Development of Marketing Channels and Packaging Innovation on 'JOSS' Organic Rice to Increase Added Value

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ABSTRACT

The development of organic farming in Jatisarono Village, Kapanewon Nanggulan, Kulon Progo, Yogyakarta is being carried out by three groups of farmers with 150 members. Organic rice is a superior commodity under the JOSS brand (*Jatisarono Organik Sehat Sejahtera*). JOSS organic rice product is registered as an organic certificate institution with the number 390-LSO-005-IDN-11-20. Problems regarding marketing channels and packaging still need to be solved. Market access capability for selling organic rice still needs to be improved. At the same time, the packaging used is still simple and has yet to consider more detailed packaging aspects. This community service aims to conduct education on developing marketing channels and JOSS organic rice packaging innovation. The education carried out involves basic research, so the recommendations are expected to improve the economy of farmer groups and the community in Jatisarono Village. The method used in community service activities is an integrated approach consisting of farmer groups, JOSS organic rice business activities, and university participation. The development of marketing channels is implemented based on supply chain adequacy and market behavior based on price levels. Product development is applied to create packaging innovation designs. The activities carried out were socialization regarding marketing channels and rice packaging to farmer groups, focus group discussions with experts on determining target markets and packaging innovation designs, workshops on various packaging design alternatives, and delivery of results regarding alternatives to other marketing access and packaging design results. The outputs of this community activity are the development of markets and marketing channels which have been carried out in two stages in cooperatives and minimarkets around Universitas Gadjah Mada, and three designs of organic rice packaging based on consumer suggestions and following mandatory packaging aspects on rice according to Minister of Trade Regulation No. 8 of 2019.

Keywords: Marketing, Organic rice, Packaging

1 Introduction

Indonesia is an agricultural country where organic farming continues to develop. The government implements several strategies to meet everyone's food needs to realize food sovereignty [1]. The strategy to increase national production was pursued by increasing productivity (intensification) and expanding the planting area by increasing the Planting Index (IP) of raw rice fields. National agricultural land has a high capacity in paddy fields and dry land, which shows great potential in developing Indonesian agriculture [2]. Increasing rice production to ensure rice self-sufficiency in Indonesia continues to be carried out due to the increasing population and land conversion [3]. Efforts to optimize and develop rice in various agroecosystems referring to site-specific recommendations are expected to achieve the target of increasing rice production every year. Other factors such as technology, innovation in rice varieties, land size, fertilizer, soil quality, and irrigation are essential factors in rice productivity [4]. High productivity is expected to have implications for increasing the income and welfare of farmers.

The development of organic farming in Jatisarono Village is being developed by three farmer groups with organic rice products branded 'JOSS' (Jatisarono Organik Sehat Sejahtera). Jatisarono Village is one of the

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villages in Kapanewon Nanggulan [5]. Jatisarono Village has a varied topography with an altitude between 0 - 85 m above sea level with an average temperature of 23ºC. The area of Jatisarono Village is ± 412.03 ha, administratively divided into 12 hamlets, 69 RTs (Neighborhood Unit), and 24 RWs (Community Unit). Land use in Jatisarono Village includes 223.58 ha of rice fields, 178.89 ha of yards, 0.5 ha of fields, and 9.11 ha of others. Jatisarono Village is passed by transportation infrastructure, a ± 3 km provincial road. The entire Jatisarono Village area can be reached by using land transportation. Most of the population in Jatisarono Village are farmers, especially in paddy fields, and rely on agricultural products as their primary income [6]. Organic farming activities in Jatisarono Village have been running for almost 3 years with controlled management. They use an integrated organic farming system at each planting period up to harvest. Organic fertilizers, biological pesticides, and biological agents increase organic rice yields [7].

JOSS Organic Rice is a superior commodity developed by 3 farmer groups in Jatisarono village: the Tegal Mulyo farmer group, the Jatingarang Lor farmer group, and the Sri Jati farmer group, with a total of 150 members. JOSS organic rice already has an organic certificate institution register number 390 -LSO-005-IDN-11-20. The selection of the JOSS organic rice farmer group took various considerations, one of which was the need for continued community service in Jatisarono Village because it was once the location of the KKN-PPM Period 4 of 2022 from December 18, 2021, to February 5, 2022, with the title: Masterplan for Integrated Tourism Village, Jatisarono and Kembang, Nanggulan, Kulon Progo, D.I. Yogyakarta.

