Agroindustrial development strategy for herbal-cardamom coffee in Sumberjambe subdistrict, Jember district, East Java, Indonesia

N Kuswardhani*, M Rizky E P V S and Alifah D E
Department of Agricultural Industrial Technology, Faculty of Agricultural Technology, University of Jember, Kampus Tegal Boto Jl. Kalimantan I, Jember, 68121, East Java, Indonesia

Corresponding author: nita8994@yahoo.com

Abstract. Santuso II Forest Farmers Group has developed cardamom coffee as a herbal coffee drink to increase the value of coffee. It opens the opportunity to realizing coffee agro-industry startups and increasing farmers’ income in Sumberpakem Village, Sumberjambe District, Jember Regency. This study aimed to analyze internal and external conditions and to formulate and recommend business development strategy for the Santuso II Forest Farmers Group. The method was interview using a questionnaire. The data were then analyzed to obtain a strategy formulation using the analysis of Strengths, Weaknesses, Opportunities, Threats (SWOT). A business model was designed using the Business Model Canvas (BMC) and continued using the Quantitative Strategy Planning Method (QSPM). The results showed that there were 8 strengths, 12 weaknesses, 6 opportunities, and 3 threats. Based on weighing and rating, the weight value for the Internal Factor Evaluation (IFE) matrix is 2.89 and the External Factor Evaluation (EFE) matrix is 3.45. This value indicates a strong position in the Internal-External (IE) matrix with an intensive strategy or an integrative strategy. Based on the QSPM matrix analysis, the alternative priority strategy is promoting effectively and intensively through the marketing channels for herbal coffee which are very rare in the market.

1. Introduction
Coffee is a popular beverage in Indonesia that has a high economic value. The popularity is indicated by the increasing number of cafes in almost all cities in Indonesia. Various kinds of coffee drinks have also been circulated, including black coffee, 2 in 1, 3 in 1, and coffee that is mixed with other ingredients such as cloves, ginger, and cardamom. In 2019, Coffee production in Indonesia reached 760,963 tons, and in 2020 it is estimated to reach 773,409 tons [1]. In Indonesia, there are two varieties of coffee, namely robusta, and arabica. Robusta coffee dominated the production of coffee in Indonesia. (72.66%) in 2019 [1].

Cardamom has some health benefits, including for treating coughs, bad breath, and itchy throat, food flavorings, cakes, sugar, and as painkillers [2]. Coffee from cardamom is expected to increase economic value and provide benefits for health as herbal coffee drink. Cardamom herbal coffee product is diversification of coffee processing developed by the Santuso II Forest Farmers Group (KTH) in Sumberpakem Village, Sumberjambe District, Jember Regency. Based on the previous research, added value of cardamom herbal coffee for coffee and cardamom was 68% and 90% [3].
The problem with this business is that there are not many efforts to develop it which can be seen through simple production tools, unnoticed target markets, and less intensive promotions, so that the branding is still weak. For this reason, strategic analysis is needed to find the best strategy to develop agroindustrial herbal coffee. Through the stages of the Internal-External (IE) matrix, the SWOT matrix (Strengths, Weaknesses, Opportunities, and Threats), Business Model Canvas (BMC), and the Quantitative Strategic Planning Matrix (QSPM) method which can objectively show the best strategy from various alternatives.

2. Methods
The research method used the following steps:

a. Identification of problems
   Problem identification was the first step from planning, formulating questions, and formulating methods and solutions.

b. Data collection.
   In this research method, researchers used data collected in three ways: observation, in-depth interviews, and questionnaires.
   The data collection stage was carried out by conducting a Forum Group Discussion with eight key persons (academics, business actors, government/related services) and distributing questionnaires to found the internal and external factors, and then those were compiled into a SWOT table/matrix. The number of respondents that filled out the SWOT analysis questioner was ten respondents (community and experts). Respondents were asked to fill in the following criteria: 1 = very insignificant, 2 = not important, 3 = doubtful, 4 = important, 5 = very important [4].

c. Data analysis
   Data analysis became an advanced stage after data collection. The study was carried out by using:

   2.1. Analysis of internal and external factors SWOT method
   a. Compiling and distributing questionnaires to predetermined consumers and stakeholders.
   b. Conducting interviews with stakeholders to compile SWOT factors
   c. Calculating the weighting of the questionnaire results for consumers and stakeholders (IFAS & EFAS Matrix) and determining the SWOT strategy quadrant results.

