

Duck business development strategy in duck farming center area of Indramayu Regency, West Java Province of Indonesia

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Abstract. Ducks are one poultry livestock that has a role as a food source for animal origin protein in meat and eggs. Indramayu Regency is one of the regions with the highest duck population in West Java Province. This study aimed to identify internal and external factors for a duck business development strategy in this area. It was conducted in Tugu Village, Sliyeg District, in 2021. This research was carried out by performing *Rural Rapid Appraisal* (RRA) and *Focus Group Discussion* (FGD) and filling out questionnaires. The implementation of RRA is carried out to identify the potential, opportunities, and problems faced in conducting duck livestock business. A SWOT analysis was used in this study by considering *Strengths, Weaknesses, Opportunities, and Threats*. It revealed that the duck farming business in Indramayu is a profitable business and plays an important role to support farmers' economic activities. For duck farming businesses in this region to develop correctly, there needs to be policy support for aggressive business improvement (*growth-oriented strategy*). Based on the SWOT analysis results, several general policy recommendations and technical policies were obtained as strategies for developing the duck farming business in the Indramayu regency.

1 Introduction

The duck farming business is one of the livestock businesses entirely developed in Indonesia. It is a business choice that can be used as a source of income because it has favorable prospects [1]. Duck farming has a role as a food source for animal protein providers in the form of eggs and meat and a source of income for their business actors. The demand for duck products has also increased along with the increase in population and awareness and knowledge about the importance of consuming nutritious foodstuffs [2].

Indramayu is one of the districts with the largest duck population in West Java Province. Based on data from the Central Bureau of Statistics [3], in 2020, there were about 3,187,931 heads or approximately 27.83% of the duck population in West Java Province. The duck meat and eggs are 2,336,869 kg and 19,383 tons, respectively [4], contributing to

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the enormous meat and duck eggs compared to other districts/cities in West Java Province. However, the livestock business carried out by farmers in Indramayu is mainly carried out by shepherds/extensive.

Egg production from the maintenance of ducks in shepherds shows results that have not been optimal compared to commercial efforts carried out intensively. In addition, other problems faced by local duck farmers are herding lands that depend on harvested rice fields and the stress faced by ducks when moved from one location to another. Another risk of moving ducks to other places is loss, hit, or poisoning due to chemicals in the rice fields where they are herding. It is necessary to make efforts in a planned, directed, integrated, and sustainable manner to obtain optimal results and quality products in the duck farming business. It is the background to the need for research on the analysis and strategy of duck business development in Indramayu Regency, West Java Province.

A duck business development strategy is essential to support the development of existing duck farming businesses. Strategi contains the meaning of a multidimensional concept that summarizes all the organization's critical activities, provides direction and purpose, and facilitates various changes needed as an adaptation to environmental developments. Strategy can also be expressed as a management pattern for successful business management [5]. It is necessary to review a strategy preparation from various aspects such as external and internal conditions. Therefore, this study aimed to identify internal and external factors and strategies for developing a duck farming business in Indramayu Regency.

2 Methodology

Table 1. SWOT analysis diagrams used to identify strategies

SWOT Diagram	Quad rant	Position	Strategy
<p>Opportunity</p> <p>Weakness</p> <p>Threat</p> <p>Strength</p> <p>● (3.02 : 3.18)</p> <p>Quadran IV (WO) Conservative Strategy</p> <p>Quadran I (SO) Development Strategy</p> <p>Quadran III (WT) Defensive Strategy</p> <p>Quadran II (ST) Addressing Threats Strategy</p>	I	Profitable business	Aggressive, following the strength of the effort owned and the magnitude of opportunities that are still available
	II	Strong effort but facing significant challenges	Diversify, do something new with the advantages you have to enter a new market with a new or old product
	III	Weak but very leisurely business	Take advantage of opportunities by maintaining market mastery to minimize weaknesses.
	IV	The business is in a loss-making condition.	Improve the strategy or even quit. Rescue strategies are needed for the direct effort.

Source: [8, 9, 10]

Research activities were carried out from April to December 2021 in Tugu Village, Sliyeg District, Indramayu Regency, West Java Province. Field information was collected using a Rapid Rural Appraisal (RRA) technique through field observation, Focus Group Discussion (FGD), and questionnaire filling. The focus of the information collection is

carried out to identify the potential, opportunities, and problems faced in conducting duck livestock business as respondents in this study involve ten relevant stakeholders [6,7], consisting of representatives of farmers, farmer groups, extensionists, local village apparatus, as well as representatives of private suppliers (Group Chairman, Gapoktan Chairman, Chairman of KTNA Indramayu).