Currently, the JOSS organic rice marketing system is still limited to the local scope of the Kulon Progo region; there still needs to be more market access and information regarding the sale of organic rice. Sales are carried out based on existing orders so that market access capabilities are needed to meet the community's needs more broadly. Sales are targeted at restaurants and some general consumers, both offline and online. Online marketing and sales are carried out on social media and e-commerce. However, marketing does not run smoothly and is not continuous.

JOSS organic rice is sold in sizes 1 kg and 5 kg. Organic rice in 1 kg packaging uses plastic material and has been vacuumed. Storage at low temperatures under a vacuum can slow down bioactive compounds' degradation, physiochemical quality changes, and rancidity [8]. However, on organic rice packaging with a vacuum, it was found that several cases were still susceptible to rice lice. Other problems related to packaging are the unattractive design and the packaging information labels that are less information so that they are less attractive to consumers. Packaging innovation is needed to attract purchasing power and improve product safety and quality.

This community service aims to conduct education on developing marketing channels and JOSS organic rice packaging innovation. The education involves basic research, so the recommendations added value to JOSS organic rice. The long-term goal of this service is that the economy of the farmer groups and the entire community in Jatisarono Village is expected to increase through superior organic agricultural products.

2 Research Methodology

The method used in this community service activity is an integrated approach consisting of farmer groups, JOSS organic rice business activities, and university participation in supporting the activity's success. Marketing channel development is based on supply chain adequacy and market behavior based on price levels. Product development is applied to create packaging innovation designs with several design alternatives.

Work procedures to support the realization of community service activities are as follows:

2.1 Identifying problems

Direct observations were made to identify more detailed problems related to JOSS organic rice, especially related to marketing channels and packaging.

2.2 Analyzing the target

A direct approach is carried out with the target of dedication, namely the organic rice farmer group "JOSS" rice farmers, to understand the situation and conditions of the target audience better.

2.3 Alternative solutions to problems

This service involves academics, Jatisarono village farmer groups, local government, supermarkets or cooperative supermarkets, and the community. The implementation team, namely Universitas Gadjah Mada (UGM) academics, has a strategic role as extension workers, providing insight, knowledge, and skills in developing marketing channels and innovating JOSS organic rice packaging. Community service activities in Jatisarono village are as follows.

- Counseling on marketing channels, easy market access, and organic rice packaging innovations that provide product safety and attractiveness to increase the added value of JOSS organic rice. The sales range of organic rice is targeted at minimarkets and cooperatives around UGM.
- Focus Group Discussion (FGD) to determine the suitable JOSS organic rice packaging model. The FGD was carried out by the implementation team, involving a team of packaging experts, a team of marketing experts (UGM academics), and managers of organic rice farmer groups. Previous research results are used to support the solutions provided.
- JOSS organic rice packaging design workshop by brainstorming various packaging design options with the output target of alternative JOSS organic rice packaging models.
- Discussion and submission of alternatives for adding marketing access areas and the results of the JOSS organic rice packaging design as a recommendation to the internal control system (ICS) of the Jatisarono Village organic rice farmer group to increase business competitiveness.

2.4 Evaluation of activity outcomes

Each stage is evaluated by involving all partners supporting the program. The evaluation results are used to develop subsequent activities as suggestions and recommendations for improving community welfare.

3 Theory and Calculations

The results of previous research were carried out by researchers in a team that can be used to support organic rice farmer groups in Jatisarono Village in solving problems, namely supply-demand analysis of rice commodities to improve the condition of national rice from a logistics and supply chain perspective. The levels of the rice supply chain consist of farmers and collectors who act as traders and retailers. Meanwhile, the Indonesian Logistics Bureau (BULOG) represents the government's role. Different supply chain patterns can be identified from the role of middlemen in each province in Indonesia. This study uses the ISO 31000:2009 standard to analyze risk at each level along the supply chain, and the results show that on-farm activities play an essential role in transferring risk along the supply chain in terms of quality and quantity and the need for optimization at the trader and retail tier to logistical absorption [9].