   On the EFE matrix, a total score of 4.0 indicates that the company responses to opportunities extraordinarily and avoids threats in the industrial market [5]. A total score of 1.0 means that the company’s strategies do not take advantage of opportunities or avoid external threats. On the x-axis of the IE Matrix, the total IFE weight score of 1.0 to 1.99 indicates a weak internal position; a score of 2.0 to 2.99 is considered moderate, and a score of 3.0 to 4.0 is vital [6]. Similarly, on the y-axis, total EFE weight scores of 1.0 to 1.99 are considered underestimating; a score of 2.0 to 2.99 is deemed moderate, and a score of 3.0 to 4.0 is high. A total score of 1.0 indicates that the company’s strategy is not able to take advantage of existing opportunities or avoid emerging threats [4].

   2.2. Business model canvas (BMC) analysis stage
   The analysis was conducted by mapping 9 BMC business elements (Customer Segments, Value Proposition, Channels, Customer Relationships, Revenue Stream, Key Resources, Key Activates, Key Partnership, and Cost Structure) [7,8].

   2.3. Quantitative strategic planning matrix (QSPM) analysis
   Quantitative Strategic Planning Matrix (QSPM) is an analytical tool in decision making [9]. QSPM analysis aimed to objectively evaluate alternative strategies based on identified internal and external factors. This matrix evaluated and selected the best strategy that best fits the external and internal environment.
3. Results and Discussion

3.1. Internal and external factor of SWOT analysis

There are five components of internal factor that were identified for IFAS. This component were human resources, raw material, production activities, marketing and finance. Meanwhile the external factor consists of social cultural, market, competitor, supplier and government policy. The detail of internal factor and external factor are shown in Table 1 and Table 2.

Table 1. Internal factor of SWOT analysis

| Factors          | Strength                                                                 | Weakness                                                                                     |
|------------------|--------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| Human resources  | Employees who have experience in the production process                  | 1. Limited human resources                                                                  |
|                  |                                                                          | 2. The division of responsibility has not been maximal (multiple tasks).                      |
| Raw material     | Location adjacent to raw material                                         | 1. The production process is carried out traditionally in the same room                      |
| Production activities | The production process is well done                                      | 2. Production equipment is still simple                                                      |
| Marketing        | 1. Clear product name                                                    | 1. Target market has not been noticed                                                       |
|                  | 2. Has good benefits for health                                           | 2. Promotion is not intensive yet                                                            |
|                  | 3. Has several distribution channels (online and direct ordering)        | 3. Branding is still weak                                                                    |
|                  | 4. Prices are affordable                                                 | 4. PIRT has not finished yet                                                                 |
|                  | 5. Good product quality                                                  | • There is no halal label.                                                                   |
|                  |                                                                          | • Inclusion of the expiration date is manual                                                |
| Finance          | Limited capital                                                          | 5. The packaging is less attractive                                                         |
Table 2. External factor of SWOT analysis

| Factors                  | Opportunity                                      | Threat                                              |
|--------------------------|---------------------------------------------------|-----------------------------------------------------|
| Socio-cultural           | Lifestyle middle class of Indonesian society      |                                                     |
| Market                   | The trend and interest in domestic coffee continues to increase | Consumers are increasingly selective in choosing products |
|                          | Highlight the efficacy of the product for promotion |                                                     |
|                          | Utilization of information technology (social media) |                                                     |
| Competitors              |                                                   |                                                     |
| Suppliers                | Availability of adequate raw materials            |                                                     |
| Government Policy        | Support from the government (Training and Exhibition) | Halal certification and barcode fees are expensive |

3.2. Weighting the IFAS (Internal Factor Analysis Strategy) and EFAS (External Factor Analysis Strategy) matrix

From the SWOT factors results, the IFAS and EFAS matrices were analyzed to calculate the internal and external factors' weight. It was determined in the SWOT analysis diagram and then plotted in the quadrant location of the cardamom herbal coffee agro-industry development strategy.

