

Marketing strategy development for Yogyakarta local black rice

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Abstract. Rice is an important food source and a staple food for most developing country, including Indonesia. Besides white rice, Indonesia has pigmented rice varieties, one of them is black rice which has begun to be popular. Black rice has beneficial effects on health because of its content. Black rice is a good source of fibers, minerals, and phytochemicals. Some regions in Indonesia produce black rice, one of them is Special Region of (Yogyakarta). Yogyakarta local black rice exists for a long time, but still very limited people know it. Producers are facing difficulties in selling black rice. This study aims to develop a marketing strategy to help producers to market black rice and to preserve local black rice cultivars in Yogyakarta. The methods used were IFAS and EFAS matrix, SWOT, and QSPM. The result shows that for Yogyakarta local black rice, there are necessary to carry out massive promotions, expand sales locations, expand and strengthen marketing networks, improve farmer organization performance, and increase local Yogyakarta black rice production as well.

1. Introduction

One of the main food sources and consumed by about half population of people in the world is rice, and also an important food for most developing countries, including Indonesia [1]. Every year the average rice production is relatively increasing. Besides white rice, Indonesia also has rice varieties, including pigmented rice. Black rice is one of pigmented rice which has begun to be popular [2]. At present the view that food also for health is changed by awareness of the magnitude of the relationship between food and the possibility of disease. Dietary patterns have changed because of the increasing of the population welfare [3].

According to [4], the demand for black rice is currently growing rapidly in America and European countries because of its nutritional value as healthy food and attractive colors. This rice has been consumed by Asians from thousands of years ago and is recorded in the history of China, India, and Thailand. Black rice has become popular among rice consumers and dieters today because of its high nutrition and health benefits. Therefore, black rice is one of the many choices and interests of the community.

Black rice is a good source of fiber, minerals, and phytochemicals besides basic nutrients [5]. The popularity of black rice is partly due to different phytochemical compositions, especially flavonoids and anthocyanins, which have been shown to have beneficial effects in preventing chronic diseases associated with oxidative stress [6]. The anthocyanidin compound is the main substantial foundation for antioxidants in black rice [5] which showed in vitro the results of testing with extraordinary DPPH. In addition black rice extract also shows a protective effect on kidney injury in vivo [7]. Black rice is also



good source for Total Phenolic Compounds (TPC) and low glicemic index that can reduce diabetes type 2 attack and others chronic diseases [8]. Because of the content and benefits for health, black rice can be an alternative food to be consumed either directly or mixed with white rice.

Indonesian people have long known black rice but are less popular in daily consumption. This is evidenced by the amount of black rice cultivation in Indonesia and is one of the genetic sources of black rice [4]. Even though Indonesia has many black rice varieties, people who consume black rice now only a few people care about their health.

Some regions in Indonesia are black rice producers, one of them is Special Region of Yogyakarta (Yogyakarta). Yogyakarta local black rice exists for a long time, but people who know it is very limited. One example of a variety originating from Yogyakarta is *Sembada Hitam*, which is pigmented rice type as local genetic resources from Sleman Regency. There is still a condition that causes many farmers to be reluctant to grow black rice because they are still having difficulty selling black rice. Therefore it is important to develop a marketing strategy for Yogyakarta local black rice to preserve it from vanishing, expand market opportunities and help producers to increase their profits.

2. Methods

The location of this research is in Special Region of Yogyakarta area, namely Sleman, Bantul, and Gunungkidul Regency. Three regencies were chosen because of those area has the local black rice farmers and producers. Purposive sampling used in this research with respondents who produced black rice in the past three years, and consumers who have consumed black rice at least once. Snowball sampling also used because the number of black rice producer and consumer were still limited. The number of respondents was 100 consumers and 30 producers to identify factors affecting perception toward Yogyakarta local black rice, of the 10 producers were respondents willing to be involved in the discussion to develop the marketing strategy. The data analysis used were *Internal Strategic Factor Analysis Summary* (IFAS) and *External Strategic Factor Analysis Summary* (EFAS) matrix, *Strengths, Weaknesses, Opportunities, and Threats* (SWOT) analysis, and *Quantitative Strategic Planning Matrix* (QSPM). The preparation of marketing strategies through three processes or stages, namely the stage of data collection, analysis, and decision-making stage [9].

3. Result and Discussion

The results of antioxidant activity analysis, perceptions, WTP and WTA Yogyakarta local black rice from previous research were used as input for developing marketing strategies. Before entering the first stage, the internal and external factors of the Yogyakarta local black rice business were identified from the previous analysis and studies presented in Table 1.

