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Strategic ways to develop new variety of upland rice: case study of “Inpago Unsoed 1” in Central Java, Indonesia

B Dharmawan, A R Karim and U Nurdiani

Department of Agricultural Economics and Social Sciences, Jenderal Soedirman University, Jl. Dr. Suparno, P.O.Box 125, 53123, Purwokerto, Central Java, Indonesia

E-mail: budi.dharmawan@unsoed.ac.id

Abstract. The research objective to know the right strategy for developing variety of upland rice “Inpago Unsoed 1”. The research was conducted in Banyumas Districts with a purposive sampling method. Data were analyzed using several analyses, namely IFE (internal factor evaluation), EFE (external factor evaluation), internal-external (IE), SWOT (strength, weakness, opportunities, threats), and quantitative strategies planning matrix (QSPM). The results showed that based on the identification of the internal and external environment of “Inpago Unsoed 1” and calculated with the IFE and EFE matrices produced the main factors with the highest scores including: a) main strength: price is cheaper than other upland rice; b) main weakness: small scope area of distribution; c) the main opportunity: reach a wider market share; d) main threat: not all people consume upland rice. The results of the strategy formulation with IE matrix produced five alternative strategies. QSP matrix showed that the first priority of developing strategies was the strategy to increase promotions such as give discounts and vouchers becomes.

1. Introduction

The low interest of farmers to plant upland rice was due to the low productivity of upland rice and the quality itself, which is not aromatic and a hard-grained texture [1]. This condition makes upland rice is being disliked by farmers and consumers, nevertheless, the economic value of upland rice is considered to be unprofitable [2]. The current average area of upland rice plants is only reaching 11.6% of the total rice area in Indonesia. The selling price of aromatic and fluffier rice reaches 2-2.5 times the selling price of ordinary rice. Thus, superior varieties of upland rice with high yield, aromatic and fluffier rice taste can increase farmers' profits in farming on upland [2].

Due to the unavailability of high yield and quality of upland rice varieties to support rice production on dry land, Plant Breeding and Biotechnology Laboratory Jenderal Soedirman University (UNSOED) concern to produce a high yield and quality of upland rice varieties. The crossing between upland rice has high yield and drought tolerance with aromatic rice is expected to produce upland rice with high yield, disease resistance, not deep age, and a flavored rice that liked by consumers [1].

The invention on “Inpago Unsoed 1” upland rice varieties is in a strategic position in facing the challenges of meeting domestic and foreign demand. The high demand for organic rice makes the invention of superior varieties of Inpago upland rice worth a high value seen from the factors of expediency and urgency. Therefore, it is important to know technology as a result of research activities that require investment in the form of knowledge, time and funds to get reasonable awards



[3]. Therefore, the strategy for developing upland rice “Inpago Unsoed 1” needs to be done to find out the development strategies should be carried out. One of the outcomes of this study is that producer can have more bargaining power in partnering with investor and can continue to develop upland rice “Inpago Unsoed 1” in a sustainable manner.

2. Methods

This study uses two types of data which are primary and secondary data. Primary data were obtained using questionnaires, interviews and focus group discussions. Secondary data were collected by conducting literature review to support, complement, and enhance primary data.

Descriptive analysis is used to obtain in-depth overview of the study object [4]. To help explain the results of this analysis, the information will be presented in the form of labels, pictures, or matrix, according to the results obtained. The descriptive analysis in this study is used to describe the results of interviews and questionnaires on upland rice “Inpago Unsoed 1” development policies [5]. Analysis of the above data is processed using Microsoft Excel software.

