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Management of Ubi Alabio (Dioscorea alata L) Supply Chain System in the Area of Lebak Swamp Land

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***Abstract**: Ubi Alabio (Dioscorea alata L) is a local commodity cultivated in the lebak swampland of Hulu Sungai Utara, South Kalimantan; potentially developed from upstream to downstream sub-systems for enhancement of added value. So far, only the cultivation stage has been fixed, but the supply chain system is not yet optimal. It needs to improve supply chain system so that entrepreneurship based on local commodities typical of swamp land can grow and able to fulfill consumer desire. The research aims to find an alternative to improve the management of supply chain system of Ubi Alabio. The on-farm level research was conducted on the agro-ecosystem of swamp land in Hulu Sungai Utara (HSU), covering two villages, Teluk Cati and Glagah villages. The sample for the downstream sub-system is done by searching through snowball sampling. The results showed the product of Ubi alabio has high added value with a touch of technology utilization. The distribution system is still simple and limited to several districts in South Kalimantan. The main determining factor in the Ubi Alabio supply chain system is the quality of raw materials; Product quality; And packaging. The most acting actors are the farmers and processors.*

***Keywords:** Ubi Alabio; Supply Chain Management; Entrepreneurship and Lebak swamp Land*

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I. Introduction

Majority of paddy farmer households in Lebak area of North Hulu Sungai Regency (HSU) of South Kalimantan Province are still relatively poor. Farmers' income from rice crops was not able to meet the needs of decent households because they planted only once a year with relatively low rice productivity. Revenue from rice farming is still vulnerable to changes in input and output prices. Various policy interventions in the form of government programs, especially on the aspect of agricultural production in the swamp land of HSU regency has not significantly increased the welfare of farm households.

Lebak swamp land is divided into three zones or three areas, namely: lebak zone or upper lebak trunk or shallow lebak; zone Center lebak or called watun II and zone lebak in or lebak subordinates or called watun III (Noor, 2007). The area of Lebak swamp land in Kalsel reaches 153,268 ha (Irianto, 2006). The existence of water regulation constraints causes the utilization of swamp land limited especially if it wants to be utilized throughout the year especially for rice plants (Rois, 2011; Abdurrahman, 1992). It is not surprising that farm households in the swampland are still relatively poor. The data shows that the regency in South Kalimantan, which has the largest area of swamp land, Hulu Sungai Utara (HSU) is still poorly categorized under the criteria of the Ministry of Underdeveloped Area Development (KPDT) and also the only regency in South Kalimantan province that is still poor. As a result of this poverty, food security becomes a problem. The vulnerability of food security is mainly due to the heavy dependence on rice. When demand for rice is greater than the supply, problems arise that can threaten food security (Hanani, 2012; Mulyana, 2012; Maksoem, 2011). Though rice is not the only commodity source of carbohydrate to meet the nutritional needs of the community (Chung, 1997; Frankenberger and McCaston, 1996). However, there are still open innovation opportunities to utilize this swamp land for the development of various potential commodities typical of swamp land through the agribusiness system.

One of the commodities that have been developed in the wetland area of South Kalimantan is 134.039 Ha and in the 30,378 ha of HSU Regency as food bases other than rice are cassava plants (South Kalimantan Agriculture Office 2015). Types of locally grown cassava and hereditary are cultivated in swamp land of Hulu Sungai Utara (HSU), including Albi Diocorea alata L, Sweet Potato, Ubi Habang and Ubi Jaranang. Ubi alabio has the potential to be developed based on the principle of agribusiness and if it is well ordered from the upstream to downstream sub-systems, this commodity will be able to become a new source of entrepreneurship based locally. However warranty, nothing less precise.

The general purpose of this paper is to improve the supply chain system of cassava plants in HSU regency based on agribusiness system so that the agro-industrial products can be further developed and each

involved actors (producer farmers, processors and marketers get the appropriate share. In particular this paper aims: (a) to examine the actual condition of agro-based agribusiness system; (b) Analysis for the improvement of the supply chain system of tuber crops.

