Zoning Models of Vegetables Commodities Based on Competitiveness AndComparative advantagePandeglang, Banten, Indonesia

Aliudin,ArisSupriyoWibowo,,SetiawanSariyoga, SeptianTirtaCahyadi
e-mail :alicardan@yahoo.com

Departement Agribusiness Faculty of Agriculture University of Sultan AgengTirtayasa
Jl. Raya Jakarta Km.4 Pakupatan Kota SerangBanten42124 Indonesia

Abstract: Vegetable development in Pandeglang District has not been mapped and recorded inaccurate and up to date data, making it an obstacle to the development of vegetable commodities. The development of vegetable commodities in Pandeglang Regency is currently showing a declining performance. This research aims to make the model of vegetable commodity development based on product competitiveness and comparative advantage, with sampling judgment sampling technique. Variables used to analyze the development of vegetable commodity in the future include all commodity production and socioeconomic variables. Secondary data with primary data is combined by means of chi-squared decomposition, to produce contingency tables. To sharpen the analysis used Hierarchical Process Analysis (AHP). The results showed that the control of farmers on vegetable commodity mostly only 2 types of vegetables that is long bean and cucumber. Both vegetable commodities are preferred by farmers in Pandeglang district because both commodities have high adaptation capability to climate and weather in the region, the commodity has low cost and low risk compared to other commodities such as chilli. The supply chain of this commodity of long beans and cucumbers has reached the main market of Rau and in Tangerang high land market, besides, a large market share with market knowledge and market information is adequate. The model for the development of vegetable commodities development strategy and development of vegetable area of Pandeglang Regency consisting of 24 programs, with the highest score being 1) Increasing PAD of Agriculture sector; 2) Training and processing of the (fresh handling and manufacturing) of preservative vegetables; 3) Enhancement of knowledge of farmers on business management; And 4) Personnel proportionally based on the size of farmer groups

Keywords: Modeling, Vegetable Development, Sentra Area, Comparative Advantage

Introduction

Pandeglang district has an area of 2,747 km2, the area is equal to 29.98% of the province of Banten, this area is an opportunity to develop vegetables. Based on the condition of the region, Pandeglang Regency is suitable for the development of vegetable commodities, especially for tropical vegetables. The opportunity is strengthened by market access to the surrounding areas of Serang Regency, Serang City, Tangerang City, Tangerang Region, and even Jakarta Capital City. Currently, the opportunity is neglected, even there is a tendency Pandeglang regency, unable to supply vegetables for the region of Banten province itself, it is proven the increasing supply of imported vegetables from outside. To overcome these problems it is necessary to manage and manage the agricultural area to revitalize vegetable farming in accordance with bioecological and economic aspects.

Some research on the arrangement of agricultural commodity areas has been done by several researchers, including cluster analysis that has been done that is, Nusantoro (2011) in a study entitled Model Product Development of Competitive Areas Through Cluster Approach in Lampung. The study used the LQ method, so the resulting recommendation is still weak showing only the base sector and non-base, and less strong to determine the candidate location of vegetable development.

Darmaputra, Koesmaryono and Santosa (2006) with a study titled Pillage of Patchouli Agroclimate Plant (Pogostemon Spp.) Based on Rainfall in Lampung Province. The purpose of this research is to determine the area of patchouli plant development in Lampung Province based on the suitability of agroclimate precipitation area, and the determination of the long period of rain less than the need of patchouli plants.

Saputra, Sumaryanto and Supena Friyatno, (2011), on Comparative and Competitive Advantages of Potato and Cabbage Commodities in Wonosobo Central Java, which aims to (a) undertake both financial and

economic analysis of the two commodities, (b) Comparative and Competitive Analysis, C) measure the divergences and impacts of government policies, (D) formulate incentive policies while commodity development. Matrix Policy Analysis Methods (PAMs), the results show that the two commodities have comparative and competitive advantages, demonstrated by DRC and PCR. In other words, Wonosobo Central Java both more commodities Profitable to produce than imports.

Nurdin's (2011) study in Gorontalo entitled Evaluation of Land Suitability for Banana Development, which aims to evaluate the suitability of land for banana development, using GIS method (Information of Geographic System). The results show that land suitability for bananas is classified accordingly, and limits for development Bananas are a danger of erosion, water and the availability of oxygen, and root conditions.

Agus Romadhon and Sucipto (2010) in his research on Potential Mapping of Commodities and Development Plans in Blige Sub-district, Bangkalan Madura. The objective of this research is to prepare the agricultural centre area with high competitiveness and competitive advantages through the development of a number of leading commodities. The methodology is used to identify commodities, and this researcher uses transect method. The results showed that the development of commodities in District Blega, food crops are rice, corn, peanuts, cassava, cayenne pepper. Fruit crops guava, water, sapodilla, banana, mango, jackfruit, and durian. Plantation of coconut, kapok, jambumente, chilli herbal medicine.