The data and information collected are then mapped to see the existence of technological gaps in the research site. SWOT analysis considers *Strengths, Weaknesses, Opportunities, and Threats* [8-10]. SWOT identification in the field is then given a score and weight to calculate the total weighted average for Internal Factor Analysis (IFA) and External Factor Analysis (EFE). This value will show which quadrant farmers carry out the existing duck farming business. Table 1 explains the meaning of the results of the SWOT analysis value and the strategy recommendations that must make.

According to [8], the Internal-External (IE) matrix is divided into three main regions that have different strategies (Figure 1). First, if the business/organization is in cells I, II, and IV, the recommendations support business organizations to grow and build. Cell, I indicate that the company or organization is at its maximum or prosperous condition. The right strategy in these conditions is intensive or integrative, market penetration, and product development. Second, business organizations included in cells III, V, and VII; can manage the business by maintaining. The commonly used strategy for this business organization is market penetration and product development. Third, for the effort entered in cells VI, VIII, and IX. Divestment is often used to obtain capital for further strategic acquisitions or investments.

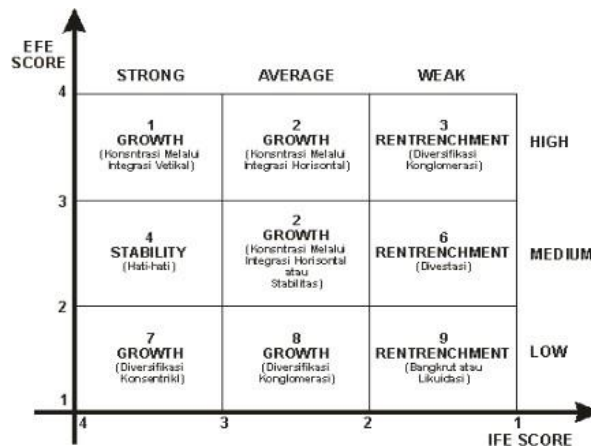


Fig. 1. IE (Internal-External) Matrix

Source: [8]

3 Results and discussion

3.1 Research location profile

Sliyeg District consists of 14 villages [3], where most business is farming, including raising ducks. Tugu Village is one of the villages in the Sliyeg Subdistrict, which has the largest area of 7.43 km² or approximately 14% of the size of the Sliyeg Subdistrict [3]. Tugu Village to the north is bordered by Sudimampir village, east by Sambimaya village, south by Tugu Kidul Village, and west by Longok Village. The distance of Tugu Village from the

district government center is 3.5 km, from the regency government center is 17 km, from the provincial government center as far as 180 km, and from the government center of the state capital is 315 km away.

The rainy season occurs for eight months in one year and four months in the dry season. Rains generally occur in November, increasing and peaking in January and February. The main commodity cultivated in farming is rice, and then supporting commodities are vegetables in the form of chili, eggplant, and long beans. The cultivated livestock are ducks, cows, goats, and sheep. Farmers who do duck farming business are 60 families from the number of families in Tugu Village, approximately 4,000 families. Farmers who rear goats or sheep are 35 families with a population of about 500 heads, and who have cows are 40 families.

The rice fields in Tugu Village are an area of 603 ha with two times cultivation/year, the number of Rice Milling Units (RMU) in this village is seven pieces, and rice production is 7.8 tons/ha. The grain produced is 4703.4 tons/season or 9406.8 tons/year. According to the available data, bran is made between 8-10% of milled grain. [11]. If it is assumed that all the resulting grain is milled in the available RMU, then the potential bran produced between 940.68-752.54 tons/year. The duck population in Tugu Village is 8,500 heads. If the required bran is assumed to be as much as 50 grams/head/day, then 155.13 tons/year of bran is needed. It means that the amount of bran produced from Tugu Village exceeds the need for duck farming business at the site.

Indramayu has considerable potential in the availability of feed materials for livestock because it is a rice farming area that produces rice bran. In addition, Indramayu is also a coastal area rich in animal protein sources such as fish and shrimp and snails. Widely available local feed ingredients are Rice bran, Dry rice (*Aking*), and fresh fish (*Rucah*). Although Indramayu is a food barn, the bran produced there is already a contract between the mill and the owner of the capital.