Research related to marketing channels aims to determine market behavior toward the price level of soybeans in the Grobogan area. In determining market behavior, it is necessary to know the value of the price level by calculating the price elasticity of demand related to soybean supply and demand activities; measure the value of the concentration ratio (Kr) at the tier that has the most frequent soybean trade activity; and provide an overview of the marketing channels that are judged to be the most efficient with

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effective demands related to the supply chain. Data collection methods used convenience sampling and snowball sampling techniques through in-depth interviews with supply chain actors and related agencies. By calculating the value of the price transmission elasticity (Et) in the soybean marketing channel, the concentration ratio at the collector and trader tiers, the price transmission elasticity value obtained the highest value in marketing channel 4 with a value of 2.509. The average concentration ratio of collectors is 0.8501, and the trader tier is 0.94554. This value indicates that the most effective market behavior uses the most efficient marketing channel with effective demand, namely marketing channel 4, which consists of farmers, farmer groups, and tofu/tempeh producers. The results of this study can be applied to organic rice farmers in Jatisarono village, especially for developing marketing channels that lead to b2c (business to customer) [10].

The awareness of Indonesian consumers to look for quality food products is increasing. The research shows that the main problem regarding the distribution and transportation of products is the lack of proper logistics and knowledge in supply chain management. Packaging is an essential factor influencing product quality while being sent from producers to consumers [11]. The research focused on providing advice to sellers regarding essential elements that need to be considered in the design of food product packaging when targeting urban and rural consumers. A total of 1,380 respondents filled out a questionnaire (qualitative study). As many as 20 consumers participated in a focus group discussion (quantitative study) to provide feedback on their perceptions of the packaging attributes of food products purchased daily. The study results show that urban consumers are more influenced by visual elements, packaging innovations, colors, and printed information in purchasing decisions for food products. Meanwhile, for rural consumers, decisions are mainly influenced by color and information on the packaging. These results provide basic guidelines for research on the development of organic rice packaging innovations "JOSS" by paying attention to packaging elements, especially related to color, visual elements, type of packaging, and information including product information, price, expiry date, and size that can influence consumer purchasing decisions [12].

Research related to the development of label and packaging models for Thai rice shows that unique designs, labels and logos, types, and quality of packaging materials, as well as clear and complete information on packaging, are important factors in influencing consumer decisions in purchasing rice online through social media. The study also found that 12 insect attacks occurred on polypropylene and polyethylene bagged rice after one month's storage, increasing more if the rice was stored longer. The primary packaging for 1 kg of rice is recommended to be sealed using a vacuum process using polypropylene plastic bags to effectively maintain the quality of rice in good condition for more than 6 months. Secondary packaging made of cardboard with different packaging colors according to the type of rice is also recommended [13].

4 Results and Discussion

Initial identification and discussions were carried out in March 2022 with the Jatisarono Village farmer group regarding the problems with JOSS organic rice. The visit to the Sekarlangit Agrofarm organic rice industry, Magelang Regency, Central Java Province, aims to conduct comparative studies, brainstorm related to business management, and maintain the quality of organic rice to consumers. Based on the results of the visit on May 12, 2022, it is known that the main problem with JOSS organic rice is the need for additional marketing channels and packaging innovations to increase the added value of organic rice products. In addition, the implementation team coordinated to analyze in more detail the problems that occurred to produce the initial concept of the marketing channel and the JOSS organic rice packaging innovation plan.

4.1 Development of marketing channels

Marketing channel development is identified around the Universitas Gadjah Mada with the target consumers of the academic community, including lecturers, education staff, and students. This activity aims to increase market reach in selling JOSS organic rice in several cooperatives and minimarkets around the Universitas Gadjah Mada. The survey was conducted to determine market needs, the availability of minimarkets that can accept the sale of JOSS organic rice and the applicable sales procedures.

Marketing channel activities were carried out in two stages with a total amount of 60 kg of rice sold, namely in June-August 2022 for the first stage and September-October 2022 for the second stage. The JOSS rice products sold in cooperatives and minimarkets have a size of 1 kg with a point-of-sale system, as shown in Figure 1. Prices sold to end consumers by cooperatives/minimarkets range from Rp. 22,000-23,500 / kg. Evaluation of sales results will be informed by the minimarket manager every month.

