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Analysis of Business Development Strategy Straw Mushroom Raw Material Empty Fruit Bunch in Lampung Province

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In Lampung, many businesses produce mushrooms made from empty fruit bunch (EFB) palm oil, this has a positive impact on companies and communities around the company. The objective of the research is to identify the strengths, weaknesses, opportunities, and threats of the EFB standard mushroom business and the analysis of its development strategy in Lampung Province. The result of the research shows that (1) the development of mushroom industry made from EFB in Lampung Province has the strength of raw material available in large quantities and easily obtained, while the weakness is mushroom is a product that is easily damaged and untreated mushroom waste; (2) the odds are that the need for food mushrooms is still high and tends to increase, while the threat is increasing production and transportation costs and uncontrolled extreme weather; and (3) the main priority strategy for the large business unit is the development of new mushroom processing business and the modernization of mushroom making technology, while for the small and beginner business unit is to encourage business development to reach economies of scale.

Keywords: Straw Mushroom, EFB, Development Strategy.

1. PRELIMINARY

In the process of processing fresh fruit bunches (FFB) of palm oil into crude palm oil (CPO) yielded about 21.5–23.0%, the rest in the form of by-products or waste in the form of liquid, solid, and gas. Solid waste consists of empty fruit bunch (EFB) (16–23%), fruit juice (11–26%), palm kernel cake (4%), shells (4–6%), and other solid wastes (16.5%) [6]. Other researchers mentioned the average number of EFB between 23% of total FFB [7].

According to Chang [1], the composition of EFB is 2.40–14.28% moisture content; material evaporates 70.03–83.86%; total carbon 8.97–18.30%; ash 1.30–13.65%; lignin 14.1–30.45%; cellulose 23.70–65.0%; hemicellulose 20.58–33.52% [1]. From the composition it is seen that in fact EFB has a high organic component, but also has a high lignin content. Lignin is the most difficult component to degrade. Lignin polymers are structurally associated with cellulose and hemicellulose. In order to be transformed into a simpler element, EFB must be degraded first [4].

In Indonesia, many efforts have been made to utilize EFB in various forms, for example as textile materials

and craft products [11], as organic fertilizers such as compost [5], as a medium for making mushroom [8], as a sound absorption composite amplifier [6].

From several efforts to utilize EFB which have been researched and suggested, it turns out that the community around the palm oil mills (POM) has utilized EFB as a medium for making mushroom. Even the manufacture of mushroom from the raw material EFB has become a profitable business. Observation results in the Province currently there are more than 6 units of mushroom manufacturing made from large-scale EFB raw materials. In addition, many small-scale EFB-made mushroom making businesses can not survive. Therefore, it is necessary to examine the development strategy of mushroom making business made from EFB raw material in Lampung Province.

The purpose of the penitentiary is as follows:

- (1) To get an idea of the problems faced by mushroom business made from EFB raw material in Lampung Province,
- (2) Identification of strengths, weaknesses, opportunities and threats of entrepreneurs of mushroom made from EFB raw materials in Lampung Province.

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Table I. Result of identification of mushroom made from EFB in Lampung province.

No.	Description	Business unit A	Business unit B	Business unit C
1	Owner	Individual	Individual	Individual
2	Starting business	2003	2012	2015
3	Legality	Village permits, SITU, SIUP	Village permits	Village permits
4	Number of employees (persons)	20–30	8	4
5	Human resource education			
	(a) Owner:	High school training	High school training	High school training
	(b) Employees:	Elementary-high school	Elementary-high school	Elementary-high school
6	Organizational structure	Simple	Simple	Simple
7	Technology processing	Simple	Simple	Simple
8	Number of Kumbung (units)	35–68	12	4
9	Size of Kumbung (m)	5 × 6 × 6	5 × 6 × 6	5 × 6 × 5
10	Materials of Kumbung	The bamboo framework, Bamboo rack, Asbestos roof, Ground floor	The bamboo framework, Bamboo rack, Asbestos roof, Ground floor	The bamboo framework, Bamboo rack, Asbestos roof, Ground floor
11	Utilization of waste	None	None	None
12	Location marketing	Around the factory, metro, Bandar Lampung, Jakarta, Palembang	Around the factory, Natar and Bandar Lampung	Around the factory and metro
13	Number of production (kg/day)	200–620	50–150	5–40
14	Processed products	None	None	None
15	Utilization of IT	SMS and WA	SMS and WA	SMS and WA
16	Promotion planned	None	None	None

(3) Analysis of the development strategy of mushroom made from EFB raw material in Lampung Province.

