petani-jual-beras-online-bisa-untung-besar>