II. Methods

This research will be conducted in Hulu Sungai Utara Regency (HSU) chosen purposively with consideration that the area of Lebak area is the largest in South Kalimantan with the largest cassava plant and agribusiness system has been run although not yet optimal. For supply chain manufacturers; selected two villages that became centers of production of Glagah village and Teluk Cati. From each of these villages will be determined proportionite random sampling. The total sample of farmers as primary source of producer data is 40 respondents. Data collection is done through field observation, in-depth interview and FGD (Focus Group Discussion).

In addition to the producers, respondents were also selected for traders conducted by snowball sampling. Determination of respondents is done by way of tracing begins from collecting traders, intermediary traders and so on until the alabio cassava plant is processed into agro-industrial products and up to the consumer. Answering the first objective of assessing the actual condition of agribusiness system based on sweet potatoes upstream subsistim; on-farm subsystem; agro-industrial subsystems and sub-systems supported by descriptive analysis. Supporting sub-systems include capital; the role of food institutions; quality of human resources; transportation problems and others. Answering the second objective of the analysis for the improvement of the supply chain system of cassava plants is done gradually. First stage with External Factor Evaluation (EFE) matrix, Internal Factor Evaluation (IFE), Strengths, Weaknesses, Opportunities and Threats (SWOT). Next is Quantitative Strategic Planning Matrix (QSPM) and Analytical Hierarchy Process (AHP) analytical tool. The SWOT analysis approach is performed to analyze its strategic environment. To determine the weight of each item statement is determined based on the level of importance, namely the amount of the overall value of importance for each factor in the internal environment and external environment. For the rating of external factors, the rating scale is used: 1 = low (2), 2 = average (average), 3 = high (above average), 4 = very high (superior). Rating ratings for opportunities are for increasing opportunities large given a value of 4, but if the chances are small given a rating of 1. Conversely, if the threat is very large given a value of 1 and if the threat is slightly given a value of 4. Ranking for internal factors used the scale of the rank values are: 1 = very weak, 2 = weak, 3 = strong, 4 = very strong. The rank value for the great strength is rated 4, otherwise the great weakness is rated 1. The score of each factor is obtained by multiplying the weighted value by the rank of each external factor and the internal factor. All scores are summed vertically to get a total score ranging from 1 to 4. Total EFE and IFE matrix scores are grouped in strong (3.0 - 4.0) means strong response to opportunities / strengths and threats / weaknesses, on average (2.0 - 2.99), and weak (1.0 - 1.99).

III. Results and discussion

According to Marquez (2010); Marimin (2009); Jaffee et al. (2008); Hanafi (2006); Indrajit & Djokopranoto; (2002) and Eriyatno (1999); Supply Chain Management (SCM) is a system where organizations deliver goods to customers. This chain is also a network of interrelated organizations that share the same objectives, which best possible to provide procurement or distribution of goods (Indrajit & Djokopranoto 2002). A supply chain consists of all parties involved either directly or indirectly, in order to meet the needs of consumers. The term agro-food supply chain is used to describe activities ranging from production processes to distribution processes that bring horticultural products or agricultural products from agricultural land to consumer tables (Ahumada & Villalobos 2009). The agro-industry supply chain is formed by a series of organizations that carry out the process of production (by farmers), the process of distribution, processing, and marketing of agricultural products to consumers. Therefore, the supply chain of agribusiness based on yams must ensure the smooth distribution of farmers to processors and from processors to its agro-industrial product consumers. The distribution channel of alabio sweet potato commodity which is a typical local commodity of lebak land is not much varied or its existing condition is still relatively simple. There are several patterns of distribution of alabio sweet potatoes. First; Farmers as producers distribute directly to end consumers. This means the end-consumer at the same time acts as a cultivator for his own consumption. Second; farmers as producers of alabio sweet potatoes sell to collecting traders who then collect traders sell to agro-industrial processors and also to retailers to further up to the consumer. This marketing chain is the most prevalent where sometimes the collecting merchant also acts as a retailer. Third; farmers as producers of alabio yam directly sell to the retailers and also to the agro-industrial processors as well as to the retailers for the next from this system to the consumer. This third pattern is more based on a subscription system where processors and retailers buy directly to farmers so they do not involve collecting merchants anymore.