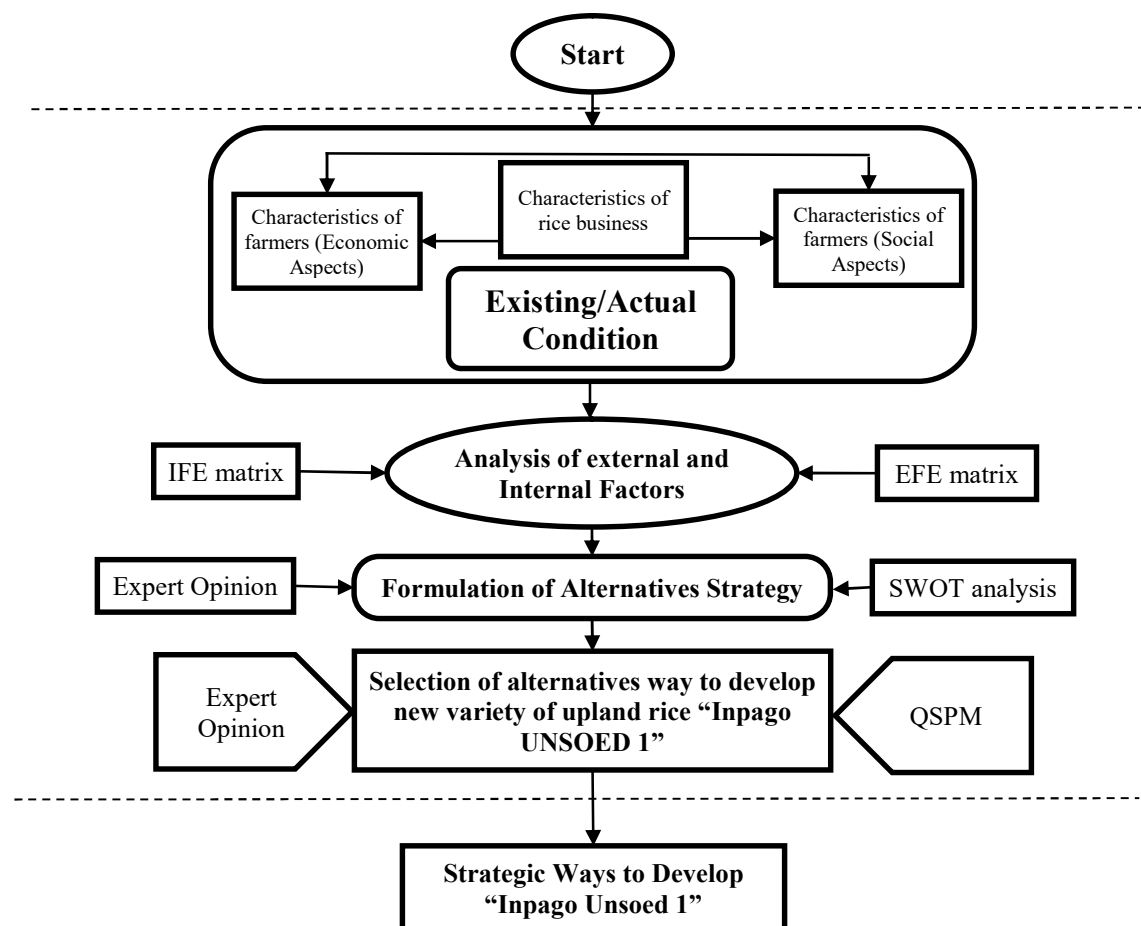


Figure 1. Research implementation flowchart (adapted from [5]).

3. Results and discussions

3.1. The IFE and EFE analyses

IFE and EFE Analysis describes the internal and external conditions of “Inpago Unsoed 1” upland rice’s producer which calculated by weight and rating. Weighting uses paired comparison method to obtain weights on each factor [6]. Rating is given to internal and external factors to know the strengths and weaknesses of company in producing upland rice “Inpago Unsoed 1” [7].

3.1.1. The IFE analysis. The weighting and rating of internal factors of upland rice “*Inpago Unsoed 1*” are presented in **Table 1**. The IFE score shows upland rice “*Inpago Unsoed 1*” obtained total score of 2.494. This score located between 2.000-2.999 which indicate that “*Inpago Unsoed 1*” is in the average internal position. The main strength of the variety is cheap price with the highest score of 0.27. While the main weakness is the small scope area of distribution with score of 0.255.

Table 1. IFE matrix of upland rice “*Inpago Unsoed 1*”

Internal Strategy Factors									
	Strength	Weight	Rating	Score		Weakness	Weight	Rating	Score
S1	Price of “ <i>Inpago Unsoed 1</i> ” is cheaper than other upland rice	0.09	3	0.27	W 1	Lack of promotion	0.08	3.1	0.248
S2	Easy to find “ <i>Inpago Unsoed 1</i> ”	0.07	3.4	0.238	W 2	Lack of information that shows comparison of upland rice’s prices	0.14	1.8	0.252
S3	Quality assurance	0.07	3.3	0.231	W 3	Small scope area of distribution	0.15	1.7	0.255
S4	“ <i>Inpago Unsoed 1</i> ” sales by e-commerce minimize business expenses	0.08	3.2	0.256	W 4	Lack of product information becomes consumer’s consideration	0.15	1.6	0.24
S5	Sales of “ <i>Inpago Unsoed 1</i> ” with e-commerce are more effective and efficient	0.08	3.2	0.256	W 5	Lack of nutrition information	0.08	3.1	0.248
Total							1		2.494

Source: Primary data processed, 2018.

3.1.2. The EFE analysis. The weighting and rating of external factors in the marketing of upland rice commodities of the *Inpago Unsoed 1* variety are presented in **Table 2**. **Table 2** below shows the results of weighting and rating on external factors of upland rice *Inpago Unsoed 1* varieties obtained with a score of 2.93. Scores located between 2.00-3.00 indicate that the *Inpago Unsoed 1* upland rice commodity responds moderately to the opportunities and threats that exist. The main opportunity is to be able to reach a wider market share with a score of 0.30 with the main threat, not all people want to consume upland rice with a score of 0.33.