Research on Development Strategy of Vegetable Agribusiness in South Sulawesi conducted by Muh. Taufik (2012). The method used is the SWOT method, and the results of his research showed that vegetable agribusiness development obtained four strategies that need to be done, namely: 1) aggressive strategy (S-O), maximizing the potential/power to seize opportunities with utilizing production technology, and expansion and market share, government policy support, institutional strengthening and quality improvement of human resources, 2) diversification strategy (S-T), maximizing the potential / power to reduce existing threats by conducting eco-friendly farming activities, (3) divestment strategy (W-O), minimize the weakness / obstacle to seize the opportunity as much as possible through increased production / productivity and product quality, strengthening of agricultural business facilities,Diversification and regulation of cropping patterns as required by the market, and 4) survival strategies (W-T), minimizing weaknesses and constraints to address threats by increasing production cost efficiencies, expanding market information, and optimizing the use of chemical inputs.

Research Farida Nurland (2011), Entitled Study of Zoning Development of Superior Commodities of Jeneponto Regency. This study aims to (1) collect biophysical data as the basis for determining the zonation of commodities; (2) Land suitability mapping for leading commodities; (3) Collecting data on potential commodities superior production; (4) make the recommendation of superior commodity development policy. The results showed the superior commodities in Jeneponto Regency are corn, cassava, onion, cabbage, mango, coconut and cashew nut. Horticultural commodities which are the main commodities in Jeneponto Regency are onion and cabbage. Especially for industrial commodities, Regency of Jeneponto potential for development of coconut and cashew nut.

Ari Krisnohadi Riduansyah (2016) in his research Horticultural Area Development With Geographic Information System Applications And Analytical Hierarchy Process (AHP). This study aims to conduct horticulture zonation through horticultural land suitability criteria and expert perception by using spatial analysis and Analytical Hierarchy Process (AHP). The results showed that the actual land suitability class for vegetables was the dominant S2-na / nr class with inhibiting factors were soil nutrition and soil pH. Feasibility classes for fruit trees dominated by S3-na class (inhibiting factors are soil nutrients), and for medicinal plants dominated by land suitability class S3-nr (inhibiting factor is soil pH). The highest score through the AHP process shows that decision-making for vegetable and biopharmaceutical plant growth is income and technology.

The results of research Aris Supriyo Wibowo et al. (2016) Clustering of Vegetables Commodities For Agricultural Development Planning in Pandeglang Region obtained an overview of each region having the potential of different vegetable commodities. There are three forces that cause such differences, these include agroecosite of the sub-district, farmer cultivation culture and market interaction. Furthermore, based on the results of data analysis showed that there are very potential vegetables with a uniform distribution in all districts in the district Pandeglang district.

The objective of this research is to modeling the zoning of vegetable commodities based on competitiveness and economic variables such as community habits (mastery of vegetable farming technology, preservation land area, and width of land to be accessed (enhancement willingness) of market information, marketing network, knowledge of management Farming, government policy, investor interest and other economic variables.

METHODS

Research conducted in Pandeglang District, with sampling judgment sampling technique, Criteria used:

1. Stakeholders who master and understand issues related to the research problem.
2. Samples are limited to 4 samples of each stakeholder group of each candidate region.

3. Willing to be interviewed.

The variables used to analyze the development of vegetable commodities in the future include all products of commodities and socioeconomic variables. Furthermore, by combining secondary data with primary data, chi-squared decomposition of the contingency table will result in a correspondence analysis that can be projected into graphic form. To sharpen the analysis used Hierarchical Process Analysis (AHP).

RESULTS AND DISCUSSION

Farmers' control over vegetable commodities is mostly only 2 types of vegetables (called sebain vegetables potential) ie long beans and cucumbers. Both vegetable commodities are preferred by farmers in Pandeglang district because both commodities have high adaptation capability to climate and weather in the region, the commodity has low cost and low risk compared to other commodities such as chilli. The supply chain of this commodity of long beans and cucumbers has reached the main market of Rau and in the Tangerang high land market, besides, a large market share with market knowledge and market information is adequate

Chilli commodities, in addition to risks from within cultivation, the risks posed by highly fluctuating prices. This causes farmers difficulties in estimating the benefits obtained so that farmers do not have the certainty in calculating the expected revenue with expenses incurred.

Avoidance of this risk was in the siasati by farmers with diversification of vegetable commodities with planting time management adjusted to the characteristics of the plant. Diversification among commodities is done with several crops, crops that are managed and selected include commoditiesChili, eggplant, sweet corn, cucumber, caisim, bean, and green pare.

The result of observation and FDG obtained hierarchy picture that is hierarchy level 1 obtained 10 hierarchy. Level 2 hierarchy obtained by 5 hierarchy, level 3 hierarchy obtained by 5 hierarchy, and level 4 hierarchy obtained by 4 hierarchy.

