The Prospect of Nutmeg (*Myristica Fragrans Houut*) Organic Development (A Case Study in Ngidiho Village Distric of West Galela, North Halmahera Regency)

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Abstract. This research aims to determine the prospects of organic nutmeg development and analyze internal and external factors of organic nutmeg development. Furthermore, it is analyzed by the formula of SWOT Analysis (Strengths, Weaknesses, Opportunities and Threats) to analyze the development prospect of organic nutmeg. From the research result of development prospect of organic nutmeg which developed research area in Ngidiho Village of West Galela District of North Halmahera Regency, it is seen from biophysical aspect seeming that climate condition is very supportive, from social aspect also seems the local society are very supported the development prospect of organic nutmeg and also economic aspect one of the determinants in improving the economy of local society which also increasing the production because those are supported by aspects of the availability of agricultural facilities and experience in organic nutmeg. The result of identification by SWOT analysis of internal factors there are five strengths and five weaknesses, while on the external environmental factors there are five opportunities and five threats. The integration of IFAS 2.74 and EFAS value is 2.80. In the SWOT diagram shows that the position of organic nutmeg development located in quadrant I or strategy that is made by using all the strength to make use the opportunity of aggressive strategy that is to encourage farmers to maximize the land as the development of organic nutmeg by improving the product quality, intensification of agriculture done by doing development like giving organic fertilizer to nutmeg plants, to increase production and meet market demand.

Keywords: Organic Development of Nutmeg (*Myristica Fragrans Houut*)

1. Introduction

1.1 Study Area

Nutmeg (*MyristicaFragransHouut*) is a native Indonesian plant that has been known as a spice plant, so Indonesia is the world's largest nutmeg producer (70-75%). Indonesian nutmeg commodities are mostly produced by smallholder plantations which is about 98.48%. (Central Commodity Industry, Deptan, 2009).
North Maluku Province is one of the provinces that have the largest nutmeg plantation resources, but the nutmeg raw material available until now has not been maximally utilized, whereas if it is managed with the right tools and technology, nutmeg can produce high value economic product.

Seeing the opportunity of organic nutmeg forward is more tantalizing. BPTP of North Maluku has a big role to support organic nutmeg development throughout North Maluku. To achieve that, the Experimental Garden (KP) owned by BPTP of North Maluku which located in Bacan Island, South Halmahera can be used as a center for research and development of organic nutmeg. This program will not only optimize the potential of Experimental Garden, but will also become the reference center and 'show window' of Maluku North Maluku.

Besides, post-harvest technology innovation must become the main tool of BPTP in increasing the income of North Maluku nutmeg farmers, because flesh fruit of the nutmeg is thrown away as waste after the seeds and fuli has taken. Meanwhile, nutmeg flesh fruit is the largest part of fresh nutmeg (83.3%) compared to fuli (3.22%), seed shell (3.94%), and seeds (9.54%). BPTP has had various innovations for processing nutmeg, such as nutmeg syrup, jam, and nutmeg balm. Now the processing of nutmeg is not evenly distributed throughout North Maluku, in the future this nutmeg processed innovation becomes the priority innovation in all central nutmeg in North Maluku.

North Halmahera Regency is located on the northern edge of Halmahera and directly adjacent to the Pacific Ocean, this geographical position is certainly very strategic to be the entrance of international trade. No wonder, when World War II this area became a struggle between Japan and the United States Allied. There are three dominant plantation crops in North Halmahera Regency: coconut, nutmeg and cloves. Currently North Halmahera Regency which is about 170 km from the Capital City Province, it has grown organic nutmeg. Nutmeg is traditionally maintained with cultivation techniques that use local wisdom, without chemicals. The biggest advantage that farmers perceive in this way is a much higher price compared to non-organic nutmeg. In this connection, Ngidiho Village, West Galela District, North Halmahera District, is one of the villages located in Galela Barat District, most of the community owns organic plant nut plantations. So based on the description above the author examines the "The Prospect of Nutmeg (Myristica Fragrans Houut) Organic in Ngidiho Village Galela Barat District of North Halmahera".

1.2. Formulation of the problem
Based on the above background then the problems in this study are:
1. How is the Prospect of Organic nutmeg development for the community in Ngidiho Village, West GalelaDistrict in North Halmahera District?
2. How are the internal and external factors of organic nutmeg development in Ngidiho Village, West Galela District in North Halmahera District?

