

Priorities Development of Food Crops and Horticulture Agribusiness in Mojokerto Regency



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ABSTRACT: Mojokerto Regency is one of the regencies in East Java with a good agricultural growth rate with a variety of superior commodities in the food and horticulture sectors. Therefore, it is necessary to know the opinion of stakeholders regarding any alternative decision-making through the priority of developing these superior commodity agribusinesses. The research objective is to determine the priority of agribusiness development in the food crop and horticulture sector (rice, corn, shallots, and chilies) in the Mojokerto Regency. The AHP analysis research sample used the opinions of experts consisting of farmers, agricultural extension workers, and the Section Head of the Mojokerto Regency Agriculture Service with a total of 10 people per commodity. Decision-making on the priority of agribusiness development in the agricultural sector of food crops and horticulture (Rice plants, corn, shallots, and chilies) in Mojokerto Regency is carried out using the Analytical Hierarchy Process (AHP) technique. The results of the study conclude that the priority of agribusiness development in the agricultural sector of food crops and horticulture in Mojokerto Regency is an illustration of the rice commodity emphasizing the cultivation aspect, the corn commodity is marketing, the chili commodity is processing, while the shallot commodity is the procurement and distribution of inputs.

KEYWORDS: Agribusiness, AHP, Food Crops and Horticulture.

I. INTRODUCTION

Regional development is basically done by optimizing natural resources through local economic development that relies on basic economic activities in an area (Hermanuadi et al., 2018). Pradigda (2016) added that not only as an integral part of national development, but regional development is also recognized as having succeeded in increasing equity, stability, growth, and community welfare as the main actors of development. According to Sirojuzilam & Mahalli (2010), in the theory of the economic base, the growth and development of a region depend on the existence of external demand for the production of the region. On the other hand, population growth encourages the need for a greater food supply so that agricultural production must be increased. Increased agricultural production is achieved by increasing productivity due to increasingly limited land and time (Akhmad & Antara, 2019).

Mojokerto Regency is one of the regencies in East Java with a good agricultural growth rate with a variety of superior commodities in the food and horticulture sectors. The agricultural sector is one of the drivers of the economy (the engine of growth) in Mojokerto Regency. The GRDP value of Mojokerto Regency on the basis of current prices in 2019 reached IDR 82,391,833.5 million. GRDP is the total value of final goods and services produced by various production units within a region at a certain time. GRDP is composed of production values for each commodity in a sub-system, therefore in the calculation of leading commodities, the data used is the production value data for each commodity. Meanwhile, superior commodities are commodities that have a major role in driving the economy and play a role in improving people's welfare (Novitasari & Ayuningtyas, 2018). Mulyani (2019), in her research, concluded that at the level of development of the Karo Regency agricultural sector in the economic constellation of the North Sumatra Highlands Region, it was classified as advanced but depressed (developed sector). The main commodities in the agricultural sector of Karo Regency for food crops are corn, for vegetables are garlic, leeks, cabbage, Chinese cabbage, carrots, radish tomatoes, pumpkins, and fruit crops are avocados, oranges, and marquisa. The relationship between the amount of superior vegetable crop production and the contribution of the agricultural sector to the economy of Karo Regency is strong and real, Pradigda (2016), this study aims to determine the priority superior

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products of Blitar Regency and their development strategies. The methods used in this research are Shift Share and Analytical Hierarchy Process (AHP), and then use SWOT analysis. The result of this research is that the main commodity of Blitar Regency is coconut shell craft and the priority development strategy for coconut shell craft based on the SWOT matrix is the Strength-Opportunity (SO) strategy.

Referring to the research of Lubis et al., (2013), there are four criteria for agribusiness development according to the Regulation of the Minister of Agriculture of the Republic of Indonesia No. 06/Permentan/ OT.140/2/2015 Year 2015, namely the development of agribusiness based on: (1) Aspects of providing production facilities, (2) Aspects of production, (3) Aspects of marketing and processing, and (4) Aspects of supporting institutions. Furthermore, there are 5 alternative strategies, which are obtained based on the results of the identification of internal factors and external factors as well as a grand strategy matrix, which is determined directly by the experts, including increased supervision of production facilities; development production through quality improvement, both from production facilities and production outputs, as well as production quantity; make processing industry; addition of auction market gathering points; and development of the auction market with digital technology. Aspects and criteria that are taken into consideration for the development of the agribusiness sub-sector using the Analytic Hierarchy Process (AHP) method according to Oelviani (2015), are aspects of input procurement and distribution, cultivation aspects, post-harvest processing aspects, marketing aspects, and institutional aspects. AHP is basically designed to rationally capture people's perceptions that are closely related to certain problems through procedures designed to arrive at a preference scale among various alternatives. AHP is also widely used in decisions for many criteria, planning, resource allocation, and prioritization of strategies that players have in conflict situations (saaty, 1994). In the context of agribusiness development in the Mojokerto Regency, it is known that rice, corn, shallots, and chilies are the leading commodities. Therefore, it is necessary to know the opinion of stakeholders regarding any alternative decision-making through the priority of developing these superior commodity agribusinesses. The research objective is to determine the priority of agribusiness development in the food crop and horticulture sector (rice, corn, shallots, and chilies) in the Mojokerto Regency.

