



Strategy for Managing the Potential for the Development of Environmentally Friendly Superior Grapes Products in the Probolinggo City

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Abstract

Community economic empowerment is a crucial part of the purpose of decentralization initiatives, which is to create an autonomous territory. Local governments and their communities manage their current resources and set up patterns of partnerships with the private sector in order to generate new jobs and increase the growth of economic activity in the area. The goal of this study was to build a policy model for the management of superior commodities of grapes in Probolinggo City as well as to assess the potential of the superior commodity of grapes and the viability of realizing that potential. In Probolinggo City, grapes have the potential to be a fundamental commodity. To get the feasibility value, the extended analysis method is applied. Utilizing the multiple goal programming paradigm, it is possible to assess the advantages of effectively controlling grape production. Due to the jobs and money it generates, grape farming meets these two criteria, making it both economically and socially viable. This makes it possible for grape farming to function at its best capacity and deliver the finest outcomes. According to the results of the SWOT analysis, aggressive planning was required to achieve the best management of the growth of the grape farming business. In grape growing, producers or the community can enhance productivity outcomes by engaging in the right cultivation management activities. They must, however, limit the holding area used to that of the ideal area.

Keywords: *Commodity of Grapes; Sustainable Agriculture; Strategy*

1. Introduction

Probolinggo has been referred to as the city of "Bayuangga," which refers to both the identity of a city with a dry environment and the Gending wind blowing throughout the dry season, as well as the production of very distinctive and outstanding grapes and mangoes. As stated in Regional Regulation No.

5 of 1990 regarding Trikarasa Bina Praja, or three wishes in developing the region, this has been the desire of the city's residents since 1990. The three wishes are to first preserve the city's characteristics as Bayuangga city, second realize it as an indicative city, and third serve as the motto of Bestari city. In its objective to fulfill the vision, which includes realizing Trikarasa Bina Praja, Regional Regulation Number 11 of 2013 about the RPJPD 2005 to 2025 states the same thing. Because the Ministry of Agriculture has released different varieties of wine under the name Probolinggo, including Probolinggo Blue, Probolinggo White, Probolinggo Super, and lastly Probolinggo Red or Prabu Bestari, it is not without reason that it is a prominent commodity and a symbol of the city. This demonstrates that both the central government and the Indonesian people as a whole have acknowledged Probolinggo as one of the key locations for the growth of wine in Indonesia. But as of right moment, the population is declining, making its continued survival uncertain.

Decentralization strategies aim to create an independent region, and community economic empowerment is a key component of this goal. In order to create new jobs and boost the growth of economic activity in the region, local governments and their communities manage their existing resources and establish patterns of partnerships with the private sector. This process is known as regional economic development. In order to plan and develop their regional economy, local governments and community involvement must be able to evaluate the potential of the resources required. The emphasis on development policies based on the unique characteristics of the region in question by utilizing the potential of people resources, natural resources, financial resources, and even institutional resources is the primary source of regional development's problems. This perspective encourages us to participate in regionally-based development projects that will lead to the creation of new employment opportunities and a boost in economic activity.

Nowadays, this kind of table grape cultivation is still increasing in diffusion and economic importance (Iglesias-Carres et al., 2019). The production of organic grapes necessitates compliance with specific regulations that limit the chemicals allowed during production and distribution (Council Regulation, 2007). In general, organic-labelled products are defined as those from plantations that respect and exploit biodiversity, organic turnovers, and soil structure. The European Union has led the cultivation of organic grapes globally, followed by China, the United States of America, and Turkey (Willer et al., 2019). Within Europe, the countries with the most extensive acreages dedicated to organic farming are Spain and Italy (1.9 and 1.4 million hectares, respectively; both contributing more than 100,000 hectares to the increase in organic land observed in Europe). The first step in agricultural development that is based on the idea of efficiency to obtain comparative and competitive advantages in dealing with trade globalization is the determination of national and regional superior commodities. Superiority in growth in the biophysical, technological, and socioeconomic conditions of farmers in a region characterizes the development of commodities that have a comparative advantage from the supply side. Leading commodities are defined from the demand side by robust domestic and global market demand. One of the goals of identifying these superior commodities is to enable more targeted and focused growth of these commodities, which intrinsically have a particular strength based on their comparative advantage within the scope of a region or region.