Figure 1: *Display of 1 kg JOSS organic rice products at Kosudgama and Plaza Agro UGM*

In Table 1, the first stage for cooperatives and minimarkets that can accept the sale of JOSS organic rice includes KOSUDGAMA (10 pcs), KOPMA (Student Cooperatives) (5 pcs), KOKELGAM (5 pcs), and Plaza Agro Faculty of Animal Husbandry (10 pcs).

4.2 Innovation of 1 kg packaging

The initial concept of packaging innovation design was used as material for discussion with the internal control system (ICS) of organic rice farmer groups on June 14, 2022. Initial discussion material regarding packaging innovation designs included the current JOSS organic rice packaging, as shown in Figure 2. JOSS organic rice has packaging sizes of 1 kg and 5 kg. The 1 kg packaging uses HDPE plastic with a screen-printing label, while the 1 kg packaging uses PP plastic with a sticker label. Vacuum is used for 1 kg packaging made from LDPE vacuum plastic as a box or standing pouch.

Figure 2: *One kilogram of vacuum-packed JOSS organic rice*

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Table 1: *Marketing channels for JOSS organic rice*

No	Store Name	Address	Selling price (IDR)	Stage 1			Stage 2	
				Date of entry	Number of Displays (kg)	Stock updates 14/09/2022	Date of entry	Number of Displays (kg)
1	Kosudgama Swalayan	Jl. Bulaksumur Blk. A No.14, Sagan, Caturtunggal, Kec. Depok, Kabupaten Sleman, Daerah Istimewa Yogyakarta 55281	20.000	27/06/2022	10	0	04/09/2022	10
2	Kopma UGM	Jl. Cik Di Tiro No.14, Terban, Kec. Gondokusuman, Kota Yogyakarta, Daerah Istimewa Yogyakarta 55223	20.000	18/07/2022	5	3	-	-
3	Plaza Agro UGM	Jl. Agro, Catur Tunggal, Depok, Karang Gayam, Caturtunggal, Kec. Depok, Kabupaten Sleman, Daerah Istimewa Yogyakarta 55281	20.000	18/07/2022	10	0	14/09/2022	10
4	Kokelgam	Jl. Kemuning No.35, Sendowo, Sinduadi, Kec. Mlati, Kabupaten Sleman, Daerah Istimewa Yogyakarta 55284	20.000	18/07/2022	5	1	14/09/2022	5
5	Sendowo Residence UGM	Jl. Podocarpus I Jalan Sendowo, Sendowo, Sinduadi, Kec. Mlati, Kabupaten Sleman, Daerah Istimewa Yogyakarta 55281	20.000	10/08/2022	5	5	-	-
Total					35			25

In the initial discussion regarding the packaging innovation design, several packaging sizes were still used, such as 1 kg and 5 kg. Types of primary and secondary packaging and packaging label materials are described in several alternatives. Provisions for including rice packaging labels are regulated according to Minister of

Trade Regulation No. 8 of 2019, as shown in Table 2. The mandatory information not yet on the JOSS organic rice packaging label is the packaging date.

Table 2: *Information on previous JOSS organic rice packaging labels*

No	Mandatory information on labels, according to Minister of Trade Regulation No 8 of 2019	Information on the current JOSS organic rice packaging label
1	Brand	JOSS Organic Rice
2	Rice quality grade	Special rice (organic)
3	Net content in kg	1kg, 5kg
4	Packaging date	Not listed
5	Packer name & address	Farmers Group Sri Jati Bejaten Jatisarono Nanggulan Kulon Progo

The JOSS organic rice packaging design workshop was carried out using the discussion method and filling out questionnaires both online and offline. Based on discussions between the implementing team and the internal control system (ICS), the packaging to be redesigned is 1 kg. A total of 11 respondents, including experts who understand packaging, were asked to provide opinions and input regarding packaging design concepts that can maintain product quality and increase consumer purchasing power. The packaging attributes assessed include label font, label material, label size, mandatory information to include, and additional information that needs to be included on the packaging label, according to the questionnaire results shown in Table 3.