II. REVIEW LITERATUR

A. Agribusiness Development

Agribusiness development is the development of industry and agriculture as well as services that are carried out simultaneously, carried out simultaneously and harmoniously. The industry that we often get so far is the processing industry (Agroindustry) developing in Indonesia, but the raw materials are imported. On the other hand, the increase in agricultural production was not followed by the development of the processing industry (Building an industry based on domestic/local resources). So it is necessary to develop Vertical Agribusiness (Arya et al.,2019).

Building Agribusiness is building a competitive advantage over a comparative advantage. In the sense that building the competitiveness of agribusiness products through the transformation of comparative advantage into a competitive advantage, namely by 1) Developing upstream subsystems (nursery, agro-automotive, agro-chemical) and downstream subsystem development, namely deepening the processing industry further downstream and building networks marketing internationally, so that at this stage the final product produced by the agribusiness system is dominated by advanced products or is capital and skill labor-intensive. 2) Development of an agribusiness system that is driven by the power of innovation. Thus, the main product of the agribusiness system at this stage is a technology-intensive and knowledge-based product. 3) Need a new orientation in management (Harinta et al.,2018).

B. Food Crops

Food is anything that comes from biological sources and water, both processed and unprocessed, which is intended as food or drink for human consumption. This includes food additives, food raw materials and other materials used in the process of preparing, processing, or manufacturing food or beverages (Fithriyyah et al.,2020).

Food commodities must contain nutrients consisting of carbohydrates, fats, vitamins, and minerals that are beneficial for human growth and health. Limitations for this commodity include groups of food plants, non-ornamental horticultural plants, and other groups of plants that produce raw materials for products that meet food restrictions (Jufriyanto, 2019).

In Indonesia, in general, people prefer rice as their daily staple food, so the existing rice fields are filled with rice commodities. The image that food is only symbolized by rice is the crux of the problem.

Meanwhile, efforts to increase rice production are faced with major threats, namely: 1) stagnation and decline in productivity due to technological constraints and production inputs, 2) production instability due to pest attacks and climate stress, 3)

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decreased productivity due to land and water resource degradation and decreased productivity. environmental quality, and 4) shrinkage of land, especially irrigated rice fields due to conversion to non-agricultural land (Lumbantobing et al.,2020).

C. Horticulture

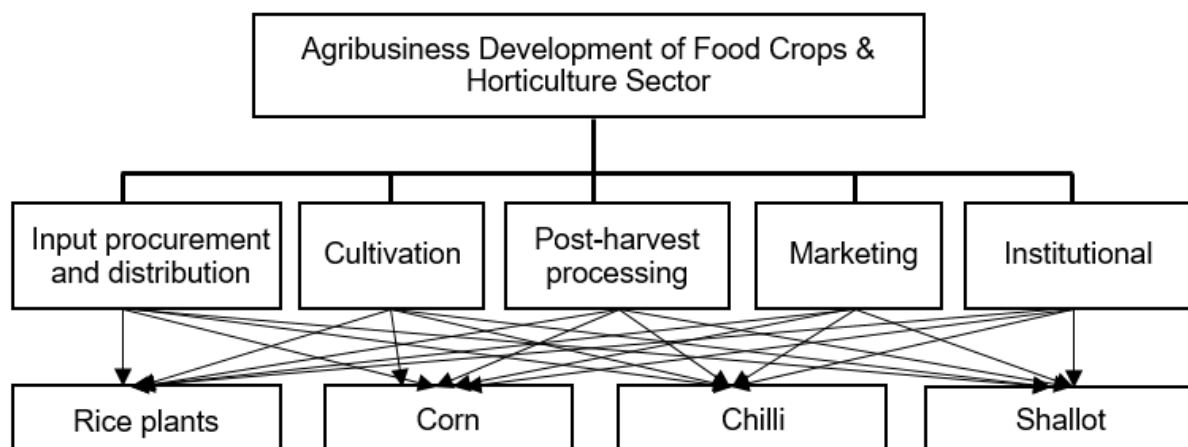
Horticulture comes from Latin, namely Hortus (garden) and colere (to grow). Literally, horticulture means the study of garden cultivation. Horticulture is a branch of agriculture that deals with the intensive cultivation of plants proposed for human food, medicine, and fulfillment of satisfaction (Zulkarnain, 2009). Horticulture is a combination of science, art, and technology in managing vegetables, fruit, ornaments, spices, and medicinal plants. Horticulture is the cultivation of vegetables, fruits, and various ornamental plants, horticulture is currently a profitable commodity because economic growth is increasing, so people's incomes are also increasing. The increase in horticultural consumption is due to the structure of food consumption tends to shift to non-food ingredients. People's consumption today has a tendency to avoid foods with high cholesterol, such as food products of animal origin (Kasuba et al.,2017).