The weighting and rating of external factors of upland rice “*Inpago Unsoed 1*” are presented in **Table 2**. The EFE score shows upland rice “*Inpago Unsoed 1*” obtained total score of 2.93. This score located between 2.000-2.999 which indicate that “*Inpago Unsoed 1*” responds moderately to the existing opportunities and threats. The main opportunity is to reach wider market share, with score of 0.30. In other hand, the main threat is not all people want to consume upland rice, with score of 0.33.

Table 2. EFE matrix of upland rice “*Inpago Unsoed 1*”

External Strategy Factors									
Opportunity	Weight	Rating	Score	Threat	Weight	Rating	Score		
O1 Expand product distribution	0.09	3.2	0.288	T1 Similar competitors	0.1	3	0.30		
O2 Reach a wider market share	0.1	3	0.300	T2 Have not widely known by public	0.16	1.9	0.30		
O3 More consumers know the information about quality of the rice	0.09	3.3	0.297	T3 Not all people consume upland rice	0.13	2.5	0.33		
O4 Availability of purchasing services for 24 hours	0.07	3.6	0.252	T4 Risk of public distrust in rice productivity	0.09	3.3	0.30		
O5 Available in many places	0.07	3.7	0.259	T5 Requires additional costs for consumers to buy “ <i>Inpago Unsoed 1</i> ”	0.11	2.8	0.31		
Total					1		2.93		

Source: Primary data processed, 2018.

3.2. The IE (Internal External) matrix

Mapping of business positions is done to make easier in determining the right alternative strategy[8]. Based on the results of internal factor analysis with IFE matrix and external factors with EFE matrix, the IE matrix is presented in **Figure 2**.

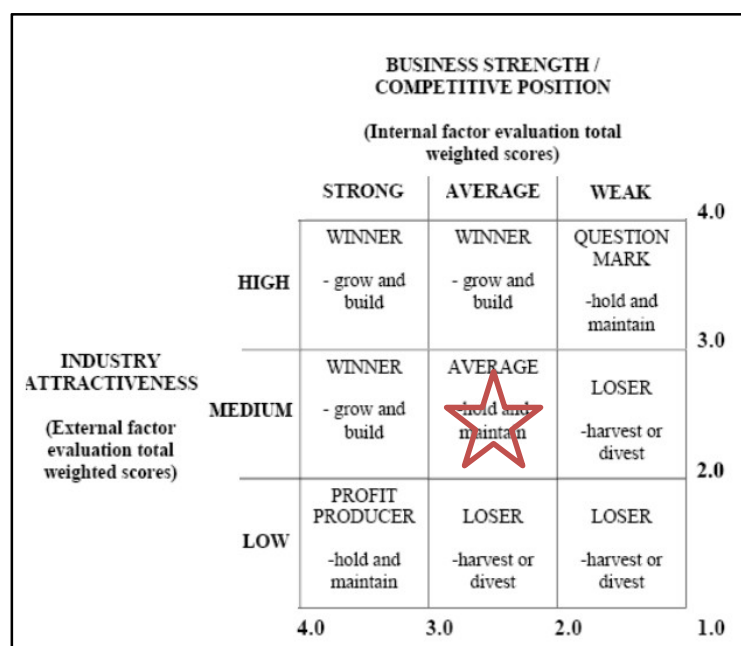


Figure 2. IE matrix of upland rice “*Inpago Unsoed 1*”(adapted from [9]).

Figure 1 shows that upland rice “Inpago Unsoed 1” is in quadrant V with total IFE analysis score of 2.494 and total EFE analysis score of 2.93. It also shows that upland rice “Inpago Unsoed 1” is in the position of “hold and maintain”.

The right strategy in this quadrant is market penetration and product development [10]. Market penetration strategy is a strategy to seek greater market share through more vigorous marketing efforts [11]. One of the market penetrations is increasing the promotion, both internal and external promotions. To achieve an effective promotion could be done with several ways, i.e. placing advertisements on social media and inviting public figures to promote upland rice “Inpago Unsoed 1”. These strategies then be formulated using SWOT Analysis.

3.3. *SWOT (strength-weakness-opportunity-threat) analysis*

SWOT Analysis aims to develop strategies that are prepared based on comparisons between internal and external factors [12][13]. SWOT Analysis produces several alternative strategies which can be explained as follows.

3.3.1. S-O (strength-opportunity) strategy. The S-O strategy uses the company's internal strength to take advantage of existing external opportunities to benefit the company [14]. The alternative strategy obtained in S-O strategy is to expand distribution by opening new branch offices in other regions (S1, S2, S4, S5, O1, O2, O3, O4, O5). This strategy aims to enable the company to reach more consumers from various regions and also to increase sales' distribution of upland rice “Inpago Unsoed 1”.

