UDC 332

MODEL OF POLICY FOR THE MANAGEMENT OF SUPERIOR GRAPES COMMODITIES SUSTAINABLY IN THE CITY OF PROBOLINGGO

Sudjarwo Gogol*
Doctoral Program of Environmental Science, University of Brawijaya, Malang, Indonesia

Suyadi
Faculty of Animal Science, University of Brawijaya, Malang, Indonesia

Afandhi Aminudin
Department of Pest and Plant Disease, Faculty of Agliculture, University of Brawijaya, Malang, Indonesia

Tarno Hagus
Department of Plant Protection, Faculty of Agriculture, University of Brawijaya, Malang, Indonesia

*E-mail: mygojarwo@gmail.com

ABSTRACT
Regarding the development and production of exceptional fruit, Probolinggo City's agropolitan region is crucial. Given the potential for the growth of grapevines, it should be possible to rely on this commodity to help enhance the welfare of the Probolinggo City population, but the reality still falls short of expectations. The purpose of this study was to determine the potential of the superior commodity of grapes and the feasibility of developing the potential of the superior commodity of grapes in Probolinggo City and to design a policy model for the management of superior commodities of grapes in Probolinggo City. The research method used is an exploratory research method with an exploratory quantitative approach with Structural Equation Modeling (SEM) analysis conducted on respondents in Probolinggo City. 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 results. Based on the findings of the SEM analysis, it was determined that the government's responsibility and proper agricultural management are required to create sustainable agriculture, particularly in the grape growing industry. If there is mediation in excellent and right agricultural management, one of which is using novel circular vertical racks, community participation will be able to develop sustainable agriculture.

KEY WORDS
Commodity of grapes, sustainable agriculture, Structural Equation Modeling (SEM).

In Indonesia, the agriculture industry is crucial to the country's economic growth. The potential for this commodity to grow in the future is quite good. According to data from the Center for Agricultural Data and Information Systems (2015), the agriculture sector made up 13.38% of the nation's GDP, with the agriculture sub-sector making up the lion's share at 3.29%, followed by the food crops sub-sector at 2.01%. According to additional information, the agricultural industry serves as a source of income for local governments, creating chances for employment, the growth and improvement of regional and tax assets, as well as commercial potential for both domestic and foreign investors (Hamilton, 1987; Wigena et al., 2009); Banson et al., 2016).

The development of the economic wheel will be followed by the environmental catastrophe. Natural disasters will result from the loss of both terrestrial and aquatic biota, air

and water pollution, and the shrinking and even deforestation of forests. This predicament arises because progress is greatly influenced by a number of factors that have little economic value. A chain of sustainable development that spans all facets of life is known as national development. Development is also pursued as a practical measure to combat injustice, unemployment, poverty, and illiteracy. According to Roger (1976), development is a social system-level process that results in modernization based on innovation, acculturation, learning, and socializing.

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 (Syafaat and Supena, 2000).

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. In consequence, it is anticipated that the implementation of various regional economic development programs will be carried out efficiently, effectively, and accurately with a proportional program specialization approach, which in the end may yield the best outcomes. Because of their particular flavor and alluring perfume, which can be enjoyed as both fresh fruit and processed goods, grapes continue to be an exclusive fruit with significant economic worth and widespread popularity.

The market is saturated with imported grapes, indicating that there is a huge disparity between supply and demand for grapes, which suggests that there is a lot of room for development. Additionally, the demand for grapes is very high, as indicated by the supply of grapes in the market. This is significant because regional governments (provinces, districts, and cities) must become more competitive in order to compete on a global scale as a result of changes in the external environment brought about by the process of globalization. If this isn't done, imported goods that are more affordable and of greater quality will kill regional products produced locally.

LITERATURE REVIEW

Local governments and their communities manage available resources as part of regional economic development, which also establishes a pattern of cooperation between the public and private sectors with the aim of generating new employment opportunities and promoting regional economic activity (growth). 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 utilize 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 barriers or restrictions on existing and future export-oriented businesses in the region are part of the policy's implementation.

According to Riza Alfita (2009), regional superior products (PUD) are regional superior products that have qualities and uniqueness that other regions do not have, are highly competitive, and can create employment opportunities for local communities. Regional Superior Products (PUD) have long been based on government regulations in Indonesia. Local, national, and regional markets are all focused on regional superior products, which are also environmentally beneficial. It is difficult to implement the development of superior

products and empowerment as regional economic potential in the era of autonomy because PUD development is closely tied to the political will or policies of the Regional Government. As one of the pillars of the local economy, the role of local government in empowering and creating superior localized products is crucial. Therefore, a number of stakeholders who act in accordance with their various authority are linked to regional excellent products.