Horticulture also plays a role as a source of community nutrition, providing employment opportunities, and supporting agro-tourism and agro-industry activities. This shows that the development of horticulture is related to a broader aspect that includes techno-economic with socio-cultural farmers. Judging from the production time process, the short growing season allows faster capital turnover and can minimize uncertainty due to natural factors (Anggrawati & Suwarnata,2020).

III. RESEARCH METHODS

The research location was carried out by taking samples based on the consideration that this area has great potential in rice, corn, red onions, and chilies which can make a high contribution to increasing regional economic growth in Mojokerto Regency (Harinta et al., 2018). The AHP analysis research sample used the opinions of experts consisting of farmers, agricultural extension workers, and the Section Head of the Mojokerto Regency Agriculture Service with a total of 10 people per commodity. The selection of respondents was carried out intentionally (purposive sampling) with the consideration that respondents knew and could provide information about farming conditions well, especially regarding the production of rice, corn, chilies, and shallots so that appropriate strategies for increasing competitiveness for superior commodities in the Regency can be determined. Mojokerto. Decision-making on the priority of agribusiness development in the agricultural sector of food crops and horticulture (Rice plants, corn, shallots, and chilies) in Mojokerto Regency is carried out using the Analytical Hierarchy Process (AHP) technique. According to Saaty (1990), for various problems, a scale of 1 to 9 is the best scale for expressing opinions. Questionnaires were distributed to find out respondents' opinions regarding the development of superior commodities in Mojokerto Regency; the answers to the questionnaire were processed using the Expert Choice program. The hierarchical model that has been formed is as follow.

Figure 1: Hierarchical Structure of Priority Selection of Agribusiness Development of Food Crops and Horticulture in Mojokerto Regency



IV. RESULT AND DISCUSSION

A. Priority Analysis

Priority analysis of competitiveness improvement is measured through five indicators, namely procurement & distribution of inputs, cultivation, post-harvest processing, marketing, and institutions (Oelviani, 2015). Several alternatives to the five indicators include:

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Table 2: Priority Analysis and Alternative Strategy

No	Indicators	Alternative
1	Procurement & Distribution of Input	1)Factors of Production subsidy 2)Private investment in the provision of factors of production 3)Provision of production factors continuously: on time, quantity, price, and quality; and affordable
2	Cultivation	1)Assistance in the application of appropriate cultivation technology 2)Counseling on proper fertilizer management 3)Counseling on quality and proper seeds
3	Post - Harvest Processing	1)Appeal to store the harvest in a dry and open place 2)Counseling and education on effective post - harvest handling 3)Doing sorting after harvest
4	Marketing	1)Call for partnerships /contracts with traders so that the selling price of the product is stable 2)Forming a farmer cooperative to avoid the bondage system 3)The role of the government in increasing access to and information on credit for government programs to farmers
5	Institutional	1)Forming farmer group partnerships with wholesalers 2)Incentives for active farmer organizations 3)Revitalization of KUD and extension institutions

The five indicators were then analyzed using AHP (Analytical Hierarchy Process) analysis with the following scoring provisions:

Table 3: Analytical Hierarchy Process Measurement Scale

Scale	Deskription
1	Equally important than others
3	Moderate importance with others
5	Strong in importance compared to others
7	Very strong in importance than others
9	Extreme importance than others
2,4,6 and 8	The value between two adjacent ratings