Table 1. Identification of IFAS and EFAS Factors

Internal/External Factors	The basis
Strengths	
The presence of superior local black rice seeds in Yogyakarta	Profile of Yogyakarta local black rice
The content and benefits of black rice for health	Functional properties analysis of Yogyakarta local black rice
Higher selling price	Producers' perception
Competent human resources	Interview with the producers
Program to increase black rice production	Interview with the stakeholders (Agriculture Office of Sleman Regency)
Application of agricultural machinery technology	Interview with the producers
Weaknesses	
The marketing system of black rice is still weak	Producers' perception
Farmer institutional management	Interview with the producers

Land productivity is declining	Interview with the producers and previous research
Transfer function of paddy fields	Interview with the producers and previous research
Opportunities	
Increased demand for black rice	Interview with the producers and WTP consumer Profile of Yogyakarta local black rice
Suitability of geographical location	
Policy support from Yogyakarta Provincial Government and the Central Government regarding black rice	Interview with the stakeholders (Agriculture Office of Sleman Regency and BPTP)
There are additional programs related to black rice	Interview with the stakeholders (Agriculture Office of Sleman Regency and BPTP)
Threats	
The presence of black rice products from outside that enter Yogyakarta	Field observation and interview with producers
Pests and diseases	Interview with the producers
Climate change	Interview with the producers
The low selling price of black rice during the harvest	Interview with the producers and previous research
Fluctuations in input and output production prices	Interview with the producers and previous research

The identified factors then lead to the SWOT analysis basis as internal and external factors' scores that is presented in Table 2.

Table 2. Results of IFAS and EFAS Evaluation of Yogyakarta Local Black Rice Agroindustry

External Strategy Factors	Weight	Rating	Weight x Rating
OPPORTUNITIES			
Increased demand for black rice	0.10	3	0.31
Suitability of geographical location	0.17	1	0.17
Policy support from Yogyakarta Provincial Government and the Central Government regarding black rice	0.12	3	0.35
There are additional programs related to black rice	0.10	3	0.3
THREATS			
The presence of black rice products from outside that enter Yogyakarta	0.10	4	0.40
Pests and diseases	0.09	2	0.17
Climate change	0.11	1	0.11
The low selling price of black rice during the harvest	0.10	3	0.30
Fluctuations in input and output production prices	0.11	3	0.33
TOTAL score	1.00		2.45
Internal Strategy Factors	Weight	Rating	Weight x Rating
STRENGTHS			
The presence of superior local black rice seeds in Yogyakarta	0.14	2	0.27

The content and benefits of black rice for health	0.15	3	0.45
Higher selling price	0.15	3	0.46
Competent human resources	0.09	3	0.28
Program to increase black rice production	0.15	3	0.45
Application of agricultural machinery technology	0.08	3	0.23
WEAKNESSES			
The marketing system of black rice is still weak	0.07	4	0.27
Farmer institutional management	0.08	3	0.24
Land productivity is declining	0.06	4	0.26
Transfer function of paddy fields	0.08	3	0.23
TOTAL score	1.00		2.99

From the total IFAS and EFAS scores in Table 2, then the scores were plot into the Internal External (IE) matrix, presented in Figure 1.

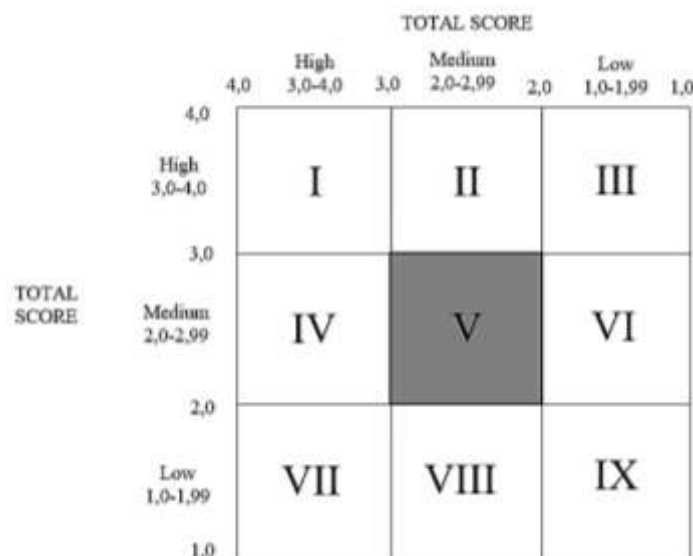


Figure 1. Yogyakarta Local Black Rice Agroindustry Internal External Matrix

The evaluation of internal and external factors brought about the currently Yogyakarta local black rice agroindustry is in quadrant V, which is indicated by the IE matrix position that is in a stable state, so it needs to be maintained. Furthermore, the results of IFAS and EFAS evaluations were made into the SWOT matrix presented in Table 3 to develop marketing strategies for black rice producers.