The supply chain is closely linked to the movement of tuber commodities from farmers / producers to end consumers. This activity involves many parties that facilitate the movement. Parties involved in the supply

chain of these tubers, from farmers, flow to collecting dealers, processors, retailers and consumer users or users. In the supply chain process of tubers, supply / chain functions can be carried out by farmers or market participants, such as transportation, grading and storage. In general, the most upstream supply chains are started from agricultural land by producer farmers, most of which are then marketed to rural collector traders, user industries, then downstream downstream supply chain of retailers and end consumers. The processing industry uses tuber commodities as raw material (raw material) which is then processed into various tuber products. The short length of Alabio's supply chain depends on the characteristics, forms and market participants involved in the chain. Alabio sweet potato growers as the most upstream suppliers can be grouped into 2 (two) types of farmers who have lebak land special planted with sweet potato alabio. Usually this land is a bund area or already terkategori land lebak watun I. But there are also farmers who cultivate alabio sweet potatoes as a diversification planted together with rice plants. For farmers who specialized in cultivating alabio cassava plants, the inputs used have been prepared much day especially seeds. Based on the analysis, this simple supply chain system is only able to provide a relatively small profit margin to farmers. Large margins are more enjoyed by collecting traders, agro-industrial processors and retailers. Farmers do not have enough bargaining power to determine prices. Whereas alabio sweet potatoes can be stored up to six months. The main factor is the quality of primary level results which are generally not uniform so that the size of the product varies greatly. This factor is also related to the quality of seeds used. The quality or quality of the product also varies so much that it affects the processed results.

For farmers who are also collecting traders and have capital, including means of transportation and access to information in marketing then the potential for profit will be great. But the number is only a few people. The majority are small farmers who do not have that ability so in marketing alabio yam does not have a strong bargaining position and only able to sell alabio yam to village or subdistrict gathering traders. Furthermore, from collecting merchants, can be directly sold to retailers in traditional markets both local and outside the District or sold to the industry as raw materials. Based on the results of research, it turns out the alabio sweet potato processing industry is still very simple and not "touched" by the technology. Therefore, the role of agro-industry for processing alabio sweet potatoes is still a lot of improvement. All this time the product is just a snack cake and the like. Not many variations of processed products are produced. Technological and packaging factors are key to the success of this agro-industry. Based on SWOT and AHP analysis it was found that the factors that need to be addressed for the improvement of supply chain system are raw material quality; variety and quality of products; use of technology and packaging. These factors are so important that the supply chain system can succeed so as to provide a high level of profit to each culprit and at the same time make this commodity a new entrepreneurial source in the area of swamp land.

IV. Conclusions and recommendations

Conclusion:

1. Channel distribution of alabio sweet potato commodity which is a typical local commodity of lebak not much varied or still relatively simple. There are several patterns of distribution of alabio sweet potatoes. First; Farmers as producers distribute directly to end consumers. Second; farmers as producers of alabio sweet potatoes sell to collecting traders who then collect traders sell to agro-industrial processors and also to retailers to further up to the consumer. This marketing chain is the most prevalent where sometimes the collecting merchant also acts as a retailer. Third; farmers as producers of alabio yam directly sell to the retailers and also to the agro-industrial processors as well as to the retailers for the next from this system to the consumer. This third pattern is more based on a subscription system where processors and retailers buy directly to farmers so they do not involve collecting merchants anymore.
2. Based on the analysis, this simple supply chain system was only able to provide a relatively small profit margin to farmers. Large margins are more enjoyed by collecting traders, agro-industrial processors and retailers.
3. Factors that need to be addressed to improve the supply chain system are the quality of raw materials; variety and quality of products; use of technology and packaging. The main roles in this improvement are farmers and processors.

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