Rice farming is carried out twice a year with superior varieties, for vegetable commodities are carried out almost all year round on the embankment. Likewise, livestock business is carried out throughout the year. The involvement of family labor main ones who do farming are men (100%) and women who help cultivate about 25%, and children are only 5%. Non-agricultural activities carried out by farmers are trade, handyman, laborer others. Some women do non-agricultural business is about 5% in trade or become women's labor in neighboring countries.

The scale of the rice cultivation business is between 0.14-20 ha/household with an average of 0.35 ha/household. Most of the varieties are pursued, namely Ciherang and Mekongga. Another attempted commodity is banana plants that grow in rice fields or on dry land, with a banana harvest period three times a year. The yield per bunch of bananas is between 8-10 kg, with prices between IDR 2,000-3,000/kg. Duck commodities that are reared in general are *Rambon* and Peking types. The scale of the duck cattle business can be divided into three groups, namely household scale (ownership between 20-50 heads/household), which is maintained in the yard, medium scale, and large scale (above 1000 heads/family).

The pattern of farming business that farmers in Tugu village widely carry is mostly rice farming; more clearly, the type of farming patterns carried out is: Rice (90%); Rice – Ducks (5%); Rice – Goat – Sheep (3%); Rice – Vegetables (2%). The results of extracting further information are farmers who do farming and at the same time landowners by 70%, cultivators 25% and as workers only 5%. The number of duck breeders as owners as well as herdsmen (90%), laborers/herders (5%), and owners (5%).

The main problems in animal rearing are the high price of feed, the presence of diseases in ducks, and the fluctuation in the price of duck products. Diseases often found in ducks are blue eye disease and neck disease. The selling price of meat-type ducks is relatively

high in the dry season, while the selling price of duck eggs is low during the rice harvest season. In addition, ducks often experience difficult conditions in laying eggs during the rainy season. In contrast to the research reported by [12], the problems faced in the development of duck cattle agribusiness in Brebes are the low quality of human resources, limited capital, and the relationship between farmers and extensionists is still lacking.

3.2 Identification of internal and external factors

Table 2. Identification of internal and external factors of farming

Internal Factor	
Strengths:	Weaknesses
1. Hardworking and tenacious 2. Have motivation and passion 3. Braveness 4. Active and creative 5. Have experience in farming 6. The existence of a large agricultural land 7. Fertile soil 8. Have farm capital 9. Has the potential for local feed ingredients 10. Supporting infrastructure	1. Less interested in being an agonist because income is not promising 2. Farmers who have narrow land are less interested in diversifying (worried about loss) 3. Agricultural institutions are not yet strong 4. Fluctuating feed prices 5. Prices of agricultural products fluctuate 6. Availability of feed ingredients depending on the season 7. Maintenance system
External Factor	
Opportunities	Threats
1. There is an open market 2. Strategic position/location 3. Climate support 4. Ease of telecommunication/internet network 5. Technology support 6. Government and private support	1. The threat of food imports from outside the region 2. The threat of food imports from abroad 3. Regeneration of smallholder farmers 4. The existence of land transfer 5. The presence of an attack of the disease 6. The availability of duck seedlings lacks quality

Table 3. Calculation of strategy internal factor evaluation matrix (n=11)

Strengths	Weight	Ranking	Score
1. Hardworking and tenacious	0.0718	4.00	0.29
2. Have motivation and passion	0.0577	3.00	0.17
3. Braveness	0.0513	3.00	0.15
4. Active and creative	0.0640	3.00	0.19
5. Have experience in farming	0.0656	2.00	0.13
6. The existence of a large agricultural land	0.0524	2.00	0.10
7. Fertile soil	0.0442	2.00	0.09
8. Have farm capital	0.0694	3.00	0.21
9. Has the potential for local feed ingredients	0.0551	3.00	0.17
10. The existence of human resources	0.0589	3.00	0.18
11. Supporting infrastructure	0.0561	2.00	0.11
Subtotal			1.79
Weaknesses	Weight	Ranking	Score
1. Less interested in being a farmworker because income is not promising	0.0391	3	0.12
2. Farmers who have narrow land are less interested in diversifying (worried about loss)	0.0358	3	0.11
3. Agricultural institutions are not yet strong	0.0614	2	0.12
4. Fluctuating feed prices	0.0529	3	0.16
5. Prices of agricultural products fluctuate	0.0501	3	0.15
6. Availability of feed ingredients depending on the season	0.0494	3	0.15
7. Maintenance system	0.0648	2	0.13
Subtotal	1.00		0.93
Total internal factor score			2.73

Based on the results of the FGD that has been carried out, it can be identified several internal and external factors from agricultural efforts carried out at the research site. A SWOT analysis compares internal factors, namely strengths and weaknesses; the external factors are opportunities and threats [10]. The results of FGD are known that Tugu village has quite a lot of strength factors (11) compared to weakness factors (4) in its internal factors. As for external factors, there is an equal number (6) between opportunity and threat (Table 2).

