AJARCDE
ASIAN JOURNAL OF APPLIED RESEARCH FOR COMMUNITY DEVELOPMENT AND EMPOWERMENT

Journal home page: http://ajarcde-safe-network.org ISSN 2581-0405

Strategies to Increase Income for Semi-technical Irrigated Rice Farming in Pengandonan Subdistrict, Pengandonan District, Ogan Komering Ulu District

Supriyanto[1)], Munajat[2)], Yunita Sari[2)]

[1)] *Agricultural Economics Study Program, Postgraduate Program at Baturaja University. Indonesia*
[2)] *Postgraduate Lecturer in Agricultural Economics, Baturaja University. Indonesia*
Baturaja University, Jln. HOS Cokroaminoto No.0172 Baturaja Timur, OKU District, South Sumatra, .Indonesia 32115

ARTICLE INFO

Article History:
Received: 18 May 2022
Final Revision: 16 July 2022
Accepted: 17 July 2022
Online Publication: 24 July 2022

KEYWORDS

semi-irrigation, rice farming, Internal Factors, External Factors, SWOT analysis

CORRESPONDING AUTHOR

*E-mail: *ratna.tp@upnjatim.ac.id*

A B S T R A C T

Rice farming is one of the production activities in agriculture carried out by farmers, including those carried out by farmers in the Pengandonan district of Ogan Komering Ulu .District. Farmers run their paddy rice farming business as an effort to get their family's source of income in order to meet the needs of life and improve the level of welfare of farmers. This study aims to determine the amount of income for half-technical irrigated rice farming, and determine the strategy of increasing the income of half-technical irrigated rice farming in Pengandonan District. The research was carried out in Pengandonan District, Ogan Komering Ulu District, which was carried out from March to July 2022 using survey and interview methods and filling out questionnaires. The data collected are primary and secondary data. Sampling technique using a simple random method on a sample of farmers as respondents where the number of farmers is determined by the Slovin Method. The data analysis method uses R/C ratio analysis and SWOT analysis by considering internal factors or IFAS (Internal Factor Analysis Strategic) and external factors or EFAS (External Factor Analysis Strategic). The results showed that the half-technical irrigated rice farming business in Pengandonan sub-district is profitable with an R/C ratio of 2.8 and the strategy of increasing the income of half-technical irrigated rice farming in Pengandonan sub-district is a diversification strategy, namely by utilizing the high motivation of farmers by participating in the AUTP (Rice Anticipation Insurance) program as a crop failure due to pest and disease attacks, always optimize the adoption rate of technology as well as involve more labor in the family in farming activities, increase the intensity of meetings with agricultural officials in overcoming pest and disease attacks, and optimize land conditions by improving irrigation systems.

1. INTRODUCTION

1.1. Research Background

One of the sectors that encourage the economy in Indonesia is the agricultural sector, Indonesia itself is an agricultural country whose people generally work as farmers because Indonesia itself is rich in natural conditions, in encouraging national economic development, one of which is to produce quality agricultural products. This is of course to equalize the entire national economy both in cities and villages, therefore this agricultural business needs to be encouraged so that the economy of people throughout Indonesia can improve better [1].

According to Ref. [2], agricultural development is an integral part of development. Agricultural development is also a process aimed at always increasing agricultural production for each consumer which at the same time increases the income and business productivity of each farmer by increasing capital and skills to increase human intervention. Productivity is the ratio of total output to inputs used in production [3]. Ref. [4] revealed that the measurement of input productivity is the sum of outputs per input unit. Ref. [3], explained that concerning land, land productivity corresponds to the capacity of the land to absorb production inputs and produce outputs in agricultural production. Rice as the main food commodity has a very high strategic value, so serious handling is needed to increase its productivity. The large role of the government in managing food commodities, especially rice, can be seen in pre-production activities such as the provision of superior seeds, fertilizers, medicines, irrigation facilities, production credits, and strengthening farmer institutional capital. Efforts to increase the production and income

https:// doi.org/ 10.29165/ajarcde.v6i3.127

of rice farming will not be successful without the use of new technologies in the technical fields of cultivation, seeds, medicine, and fertilization [5].