It is hoped that there won't be any generalization of economic development programs for each region because there are program preferences based on the potential development of the region. On the other hand, based on the current regional potential, there will be a specialization of economic development innovation projects. The implementation of numerous regional economic development programs would, it is anticipated, be carried out efficiently, effectively, and accurately with a proportional program specialization approach, which in turn can yield the best outcomes.

2. Material and Methods

2.1 Literature Review

Horticulture is one of the agricultural products that has the potential to be promoted within the context of regional development. The Indonesian equivalent of the English word "horticulture" is "horticulture." Horticulture is defined as the practice of tending gardens because the name is derived from the Latin word *hortus*, which also means "garden" or "yard." Some define horticulture as the science of agriculture related to garden cultivation, including the planting of vegetables, fruit, flowers, shrubs, and ornamental trees. Others define it as the art of cultivating garden plants or the method of cultivation which is carried out in a garden, more specifically horticulture. Horticulture is an agricultural cultivation that uses a lot of work, as well as production equipment and infrastructure. As a result, cultivated plants are chosen for their ability to provide high money (for economic reasons) or high levels of personal happiness (for hobby reasons), and they are grouped into small business units (Notohadinegoro and Johara, 2005).

As a result of the numerous advantages its products offer for both people and the environment, organic farming is regarded as being extremely essential in the field of horticulture. In Indonesia, eating organic fruits and vegetables has become popular, and it has even started to become a trend worldwide. The detrimental effects of chemical use in synthetic fertilizers and pesticides on human health and the environment have been recognized by society. The abundance of fruit trees, vegetables, and ornamental plants that can act as air conditioners, soak precipitation, provide shade, and absorb CO₂ or other air pollutants has also improved the quality of the environment. Even plant waste and fruit or vegetable waste can be used as organic fertilizer or compost which can fertilize the soil, while its beauty can be enjoyed and has a good effect on mental health (Ida, 2013).

According to the economic basis theory, the volume of export activity in a region affects the rate of economic growth in that region. Basic and non-base economic activity are separated into two categories. Only fundamental activities can promote regional economic development (Tarigan, 2005). The economic basis theory is a rather straightforward model. According to this idea, a regional economy composed of two sectors—the base sector (export sector) and the non-base sector—can be more easily understood (local sector). This theoretical model illustrates how a region's economy is divided into two sectors, namely: 1) Leading sector, namely sectors or economic activities that serve both the domestic market and markets outside the region itself, this means that the region indirectly has the ability to export goods and services produced by sector to other regions, 2) Non-leading sectors, namely sectors or activities that are only able to serve the market in the region itself (Ricardson, 2002).

The Basis Theory of Economic Growth, which is a theory of economic growth, is what determines which area products are best. According to the Economic Base Theory, the demand for products and services from outside the territory is a key factor in a region's economic growth. Regional income and job development will result from the expansion of industries that utilise local resources, such as the labor force and raw materials for export. Based on this principle, an emerging regional development plan places a strong emphasis on helping businesses that serve both domestic and foreign markets. Reduced hurdles or restrictions for existing and future export-oriented businesses in the region are part of the policy's implementation.

Applying organic fertilizers increases soil microbial activity, water and nutrient retention capacity, and organic matter content while lowering water pollution (Bedada et al., 2014; Gogoi et al., 2015). According to multiple-research with a comparable N regime (Wang et al., 2020), green food prefers organic fertilizers due to their higher nutrient-use efficiency, decreased nutrient leaching and volatilization, and lower environmental costs in various agroecosystems. In the rice-wheat rotation

system, the mixed and balanced organic and inorganic N supply encourages soil carbon retention (Yang et al., 2015) and significantly lowers N₂O emissions compared to inorganic N dominating treatments (Cai et al., 2013). As a result, the green food model might be a beneficial approach to long-term growth in both the environment and the economy.