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).

Horticultural farming is a more advanced form of agriculture than the production of food crops, in addition to having a significant role in regional development. Horticultural farming is more advanced agriculture, thus it must be profitable and extensively farmed with sufficient funding. However, Indonesian horticultural farming still exhibits certain traditional traits. Activities that rely on constrained resources and talents are a sign of this. These activities generally have the following characteristics: (1) low levels of education and management technology mastery; (2) sparse locations and small land holdings (0.25 Ha); (3) limited access to information, knowledge, technology, and markets; (4) capital constraints; and (5) weak agricultural institutions (Soekartawi, 2001).

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 CO_2 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 activities 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).

MATERIALS AND METHODS OF RESEARCH

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.

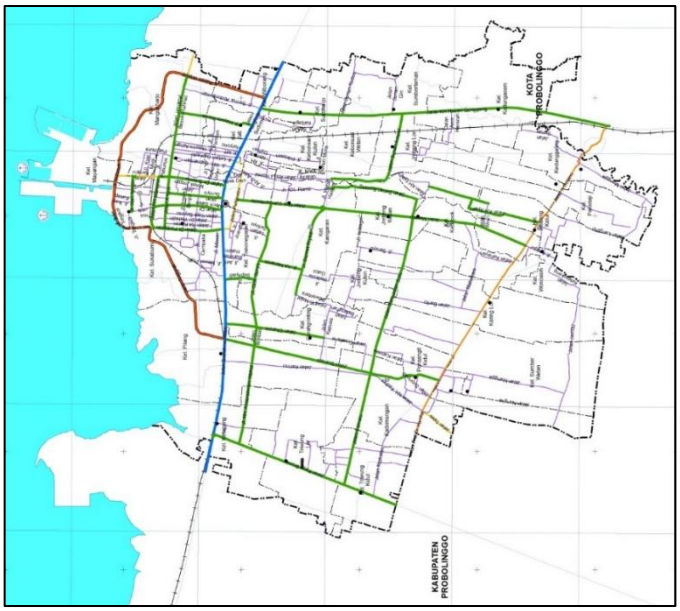

Figure 1 – Map of Research Locations

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 SEM model can be used to examine the benefits of managing grape cultivation more effectively. The formula value of growing grapes is the value that the model yields. To establish a strategy-based approach for improving management of fruit farming development in the interim. A formula for regulating the growth of fruit farming is created using all of these analyses in order to move the current conditions up to sustainable ideal ones.

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.

To find out whether the hypothetical model is supported by empirical data or not, it is necessary to test the goodness of fit overall model. According to Arbuckle and Wothke, in Solimun (2009), the best criterion used as an indication of model goodness is the value of Chi Square / DF less than 2, and the RMSEA is below 0.08. In this study, the values of CMIN / DF and RMSEA have met the cut off value. Therefore SEM model in this research get Goodness of Fit value some not yet fulfill cut-off, thus model that formed can be said marginal. As for some test results are presented in the following table below:

Table 1 – Test Result of Goodness of Fit Overall Model Initial Stage

Goodness of Fit index Y	*Cut off Value*	Analysis Results	Model Evaluation
χ^2- *chi Square*	< df, α = 0.05	61.373	Good model
Sig.	≥ 0.05	0.063	Good model
RMSEA	≤ 0.08	0.047	Good model
RMR	< 0.10	0.070	Good model
GFI	≥ 0.90	0.938	Good model
AGFI	≥ 0.90	0.965	Good model
CMIN/ DF	≤ 2.00	2.448	Good model
TLI	≥ 0.90	0.952	Good model
CFI	≥ 0.90	0.963	Good model

Source: Data Processed, 2022.