Table 3: *Assessment of attributes and proposed JOSS organic rice packaging*

Attribute	No	Questionnaire	Average value	Results from Respondents
Label Design - Font	1	The font type is made clear and attractive	4.36	Change the font type to make it clearer and more attractive
	2	The font size is adjusted so that it is easy to read	4.36	Adjustable font size
Label Design - Material	1	The packaging label is printed in the form of a sticker	2.73	Packaging labels are not printed in the form of stickers or remain as stickers but are of good quality.
	2	The packaging label is printed directly, not in the form of a sticker	4.09	Labels are printed directly on the primary/secondary packaging
	3	Packaging labels are printed using cardboard box material	3.55	Secondary packaging labels can be printed on cardboard boxes
	4	Some packaging label information is printed on the additional tag	3.73	Some additional information can be printed on additional tags
Label Design - Size	1	The packaging label has a size that matches the product being packaged	4.45	The size of the label on the packaging can be adjusted to the size of 1 kg of rice products.
Label Information	1	The label includes the brand	4.82	The label includes the brand: JOSS Organic Rice

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According to Minister of Trade Regulation No. 8 of 2019	2	The label lists the rice quality class	4.64	The label states the rice quality class: Special Rice (Organic)
	3	The label lists the net content in kg	4.73	The label lists net content in kg: Netto 1kg
	4	The label contains the name and address of the manufacturer/packager	4.64	The label includes the name and address of the producer/packaging: Sri Jati Farmers Group Bejaten Jatisarono Nanggulan Kulon Progo.
	5	The label includes the packaging date	4.64	The label includes the packaging date: DD-MM-YYYY
Additional information	1	The label contains the KEMTAN RI PD certification number	4.27	The label contains the RI Ministry of Agriculture PD certification number: 34.01-a.I.00-01-00044-11/20
	2	The label contains the Indonesian organic certification logo	4.45	The label contains the Indonesian organic certification logo
	3	The label contains the Indonesian organic certification number	4.36	The label contains the Indonesian organic certification number: 390-LSO-005-IDN-11-20
	4	The label contains the type of rice variety	4.18	The label contains the type of rice varieties: Menor, Sintanur, Nutrizinc, Ciherang, Raja Lele, Merah, and Pandan Wangi.
	5	The label contains information on the use of organic fertilizers	3.82	The label contains information on organic fertilizers: Using Organic Fertilizers, Botanical Pesticides, and Biological Agents.
	6	The label contains the QR Code for the location of the manufacturer/packager	3.91	The label contains the QR Code for the location of the manufacturer/packager
	7	The label contains the halal logo	4.00	Haven't gotten halal yet, don't need to be listed
	8	The label contains a product description	4.09	The label contains a product description
	9	The label contains serving suggestions	3.82	The label contains serving suggestions
	10	The label contains storage recommendations	3.91	The label contains storage recommendations
	11	The label contains nutritional information	4.00	There is no research related to nutritional information. It is not necessary to include it
	12	The label contains the product barcode	3.55	Don't have a registered barcode yet. It doesn't need to be listed

Suggestions for improvement for the design of packaging labels for JOSS organic rice products include: labels printed on good quality stickers & additional labels on secondary packaging, added secondary packaging (carton boxes), and other label design provisions according to the results of the respondents. Apart from that, label information needs to be included, such as label information according to Minister of Trade Regulation No 8 of 2019 and some additional information according to the results from the respondents. Additional information includes the Indonesian Ministry of Agriculture's PD certification number, Indonesian organic certification logo, Indonesian organic certification number, type of rice variety, product description, storage method, and serving method. In addition, the implementation team made three secondary packaging designs for 1 kg JOSS organic rice, as shown in Figure 3, as the output of this community service.

Figure 3*: Left: horizontal sleeve (open up and down), Middle: vertical sleeve (open right and left), Right: cardboard-shaped (all parts closed)*

5 Conclusions

Based on the community service activities that have been carried out, it can be concluded that:

- Market and marketing channel development have been carried out in 2 stages in cooperatives and minimarkets around the UGM campus with excellent product uptake results. The cooperatives and minimarkets are Kosudgama Swalayan, Kopma UGM, Plaza Agro UGM, Kokelgam, and Sendowo Residence UGM.
- There are 3 designs for organic rice packaging based on suggestions and input from respondents for improving JOSS organic rice secondary packaging. Two designs use thick paper: the horizontal sleeve design (open up and down) and the vertical sleeve (open right and left). The third design uses cardboard material so that all parts are covered. The label information on the packaging follows the Minister of Trade Regulation No. 8 of 2019, and some additional information is according to the results of discussions with respondents.

6 Declarations

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