1.3. Research purposes
The purposes of this study are:
1. To find out the prospect of organic nutmeg development in Ngidiho Village, Galela Barat Sub-district, North Halmahera District.
2. To analyze internal and external factors of organic nutmeg development in Ngidiho Village, West Galela District, North Halmahera District.

2. Research Methodology
2.1. Object of research
This research was held in Ngidiho Village, West Galela District, North Halmahera Regency. The determination of the location of this research is purposive, because in Ngidiho Village, Galela Barat
Sub-district, North Halmahera Regency, is one of the central development of organic nutmeg. The research was doing in December 2017.

2.2. Sampling Method
The population in this research is organic nutmeg farmers located in Ngidiho Village, West Galela District in North Halmahera Regency, which amounts to 438 farmers of organic nutmeg. Arikunto (2003) explains that the Sample is part of the population. The study sample is part of the population taken as a data source and can represent the entire population.

None of the above statement, because the population is more than 100 people, then the sampling in this study using a random sample (Random Sampling). Sampling technique using Slovin formula is as follows

\[
n = \frac{N}{(N \cdot e^2) + 1}
\]

\[
n = \frac{438}{(438 \cdot 0.01) + 1}
\]

\[
n = 81\quad \text{respondents}
\]

Where:
- \( n \) = Number of samples
- \( N \) = Population
- \( e \) = The critical value (limit of accuracy) used is 10%.

The population in this study was 438 people. Based on the formula, then the number of respondents in this study were as many as 81 people.

2.3. Data Retrieval Method
Source of data used in this research are:
- a. Primary data
  Primary data is obtained by interview method using predefined questionnaire
- b. Secondary data
  Secondary data is data and information collected from the community of organic nutmeg development and related institutions.

2.4. Data analysis method
2.4.1. Descriptive Analysis of Organic Nutrition Development Prospects
Descriptive method is a method in researching a group of people, an object, a condition or a class of events in the present. The purpose of this analysis is to make description, or event factual and actual systematically about the facts, characters and between the phenomenon relationship who investigated. Literally, descriptive method is a research method to create a description of one occurrence, so this method is to hold accumulation of basic data only, and to identify the prospect of organic nutmeg development in Ngidiho Village, North Galela Sub-district of North Halmahera Regency.

2.4.2. Analysis of Strength Weakness Opportunity Threat (SWOT)
To analyze internal and external factors of organic nutmeg development in Ngidiho Village, Galela Barat Sub-district, Halmahera Utara District, it is conducted by using SWOT analysis (Strengths, Weaknesses, Opportunities and Threats). This analysis is carried out by applying the criteria of conformity with quantitative data and description.
The weighting and scoring in the SWOT analysis is based on the interview result which is then justified in the form of weight and score. According to Rangkuti (2004), in Hermansah (2011), there are several steps performed in SWOT analysis, which are as follows:

1. **Data Collection Stage**

   This stage is an activity of classification and pre-analysis. At this stage the data are divided into two, namely external data and internal data. External data comes from the external environment (opportunities and threats), while internal data comes from within the organizers of organic nutmeg development in Ngidiho Village, Galela Barat District, North Halmahera District (strengths and weaknesses). This stage uses two matrix models of internal strategic factors. The internal strategy factor matrix is prepared by the following steps:

   a. In the first column the forces and weaknesses are drawn up.
   b. In column two weighed against each factor, ranging from 1.0 (most important) to 0.0 (unimportant), the weighted sums for all strength and weakness factors equal to 1.0.
   c. The weighted value is derived from the average of each question divided by the average total of questions given by the respondent.
   d. In column three, the rating scale is from 4 (Outstanding) to 1 (Poor), based on the influence of these factors on the condition of organic nutmeg development in Ngidiho Village, West Galela District, North Halmahera Regency. Rating rating for strength is positive (value 4 = Very large, 3 = Large, 2 = Medium, and 1 = Small), while rating rating for weakness is negative (4 = Small, 3 = Medium, 2 = Large, and 1 = Very Large).
   e. Each rating scale is the average of the ratings given by the respondent;
   f. In column four is filled with the value of the multiplication of the weight and rating of a same factor. The value of the times is a weighted score of that factor.
   g. In column five is given a comment or note why certain factors are selected and how the weighting score is calculated.
   h. Sums the weighted score in column four.