Table 3. SWOT Matrix

IFAS	STRENGTHS (S)	WEAKNESSES (W)
	1. The presence of superior local black rice seeds in Yogyakarta	1. The marketing system of black rice is still weak
	2. The content and benefits of black rice for health	2. Farmer institutional management
	3. Higher selling price	3. Land productivity is declining
	4. Competent human resources	4. Transfer function of paddy

	5. Program to increase black rice production	fields
	6. Application of agricultural machinery technology	
EFAS		
OPPORTUNITIES (O)	S-O STRATEGIES	W-O STRATEGIES
1. Increased demand for black rice	1. Optimizing Yogyakarta local black rice production (S1,S4, O1)	1. Improve farmer organization performance (W2, O3, O4)
2. Suitability of geographical location	2. Maximize land use (S3, S5, O2)	2. Promote socialization related to black rice programs to farmers (W4, O3, O4)
3. Policy support from Yogyakarta Provincial Government and the Central Government regarding black rice	3. Application of agricultural machinery technology to increase productivity (S6, O3)	3. Expanding and strengthening the marketing network of Yogyakarta local black rice (W1, O1, O4)
4. There are additional programs related to black rice		
THREATS (T)	S-T STRATEGIES	W-T STRATEGIES
1. The presence of black rice products from outside that enter Yogyakarta	1. Set the planting period (S3, S4, T2, T4)	1. Expand the sales location of Yogyakarta local black rice (W1, T1, T4)
2. Pests and diseases	2. Strengthening government policies that support farmers to protect prices (S3, S5, T4, T5)	2. Making more massive promotion (W1, T1)
3. Climate change	3. Improve the quality of farmer human resources (S4, T1, T2, T3)	3. Improve coordination between all involved stakeholders (W2, W3, W4, T5)
4. The low selling price of black rice during the harvest		
5. Fluctuations in input and output production prices		

The decision making that used the Quantitative Strategic Planning Matrix (QSPM) analysis was used to determine the priority of strategies that have been arranged quantitatively. The strategies that have been developed in the SWOT matrix were then determined by its Attractive Score (AS) which indicated the relative attractiveness of each strategy. The results of AS calculations are presented in Table 4.

The results of the analysis using the QSPM matrix shows that the highest value of TAS and being a priority strategy is promotion strategy, where more massive promotions should be carried out so the existence of Yogyakarta local black rice can be extended. According to Umar [10], marketing is not only talking about products, prices, and distribution but also communicating these things to the public so they become aware and then purchase the products. Therefore, producers need to develop a strategy called Promotion-Mix strategy. This promotion mix may consist of four main components, namely advertising, sales promotion, public relations, and personal selling. In practice, Yogyakarta local black rice has made promotional efforts as mentioned in the promotion mix, such as conducting online advertisements through blogs, or selling them directly to consumers through community markets, as stated by [11].

Another strategy that has a high TAS value is to expand the sales location coverage. At present, the sales location of local black rice in Yogyakarta is still relatively limited. In traditional markets or modern markets, black rice from outside Yogyakarta is more common than local black rice. Therefore, it is necessary to strengthen the distribution of local black rice so it can boost the sale of black rice. According to Umar [10], producers must build a distribution channel, namely a group of organizations that are involved in the process that allows a product to be available to consumers for their consumption. The location factor of buying and selling is one of the factors that influence the

perceptions of consumers and producers of black rice. Consumers consider that the availability and ease of buying products is a consideration in their perception of black rice. Similarly, producers, if the distribution goes well, they will continue to be motivated to sustainably plant the black rice.

Table 4. QSPM Result

STRATEGIES	Total Attractive Score (TAS)	Rank
Making more massive promotion	1.36	1
Expand the sales location of Yogyakarta local black rice	1.28	2
Expanding and strengthening the marketing network of Yogyakarta local black rice	1,24	3
Improve farmer organization performance	1.2	4
Optimizing Yogyakarta local black rice production	1.16	5
Promote socialization related to black rice programs to farmers	1,16	6
Improve coordination between all involved stakeholders	0.96	7
Maximize land use	0.93	8
Set the planting period	0.9	9
Application of agricultural machinery technology to increase productivity	0,87	10
Strengthening government policies that support farmers to protect prices	0.7	11
Improve the quality of farmer human resources	0.48	12

The other strategy is to expand and strengthen Yogyakarta local black rice marketing network. In the development of farming delivered by Jumna [12], marketing is the most important criterion that needs to be considered in developing strategies for organic rice farming. From the results of research on the perceptions of producers, farmers revealed that the marketing of black rice is still relatively difficult when compared to other rice varieties such as white or red rice, so efforts to strengthen network marketing are very important to do.