The agricultural commodity that is the majority common for the community is the rice crop. Rice plants have better potential than other commodities and play a fairly important role in the national economy, basic human needs in terms of food in general consuming rice as daily food. Therefore farmers grow rice crops to find income [1] Data from Ref. [6] noted that there were fluctuating data on the area of the rice harvest in 2018-2020. From the district/city and province areas, it was shown that 3 regions including Ogan Komering Ulu. District experienced an increase in the area of the rice harvest. Meanwhile, the other 13 areas had their paddy rice harvest area decreased in the following year and then increased.

Based on data on rice production with a harvest area in South Sumatra from 2018-2020 [6], the comparison in the harvest area of 1 ha of rice fields produces 2.76 - 2.94 tons of rice. The Ogan Komering Ulu . District itself shows that 1 ha of rice fields harvested produces 2.60 -2.81 tons of rice. With the increase in rice field yields, of course, the income of farmers also increases with the hope that farmers' lives will be more prosperous.

Technically, business activities in the agricultural sector will always be faced with a fairly high risk of uncertainty. The risk of uncertainty includes the rate of crop failure caused by various natural disasters, such as floods, droughts, and pest and disease attacks due to global climate change, in addition to the risk of market price uncertainty. Several problems are often an obstacle to the achievement of farmers' success in managing their farming business, namely the small capital owned by the farmer, ownership of a narrow area of paddy fields, irrigation problems, and irrigation sources of paddy fields that still expect water from the rainy or rainfed season, and the lack of extension cooperation relations with each farmer group so that its existence does not contribute to the progress of increasing on the income and well-being of the farmer himself. If the farming pattern is still as it is faced today, then the welfare of farmers will be difficult to achieve [8].

Several problems are often an obstacle to the achievement of farmers' success in managing their farming business, namely the small capital owned by the farmer, ownership of a narrow area of rice fields, irrigation problems, and irrigation sources of paddy fields that still expect water from the rainy or rainfed season, plus the lack of extension cooperation relations with each farmer group so that its existence does not contribute to the progress of the increase in the income and well-being of the farmer himself. If the farming pattern is still as it is faced today, then the welfare of farmers will be difficult to achieve [8].

Farmers as the smallest agribusiness unit have not been able to achieve a rational income increase value following the scale of farming with a pattern of one planting season a year and the income of rice farmers in Ogan Komering Ulu . District obtained has not been able to exceed the standard minimum wage income of Ogan Komering Ulu . District amounting to Rp. 3,144,446 in 2021. Based on the 2018-2020 harvest in the Ogan Komering Ulu district [6] with the highest average of 2.81 tons/Ha, if the price of rice is Rp. 9000 per Kg, the farmer's income will be obtained at Rp. 25,290,000. So that in 1-month farmers will get an income of Rp. 2,107,500. With the calculation of this simple problem, it shows that the average income of farmers is below the UMR where farmers mostly have a rice field area of less than 1 ha so that farmers have a less prosperous life, of course, farmers must increase their rice field area in their farming business and improve rice farming techniques to increase agricultural yields and better utilize the conditions of their productive land to other fields of farming.

To find out the most appropriate strategy for the development of the rice farming business, you must know the internal and external factors that are the strengths, weaknesses, opportunities, and threats of developing the rice farming business through a SWOT analysis, you can evaluate the conditions of the rice paddy farming business and determine the right strategy. Based on the description above, it is necessary to conduct a study Based on this description, it will be the main problem in this study is (1) What is the income level of the semi-technical rice farming business in the research area; (2) What strategies are used to increase the income of semi-technical irrigated paddy rice farming in Pengandonan sub-district of Ogan Komering Ulu District, South Sumatra.

1.2. Research Objectives

The objectives of this study are to (1) Analyze the income of rice farmers in the study area; (2) Formulate appropriate strategies to increase the income of farmers in the research area. The results of this study are expected to be an input for the government in making decisions to prosper the lives of farmers. As input for farmers and interested parties.

2. RESEARCH METHODS

The location of the study was carried out purposively, namely the determination of the research location that was deliberately chosen based on certain objectives where the research plan in Pengandonan District, Ogan Komering Ulu. District is one of the areas where the majority of the population's livelihood is in the agricultural sector and has the largest total number of rice fields in 2020 compared to other districts in Ogan Komering Ulu District, which is 1,152 Ha [7].