   Below is a bold 1 internal strategy analysis (Internal Strategic Factors Analysis Summary):

   | Internal Strategy Factors | Weighting | Rating | Score | Comment |
   |---------------------------|-----------|--------|-------|---------|
   | **Strenght :**            |           |        |       |         |
   | -                         | A         | B      | AxB   |         |
   | **Weakness :**            |           |        |       |         |
   | -                         | C         | D      | CxD   |         |
   | **Total**                 | **1,00**  |        | **(∑(axb)+∑(cxd))** |         |

   Matrix of External strategy factor is prepared using the following steps:

   a. In the first column there are opportunities and threats.
   b. Furthermore, column 2 is weighted against each opportunity and threat factor, ranging from 1.0 (very important), to 0.0 (unimportant). The total weight for all probability and threat factors equals 1.0.
   c. In column three is given rating scale from 4 to 1, based on the influence of these factors on the condition of organic nutmeg development in Ngidiho Village, West Galela District, North Halmahera District. The rating scores for opportunities are positive (value 4 = very large, 3 =
large, 2 = medium, and 1 = small), whereas rating rating for threats is negative (value 4 = Small, 3 = medium, 2 = large, and 1 = very large).

d. In column four is filled with the value of the multiplication of the weight and rating of a same factor. The value of the times is a weighted score of that factor.

e. In column five is given a comment or note why certain factors are selected and how the weighting score is calculated.

f. Sums the weighted score in column four. The value shows how the system reacts to external factors of its strategy.

The following table 2 analysis of external factors strategy (External Strategic Factors Analysis Summary):  

| External Strategy Factors | Weighting | Rating | Skor | Comment |
|---------------------------|-----------|--------|------|---------|
|                           | A         | B      | AxB  |         |
| Opportunity               | A         | B      | AxB  |         |
| Threats                   | C         | D      | CxD  |         |

Total 1.00 \(\sum(axb) - \sum(cxd))

Source: Rangkuti, 2004

2. Data Analysis Stage
At this stage, after all the information is collected, then utilize all the information in the quantitative models of strategy formulation. Data analysis used is SWOT analysis model, where there are four strategies that can be produced, that is strategy SO, WO, ST, and WT.

3. Decision Making Stage
At this stage, it reviews of four strategies that have been formulated in the analysis phase. Thereafter a decision is made in determining the most profitable, effective and efficient strategy for the organization based on the SWOT Matrix and ultimately a strategic plan for the next activity will be developed. The decision-making phase with SWOT Matrix can be seen in the following 3:

| External Strategic Factors Analysis Summary | Internal Strategic Factors Analysis Summary |
|-------------------------------------------|-------------------------------------------|
| **Opportunities**                          | **Strength**                              |
| (O)                                        | SO1                                       |
|                                            | SO2                                       |
|                                            | SO3                                       |
|                                            | ...                                       |
|                                            | Son                                       |
|                                            | Won                                       |
| **Threats**                                | ST1                                       |
| (T)                                        | ST2                                       |
|                                            | ST3                                       |
|                                            | ...                                       |
|                                            | STn                                       |

Source: Rangkuti, 2004
3. Results and Discussion

3.1. Prospect of Organic Nutmeg Development

Organic nutmeg farmers in Ngidiho Village, Galela Barat District, North Halmahera Regency, have long been developing organic nutmeg as a prime crop, with the reason the prospect is quite good seen from the price and productivity produced in this village. Some aspects that support the development of organic nutmegs among the seeds:

1. Biophysical aspects

Organic pepper plants require a hot climate with high rainfall and uneven / unchanged throughout the year with an ambient air temperature of 20-30°C. Nutmeg also includes a type of plant that is resistant to dry season for several months and requires loose soil and fertile, very suitable in volcanic soils and has good drainage. Nutmeg grows well on sand-textured soils to clays, high organic matter content, pH are between 5.5-6.5, and has a height of 500-700 m above sea level (Hatta, 1993). The nutmeg plants are very sensitive to strong winds, so these plants are not suitable in the open area without a shelter or windbreak. The wind is blowing too fast, not only the pollination of the bungga is disturbed, even the fruit, the flowers and the shoots of the plants will fall down. Therefore the areas that blow hard, in need of protective plants planted at the edge. However, too dense protective plants can inhibit nutmeg growth, and become rivals in obtaining nutrients (Hadad et al, 2006).

2. Social Aspects

In addition to the appropriate biophysical conditions, the development of organic nutmeg species in the village of Ngidiho Galela District of North Halmahera Regency is also favored by the community. Nutmeg is a type of plant that has long been known in the Village Ngidiho, District Galela West. So that the social development of nutmeg received by the local community. Farmers also have a good level of knowledge in nutmeg cultivation ranging from seeding to harvesting.