2. METHODS

2.1. Descriptive Analysis of Business Mushroom Raw Material EFB

Data obtained by looking directly at the conditions of the process in the field, direct interviews of business owners, workers, suppliers, and buyers of products. Further data obtained are displayed in table and photo form and narrated descriptively. The research was conducted in Business Unit A Raman Utara-East Lampung District, Business Unit B East Metro-City Metro, and Business Unit C Natar-South Lampung District. The three business units are continuously operated for 24 months.

2.2. Internal, External, and SWOT Analysis

SWOT analysis aims to generate strategic alternatives that can maximize strengths and opportunities and minimize weakness and threats [2]. This research phase aims to generate internal factors (strength and weakness) and external factors (opportunities and threats) of mushroom business made from raw material EFB in Lampung Province. The identification of internal and external factors is carried out using brainstorming and Focus Group Discussion methods with experts, stakeholders, and assessments of previous studies. The resource persons and experts involved are from academics, practitioners, and business actors. The data obtained are then analyzed using IFE and EFE analysis methods, and SWOT analysis.

2.3. Strategy Analysis of Business Development

Strategy analysis is conducted to sort alternative strategies based on priority scale. The determination of priority scale is done by asking questions to experts with paired comparison method. Determination of the weight of each

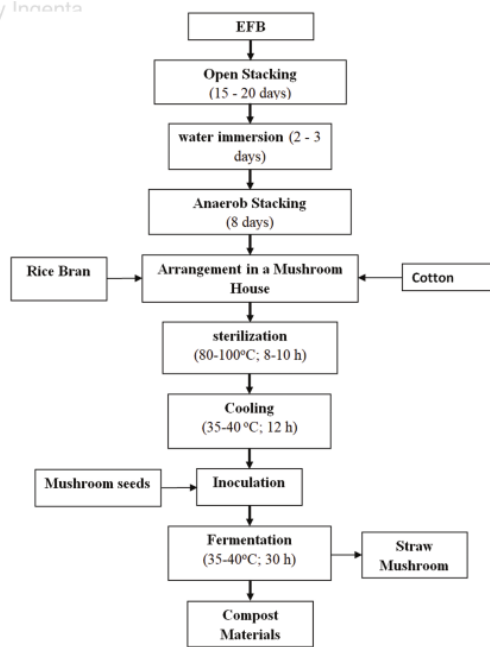


Fig. 1. Stages of production process of mushroom from EFB.

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strategy used scale 1, 2, and 3, with the following assessment criteria:

Value 1: If the horizontal indicator is less important than the vertical indicator.

Value 2: If the horizontal indicator is just as important as the vertical indicator.

Value 3: If the horizontal indicator is more important than the vertical indicator.

The weight of each variable is obtained by determining the value of each variable against the total number of variables using the formula used by David [2] as follows:

$$a_i = \frac{X_i}{\sum_{i=1}^n X_i}$$

Information: a_i = weight of the i -th variable, X_i = value of the i -th variable, n = number of variables, $i = 1, 2, 3, \dots, n$.

3. RESULTS AND DISCUSSION

3.1. Description of Research Objects

Identification of business unit of mushroom manufacture made from EFB raw material can be seen in Table I.

Table II. IFE matrix of making mushroom from EFB in Lampung province.