2.1. Research Methods

The methods used in this study are survey methods and interviews. Ref. [9] states that surveys are a scientific research method used to obtain existing data and seek factual information. Interviews are a data collection process using informants who are given several questions for research purposes [10].

2.2. Methods of Sampling and Collection of Data

The sampling method in this study is to use a simple random method. The *Simple Random Sampling* method is a type of probability sampling in which everyone in the entire population has an equal chance of being selected. Respondents were randomly selected aimed at an unbiased representation of the total population. With a total population of 1,607 farmers registered in the *simluhtan (agricultural extension system)* agriculture office of Ogan Komering Ulu district in 2021[6].

To determine the magnitude of a sample of a population can be calculated by the Slovin formula [11].

 https://doi.org/10.29165/ajarcde.v6i3.127

$$n = \frac{N}{(1 + (N \times e^2))}$$

Where : n = samples; N = population;
e = 90 percent margin of error or sig. = 0.10.

The total population is 1,607 farmers, and the desired error rate is 10 percent, so the number of samples used is 94 people taken from the entire population of the number of paddy rice farmers in the Pengandonan sub-district of the research area in the field. The data collected in this study are primary and secondary. Primary data were obtained by observing the location of the study and holding direct interviews with respondents using a list of questions that had been prepared following the research objectives and documentation. Secondary data is data obtained from literature studies, related agencies, and other sources that can support research.

Researchers also interviewed *stakeholders*, namely 2 staff of the Agricultural Service, 1 Academician of Higher Education, 1 Coordinator of the Agricultural Extension Center (BPP), 5 Field Agricultural Extension Officers (PPL), and 2 staff of the Agricultural Extension Center (BPP), 1 rice mill owner.

2.3. Data Processing and Analysis Methods

The data obtained from the field are first tabulated and subsequently analyzed. To find out income is analyzed by mathematical formulas [12]:

$$I = TR - TC$$

Where :
I = Farm income (IDR)
TR = Total income (IDR)
TC = Total cost (IDR)

To find out the comparison between receipts and costs, an R / C ratio analysis is used, where:
R = Receipt (IDR)
C = Cost (IDR)

R/C < 1 then the paddy rice farming business is not profitable/lost.
R / C = 1 then the rice paddy farming business breaks even.
1 < R/C < 2, the rice farming business is profitable but not yet worth developing.
R/C ≥ 2 then the rice paddy farming business is profitable and feasible to develop.

Salim [13] stated that SWOT analysis is used to obtain a basic view of the strategies needed to achieve a certain goal The SWOT analysis method is used to determine the strategy of increasing the income of half-technical irrigated paddy rice farming at the research site. The SWOT method is a method of strategizing by evaluating strengths, *weaknesses*, *opportunities*, and threats in a project or business speculation. The steps performed are:

2.4. Identify internal and external factors.

Identification is carried out later from all of these factors are selected influential factors referred to as strategic factors. Such strategic factors are distinguished by internal and external factors. Internal factors are factors that can be controlled by farmers. External factors are factors that farmers cannot control.

2.4.1. Determination of ratings.

After classifying the internal and external factors, then a list of questions is drawn up. Rating values range between 1 and 4, from the lowest to the highest rating, then the average value is determined.

2.4.2. Determination of weights.

The weighting of each factor obtained the value of stakeholder respondents, academia, and agricultural practitioners with a value of 1 are not important and 5 is very important. Furthermore, determining the weight by dividing between the average value per factor and the total number of factors.

2.5. Determination of scores per factor.

Once the geometric mean value is known, then the average value is normalized to obtain the value of each strategic factor.

2.5.1. Preparation of the results of the calculation of scores and weights.

After getting the weighted score results and priority, then carry out the preparation of the results of the calculation of scores and **weights** from each internal and external factor.

2.5.2. Positioning.

In the IFAS and EFAS matrices, the difference between internal factors (strengths and weaknesses) and the differences in external factors (opportunities and threats) will be known, indicating the position in the chart.