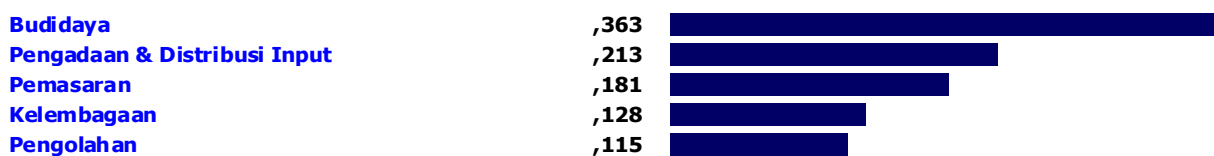
Source: Saaty (1994)

B. Rice Commodities

Figure 2: Results of AHP Priority for Rice Agribusiness Development

Model Name: AHP_ Padi

**Priorities with respect to:
Prioritas Peningkatan Daya Saing Tanaman Padi**



Inconsistency = 0,05
with 0 missing judgments.

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Based on the AHP results, it is known that the main priority of the choice of experts to develop rice agribusiness is cultivation. This is because Mojokerto Regency is known as the rice granary of East Java Province, meaning that Mojokerto Regency has a large wetland area and is suitable for planting rice. Cultivation development can be carried out in several ways, namely, assistance with appropriate cultivation technology, counseling on proper fertilizer management, and counseling on quality seeds. The application of the principle of integrated pest control is certainly the right step for the development of agribusiness in the long term. The development of production technology must also be considered, if production technology at the farmer level does not develop, it does not deny that the yield of rice production will decrease, such as the use of seeds that are not of superior quality and the handling of pests and diseases is less effective and efficient. The application of a direct seed planting system using a table paralon tool can be recommended as an alternative in anticipating a shortage of labor or farm laborers in a moving planting system, so as to reduce production costs, especially farm labor rentals, and increase farmers' income by 37.82 percent (Witjaksono, 2018).


Input Procurement & Distribution is the second priority and Marketing is the third priority in increasing competitiveness. Procurement & distribution of inputs is important in increasing competitiveness because if the procurement of fertilizers, seeds, pesticides, and herbicides is available in the right amount and time according to the needs of the farmers' growing season, as well as easy access for farmers to procure inputs, it will reduce the cost of procuring inputs issued by farmers, so that farmers can maximize their profits. The priority AHP model for increasing the competitiveness of rice plants is considered valid because it has an inconsistent value of $0.05 < 0.10$.

C. Corn Commodities

Figure 3: AHP Results AHP Results Maize Agribusiness Development Priorities

Model Name: AHP_ Jagung

**Priorities with respect to:
Prioritas Peningkatan Daya Saing Tanaman Jagung**

Pemasaran	,268	
Budidaya	,236	
Pengadaan & Distribusi Input	,211	
Kelembagaan	,148	
Pengolahan	,137	

Inconsistency = 0,09

with 0 missing judgments.

Based on Figure 3. Shows that the main priority of the choice of experts in developing corn agribusiness is marketing. While the second and third priorities are Cultivation Procurement & Distribution of Inputs. Corn marketing is a top priority because this commodity market is considered very promising and sustainable until now from the demands of the animal feed industries. Kurniawan (2011), the need for animal feed in Tanah Laut Regency, South Kalimantan has reached 6,000 tons per month or 72,000 tons per year, while production only reached 52,000 tons per year.

Not only as animal feed, but corn can also be processed into various food and industrial products, including starch, sweetener, oil, beverage, glue, industrial alcohol, and fuel ethanol. In the last 10 years, the use of maize for fuel production has increased significantly, accounting for approximately 40% of maize production in the United States (Ranum et al., 2014). The ethanol industry absorbs most of the corn production so that the selling price of corn becomes higher and increases the demand for competition. As a result, the price of corn for animal and human consumption is also affected.

In addition, cultivation is also considered to be a consideration when efforts to develop corn plants can be increased. The priority AHP model for increasing the competitiveness of maize is considered valid because it has an inconsistent value below 0.10 ($0.09 < 0.10$).