Table 3. EFE Matrix

| No. | Factors                  | Weight (%) | Rating | Weight x Rating |
|-----|--------------------------|------------|--------|-----------------|
| 1.  | Socio-culture            | 0.092      | 2.875  | 0.26            |
|     | - Middle life style of Indonesian society |           |        |                 |
| 2.  | Market                   | 0.112      | 3.5    | 0.39            |
|     | - Increasing trend and interest in domestic coffee |          |        |                 |
|     | - Highlight the product efficacy for promotion | 0.120     | 3.75   | 0.45            |
|     | - Utilization of information technology (social media) | 0.116     | 3.625  | 0.42            |
| 3.  | Suppliers                | 0.120      | 3.75   | 0.45            |
|     | - Availability of adequate raw materials |            |        |                 |
| 4.  | Government policies      | 0.112      | 3.5    | 0.39            |
|     | - Support from the government (Training and Exhibition) |        |        |                 |
Factors

| No. | Threat                                                                 | Weight (%) | Rating | Weight x Rating |
|-----|------------------------------------------------------------------------|------------|--------|-----------------|
| 1.  | Market                                                                 | 0.112      | 3.5    | 0.39            |
|     | - Consumers are increasingly selective in choosing products           |            |        |                 |
| 2.  | Competitors                                                            | 0.108      | 3.375  | 0.36            |
|     | - Competitor products                                                  |            |        |                 |
| 3.  | Government policies                                                    | 0.104      | 3.25   | 0.34            |
|     | - Cost for halal certification and expensive barcode                   |            |        |                 |
|     | **Total**                                                              | **1.00**   | **3.45**|                 |

The score for each variable was obtained from the results of the questionnaires. The weighting results were obtained from the results of the FGD (Forum Group Discussion) by providing rank of the importance level of each variable. It can be seen that the result of the total score calculation on the EFE matrix is 3.45. The total score obtained is more than 2.5, indicating that the company can respond well to external factors by taking advantage of existing opportunities to overcome threats. From the IFE matrix, the total score is 2.89. The total score obtained is more than 2.5, indicating that the industry can handle the weaknesses in the industry’s internal position with its strengths. The result is shown in Table 3 and Table 4.

**Table 4. IFE Matrix**

| No. | Strength                                                                 | Weight (%) | Rating | Weight x Rating |
|-----|--------------------------------------------------------------------------|------------|--------|-----------------|
| 1.  | Human resources                                                         | 0.057      | 3.375  | 0.19            |
|     | - Employees with experience in the production process                   |            |        |                 |
| 2.  | Raw materials                                                           | 0.049      | 2.875  | 0.14            |
|     | - Locations close to raw materials                                     |            |        |                 |
| 3.  | Production activities                                                   | 0.066      | 3.875  | 0.25            |
|     | - The production process is well done                                   |            |        |                 |
| 4.  | Marketing                                                               | 0.057      | 3.375  | 0.19            |
|     | - Clear product name                                                    |            |        |                 |
|     | - Has good benefits for health                                          | 0.057      | 3.375  | 0.19            |
|     | - Has several distribution channels (online and direct ordering)        | 0.057      | 3.375  | 0.19            |
|     | - Affordable prices                                                     | 0.06       | 3.5    | 0.21            |
|     | - Good product quality                                                  | 0.064      | 3.75   | 0.24            |
| Factors | Weight (%) | Rating | Weight x Rating |
|---------|------------|--------|----------------|
| 1. Human resources | | | |
| - Limited human resources | 0.049 | 2.875 | 0.14 |
| - The division of job desk has not been maximal (multiple tasks) | 0.042 | 2.5 | 0.1 |
| 2. Production activities | | | |
| - The production process is still carried out traditionally and in the same room | 0.049 | 2.875 | 0.14 |
| - Equipment of production is still simple | 0.042 | 2.5 | 0.1 |
| 4. Marketing | | | |
| - Unattended target market | 0.04 | 2.375 | 0.09 |
| - Promotions that are not yet intensive | 0.045 | 2.625 | 0.11 |
| - Branding is still weak | 0.049 | 2.875 | 0.14 |
| - Uncompleted PIRT | 0.04 | 2.375 | 0.09 |
| - There is no halal label | 0.04 | 2.375 | 0.09 |
| - Inclusion of expiry date is still manual | 0.042 | 2.5 | 0.1 |
| - Unattractive packaging | 0.045 | 2.625 | 0.11 |
| 5. Finance | | | |
| - Confined capital | 0.038 | 2.25 | 0.08 |
| **Total** | **1.0** | **2.89** | **0.08** |

3.3. **Matrix IE**

The main strength of KTH Santuso II is the production activities. The production process was performed well, with a total score of 0.25. Meanwhile, the main weakness of KTH Santuso II is a financial factor, namely limited capital, with a total score of 0.08.