2.5.3. Strategizing.

Matrices are used to devise strategies that have been formulated. This matrix can clearly describe how the opportunities and threats faced by farmers can be adapted to the strengths and weaknesses that farmers have (Table 1).

The income of the paddy rice farming business is obtained from the difference between the costs incurred and the revenues obtained from the farming business. The production costs of half-technical irrigated paddy rice farming in the Pengandonan sub-district of Ogan Komering Ulu district include the cost of rice seeds, fertilizer costs, pesticide costs, labor costs, tractor rental costs, and equipment depreciation costs. Based on the results of research in Pengandonan District, the average area of paddy rice farming is 0.62 ha. Based on the results of research in the Pengandonan Subdistrict, the average total cost of rice farming per growing season can be seen in Table 2.

Labor is one of the factors of production as an actor in farming activities. Based on the results of research in Pengandonan Sub-district, the workforce involved in rice farming consists of rice seed planting workers and labor at harvest time, with an average amount of labor in semi-technical irrigated rice farming business as many as 7.64 people planting rice seeds and 10.4 people workers at harvest time. Meanwhile, the average total labor cost in a half-irrigated rice farming business is IDR. 1,443,075.

The results showed that the use of labor is greater than other production costs, this means that labor is very influential on rice paddy farming, as research conducted by Ref. [14]. shows that labor is the largest component of the production costs of rice farming. It's the same with Ref. [15] in his research stated that

labor costs are the largest cost component in rice farming in his research area. Labor is one of the factors of production as an actor in rice paddy farming activities. According to Ref. [16], the Number of dependents on farmers can influence labor, the involvement of members of the farmer family reduces the use of labor outside the family. Labor is one of the factors of production as an actor in rice paddy farming activities. In line with Ref. [17] that in rice farming activities paddy fields require a greater labor force than other farming businesses.

Table 1. SWOT matrix.

IFAS EFAS	*Strength* Tentukan faktor-faktor internal	*Weakness* Determine internal factors(weaknesses)
Opportunities	**SO Strategy**	**WO Strategy**
Determine external factors	Create strategies that use power to capitalize on opportunities	Create a strategy that minimizes weaknesses
Threats	**ST Strategy**	**WT Strategy**
	Create a strategy to take advantage of opportunities	Create a strategy to minimize weaknesses

3. RESULT AND DISCUSSION

The income of the paddy rice farming business is obtained from the difference between the costs incurred and the revenues obtained from the farming business. The production costs of half-technical irrigated paddy rice farming in Pengandonan district of Ogan Komering Ulu district include the cost of rice seeds, fertilizer costs, pesticide costs, labor costs, tractor rental costs, and equipment depreciation costs. Based on the results of research in Pengandonan District, the average area of paddy rice farming is 0.62 ha. Based on the results of research in the Pengandonan Subdistrict, the average total cost of paddy rice farming per growing season can be seen in Table 2.

Table 2. Average Total Cost of Half-Technical Irrigated Paddy Rice Farming in Pengandonan District in 2022

No	Description	Per arable land /MT (IDR)	Per Ha/MT (IDR)
1.	Variable Cost		
	- Seed	123,830	199.726
	- Fertilizer	500,255	806.863
	- Pesticide	135,691	218.856
	-Workforce	1,443,075	2.327.540
	-Rent a Hand Tractor	489,628	789.723
2	Fixed Cost		
	-Depreciation (hoe)	12,210	19.694
	-Depreciation (sickle)	8,246	13.300
	-Depreciation sprayer)	49,335	79.573
	-Depreciation (tractor)	299,291	482.727
	-Depreciation (threser)	81,117	130.834
Total		3.142.678	5,068,835

Based on the results of research in the Pengandonan Subdistrict, the average production, revenue, and income of half-technical irrigated paddy rice farming in one growing season can be seen in Table 3.

