

Analysis the development prospective of laying chicken-corn integration in West Java

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Abstract. Poultry industry has an important value in the supply of animal protein for domestic consumption. Poultry industry development in West Java is facing many problems that threat the future of poultry business. This study analyzed key factors in laying hen industry integration with corn farming in West Java. Primary data were obtained by conducting field observations, interviews and questionnaires. Secondary data were obtained from relevant literatures. Data were analyzed using the strategic management concept approach, IFE matrix and EFE matrix, IE matrix and SWOT matrix, and decision-making stages using Quantitative Strategy Position Matrix. Results showed the total internal analysis score of West Java is 2,608 (average), while the external is 3,396 (high). West Java position is in quadrant II. The strategy for this area is an intensive strategy or integrative strategy. Based on the SWOT matrix, intensive strategy were including increasings the production capacity, the number of employees, and the use of technology for promotion. The integrative strategy was business diversification by selling feed and other livestock production facilities. The priority level strategies were (1) increasing the production capacity (2) increasing the number of employees (3) conducting business diversification, and (4) carry out promotions.

1. Introduction

The poultry industry in West Java has an important value, especially in the supply of animal protein to meet domestic needs. Agribusiness development of laying hens is very prospectives as egg consumption is steadily increase by 6.28% in last 15 years [1]. Egg produced by laying hen dominates consumed egg in Indonesia, that reach 65% of the market. The rest of egg market is filled with egg produced by native chicken, duck and quail. Egg consumption per kapita is higher than the consumption of other livestock products, because eggs are easily obtained and relatively affordable [2].

Feed costs in livestock businesses account for 60 to 70% of total production costs. In feed for laying hen, the proportion of corn in the feed formulation is around 47.14%, thus the total corn used in feedmill industry reached 83% of its production [3]. One strategy to overcome the problems of feed price is by integrating crop farming with livestock, in particluar is integration of laying hen farming with corn farming. The purpose of this study is to analyze the various main factors, those are the strengths, weaknesses, opportunities, and the threats, in the development of laying hen-corn farming integration in West Java.



2. Material and methods

2.1. Material

Study involved 20 laying hen farmings in area of Bogor and Garut, West Java, those were chosen by proportional random sampling.

2.2. Methods.

Data were collected through: (1) interview to find out quantitative aspects using a structured and prepared questionnaire, (2) literatures study to obtain supporting data from secondary data; (3) Focus Group Discussion (FGD) to collect qualitative information in a specific issues, especially to determine the internal and external factors.

Data were analysed in in several ways, namely the analysis of IFE and EFE matrix (internal and external environment), SWOT analysis [4], and analysis of Quantitative Strategy Position Matrix (QSPM) [5].

3. Results and discussion

3.1. Performance

The profile of laying hens in West Java is (a) the average age of breeders is 45.2 years (medium category), (b) the level of education of most farmers is high school of 60.52% (medium category), (c) the average number of family members is 4 (medium category), (d) experience of raising an average of 25.48 years (medium category), (e) livestock livelihood as a basic livelihood with a percentage of 73%, (f) The average livestock population is 97,000 (category 3), (g) livestock funding sources are mostly on loans in financial and cooperative institutions 50%, (h) chicken egg production is 3,260,640 items per year on average, (i) 100% smooth transportation, (j) the enclosure environment is protected from noise, sufficient sunshine, and cleanliness of 100%, (k) livestock business income which is equal to 139,775,214 per year and Gross Profit Margin of 5 %

3.2. Internal factor analysis

The internal analysis is important to know the strengths and weaknesses. This can help determine the right strategy in developing a livestock business. Weighting each variable is done using the Paired Comparison method. Based on the results of calculations with the IFE matrix, it is known that the ease of obtaining raw materials is recognized as the most important factor in production activities with a score of 0.312 and is the strength possessed by livestock businesses in West Java to provide the best for consumers. Based on the results of the analysis on the IFE matrix, it can be seen that the total internal analysis score is 2.914, indicating that West Java has internal factors that are classified as average, the ability of livestock businesses to use strength and reduce weakness is moderate.

3.3. External factor analysis

External environment is an environment that is outside the farm business. The external environment consists of an external macro environment and a micro external environment. Macro External Environment consists of economic, socio cultural, government and political policies, and technology. Changes in the environment can cause changes in consumer demand for products or services. Micro external environment includes the bargaining power of suppliers, the bargaining power of buyers, the threat of substitute products, the threat of new entrants, and competition between existing livestock businesses. Based on the results of the analysis on the EFE matrix, it can be seen that the total external analysis score is 3.003.

3.4. SWOT Analysis

SWOT is a strategic planning method to evaluate the strengths, weaknesses, opportunities, and threats of a project or business activity[4], will specify the purpose of an activity and identify internal and external factors that are favorable and unfavorable in achieving the objectives. SWOT analysis is a decision formulation and to determine strategies taken based on logic to maximize strengths and opportunities, but simultaneously can minimize weaknesses and threats.

Based on the SWOT analysis, several alternative strategies are established. The strategies that can be carried out as a consideration for the development of integration laying hens with corn in West Java are (Table 1):

a) Strategy S-O

- a. Development of farmers's skills
- b. Business scale development
- c. Increased market share to reach market position leader through policy from local government
- d. related company

b) Strategy W-O

- a. Maintain product quality.
- b. Ensuring Product Quality.
- c. Sustainable Production.
- d. Guarantee in capital
- e. Optimize officers field

c) Strategy S-T

- a. Increased production through control and supervision against pests or diseases livestock, so that livestock business can be sustainable.
- b. Domestic market protection (S1, S2, S3, T1, T3)
The global market allows all external products or imports to enter Indonesia easily. Protection policies that have been regulated by the World Trade Organization (WTO) such as safeguards (tariff protection) and antidumping must be able to be optimized by the government to protect the domestic market. Government policy needs to implement strict application of standardization of imported products and installation of import duty rates for products from abroad. Improving product quality and adjusting to the basic needs of the community. Protection policies for an industry, especially with using price instruments, intended to protect the interests of producers [5].
- c. Application Low Eksternal Input Sustainable Agriculture (LEISA) and zero waste (S1, S2, S3, S4, S5, S6, T2, T3, T4, T5).