The foremost opportunity for KTH Santuso II is to focus on market factors, namely highlighting the efficacy of products for promotion. The supplier factor is the availability of adequate raw materials, with a total score of 0.45. Meanwhile, the main threat of KTH Santuso II is an expensive halal certification fee and a barcode with a score of 0.34.

The use of IE matrix analysis aims to determine the strategic position and the appropriate strategic alternative. The IE matrix is grouped into three groups [10]. Group 1 contains quadrant I, II, and IV, where this group's meaning is growth and development, so it is necessary to change the previous strategy. Group 2 contains quadrants III, V, and VII, where the group's meaning is a good strategy, so it needs to be maintained and maintained. Group 3 contains quadrants VI, VIII, and IX, which means harvest or divestment. The total score on the EFE matrix is 3.45, while the IFE matrix's total score is 2.89. Based on Figure 2, the analysis results show that herbal cardamom coffee is in cell II, grow, and
Possible strategies that can be done were market penetration, market development, and product development, or integration (backward integration, forward integration, and horizontal integration).

![IEE Matrix of herbal-cardamom coffee](image)

**Figure 2.** IE Matrix of herbal-cardamom coffee

### 3.4. Business Model Canvas (BMC) analysis with SWOT

The development of the herbal cardamom coffee business at KTH Santoso II used a business model using the Business Model Canvas to determine the developing industry's basic concepts. The following (Figure 3) are the results of BMC analysis on the development of herbal cardamom coffee agro-industry that has been identified from the SWOT results.
3.5. **SWOT Matrix**

The SWOT matrix produces several strategies obtained from internal and external factors according to the IE matrix product position, namely growth and build. Based on each key factor's components, there are nine alternative strategies in developing this herbal cardamom coffee business. An alternative approach was shown in Table 5.

![Figure 3. BMC of herbal cardamom Coffee](image)
Table 5. SWOT matrix

| Internal Factors | Strengths (S) | Weaknesses (W) |
|------------------|--------------|----------------|
|                  | 1. Employees who have experience in the production process. | 1. Limited human resources |
|                  | 2. Location adjacent to raw materials. | 2. The division of responsibility has not been maximal (multiple tasks) |
|                  | 3. The production process is well done | 3. The production process is still carried out traditionally and in the same room |
|                  | 4. Clear product name | 4. Production tools are still simple |
|                  | 5. Has good benefits for health. | 5. Unattended target market |
|                  | 6. Has several distribution channels (online and direct ordering) | 6. Promotion that is not yet intensive |
|                  | 7. Affordable prices | 7. Branding is still weak |
|                  | Good product quality | 8. Unfinished PIRT |
|                  | | 9. There is no halal label yet |
|                  | | 10. Inclusion of the expiration date is still manual |
|                  | | 11. Unattractive packaging |
|                  | | Limited capital |

| External Factors | Opportunities (O) | SO Strategy | WO Strategy |
|------------------|-------------------|-------------|-------------|
|                  | 1. Middle life style of Indonesian society. | 1. Increase product marketing through electronic media | 1. Improve industrial performance and through support from the government |
|                  | 2. The trend and interest in domestic coffee continues to increase. | 2. Implementing production using raw materials in fresh order to produce good quality products. | 2. Carry out an STP strategy (segmenting, targeting, and positioning) to get the right market. |
|                  | 3. Highlight the product efficacy for promotion | 3. Guarantee and improve product quality | 3. Promoting effectively and intensively by looking at wider opportunities through the marketing channels for similar products (herbal coffee) which are very rare in the market |
|                  | 4. Utilization of information technology (social media). | | |
|                  | 5. Availability of adequate raw materials | | |
|                  | 6. Support from the government (Training and Exhibition) | | |

| Threats (T) | ST Strategy | WT Strategy |
|------------|-------------|-------------|
| 1. Consumers are increasingly selective in choosing products | 1. Maintain product quality so that it is better and can compete competitively at affordable prices. | 1. Improve the quality of appropriate production |
| 2. Competitor products | | 2. Complete business license and label information on packaging to increase consumer interest and trust |
| 3. Cost of halal certification and expensive barcode | | |