Table 3. Average Production, Revenue, and Income of Semi-Technical Irrigated Rice Farming in Pengandonan District in 2022

No.	Description	Per Arable Land/MT	Per Hectare/MT
1.	Production	989 Kg.	595 Kg
2.	Gross Income Production	IDR 8,901,383	IDR 14,357,069
3.	Costs	IDR 3,142,678	IDR 5,068,835
4.	Net Income	IDR 5,758,705	IDR, 9,288,234

The data shows that the average production of semi-technical irrigated paddy rice farming in Pengandonan District in one growing season per hectare is 1,595 kg of rice, with a rice price of IDR. 9.000 / kg in the study area, the revenue value is IDR. 14,357,069 and the income value is IDR. 9,288,234 in paddy rice farming per hectare. In one year, the planting season is carried out twice so that the farmer's income when divided per month, the farmer's income is IDR 1,548,039, when compared to the UMR in Ogan Komering Ulu . District which amounts to IDR 3,144,446 in 2021, then this is very far below the average minimum wage (UMR). Therefore, the participation of government agencies in the form of support and PPL and BPP according to their functions play a direct role in the progress of agriculture both in terms of increasing production and increasing income.

Income is one of the most important economic factors for farmers. The level of farmer income is capital for farmers in farming, showing the ability of farmers to manage their farming business, especially in determining farming strategies. This is following Setiawati's opinion [18] that income is the profit or yield obtained by farmers from their production. Furthermore, Soekartawi [12] stated that a business can be said to provide benefits if the R/C ratio value is above 1 (> 1). The greater the value of the R/C ratio, the more feasible the business and vice versa, and if the R/C ≥ 2 then the business is worth cultivating. To find out whether the half-technical irrigated paddy farming business in the Pengandonan sub-district is profitable and feasible to develop, it is analyzed with an R/C ratio. Based on the results of the study, the average R/C ratio of half-technical irrigated farming in Pengandonan District was 2.8. This means that each cost expenditure of IDR. 1 provides receipts of Rp. 2.8. R/C value of 2.8 > 2, shows that the half-technical irrigated paddy rice farming business in Pengandonan District is profitable and feasible to develop.

3.1. Internal and External Factors of Semi-Technical Irrigated Rice Farming

The development of paddy rice production has fluctuated both in production, productivity, and harvest area. Related to products related to the production system, in general, the program policy occurs tends to increase the income of farmers. Internal environmental analysis is used to assess the factors of *strengths (Strengths*) and weaknesses (*Weaknesses*) to develop a semi-

 https://doi.org/10.29165/ajarcde.v6i3.127

technical irrigated paddy rice farming business in Pengandonan District.

Based on the results of the study, the internal factors that have been identified in developing a strategy to increase the income of semi-technical irrigated paddy rice farming in Pengandonan District there are 4 strength indicators, namely high farmer motivation, farmer experience, paddy fields suitable for rice farming and an increasing level of technology adoption and there are 4 indicators of weakness, namely: lack of capital, the use of fertilizers is not optimal, a narrow area of land, and the lack of activeness of peasant groups.

Furthermore, to find out the most supportive factors in increasing the income of semi-technical irrigated paddy rice farming businesses with an internal strategy matrix method called *Internal Factor Analysis Strategy* (IFAS). Based on the results of research on internal factors, the matrix values of strengths and weaknesses can be seen in Table 4.

Table 4. Matric Value strengths and weaknesses in increasing income for semi-technical irrigated rice farming in Pengandonan District in 2022.

IFAS		Weight	Rating	Score
Strength				
1.	Farmer Motivation	0.12	3	0.36
2.	Farmer Experience	0.16	3	0.48
3.	Suitability of paddy fields	0.12	2	0.24
4.	Technology adoption level	0.12	2	0.24
	Total			**1.32**
Weakness				
1.	Capital	0.12	2	0.24
2.	Fertilizer use	0.12	2	0.24
3.	Land	0.12	1	0.12
4.	Farmer Group Dynamics	0.12	3	0.36
	Total	1		**0,96**
The difference between Strength and Weakness Value				**0.36**

Based on the results of research on internal factors, the matric value of strength and weakness in increasing the income of semi-technical irrigated paddy rice farming in Pengandonan District, it is known that the total strength factor score is 1.32 and the number of weakness factor scores is only 0.96 and the difference in strength score with weakness is 0.36. This shows that the strongest factor in increasing the income of irrigated rice farming business is half technically greater than the weakness factor which is an obstacle in paddy rice farming.