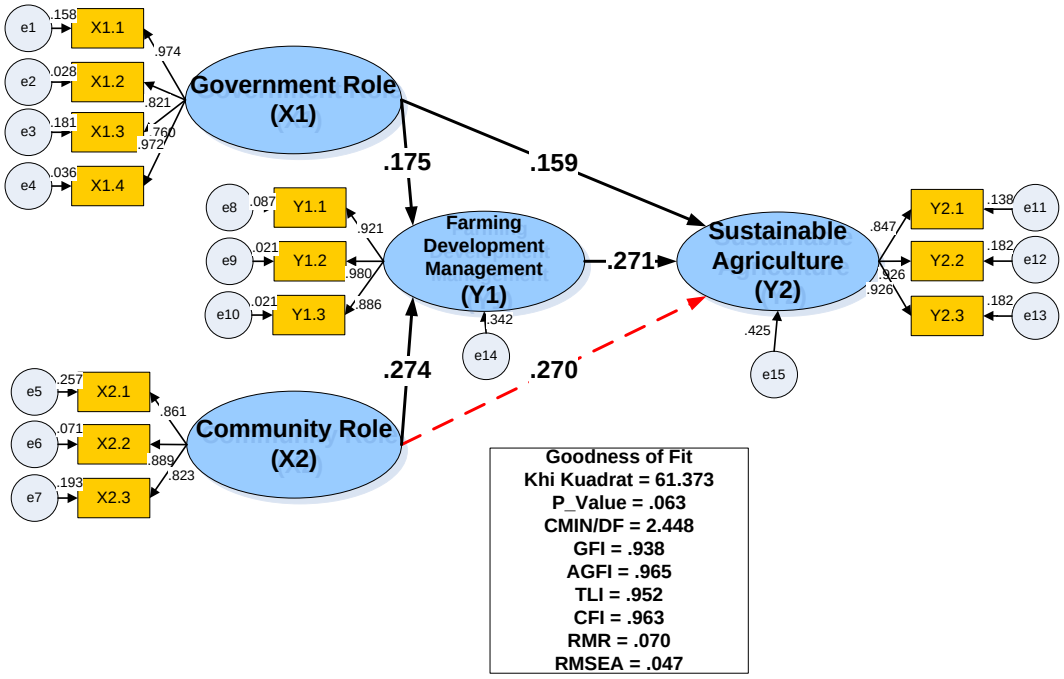

Figure 2 – Line Diagram Result of SEM Analysis

Based on the results of the SEM analysis, a model with a GFI value of 0.938 was obtained which was included in a good model so that based on these results it can be said that the leadership innovation model in cultivating student character is worthy of development. Based on the results of the SEM analysis that has been carried out, in detail it can be seen that the coefficient of influence of exogenous variables on endogenous variables in each variable explains the magnitude of the coefficient of influence. A summary of the results of hypothesis testing is given in the following table below:

Table 2 – Hypothesis Testing Results

Hypothesis	Independent Variables	Dependent Variables	Direct Effect Line Coefficients		
			Std'ize	*P-value*	Desc.
H_1	Government Role	Farming Development Management	0.231	0.000	Sig***
H_2	Community Role	Farming Development Management	0.179	0.010	Sig**
H_3	Community Role	Sustainable Agriculture	0.035	0.531	Non sig
H_4	Government Role	Sustainable Agriculture	0.168	0.013	Sig**
H_5	Farming Development Management	Sustainable Agriculture	0.279	0.000	Sig***

Source: Data Processed, 2022.

Based on the table above, the results of hypothesis testing are obtained as follows:

Hypothesis 1: The Government's role has a significant influence on Farming Development Management is accepted. The standardized path coefficient = 0.231 with a p-value = 0.000 turns out to be significant. This shows that there is a significant positive effect on the Role of Government on Farming Development Management. This illustrates that the perceived high or good role of the government makes the management of farming development increase.

Hypothesis 2: The role of the Community/Farmers has a significant effect on Farming Development Management is accepted. The standardized path coefficient = 0.179 with a p value = 0.010 is significant. This illustrates that there is a positive significant influence of the role of the Community/Farmers on Farming Development Management. This illustrates that the perceived high or good role of the community/farmers makes the management of farming business development increase.

Hypothesis 3: The Role of Communities/Farmers has a significant effect on Sustainable Agriculture is rejected. Standardized Path Coefficient = 0.035 with p value = 0.531 was not significant. This illustrates that there is no significant influence of the role of the Community/Farmers on Sustainable Agriculture. This illustrates that whether or not Leadership Innovation does not affect Sustainable Agriculture.

Hypothesis 4: The Government's role has a significant influence on Sustainable Agriculture is accepted. Standardized Path Coefficient = 0.168 with a p value of 0.013, it turns out to be significant. This illustrates that there is a significant positive influence of the Role of Government on Sustainable Agriculture. This shows that the better the Government's role, the more sustainable agriculture will be followed.