2.2 Research Location

In the province of East Java's Probolinggo City, this study was carried out. The choice of the research site was planned, taking into account that this region has excellent potential for the agricultural sector, both in terms of usage and for development, so that it contributes significantly to future regional economic growth. This study was carried out in Probolinggo, with a particular emphasis on the region used for grape production. Because it is a development region for grape production, this place was picked. There are also quite a few farmers in the area that own and operate farms. Additionally, the location was picked for its accessibility to the area. The study was carried out between January and November of 2022. Geographically, the research location in Probolinggo City can be seen in the following figure 1.

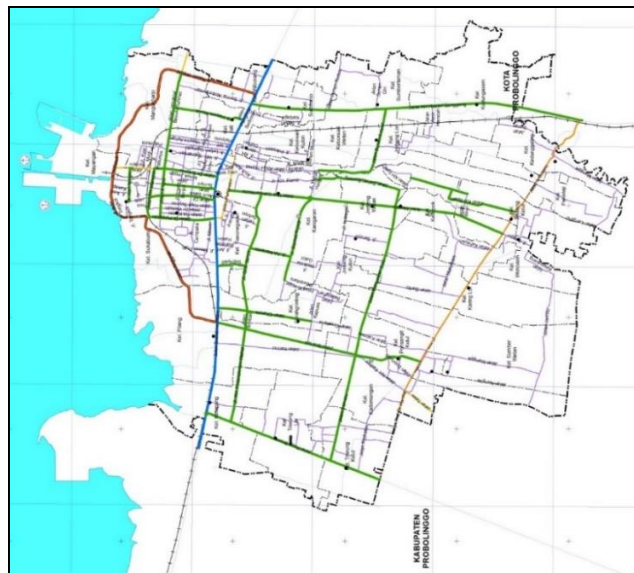


Figure 1. Map of Research Locations

2.3 Method and Data Analysis

The main information required for this study is information on the physical characteristics of the land and grape growing management. This information was gathered by interviews, direct survey methods in the field, soil sampling at several locations on the grape farm, and laboratory testing of the samples. Utilizing a survey methodology, total data on income factors, fixed cost variables, variable cost variables, capital and other needs in fruit farming were collected from 166 respondents, who were fruit producers located in various sub-district locations. Based on the four criteria, survey data from the prior questionnaire was used to create the development model for the grape growing industry.

An analysis is conducted for each of the research's objectives that makes it simpler to come to conclusions and resolve all the issues that were previously mentioned. The characteristics observed to determine land suitability were by utilizing a descriptive analysis of the actual garden and its management of cultivation, it was explained based on the research objectives. The BEP unit, BEP ratio, R/C ratio, B/C ratio, NPV, and IRR of the grape cultivation farming business will be computed for economic viability.

The extended analysis method is used to obtain the feasibility value. The multiple goal programming paradigm can be used to examine the benefits of managing grape production more efficiently. The formula value of fruit farming is the value derived from the model. To establish a SWOT-based approach for improving management of fruit farming development in the interim. A formula for controlling the growth of fruit farming is created using all of these analyses, bringing the current situation closer to sustainable ideal conditions.

3. Results and Discussion

It is possible to classify the land surrounding Probolinggo City as dry and arid. This is due to the fact that Probolinggo City is a region whose land is primarily coastal. The physical components of the land are topography, soil, and climate. Grapes have been grown for thousands of years, primarily by the ancient Romans. Because they can be used to make alcoholic beverages like wine, grapes at that time became quite popular. The intake of grapes is then becoming more and more common as the times change. Grapes are one of the most popular fruits in the world because they are loaded with vitamins, high in antioxidants, and have a pleasant and reviving flavor. In this study, researchers sought to identify a fruit industry that, in addition to fruit, would have the potential to develop into a better good outside of Probolinggo City. The fruit agricultural goods investigated were grapes, according to field surveys. The five sub-districts of Kademangan, Kanigaran, Kedopok, Mayangan, and Wonoasih were the study sites for the agricultural fruit products. On the basis of the findings of this study, which used data spanning the years 2016 to 2021, efforts can be taken to grow the Probolinggo City region's fruit industry. This can be seen as a government program of Probolinggo City aimed at the prosperity of the neighborhood, particularly the fruit producers. The city of Probolinggo is located close to the beach, so this area has a beautiful landscape that has the potential for tourism development or in other words picking fruit tourism.