Based on the results of the study, external factors that have been identified in developing a strategy to increase the income of semi-technical irrigated paddy rice farming in Pengandonan District, there are 4 indicators of opportunity used in developing a strategy to increase the income of semi-technical irrigated rice farming in Pengandonan District. Furthermore, to find out the most supportive factors in improving paddy rice farming with an external strategy matrix method called *the External Factor Analysis Strategy* (EFAS). Based on the results of research on external factors, the matric value of opportunities and threats in increasing the income of semi-technical irrigated paddy rice farming in Pengandonan District can be seen in Table 5.

Table 5. Matric Value of Opportunities and Threats in Increasing Income for Semi-Technical Irrigated Rice Farming in Pengandonan District in 2022

EFAS		Weight	Rating	Score
Opportunitities				
1.	Availability of credit access	0.10	2	0.20
2.	Availability of rice seeds and fertilizers	0.14	3	0.42
3.	Availability of infrastructure of production	0.14	2	0.28
4.	Government Support	0.14	2	0.28
Total				**1.18**
Threats				
1.	Seasonal conditions (rainfall)	0.14	2	0,28
2.	Price of production input	0.1	3	0,3
3.	Out-of-family labor	0.1	3	0.3
4.	Attacks of pests and diseases	0.14	3	0.42
Total		1		**1.3**
Difference between Opportunity and Threat Value				**-0.12**

From Table 5 it is known that the number of opportunity factor scores is 1.18 and the number of threat factor scores is only 1.3 and the difference between the opportunity score and the threat is –0.12. This shows that the threat factor in increasing the income of irrigated paddy rice farming business is half technically greater than the opportunity factor in the development of paddy rice farming business. As for what is meant by the four threat factors, it is low seasonal conditions (rainfall), production input prices higher than market prices, more labor outside the family, and high pest and disease attacks. The four factors of opportunity are the availability of access to credit, the availability of rice seeds and fertilizers, the availability of production facilities, and government support.

3.2. Strategy to Increase Income of Semi-technical Irrigated Rice Farming Business

The results of the study in Pengandonan Subdistrict showed that the matrix value of internal strategy factors was 0.36 and the matrix value of external strategy factors was -0.12. After calculating the weights of each internal and external factor, it is then analyzed using a position matrix. This matrix is used to see the position of the strategy of increasing the income of semi-technical irrigated paddy rice farming in the research area. Based on the table, the value of $X > 0$ is 0.36, and the value of $Y < 0$ is -0.12. The position of the coordinate point can be seen in the following Cartesius coordinates Figure 1.

This result shows that the position of the development of semi-technical irrigated paddy rice farming in Pengandonan District is in quadrant II (Diversification Strategy). The situation in quadrant II is a position that although advantageous but faces threats from outside. Farmers should increase their strength to deal with external threats to reduce failures or losses in paddy rice farming.

Table 6. Analysis of Interaction Strategies for Increasing Income of Rice Paddy Farming In Technical Middle Irrigation in Pengandonan District in 2022

Internal Factor	**Strength**	**Weakness**
	1. High motivation of farmers 2. Long farmer experience 3. Suitable paddy fields for farming 4. Increasing adoption rate Technology	1. Lack of capital 2. Fertilizer use which is not optimal 3. Narrow land area 4. Low activity of farmer groups
External Factor	**SO Strategy**	**WO Strategy**
Opportunities 1. Access to credit 2. Availability of seeds and Fertilizers 3. Availability of assistance with means of production 4. Government support in the construction/rehabilitation of irrigation channel	1. Take advantage of the availability of subsidies for production facilities from government support to further spur the motivation of farmers in increase production (S1, O3, O4) 2. Utilizing suitable productive land conditions for rice farming with the availability of seeds and fertilizers to increase production (S3, O2) 3. Always optimize the adoption rate of technology in tillage and take advantage of opportunities in the form of government support	1. Utilize credit access in the hope of obtaining capital loans for production costs (W1, O1) 2. Optimizing the use of fertilizers and utilizing the availability of subsidies for production facilities to increase production (W2, O3) 3. Optimizing narrow land areas by increasing the cropping index and utilizing government programs in the construction or rehabilitation of irrigation canals for farming activities (W3, O4) 4. Encourage the activeness of farmer groups in the use of seed availability and fertilizers to increase farmer production (W4, O2)
	ST Strategy	**WT Strategy**
Threats 1. Season (rainfall) 2. Increase in input prices 3. Labor outside the Family Attack pest disease	1. Take advantage of the high motivation of farmers by participating in the AUTP (Rice Farm Business Insurance) program in anticipation of crop failure due to pest and disease attacks (S1, T4) 2. Always optimize the adoption rate of technology and involve more of the workforce in the family in farming activities (S4, T3) 3. Increase the intensity of meetings with agricultural officials in overcoming the problem of rice pests and diseases (S2, T4) 4. Optimizing land conditions by improving irrigation systems (S3, T1)	1. Increase the activeness of farmer group members by jointly preventing pest attacks and disease (W4, T4). 2. Increase cooperation of farmer group members in the repair of irrigation canals to cope with rainy season conditions that are not erratic (W2, T1) 3. Increase the activeness of farmer groups by participating in the AUTP Rice Planting Business Insurance program) in anticipation of crop failure due to pests and diseases (W4, T4)