Defining factor	Weight	Rating	Total score	Priority
<i>Strengths</i>				
A Labor available	0.114	3.67	0.420	IV
B Raw materials (EFB) are available in large quantities and are easily available	0.132	4.00	0.529	I
C Technology and production equipment is very simple	0.130	3.50	0.455	II
D Investment costs are relatively small and quickly obtain results	0.113	3.75	0.425	III
<i>Weaknesses</i>				
E Mushroom waste has not been utilized to disturb the environment	0.118	1.17	0.138	II
F Knowledge of fungal diseases is still low	0.141	1.50	0.211	IV
G Mushroom is a perishable product	0.118	1.17	0.138	I
H Stages of making mushroom from EFB longer	0.133	1.58	0.210	III
Amount	1		2,526	

Business Unit A is located in North Raman Sub-district of East Lampung, Business Unit B is located in Metro Sub-district City Metro, and Business Unit C is located in Natar Sub-district of South Lampung. All three business units continuously produce mushroom made from raw EFB and operate already more 24 months.

The basic ingredients of mushroom production in these three business units are EFB, fungus seeds, clean water, firewood, rice bran, cotton, and lime (dolomite). Main production equipment used mushroom house (kumbung), evaporation drum (sterilization), soaking pond. From the process stages look the difference is the use of cotton on business units B and C, while business unit A does not use. The reason for using cotton is to keep the moisture for longer. Another difference is on the scale of production, survey results and interviews with business owners can be seen in Table I.

In general, the three business units that become the object of research have stages of the production process

Table III. EFE matrix of making mushroom from EFB in Lampung province.

Defining factor	Weight	Rating	Total score	Priority
<i>Opportunities</i>				
A Government and POM commitment for SME development is very high	0.125	3.17	0.397	III
B The need of mushroom is still high and tend to increase	0.140	3.33	0.465	I
C Mushroom waste made from EFB has not been utilized	0.121	2.67	0.324	IV
D Begin the opening of market opportunities of processed mushroom products	0.126	3.25	0.411	II
<i>Threats</i>				
E The use of EFB into other products conducted by the POM	0.121	2.33	0.282	III
F The emergence of new players that damage the price regardless of production costs	0.121	2.58	0.312	IV
G Uncontrolled extreme weather	0.111	2.50	0.277	II
H Production and transportation costs are increasing	0.135	1.83	0.247	I
Jumlah	1		2.715	

is almost the same. The process of mushroom production lasted for 20–25 days, the end of the process is also marked by begin its decayed EFB. According to Thambirajah et al. [9], the content of tannins, cellulose, and hemicellulose is easily degraded. Stages of mushroom production process from EFB as can be seen in Figure 1.

3.2. Internal, External, and SWOT Analysis

Table II shows that respondents' assessment of internal factors (total IFE score) is 2,526. The results indicate that the mushroom business unit of EFB raw material in Lampung Province is in the average position in harnessing the strength to face weakness. According to David [2], strategic analysis using the internal factor evaluation (IFE) matrix can be used to summarize and evaluate the strengths and weaknesses of a business unit. IFE matrices can also provide a basis for identifying and evaluating the relationships of these functional areas, so a good understanding of

the internal factors being included is more important than the numbers themselves.

Table II shows that raw materials (EFB) are available in large quantities and are easily obtainable are the main strengths owned by entrepreneurs mushroom in Lampung Province. Field observations show that in Lampung Province has 14 units of POM spread across five districts. All POM has not utilized EFB maximally, only limited to used boiler fuel and mulch for plant cover. There is one factory that utilizes EFB as compost directly. During this mushroom entrepreneurs buy EFB from POM with the price of Rp. 50.000, -/ton. Rice straw that had been a medium of mushroom cultivation is expensive and difficult to obtain. These results become a positive capital base if the government wants to encourage partnerships between POM and entrepreneurs of mushrooms around the palm oil mill.