Fruits rank among the top agricultural commodities in Probolinggo City. In addition to the yard area of 15,524.075 Ha and the field area of 61,000 Ha, the total area of agricultural land used for planting fruits is 55,229.844 Ha. Farmers are now able to control the fruit varieties that will help their economic development. Despite the fact that Probolinggo City's neighborhoods are mostly found in coastal regions, there is still a lot of undeveloped territory that can be used for agricultural, particularly fruit cultivation. Grapes are among the fruits that define Probolinggo City. In this study, researchers sought to identify other fruit-related industries than fruit, which is already a distinctive feature of Probolinggo City. The fruit agricultural goods investigated were grapes, according to field surveys. The five sub-districts of Kademangan, Kanigaran, Kedopok, Mayangan, and Wonoasih were employed as the study sites for fruit growing products. The Location Quotient (LQ) approach is employed to determine the possibility for greater commodities among the grapes. It is clear from the computation findings that grapes have a higher potential for development. On the basis of the findings of this study, which used data spanning the years 2016 to 2021, efforts can be taken to grow the Probolinggo City region's fruit industry. This can be seen as a government program of Probolinggo City aimed at the prosperity of the neighborhood, notably the fruit producers. Due to Probolinggo City's proximity to the ocean, the region has a lovely scenery with the potential for tourism growth, or more specifically, picking fruit tourism.

It is clear that the unit BEP calculation yielded values for grapes weighing 18,305.20 kg per hectare. According to this, producers must produce 18,305.20 kg or 18,305 tons of grapes per hectare of land on average in order to make no losses or profits (break-even point). While the findings of the rupiah BEP computation for the various varieties of grapes came to Rp. 38,289,494.11. This shows that considering the current expenses, IDR 38,289,494.11 hectares-1 worth of revenue must be generated in grape-type farming in order to reach a break-even threshold. The term "Break Even Point" (BEP) refers to the point at which a firm or business is operating without making a profit and without suffering losses. To put it another way, when all costs are equal to all sales, there is neither a profit nor a loss. This may occur

if the business has both fixed and variable costs, and its sales volume is only sufficient to pay fixed and variable costs. Sales that are insufficient to cover variable costs and some fixed expenditures result in a loss for the company. In contrast, the business will turn a profit if revenues are higher than the necessary variable and fixed costs.

It appears that the research grapes acquired an R/C ratio value larger than 1 based on the R/C ratio that was determined from the computation results. This demonstrates the effectiveness of the grape cultivation practiced. Similar to the outcomes of the B/C ratio computation, it seems that all varieties of study fruit farming achieve a value larger than 1, allowing it to be decided that grape-type farming can be advantageous for farmers. The amount of NPV generated demonstrates the benefits of cultivating different fruit varieties. Based on the findings of the IRR calculation, it can be said that farming in grape farming is possible in all parts of Probolinggo City because the value produced there is significantly higher than the interest rate on bank loans, which is 10% annually. Citrus fruit farming produces the highest IRR, hence it can be concluded that grape fruit farming can yield a sizable revenue based on the findings of the IRR calculation.