3.3.2. W-O (weakness-opportunity) strategy. The W-O strategy aims to overcome the company's internal weaknesses by utilizing the company's external opportunities [15]. The alternative strategy chosen in the W-O strategy is more aggressive in advertising on the internet (W1, O3, O4, O5). Currently, upland rice “Inpago Unsoed 1” has carried out several promotional activities, however, the promotion has not been optimized.

3.3.3. S-T (strength-threat) strategy. The S-T strategy uses the company's internal strength to avoid or reduce the company's external threats [16]. Alternative strategies on the S-T strategy are develop promotions such as discounts and vouchers (S1, S2, S3, S5, T1, T2). This strategy aims to attract new consumer in knowing the rice. Provide special discounts for consumer who want establish long-term cooperation (S1, S2, T1, T2, T3).

3.3.4. W-T (weakness-threat) strategy. The W-T strategy aims to reduce internal weaknesses to avoid external threats [17]. Alternative strategies that can be done on the W-T strategy are develop website of upland rice “Inpago Unsoed 1” with complete information on price, nutrition, and benefits (W1, W4, W5). Provide a money back warranty to the consumer if the rice is not arrived or spoiled (W1, T1, T4). This strategy is carried out to guarantee consumers for not hesitate to buy upland rice “Inpago Unsoed 1”.

Table 3. TOWS matrix of upland rice “*Inpago Unsoed 1*”

EXTERNAL \ INTERNAL	INTERNAL	EXTERNAL
	Strength	Weakness
	1. Cheaper price of upland rice “ <i>Inpago Unsoed 1</i> ” 2. Ease of buying 3. Quality assurance 4. Sales by e-commerce minimize business expenses 5. Sales with e-commerce are more effective and efficient	1. Lack of promotion 2. Lack of information that shows comparison of upland rice’s prices 3. Small scope area of distribution 4. Lack of product information becomes consumer’s consideration 5. Lack of nutrition information
Opportunity	S-O Strategy Expand distribution by opening new branch offices in other regions (S1, S2, S4, S5, O1, O2, O3, O4, O5)	W-O Strategy More aggressive in advertising on the internet (W1, O3, O4, O5)
Threat	S-T Strategy 1. Develop promotions such as discounts and vouchers (S1, S2, S3, S5, T1, T2, T3) 2. Provide special discounts for consumer who want establish long-term cooperation (S1, S2, T1, T2, T3)	W-T Strategy 1. Develop website of upland rice “ <i>Inpago Unsoed 1</i> ” with complete information on price, nutrition, and benefits (W2, W4, W5) 2. Provide a money back warranty to the consumer if the rice is not arrived or spoiled (W1, T1, T4)

Source: Primary data processed, 2018.

3.4. The QSPM (quantitative strategic planning matrix) analysis

The stage of decision making based on the strategy that has been compiled in SWOT analysis, then, is used to determine the most appropriate strategy priority by using QSPM analysis [18]. QSPM analysis is calculated based on priority strategy rankings, i.e. the higher the TAS value, the higher the level of interest in alternative strategies compared to other strategies [19].

Based on the results of QSPM analysis, the strategy to increase promotions such as give discounts and vouchers becomes the first priority strategy to do with the highest TAS value of 3.46. The second priority is to give money back to the consumer if the item received does not arrive or is spoiled. Priority three is more aggressive and active in advertising on the internet. Four priority is to provide special discounts for consumer who want to establish long-term cooperation. Fifth priority is to develop website of upland rice “*Inpago Unsoed 1*” with complete information on price, nutrition, and benefits. The sixth priority is to expand distribution by opening branch offices in other area.

4. Conclusions

The prioritized strategy through IFE (internal factor evaluation), EFE (external factor evaluation), internal-external (IE), SWOT (strength, weakness, opportunities, threats), and QSPM (quantitative strategies planning matrix) is expected to help producer of upland rice “*Inpago Unsoed 1*” in maximizing the profit. In addition, to success the implemented strategy, it is also necessary to always provide consumers satisfaction. Alternative strategy that has the highest TAS value is prioritized to be applied in the short term, but for the long term it is expected that all of these strategies can be applied by the producer.

There are three points in the marketing strategy concept, which are the main bases of “targeting, segmenting and positioning”. It can be seen from the results of QSPM analysis that the highest priority strategy that should be implemented by producer of upland rice “*Inpago Unsoed 1*” is related to “positioning”. Nevertheless, the producer’s most consideration is to keep in minds of consumers that

buying upland rice “Inpago Unsoed 1” means benefit good quality, low price, and food security assurance

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