From the results of identifying the main factors in the problem and the potential development of the duck farming business in Indramayu, calculations were carried out for mapping the effects of IFA and IFE. SWOT analysis compares internal factors, namely strengths and weaknesses, with external factors, namely opportunities and threats. The analysis results obtain the awarding of values and ratings in Tables 3 and 4.

3.3 Development strategy

Based on the calculations in Tables 3 and 4 above, it was obtained that the duck farming business in Indramayu was in quadrant I position (internal factor score value 2.73 and external factor 2.72). It shows that the duck farming business is strong and is already on track. The research conducted on the duck farming business in Indramayu is almost the same as the research. [2, 1, 12, 5]. That the duck's efforts are in quadrant I (positive, positive) means that the duck's efforts are strong and have a chance with the strategy given is aggressive, where there is power used to seize the profitable opportunity.

Table 4. Calculation of matrix evaluation of external factors strategy

Opportunities	Weight	Ranking	Score
1. There is an open market	0.0952	3	0.29
2. Strategic position/location	0.0669	3	0.20
3. Climate support	0.0574	1	0.06
4. Ease of telecommunication/internet network	0.0707	3	0.21
5. Technology support	0.0760	3	0.23
6. Government and private support	0.0843	2	0.17
Subtotal			1.15
Threats	Weight	Ranking	Score
1. The threat of food imports from outside the region	0.0959	3	0.29
2. The threat of food imports from abroad	0.0788	3	0.24
3. Regeneration of Small Holder Farmers	0.0882	3	0.26
4. The existence of land transfer	0.0784	2	0.16
5. The presence of an attack of the disease	0.1059	3	0.32
6. The availability of duck seedlings lacks quality	0.1021	3	0.31
Subtotal	1.0000		1.57
Total external factor score			2.72

The position in quadrant I need to be supported by an aggressive business improvement policy (growth-oriented strategy) through institutional strengthening and intensive mentoring, training, and extension activities for innovation in agricultural cultivation technology. The mentoring/training/counseling and technology guidance activities carried out must be related to the preparation of local feed-based duck feed, disease recognition and prevention, processing and post-harvest, and marketing online. The mentoring activities must be regularly and on target to increase breeders' knowledge, skills, and capabilities. Extensionists have a prominent role in agricultural development, especially in mentoring and disseminating technological innovations to farmers. Therefore, according to [12], extensionists need to develop persuasive communication methods to motivate farmers to

improve and expand their businesses. In addition, farmers need active participation to adopt technological innovations that support their business to increase efficiency and productivity.

Furthermore, if you look at [8] for the strategy of a plan for duck farming business in Tugu Village included in cell V, namely in the condition of maintaining, this can be done through market penetration and product development. Online marketing efforts are also one of the activity recommendations that need to be done to expand the farmer's marketing network to not depend on local collecting merchants. The results of [13] research mentioned that one of the determining factors of success is marketing or promotion; web-based online marketing media is one of the marketing strategies to expand marketing reach.

Related to the results of calculations in Tables 3 and 4, it has been conveyed that the duck cattle business in Tugu Village is included in cell V. Of course, this strategy is supported by the results of identifying internal and external factors that are owned, namely through the SO strategy (the power possessed to take advantage of opportunities):

1. The strength of existing human and natural resources can take advantage of market opportunities with the support of technology/Government/Private, and telecommunication facilities
2. Business capital and available infrastructure supported by strategic business locations can be utilized to fill open market opportunities.

Some of the research that has been conducted related to duck farming business development strategies, reported by [14] in Merauke, the suggested development strategies are a) Improving the knowledge and skills of animal husbandry regarding alternative feeding for ducklings (*Azolla* sp. and Cassava waste), b) Utilizing existing potential (agricultural waste) as a source of feed, (c) Provide extensions of suitable breeding methods and good management, and (d) Applying procedures and post-harvest handlers to produce eggs of good quality. Another study reported by [1] in Banyuwangi formulated a duck business development strategy using the S-O strategy to take advantage of business opportunities by maximizing their internal strength. [15] in research conducted in Lamongan, the recommended duck farming business development strategy is: a) capital access, b) infrastructure support, c) business scale development, d) business network development, marketing, and business partnerships, and e) human resource development.