The appropriateness, economic, and business feasibility elements can all be taken into consideration while optimizing grape growing. The appropriateness factor is used to increase overall crop output by accounting for the size of the farming ground. By taking into account the upkeep expenses and management capital of the farming enterprise, the financial component of fruit farming is carried out with the intention of raising the income or income of farmers and the quantity of labor absorption. The feature of business viability that is determined based on BEP units, BEP rupiah, R/C ratio, B/C ratio, NPV, and ideal IRR in grape farming will be used to estimate optimal income and costs. The goal of this study's optimization is to maximize the advantages of the fruit farming land in the Probolinggo City region while guaranteeing environmental sustainability to ensure that it is well-maintained. Goal programming is used to optimize the growing of grapes throughout various Probolinggo City locations. A mathematical equation, namely the equation of the objective function and the constraint function, will be used to make optimization decisions by examining the accomplishment of farming management goals. Increasing crop yield, raising farmer income, and creating more jobs are the four objectives for optimizing the grape farming industry. Based on the optimization results, all fruit plants developed are fruit plants that are able to achieve optimality at a certain level so that an effort can be made so that farming can be optimal in environmental, economic and social aspects.

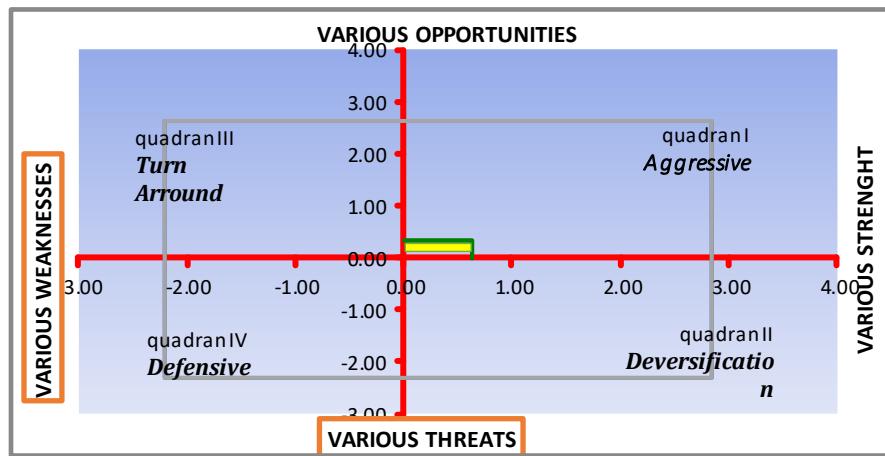


Figure 1. Position of Probolinggo City in the SWOT Matrix

Based on the SWOT quadrant matrix in the figure, it can be explained that the position of Probolinggo City is in quadrant I. This position indicates that grape farming (marked with a yellow box) is in a strong position and has opportunities for development. The strategy recommendations given are aggressive, meaning that fruit farming is in a steady (good) condition so that it is possible to continue to do business in order to increase the productivity of farming land. Based on this matrix, four main strategies can be arranged, namely SO, WO, ST and WT. As a result of both internal and external forces, including issues with inequality and globalization, economic development in the era of regional autonomy encountered a number of difficulties. Each region must be able to compete both domestically and internationally due to the problem of globalization. As a result of disparities and globalization, Provinces and Regencies/Cities must prioritize the development of certain regions and their superior products in order to carry out rapid regional economic development.

Conclusion

Probolinggo City is generally categorized as suitable land (S1) for grape cultivation activities based on the description of the typology of sub-districts producing superior fruit commodities that are environmentally friendly, as grape agricultural land has fulfilled all requirements for growing these fruit plants. Grapes in Probolinggo City have a fundamental commodity potential. Grape farming satisfies these two requirements, making it economically and socially viable based on employment and income. This enables grape farming to operate at its most efficient level and produce the best outcomes. The SWOT analysis' findings indicated that aggressive planning was necessary to accomplish the best management of the development of the grape farming industry. By engaging in the proper cultivation management activities, farmers or the community in grape farming can maximize their productivity outcomes. However, they must restrict the holding area used in accordance with the optimal area. This is necessary to ensure that the management of agricultural business development stays within the bounds of the available land, allowing for proper economic control. By examining the findings of the analysis and the previous conclusions, it is required to do additional research on environmentally friendly grape products in Probolinggo City by including cultural components.

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