Kelompok Tani (KT) or farmers group and Gabungan Kelompok Tani (Gapoktan) or combined farmer groups are very important farmer organizations because they are one of the media for information exchange between farmers. KT and or Gapoktan that has been formed must improve its performance and function so together it can help the sustainability of farmers through its information network marketing. Whenever farmers have information about access to market i.e. buyers or collectors, they can spread it quickly to make it easier for farmers to sell their product or be able to meet consumers as end-user. This effort requires support from stakeholders, especially the government for example through Balai Penyuluh Pertanian (BPP) or Agricultural Extension Agency which can be deployed directly to the field to convey related information.

The strategy to optimize Yogyakarta local black rice production is important since most farmers said that black rice farming needs longer time than other rice varieties, implying higher production costs. That results in higher price of black rice. Therefore, efforts are needed to optimize the costs structure of black rice production. Increasing production growth can create a sustainable agricultural system as long as it can also increase income growth and welfare of the farmers [13]. Among various efforts to carry out this strategy are by doing the right scheduling in planting black rice, use of good seeds, selection of fertilizers, handling and prevention of pest attacks are expected to increase the productivity of the black rice. The strategy is expected to help producers, especially marketers, to be able to expand the marketing of Yogyakarta local black rice, and as input to stakeholders especially the government to improve the program for Yogyakarta local black rice farming to be sustainable.

4. Conclusion

Marketing strategies that should be applied to sustain Yogyakarta local black rice are to carry out massive promotions, to expand sales locations coverage, to expand and to strengthen marketing networks, to improve farmer organization performances, and to increase local Yogyakarta black rice production. In the middle of competitive rivalry with black rice from other regions, increasing role of the government and all related stakeholders is still highly expected for the sustainability of Yogyakarta local black rice.

References

- [1] S. Saha, "Black Rice : The New Age Super Food (An Extensive Review)," *Am. Int. J. A Res. Formal, Appl. Nat. Sci.*, vol. 16, no. 1, pp. 51–55, 2016
- [2] R. Pratiwi and Y. A. Purwestri, "Black rice as a functional food in Indonesia," *Funct. Foods Heal. Dis.*, vol. 7, no. 3, pp. 182–194, 2017.
- [3] S. Winarti, *Makanan Fungsional*. Yogyakarta: Graha Ilmu, 2010.
- [4] U. K. S. Kushwaha, "Black rice: Research, history and development," *Black Rice Res. Hist. Dev.*, pp. 1–192, 2016.
- [5] M. wei ZHANG *et al.*, "Separation, Purification and Identification of Antioxidant Compositions in Black Rice," *Agric. Sci. China*, vol. 5, no. 6, pp. 431–440, 2006.
- [6] M. W. Zhang, R. F. Zhang, F. X. Zhang, and R. H. Liu, "Phenolic profiles and antioxidant activity of black rice bran of different commercially available varieties," *J. Agric. Food Chem.*, vol. 58, no. 13, pp. 7580–7587, 2010.
- [7] J. Hao, H. Zhu, Z. Zhang, S. Yang, and H. Li, "Identification of anthocyanins in black rice (*Oryza sativa* L.) by UPLC/Q-TOF-MS and their in vitro and in vivo antioxidant activities," *J. Cereal Sci.*, vol. 64, pp. 92–99, 2015.
- [8] J. Pongjanta, N.-O. Chomsri, and S. Meechoui, "Correlation of pasting behaviors with total phenolic compounds and starch digestibility of indigenous pigmented rice grown in upper Northern Thailand," *Funct. Foods Heal. Dis.*, vol. 6, no. 3, pp. 133–143, 2016.
- [9] F. Rangkuti, *Analisis SWOT Teknik Membedah Kasus Bisnis. Reorientasi Konsep Perencanaan Strategis Untuk Menghadapi Abad 21*. Jakarta: PT Gramedia Pustaka Utama, 1998.
- [10] H. Umar, *Metodologi Penelitian : Aplikasi dalam Pemasaran*. Jakarta: Gramedia Pustaka Utama, 1997.
- [11] S. Wuryandani, D. Ismoyowati, and A. D. Nugrahini, "STP Analysis in Marketing Pigmented Rice as Functional Food," 2015.
- [12] B. K. Jumna, "Strategi Pengembangan Usahatani dalam Upaya Peningkatan Produksi Padi Organik," *Econ. Dev. Anal. J.*, vol. 4, no. 2, 2015.
- [13] M. O. Adnyana, "Lintasan dan marka Jalan Menuju Ketahanan Pangan Terlanjutkan," *Anal. Kebijak. Pertan.*, vol. 3, 2005.

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