Hypothesis 5: Farming Development Management has a significant effect on Sustainable Agriculture is accepted. Standardized Path coefficient = 0.279 with p value = 0.000 is significant. This illustrates that the significant positive influence of Farm Development Management on Sustainable Agriculture. This illustrates that the perceived high or good Management of Farming Development will make Sustainable Agriculture increase.

Based on the SEM results, it is evident that the model developed is appropriate for encouraging effective and proper farming development management. Farming Development Management must be developed in order for it to be more effectively structured. This requires understanding government policies as well as the farmers themselves. Even while the research participants are well aware of social, economic, and cultural issues, there are still some people who use their positions of power to purposely do things they shouldn't in order to harm the environment.

The indirect effect hypothesis's findings, specifically the relationship between the role of government in sustainable agriculture and farming development management, obtained a coefficient of 0.074. Testing the indirect relationship between the government's role in farming development management and between farming development management and sustainable agriculture found a significant relationship, indicating that the indirect relationship between the government's role in farming development management and sustainable agriculture through intermediaries is important. This demonstrates how Farming Development Management can become a variable that mediates between the Government's Role in Sustainable Agriculture, so that with a well-formed Farming Development

Management it will make Farming Development Management effect the growth in Sustainable Agriculture.

Through the use of Farming Development Management as a middleman, the community's and farmers' indirect impact on sustainable agriculture was given a coefficient of 0.047. Testing the indirect relationship between the role of the community and farmers in farming development management and the relationship between farming development management and sustainable agriculture is significant, proving that there is a major indirect relationship between the two. This shows how communities and farmers have a huge direct and indirect impact on sustainable agriculture, which allows them to continue to advance the field. Without farmer knowledge, the management of farming development can be improved, but the results are poor, thus it is vital to mediate good and proper management of farming development so that it is stronger in helping Sustainable Agriculture get the reputation of being environmentally friendly.

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 results. Based on the findings of the SEM analysis, it was determined that the government's responsibility and proper agricultural management are required to create sustainable agriculture, particularly in the grape growing industry. If there is mediation in excellent and right agricultural management, one of which is using novel circular vertical racks, community participation will be able to develop sustainable agriculture.

REFERENCES

1. Alfita, Riza. (2011). Perancangan Sistem Pendukung Keputusan Penentuan Prioritas Produk Unggulan Daerah Menggunakan Metode Weighted Product (WP), 2011.
2. Banson, K. E., Nguyen, N. C., & Bosch, O. J. H. (2016). A Systems Thinking Approach to the Structure, Conduct and Performance of the Agricultural Sector in Ghana. Systems Research and Behavioral Science, 35(1), 39–57. doi:10.1002/sres.2437.
3. Hamilton, C. (1987). Can the rest of Asia emulate the NICs? Third World Quarterly, 9(4), 1225–1256. doi:10.1080/01436598708420024;
4. Ida Syamsu Roidah. (2013). Manfaat Penggunaan Pupuk Organik Untuk Kesuburan Tanah. Jurnal Universitas Tukungagung 'Bonorowo' Vol.1 No. 1 Tahun 2013.
5. Notohadinegoro, T., Johara. (2005). Faktor Tanah dalam Pengembangan Hortikultura. UGM Press, Jogjakarta.
6. Ricardson, H.W. (2002). Dasar-dasar Ilmu Ekonomi dan Regional. Fakultas Ekonomi Unversitas Indonesia. Jakarta.
7. Rogers, E.M. (1976). Communication in Organizations. New York: A Division of Macmillan Publishing Co. Inc.
8. Soekartawi. (2001). Agribisnis: Teori dan Aplikasinya. Raja Grafindo Persada, Jakarta.
9. Syafaat, N and Supena Friyatno. 2000, Analisis Dampak Krisis Ekonomi Terhadap Kesempatan Kerja dan Identifikasi Komoditas Andalan Sektor Pertanian di Wilayah Sulawesi: Pendekatan Input-Output. Ekonomi dan Keuangan Indonesia, Vol. XLVIII No.4.
10. Tarigan, R. (2005). Ekonomi Regional. PT Bumi Aksara. Jakarta.
11. Wigena, I.G.P., H. Siregar, Sudrajat, dan S.R.P. Sitorus. (2009). Desain model pengelolaan kebun kelapa sawit plasma berkelanjutan berbasis sitem pendekatan dinamis (Studi kasus kebun kelapa sawit plasma PTPN V Sei Pagar, Kabupaten Kampar, Provinsi Riau). Jurnal Agro Ekonomi. 27(1): 81-108.