The diversification Strategy is a strategy that focuses on the ST (Strengths-Threats) strategy, which is a strategy that must be able to highlight strengths in order to overcome threats that may arise.

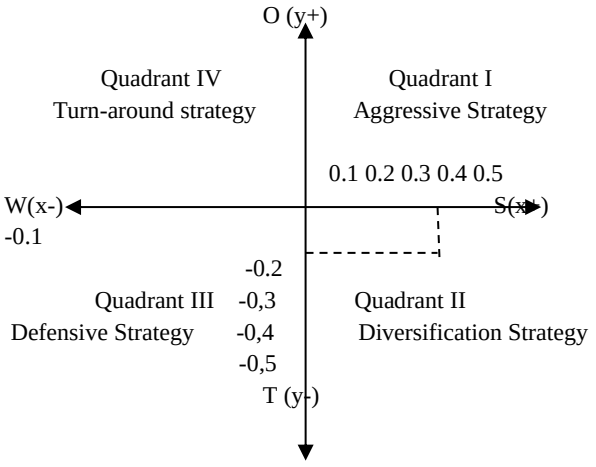

Figure 1. SWOT Position Matrix Semi-technical Improvement Strategy Irrigated Paddy Farming Income in Pengandonan District.

To determine the position of the strategy due to changes in the external environment by utilizing the advantages of the internal environment, a SWOT analysis is used. According to Ref. [19], the strategic decision-making process is always related to the development of the mission, strategic objectives and policies of the organization. In this study, the strategic objective of farming half-irrigated paddy rice is to increase income.

To find out more about the strategy of increasing the income of semi-technical irrigated rice farming in the Pengandonan sub-district is to identify alternative ways so that organizations can use their particular strengths to use opportunities or to avoid threats, and overcome weaknesses.

The SWOT matrix describes how management can match the external opportunities and threats facing a particular company with its internal strengths and weaknesses. This method leads to being able to use his special strengths to use opportunities or avoid threats, and overcome weaknesses. The SWOT matrix describes how management can match the external opportunities and threats facing a particular company with its internal strengths and weaknesses. This method leads to *brainstorming* to create alternative strategies that management may not have thought of [20]. This can be seen in Table 6. From Table 6, it is known what strategies can be carried out to increase the income of semi-technical irrigated paddy farming in Pengandonan district. These strategies include the SO strategy (using strengths by taking advantage of opportunities), the WO strategy (minimizing

 https://doi.org/10.29165/ajarcde.v6i3.127

weaknesses by taking advantage of opportunities), the ST strategy (using strengths by overcoming threats), and the WT strategy (minimizing weaknesses by avoiding threats).