The LEISA concept is: (1) optimizing utilization local resources (feed), (2) optimizing the cycle zero waste, (3) minimize damage environment, (4) diversifying businesses, (5) goals stable production, adequate in the long run, and (6) creating independence [6]. The touch of technology will optimize the use of agricultural waste and agricultural industrial byproducts as alternative feed sources. Livestock waste is processed into organic fertilizers that are useful for plants and restore soil fertility. The efficiency of land use can be increased, while at the same time giving added value to farmers.

d) Strategi W-T

- a. Optimizing capital effort and improve inner ability agribusiness development
- b. Growing financial institutions in the countryside (W1, W2, T1, T3, T5)
The forms of financial institutions needed are those that provide loans (credit), and accommodate the storage of farmers' funds. Microfinance Institutions (MFIs) or Micro Finance Institution is an institution suitable for rural communities. MFIs are institutions that carry out activities to provide financial services to small and micro entrepreneurs as well as low-income communities that are not served by formal financial institutions and that have been market oriented for technical purposes [7]. Through farmer groups and assistance from officers / extension agents, loans can be coordinated.. The existence of financial institutions in

China in providing capital for farmers is very helpful in increasing the income of farmers in rural areas [8].

c. Improve business efficiency (W2, W4, T1, T2, T3)

Business efficiency through increasing business scale, implementing appropriate technology, optimizing the use of land resources and optimizing group functions in the provision of production and marketing facilities. The efficiency of laying hens livestock business in one with a partnership pattern has been widely applied and developed well [9].

d. Socialization and application of appropriate technology (W5, T3,T4).

Community empowerment through the management of appropriate technology is carried out based on the following principles: (1) Improving economic business, (2) Developing entrepreneurship, (3) Providing sustainable benefits, and (4) Simple [10].

The position of West Java is in quadrant II (growth strategy). The strategy for this area is Intensive Strategy (market penetration, market development and product development) [11]. Based on the SWOT matrix, intensive strategy (market penetration) is an increase in production capacity, an increase in the number of employees, and the use of technology. An integrative strategy is business diversification by selling feed and other livestock production facilities. Priority level strategies are (1) increased production capacity with a score of 7.149. (2) increasing the number of employees with a score of 6,354 (3) conducting business diversification with a score of 5,083 (4) utilizing technology to carry out promotions with a score of 5,178.

Tabel 1. Formulation of the Strategy for Integrations Laying Hens with Corn in West Java with the SWOT Matrix

INTERNAL FACTOR EXTERNAL FACTOR	STRONG S1= Ease of getting raw materials S2= Good institution S3= Good distribution channels and information systems S4= Sufficient infrastructure facilities S5= Availability of land and water S6= Local workforce S7= Affordable egg prices	WEAKNESS W1= Product selling prices depend on the market W2= Not maximizing existing technology W3= The marketingsystem is not maximized W4= Cultivation is not yet efficient W5= The skills of farmers are still low W6= Capital limitations
	OPPORTUNITY O1= Improvement the economic situation O2= The agricultural sector is more resistant to the economic crisis O3= Egg needs are increasing O4= Changes in people's lifestyles O5= Development of Science and Technology O6= Regional autonomy	STRATEGY S-O a. Development of breeders' skills b. Business Scale Development c. Increased market share to reach market position leader through policy from local government and related company
THREAT T1 = Fluctuations in raw material and egg prices T2 = The replacement product T3 = Competition between regions T4 = Scarcity of production raw material supply T5 = External / Import Products T6 = Rise in fuel prices T7= Disease transmission	STRATEGY S-T a. Increased production through control and supervision against pests or diseases livestock. b. Domestic market protection c. Application LEISA and zero waste	STRATEGY W-T a. Optimizing capital effort and improve inner ability agribusiness development. b. Growing financial institutions in the countryside c. Improve business efficiency d. Socialization and application of appropriate technology

SPM matrix analysis aims to determine the relative attractiveness of the various strategies that have been chosen, and to determine which strategies are considered the best to implement based on the

results of analysis in the first stage (the input stage) and the second stage (the matching stage). Based on the results of the QSPM analysis, it can be seen that the TAS (total attractiveness score) value of the laying chicken agribusiness development strategy that shows the highest to lowest values is as follows: (a). Increased market share to reach the market leader position through government policies related regions and companies, with a score of 5,194. That means that the strategy of developing laying chicken agribusiness is the main choice, (b). The strategy of increasing production through control and supervision of pests or diseases of livestock so that livestock business can be sustainable becomes the second choice with a score of 4.661, (4). Alternative strategies by providing guarantees in capital and optimizing field officers become the third choice with a score of 4,560. The strategy to optimize business capital and improve capabilities in agribusiness development is the fourth choice with a score of 4.194.

4. Conclusion

West Java is in quadrant II (growth). The recommended strategy for the development of laying chicken breeding business includes: (a). Increasing market share to reach the market leader position through policies from the local government and related companies, such as conducting activities that can encourage the development of a market chain. (b). Control and control of livestock pests or diseases so that livestock businesses can be sustainable, such as carrying out monitoring of livestock health conditions in the field. (c). Providing guarantees in capital and optimizing field officers, such as forming low-interest and appropriate credit programs. (d). Enhancing capabilities in the latest agribusiness development, such as conducting integrated training.

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