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D. Chili Commodities

E. Figure 4: Results of AHP Priority for Chili Agribusiness Development

Model Name: AHP_Cabai

Priorities with respect to:
Prioritas Peningkatan Daya Saing Tanaman Cabai

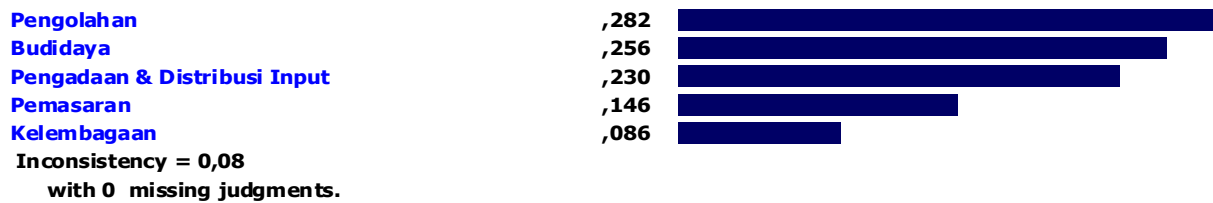


Figure 4. shows that the main priority of the choice of experts in developing chili agribusiness is processing. Meanwhile, Cultivation and Procurement & Distribution of Inputs are the second and third priorities. Chili is one of the horticultural products that is prone to damage, so it cannot last long if it is stored in fresh form. In addition to chili plants that require intensive care during the production process, the selling price of chili until now is very dependent on the harvest season. Therefore, it is very necessary to process the results as an effort to provide added value with high economic value and extend the shelf life, such as the process of drying fresh chilies using sunlight or the oven into chili simplicia, freezing to produce chili paste products, processing to produce chili sauce and oil, and various other preparations (Suyanti. 2004). Postharvest technology used to process chili can increase competitiveness, maintain chili quality, facilitate marketing, increase shelf life, and maintain the availability of horticultural products in the market. Increasing the competitiveness of horticultural products does not stop at processing. Processed products also need to be packaged properly and attractively in order to increase added value and product sales. Increasing the competitiveness of chili plants can also be done by improving cultivation techniques, for example improving and expanding irrigation networks, using weather modifications to mitigate climate change and increasing the capacity of human resources in the agricultural sector. The priority AHP model for increasing competitiveness in chili plants is considered valid because it has an inconsistency value of $0.08 < 0.10$.

F. Shallot Commodities

Based on Figure 5. shows that the main priority of the choice of experts in developing Shallot agribusiness is the Procurement & Distribution of Inputs. Meanwhile, cultivation and processing are the second and third priorities. Increases in input prices such as seeds and fertilizers, productivity, and output prices affect competitive advantage. Increasing product competitiveness can be done through increasing productivity, namely by utilizing superior seeds and using fertilizers in the right dose and time. The less than optimal use of production inputs will result in the production of shallots being low and not optimal.

Figure 5: Results of Priority AHP for Onion Agribusiness Development

Model Name: AHP_Bawang Merah

Priorities with respect to:
Prioritas Peningkatan Daya Saing Tanaman Jagung Bawang Merah



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The inputs for shallot production include land, labor, seeds, fertilizers, and pesticides. Production costs can change every growing season. These changes can be affected by inflation, increases in production input prices, use of technology, and government subsidies. In addition to inflation and rising production input prices, the use of technology will also change production costs. The use of technology will cut production costs in farming. Through the use of effective and efficient technology, it can replace some production inputs such as the use of labor.

The main obstacle to increasing the productivity of shallots, among others, is that there is no guarantee of the availability of quality seeds or tubers with high yields and low cost. If the input price is high, the competitiveness of shallots in the Mojokerto Regency will be below. The priority AHP model for increasing competitiveness in chili plants is considered valid because it has an inconsistent value of $0.07 < 0.10$.

V. CONCLUSION

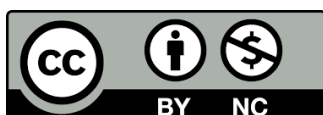
The priority of agribusiness development in the agricultural sector of food crops and horticulture in Mojokerto Regency shows that the rice commodity emphasizes the cultivation aspect, the corn commodity is marketing, the chili commodity is processing, while the shallot commodity is the procurement and distribution of inputs. All the results of the AHP model of priority for agribusiness development on the four types of plants are considered valid because they have an inconsistent value of less than 0.10 (< 0.10). Some results are still an interesting discussion when the rice commodity with its development priority is cultivation so that to increase production in the area such as the use of superior varieties of seeds, the application of integrated pest control, and the application of a direct seed planting system using a paralon table tool to reduce production costs. Likewise, the shallot commodity requires an increase in production through the selection of superior variety seeds or the holding of counseling related to independent seeding by farmers, so that farmers do not need to buy very expensive seeds in each growing season.

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