4. CONCLUSION

Based on the results of research in Penganonan District, it can be concluded that the semi-technical irrigated rice farming business in Pengandonan District is profitable and feasible to be developed. Strategies that can be applied in the research area to increase the income of semi-technical irrigated paddy rice farming businesses are diversification strategies, among others, by utilizing long-standing farming experience to overcome pest and disease attack problems, continuously optimizing the level of technology adoption, and overcoming the amount and cost of labor outside the family so that the production process runs well, and optimizing suitable land conditions and overcoming seasonal (rainfall) problems by improving irrigation systems. Based on the conclusions of the study, it can be suggested to the government continue to provide support and assistance to farmers evenly and sustainably in the form of assistance for production facilities and the construction/repair of irrigation canals and re-energize farmer groups. Conducting socialization/counseling and training of farmer groups regularly as well as making plots so that the income of paddy rice farming businesses increases. Farmers should be able to optimize the use of their resources and increase the level of technology adoption so that paddy rice production can be optimal.

References

[1] Manggala, R. B., & Boedi, A. (2018). Faktor-Faktor Yang Mempengaruhi Produksi Padi Di Desa Sumengko Kecamatan Sukomoro Kabupaten Nganjuk. Jurnal Ilmu Ekonomi, 2, 441–452.

[2] Lynn. 2013. Pembangunan Pertanian. http://id. Scribd. com/doc/198042799/pengertian pembangunan-pertanian Diakses pada tanggal 2 Februari 2016.

[3] warto. 2012. Produktivitas Lahan Usahatani Sesuai Kelembagaan Lahan. https: //eprints. uns. ac. id/12634/1/publikasi _jurnal_(44). pdf. Diakses pada tanggal 11 Juni 2016.

[4] Pindyck, R. S., D. L. Rubinfeld. 2001. Microeconomics. Fifth Edition. New York: Prentice Hall Internasional, Inc.

[5] Ilham,T. 2010. Diversifikasi Pangan dan Penyuluhan Pertanian Sebagai Upaya Mewujudkan Ketahanan Nasional. Kompas. Diakses pada tanggal 2 Februari 2016.

[6] BPS.2021 Provinsi Sumatera Selatan: Survei Kerangka Sampel Area (KSA).

[7] BPS. 2021 Kabupaten Ogan Komering Ulu.

[8] anjung, A. F. (2020). Strategi Peningkatan Pendapatan Petani Padi Sawah Di Kabupaten Labuhan Batu. JASc: Journal Of Agribusiness Sciences, 3(2), 59–68.

[9] Suryadi, E (2019). Metode Penelitian Komunikasi (dengan pendekatan Kuantitatif) Bandung: PT Remaja Rosdakarya.

[10] Hardani (2020). Metode Penelitian Kulaitatif & Kunatitatif. Yogyakarta. Pustaka Ilmu.

[11] Sevilla, G. Consuelo dkk. 1993. Pengantar Metode Penelitian. Jakarta: UI-PRESS

[12] Soekartawi. 2002. Analisis Usaha Tani, Universitas Indonesia, Jakarta.

[13] Salim, M.A., Siswanto, A.B. (2019). E-Book : Analisis SWOT Dengan Metode Kuisioner. (https://www.researchgate.net/publication/337673904_Analisis_SWOT_dengan_metode_kuesioner, di akses 8 November 2021).

[14] Saragih, B., R.A. Kuswardani, & S. Hasibuan. (2019). Strategi Peningkatan Pendaptan Usahatani Padi Sawah di Kota Tebing Tinggi. Jurnal Ilmiah Magister Agribisnis, 1(2) 2019: 177-189.

[15] Barokah, U., Rahayu, W., & Sundari, M. (2016). Analisis Biaya dan Pendapatan Usahatani Padi di Kabupaten Karanganyar. Agric, 26(1), 12-19. https://doi.org/10.24246/agric.2014.v26.i1.p12-19.

[16] Soekartawi. (2010). Analisis Usahatani. UI Press, Jakarta.

[17] AAK. (2003). Budidaya Tanaman Padi. Kanisius, Yogyakarta.

[18] Setiawati, A. (2007). Pengembangan Agribisnis Padi Sawah Melalui Pemberdayaan Kelompok Tani. JurnalPenyuluhan Pertanian Vol 2 No 2 November 2007 STTP Bogor.

[19] Rangkuti, F. (2006). Analisis SWOT Teknik Membedah Kasus Bisnis. Gramedia Pustaka Utama, Jakarta.

[20] Hunger David ,J. dan Wheelen, Thomas L. 2003. Manajemen Strategis. Yogyakarta:Andi.