3. Economic Aspects

Economic development of agriculture is basically directed to the utilization of natural resources (land) and human labor so that produces production that can improve people's welfare. For this reason, efforts to develop coastal areas need to be directed at increasing land productivity and increasing Labor productivity. Increased agricultural productivity reflects a large marketable surplus and revenue retribution that benefits the agricultural sector (Todaro, 2005).

Farmers in Ngidiho Village, Galela Sub-district, North Halmahera Regency, in the development of organic nutmegs greatly benefit from the demand of domestic and overseas consumers is very high, so that economically can increase people's income.

3.2. Analysis of Organic Nutrition Development Strategy

1. Analysis of IFAS matrix (Internal Factor Analysis System)

Based on internal factors, it describes the strengths and weaknesses to determine the prospect of organic nutmeg development in Ngidiho Village, Galamas Sub-District in West Halmahera District. which is summarized into the IFAS matrix (Internal Factor Analysis System), for more details can be seen in Table 4 below:

| No | SWOT Analysis Factor                      | Score=WeightingxRating |
|----|------------------------------------------|------------------------|
|    |                                           | Weighting  | Rating  | Score  |
| STRENGTH (S) |                                    |            |         |        |
| 1  | Organic nutmeg quality                  | 0.11       | 3.11    | 0.36   |
| 2  | Farmers experience in developing organic nutmeg | 0.12       | 3.04    | 0.37   |
| 3  | The availability of sufficient labor    | 0.09       | 2.52    | 0.22   |
Based on the results of the interest made in Table 4 above, the total value of IFAS was obtained to find out the prospect of organic nutmeg development of 1.31 which consists of a strength score of 1.43 or with the highest strength score of 0.37 is organic nutmeg quality and weakness score 1.09 or with the lowest weakness factor score of 0.17.

Therefore considering the strengths and weaknesses that exist, then the prospects of organic nutmeg development, still occupy a strategic position strong enough to continue to be developed because the strength factor is more dominant than the weakness factor.

2. **EFAS Matrix Analysis (External Factor Analysis System)**

After identifying external factors of opportunities and threats related to the development prospects (Myristica Fragrans Houit) of organic nutmegs summarized in the EFAS matrix (External System Analysis Factor), more details can be seen in Table 5 below:

**Table 5. External Matrix of Analysis System Factor Factor (EFAS)**

| No | SWOT analysis factor                                                                 | Score=WeightingxRating | Weighting | Rating | Score |
|----|-------------------------------------------------------------------------------------|-------------------------|-----------|--------|-------|
| 1  | Prospect of domestic and overseas market                                             | 0.10                    | 3.64      | 0.38   |
| 2  | Government policies that support the development of Agroindustry                    | 0.09                    | 2.49      | 0.23   |
| 3  | The development of post harvest nutmeg technology                                    | 0.11                    | 3.36      | 0.37   |
| 4  | Good relationship with nutmeg agent                                                  | 0.09                    | 2.83      | 0.26   |
| 5  | There is attention from research and development for the development of organic nutmeg | 0.09                    | 3.25      | 0.31   |
| Amount |                                                                                     | 0.49                    |           | 1.54   |
### SWOT analysis factor

| No | SWOT analysis factor                                                                 | Weighting | Rating | Score |
|----|-------------------------------------------------------------------------------------|-----------|--------|-------|
| 3  | Lack of local government attention to the development of organic nutmeg              | 0.10      | 2.15   | 0.22  |
| 4  | Pest and disease attacks                                                             | 0.11      | 2.70   | 0.29  |
| 5  | Inconsistent local / central government policy between one Agency / Agency with others | 0.09      | 2.48   | 0.22  |

**Source:** Data After Processing (2017).

Based on the results of the interest made in the table above, obtained the total value of EFAS for organic nutmeg development results of (2.80) which consists of an opportunity score of (1.54) or with the highest chance score (0.38), ie domestic and foreign market prospects. For threat scores (1.26) or with the lowest threat factor score is (0.22). Taking into account the existing opportunities and threats, the organic nutmeg development in Ngidiho Village still occupies a strategic position to continue to be developed as the chance score increases more than the threat score.