Indramayu duck livestock business is mainly carried out extensively (herding) in rice fields and moves depending on the availability of freshly harvested rice fields. The rice fields used to herd ducks are relatively distant, resulting in livestock stress and low egg production. Thus, there is a need to introduce intensive duck business management technology. Intensive livestock business requires the provision of sufficiently good feed in terms of quantity and quality. This opens up business opportunities to provide quality duck seedlings and the duck feed industry. [2] research in Semarang based on the results of SWOT analysis shows that development through vertical integration can be done by increasing human resources, utilizing natural resources, or feeding to minimize production costs. Although duck breeders are currently not experiencing problems in marketing.

Based on the factors of strengths, weaknesses, opportunities, threats, and references related to strategies that can do can draw up several strategic designs for the development of duck livestock business in Tugu Village as presented in Table 5.

Table 5. Sustainable duck farming business development strategy in Tugu Village, Sliyeg Subdistrict, Indramayu Regency

Internal (I) External (E)	Strengths (S) 1. Hardworking and tenacious 2. Have motivation and passion 3. Braveness 4. Active and creative 5. Have experience in farming 6. The existence of a large agricultural land 7. Fertile soil 8. Have farm capital 9. Has the potential for local feed ingredients 10. The existence of human resources 11. Supporting infrastructure	Weaknesses (W) 1. Less interested in being an agonist because income is not promising 2. Farmers who have narrow land are less interested in diversifying (worried about loss) 3. Agricultural institutions are not yet strong 4. Fluctuating feed prices
Opportunities (O) 1. There is an open market 2. Strategic position/location 3. Climate support 4. Ease of telecommunication/ internet network 5. Technology support 6. Government and private support	SO Strategy <ul style="list-style-type: none"> The strength of existing human resources and SDA can take advantage of market opportunities with the support of technology /Government/ Private and telecommunication facilities. Business capital and available infrastructure supported by strategic business locations can be utilized to fill open market opportunities. 	WO Strategy <ul style="list-style-type: none"> Open market opportunities, strategic locations, climate support, and ease of telecommunications access will increase public interest in duck maintenance efforts, including herders. The existence of technology and government/ private support can be used to help smallholder farmers, improve institutions, and stabilize feed prices.
Threats (T) 1. The threat of food imports from outside the region 2. The threat of food imports from abroad 3. Regeneration of smallholder farmers 4. The existence of land transfer 5. The presence of an attack of the disease 6. The availability of duck seedlings lacks quality	ST Strategy <ul style="list-style-type: none"> The strength of human resources and natural resources can be optimized to reduce food/feed imports, availability of seeds, overcome disease attacks, and transfer land functions. The motivation, capital support, and spirit of farmers' human resources can be used to support the regeneration of farmers. 	WT Strategy <ul style="list-style-type: none"> The stability of feed prices will reduce imports. Diversification of farming will reduce the risk of disease attacks Strengthening agricultural institutions will support farmer regeneration, reduce land transfer, and increase the availability of quality duck seedlings.

3.4 General policy recommendations and technical policies

Based on the SWOT analysis that has been done, a strategy formulation can be formulated, and general policies and technical policies are needed in the duck farming business. General policies that can carry out include a) Building a sustainable duck livestock business from the aspects of seedlings, feed, and markets [16]; b) Increasing human resource capacity; c) Increasing institutional capacity; d) Making regulations in support of the utilization of market potential. While technical policies that can do include: a) Conducting assistance, coaching, and institutional strengthening; b) Conducting technology transfer and

assisting technological innovations (seeds, feed, cultivation, and post-harvest) and improving product quality; c) Intensive training and counseling in the field of local feed-based duck feed preparation, introduction, and prevention of disease, processing, and post-harvest and marketing; d) Building institutional provision of livestock seeds and feed industry made from local raw materials; e) Conduct technology transfer and business diversification assistance [17, 18], and f) Advocate and socialize intensive duck business cultivation to increase the productivity of livestock products and improve the productivity of products.

4 Conclusion

The duck farming business in Indramayu was in the position of the first quadrant with a value of 2.73 and 2.72, which means that it is a profitable business, is in a vital state, and is already on track. For duck farming businesses in this region to develop correctly, there needs to be policy support for development strategy. This strategy can be achieved, among others, through institutional strengthening, mentoring activities, training, and counseling on technology innovations in the intensive duck farming business. Based on the SWOT analysis results, several general policy recommendations and technical policies were obtained as strategies for developing the duck farming business in the Indramayu regency.

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