3.6. QSPM (Quantitative Strategy Planning Matrix) Analysis

QSPM is the final choice of strategy that is suitable and applicable for marketing herbal cardamom coffee. QSPM was created by giving an AS (Attractiveness score) for each internal and external factor of the proposed strategy. AS scores range from 1 to 4 with criteria 1 = no effect, 2 = little influence, 3 = moderate influence, 4 = very influential. AS's value was obtained by aligning internal and external strategic factors that can influence strategic alternatives [11,12]. For example, the internal factor of CoFresh, strategy 1 with the internal strength factor of "increased marketing through electronic media," is given an AS value of 4 because this strength greatly influences strategy number 1 in the QSPM matrix. The AS value multiplied by the priority weight equal to the Total Attractiveness Score (TAS). The highest number of TAS was a priority strategy to improve the business.
The results showed the highest TAS value of the nine strategies, namely strategy promoting effectively and intensively by seeing wider opportunities through marketing channels for similar products (herbal coffee) which are very rare in the market. This strategy received the highest score of 7.26. This strategy shows that increasing marketing through promotion and cooperation is a priority in developing this business. The results of the calculation of the QSPM matrix were shown in Table 6.

**Table 6. QSPM Analysis**

| No. | Alternative Strategies                                                                 | TAS  | Rating |
|-----|----------------------------------------------------------------------------------------|------|--------|
| 1   | Promoting effectively and intensively by seeing wider opportunities through marketing channels for similar products (herbal coffee) which are very rare in the market | 7.261| 1      |
| 2   | Ensuring and improving product                                                          | 7.163| 2      |
| 3   | Quality Improve the quality of production that is appropriate to complete               | 6.748| 3      |
| 4   | Business license and label information on packaging to increase interest and consumer confidence | 6.724| 4      |
| 5   | Maintain product quality to be better and to be able to compete competitively at affordable prices | 6.629| 5      |
| 6   | Increase product marketing through electronic media                                      | 6.465| 6      |
| 7   | Implement production using raw materials fresh to produce good quality products          | 6.452| 7      |
| 8   | Carry out an STP strategy (segmenting, targeting, and positioning) to get the right market | 6.252| 8      |
| 9   | Improve industrial performance and through support from the government                  | 6.19 | 9      |

4. Conclusion

KTH Santuso II has eight strengths, twelve weaknesses, six opportunities, and three threats. The results of the calculation of internal and external factors show the position of KTH Santuso II is currently in quadrant II with an IFE value of 2.89 and an EFE value of 3.45, which indicates that KTH Santuso II is in growth and builds a position to implement an intensive strategy or an integrative strategy. The SWOT analysis resulted in nine strategic alternatives with a strategic priority: to promote effectively and intensively by seeing wider opportunities through marketing channels for similar products (herbal coffee), which are very rare in the market with a TAS value of 7.261.

References

[1] Direktorat Jenderal Perkebunan (Dirjen Perkebunan) 2019 *Statistik Perkebunan Indonesia: Kopi Tahun 2018-2020* (Jakarta: Kementerian Pertanian)
[2] Tambunan L R 2017 *Kimia Riset* 2 57–60
[3] Beta Rianul Setiawati dan Djoko Soejono 2019 Nilai Tambah dan Prospek Pengembangan Agroindustri Kopi Herbal Kapulaga di Desa Sumberpakem Kecamatan Sumberjambe. e-Proceeding Seminar Nasional (Jember: Universitas Jember)
[4] David F R 2011 *Strategic management: concepts and cases* Ed 13th (New Jersey: Pearson Education, Inc)
[5] Rusdiansyah 2016 *Bina Insani ICT Journal* 3 145–153
[6] Umar H 1999 *Riset Strategi Perusahaan* (Jakarta: PT. Gramedia Pustaka Utama)
[7] Osterwalder, Alexander and Pigneur Y *Business Model Generation* (Jakarta: Penerbit Gramedia)
[8] Aang F P P and Ramadhan F 2020 *Journal of Industrial View* 02 33–42
[9] Putri N E, Astuti R and Putri S A 2014 *Jurnal Teknologi Dan Manajemen Agroindustri* 3 93–106
[10] Setyorini H, Effendi M and Santoso 1 2016 *Jurnal Teknologi dan Manajemen Agroindustri* 5 46–53
[11] Latifa N H and Rochdiani D 2020 *Jurnal Pemikiran Masyarakat Ilmiah Berwawasan Agribisnis* 6 33–42
[12] Mujiastruti R et al 2019 *Jurnal Ilmiah FIFO* 11 52–64