SWOT Matrix is a tool used to construct factors as a strategic alternative that can clearly illustrate how the strengths and weaknesses (internal) faced so that they can be adapted to the opportunities and threats (external) they have in the prospect of developing nutmeg (Myristica Fragrans Houou) organic in Ngidiho village, Galela Barat District, North Halmahera District. Alternative development of organic nutmeg SWOT matrix, can be seen in Table 6 below:

| IFAS           | Strength                                                                 | Weaknesses                                                                 |
|----------------|---------------------------------------------------------------------------|-----------------------------------------------------------------------------|
|                | 1. Organic nutmeg quality                                                 | 1. Limited capital of nutmeg farmers                                       |
|                | 2. Farmer's experience in developing nutmeg organic                       | 2. Processing technology is still simple                                     |
|                | 3. Availability of sufficient labor                                        | 3. Information systems that have not been adequate                         |
|                | 4. Smooth transportation and availability of supporting facilities        | 4. Lack of market information                                               |
|                | 5. Availability of vacant land                                            | 5. Farmers' equipment is still simple to develop organic nutmeg            |

| EFAS | Opportunities | Strategy (S+O) | Strategy (W+O) |
|------|--------------|----------------|----------------|
|      |              |                |                |

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**Source:** Data After Processing (2017).
1. Prospect of domestic and overseas market
2. Government policies that support Agro-industry development
3. Delivery of post harvest nutmeg technology.
4. There is attention from research and development for the development of organic nutmeg

1. Maintaining the quality of organic nutmeg in meeting the needs of the buyers.
2. Increase farmers' experience to maintain organic nutmeg quality.
3. Optimize the availability of labor to optimize the availability of vacant land.
4. Utilizing the market information of organic nutmeg growers

1. Increasing organic nutmeg production.
2. Optimizing equipment owned.
3. Access Open market information.
4. There is support from research and development in involving farmers in trainings.

| Threat                                      | Strategy (S+T)                                      | Strategy (W+T)                                      |
|---------------------------------------------|----------------------------------------------------|----------------------------------------------------|
| 1. The existence of organic nutmeg competition | 1. Maintaining the quality of organic nutmeg in market competition. | 1. Organic nutmeg development by optimizing and increase production yield. |
| 2. Competition of substitution products     | 2. Assistance and training of farmers in the development of organic nutmeg. | 2. Increase the production of organic nutmeg processing |
| 3. Lack of local government attention to the development of nutmeg | 3. Increase human resources of organic nutmeg farmers through appropriate technology training | 3. Controlling the needs of farmers by borrowing from the Bank. |
| 4. Pest and disease attacks                 |                                                    |                                                    |
| 5. Inconsistent local/central government policies among agencies |                                                    |                                                    |

3. Alternative Decision Making Strategy On SWOT Analysis
Based on the assessment of IFAS (Internal Factor Analysis System) and EFAS (External Factor Analysis System) conducted on the strategy of prospects of organic nutmeg development in Ngidiho village, West Galela District, North Halmahera District. It can produce an average total IFAS value of (2.74) with a strength score of (1.43) and a weakness value of (1.31) while the mean total value of EFAS is (2.80) of the value of the opportunity (1.54) and a threat value of (1.26). To find out the prospect of organic nutmeg development in Ngidiho Village, Galela Barat Sub-district, Halmahera Utara District, based on internal and external factor assessment, there is a reduction between the number of strengths and weaknesses on the axis (X), and the reduction between the number of opportunities and the threat to the axis (Y) value, $X = (SW) = 1.43 - 1.31 = 0.12$ and the value of $Y = (OT) = 1.54 - 1.26 = 0.28$

Therefore, the numbers on both axes (X and Y = 0.12 and 0.28 are positive for the nutmeg development prospect (organic in Ngidiho village, West Galela district of North Halmahera District, for more details can be seen in the figure below.
Based on the picture above can be seen that the prospect of organic nutmeg development in Ngidiho Village, West Galela District of North Halmahera Regency is in quadrad I or strategy that is made using all the power to exploit the aggressive strategy opportunity that is to encourage farmers to maximize the land as the development of organic nutmeg by maintaining and improving product quality, intensification of agriculture by means of processing development such as the provision of organic fertilizers, to increase organic nutmeg production and meet market demand.

4. Conclusion
Based on the results of this research, the prospect development of organic nutmeg (Myristica Fragrans Fouout) in Ngidiho Village, West Galela District, North Halmahera District.
1. The prospect of organic nutmeg development in Ngidiho Village, West Galela District of North Halmahera Regency is viewed from the biophysical aspect, that is, the climate condition is very supportive, from the social aspect that the community is supportive in the prospect of organic nutmeg development and the economic aspect, is also one of the determinants in improving the economy community.
2. The result of internal and external factor analysis using SWOT are IFAS value equal to 2.74 and EFAS value equal to 2.80 and seen from SWOT diagram that prospect of organic nutmeg development in Ngidiho Village of West Galela District of North Halmahera Regency is in quadrad I.

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