Based on IFE Matrix analysis results, it is also known that the main weakness of mushroom commodity is easily damaged. This is due to good nutritional content and high

<p><i>IFAS</i></p>	<p><u><i>Strengths(S)</i></u></p> <ol style="list-style-type: none"> Labor available Raw materials (EFB) are available in large quantities and are easily available Technology and production equipment is very simple Investment costs are relatively small and quickly obtain results 	<p><u><i>Weakness(W)</i></u></p> <ol style="list-style-type: none"> Mushroom waste has not been utilized to disturb the environment Knowledge of fungal diseases is still low Mushroom is a perishable product Stages of making mushroom from EFB longer
<p><i>EFAS</i></p>	<p><u><i>SO Strategy</i></u></p> <p>SO-1: Encourage the modernization of mushroom-making technology</p> <p>SO-2: Development of new mushroom processing business</p>	<p><u><i>WO Strategy</i></u></p> <p>Application of preserving mushroom technology</p>
	<p><u><i>Threats(T)</i></u></p> <ol style="list-style-type: none"> The use of EFB into other products conducted by the POM The emergence of new players that damage the price regardless of production costs Uncontrolled extreme weather Production and transportation costs are increasing 	<p><u><i>WT Strategy</i></u></p> <p>Utilization of waste mushroom into compost</p>

Fig. 2. SWOT matrix on the making of mushroom made from EFB in Lampung province.
Notes: IFAS: Internal strategic factors analysis summary. EFAS: External strategic factors analysis summary.

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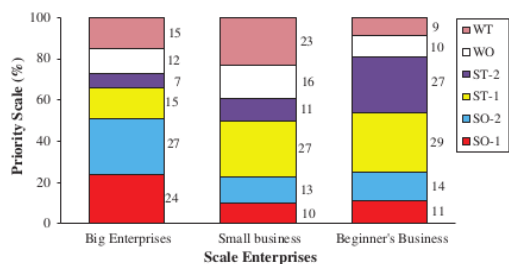


Fig. 3. Priority scale of business development strategy of mixed mushroom EFB based on business scale.

Notes: WT = Utilization of waste mushroom into compost. WO = Application of preserving mushroom technology. ST-2 = The mushroom development approaches the POM. ST-1 = Encourage business development to achieve economies of scale. SO-2 = Development of new mushroom processing business. SO-1 = Encourage the modernization of mushroom-making technology.

water content [3]. The development of processed mushroom products to be more durable must be done to support the mushroom business.

In Table III it can be seen that the need of food mushrooms is still high and tend to continue to increase is a very big opportunity to be utilized by the entrepreneurs mushroom in Lampung Province. This is supported by the opening of market opportunities to processed mushroom products. The opportunity is also strengthened by local governments and entrepreneurs of POM to partner with high entrepreneurs mushrooms.

Factors that pose a major threat are increased production and transportation costs and uncontrolled extreme weather. Some of these constraints can be overcome by encouraging business development to achieve economies of scale and development of mushroom enterprises approaching the POM.

After analyzing internal and external factors, we can then formulate strategic alternatives using the SWOT Matrix, which is a combination of SO (Strengths-Opportunities), ST (Strengths-Threats), WO (Weaknesses-Opportunities) and WT (Weaknesses-Threats). The formulation of strategies built using the SWOT Matrix can be seen in Figure 2.

The result of research determining the strategic of development of business unit of mushroom merger from EFB raw material can be seen in Figure 3. From the picture it is seen that the business development strategy of mushroom made from raw EFB depends on the scale of business. Business units that are already operating on an economical scale, then the strategy that becomes the main priority is the development of new business processing mushroom, on the contrary the business is still small or just start trying the main priority is the development of business to achieve economies of scale. A business unit to survive and

compete must operate on an economic scale, otherwise the dominant business unit must expand business or business diversification [10].

4. CONCLUSION

- (1) The development of mushroom industry made from EFB in Lampung Province has the strength of raw material (EFB) available in large quantities and easy to obtain, while the weakness is mushroom is a product that is easily damaged and untreated mushroom waste.
- (2) The opportunity for developing mushroom from EFB is the need of food mushroom is still high and tends to increase, while the threat is increasing production and transportation cost and uncontrolled extreme weather.
- (3) The main priority strategy for the large business units is the development of new mushroom processing business and the modernization of mushroom making technology, the dedication for the small and beginner business unit is to encourage the development of business to achieve economies of scale.

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