Table 1. Results of Level 1 Hierarchy Analysis

Code	Description
A1	Improvement of vegetable cultivation system based on commodity type.
A2	Building on the ownership of agriculture finance.
A3	Marketing development.
A4	Commodity management.
A5	Improving farmers' knowledge about business management.
A6	Improvement of facilities (irrigation, farm road, information network).
A7	Modernization of cultivation equipment.
A8	Training of results processing (free handling and manufacturing) vegetable preservatives.
A9	Market information on commodity selling prices.
A10	Decide the role of middlemen by strengthening the capital and increasing the role of business groups

The improvement of the vegetable cultivation system by commodity type occupies the first hierarchy in the first level hierarchy analysis, this is due to uncontrolled management of plants and soil, and the control over the quantity and demand of vegetables from consumers (market needs) is overlooked. As a result other than the price received by farmers is very fluctuating so that farmers are difficult to estimate the benefits gained. Level 1 hierarchy of the tenth is Deciding the role of middleman with the strengthening of capital and increase the role of business groups, the dependence of farmers on the middleman is very high, the dependence is a form of debt, this can hurt the farmers because the farmers are powerless to determine the selling price of their crops Determine the selling price is the middleman.

Table 2. Results of Level 2 Hierarchy Analysis

Code	Description
B1	Fertilizer Distribution Policy.
B2	Procurement of certified communal seeds.
B3	Change of orientation of farmer group role.
B4	Improved performance of agricultural tithe through reward and punishment and personnel in a proportional manner based on the size of farmer groups.
B5	Agribusiness Market Development Based on the location of production centres.

Second level hierarchy is more related to government policy money can support the development of vegetable commodities.

Table 3. Results of Level 3 Hierarchy Analysis

Code	Description
C1	Increased PAD in the agricultural sector.
C2	Increase Added Value of Vegetable Commodity Products.
C3	Growing Investor Interest.
C4	Improving farmers' welfare.
C5	Regional economic growth.

Level three hierarchy as in table 3 above, shows the consequences that can be caused by the development of vegetable commodities in Pandeglang District.

Table 4. Results of Level 4 Hierarchy Analysis

Code	Description
D1	Strengthening and legality of exploitation of the land.
D2	Gain specification of vegetable commodities by region.
D3	Establishment of organizations and institutions supporting regional development.
D4	The integration of intra and inter-sectoral development.

Based on the hierarchy description then we make the weighting of each level. The result of weighting is as follows:

Table 5. Weight and Level Priority Scale 1

Code	Total	Average (Priority)	Percentage	Priority of Scale
AI	1.362	0.057	5.673	5
A2	0.576	0.024	2.400	20
A3	0.753	0.031	3.139	16
A4	1.035	0.043	4.310	11
A5	1.557	0.065	6.487	3
A6	0.829	0.035	3.456	15
A7	1.147	0.048	4.779	9
A8	1.577	0.066	6.569	2
A9	0.530	0.022	2.210	21
A10	1.195	0.050	4.981	8
amount	44,0004			

Table 6. Priority Level 2 Weights and Levels

Code	Total	Average (Priority)	Percentage	Priority of Scale
B1	0.739	0.031	3.080	17
B2	0.956	0.040	3.982	12
B3	0.901	0.038	3.754	13
B4	1.459	0.061	6.079	4
B5	0.637	0.027	2.655	19
amount			19.550	

Table 6. Priority Level 2 Weights and Levels

Code	Total	Average (Priority)	Percentage	Priority of Scale
C1	1.926	0.080	8.024	1
C2	1.132	0.047	4.717	10
C3	0.461	0.019	1.920	23
C4	1.358	0.057	5.658	6
C5	1.308	0.054	5.449	7
amount			25.767	

Table 6. Priority Level 2 Weights and Levels

Code	Total	Average (Priority)	Percentage	Priority of Scale
D1	0.514	0.021	2.144	22
D2	0.450	0.019	1.877	24
D3	0.883	0.037	3.677	14
D4	0.716	0.030	2.982	18
amount			10.679	

Hierarchy level 1, puts the improvement of vegetable cultivation system based on commodity type (code A1) in the first level in the hierarchical group because the vegetable cultivation in Pandeglang Regency is less than optimal, it is related to uncontrolled crop and land management, and control The number and needs of vegetables from consumers (market needs) is less attention. As a result other than the price received by farmers is very fluctuating so that farmers are difficult to estimate the benefits gained.

The first hierarchical level 2 analysis result is the fertilizer distribution policy; Fertilizer for the vegetable commodity is needed and the needs cannot be delayed. If delayed, the expectation of both quantity and quality results will not be achieved.

Results of the first level 3 Hierarchy analysis Increased PAD The agricultural sector is essential to ensure the sustainable development of vegetable commodity areas. With the development of vegetable-based areas PAD Pandeglang regency can increase, so the development of vegetable-based areas not only affect the welfare of farmers but also affect the development of the region in Pandeglang district

The first level 4 hierarchy of reinforcement and legality of exploitation of the land is very important as this will improve the comfort and motivation of farmers in the business of farming. The convenience and motivation of these farmers is an important prerequisite for increasing agricultural production and productivity.

Based on the result of weighting of L1-A1 hierarchy code (improvement of vegetable cultivation system based on commodity type), the weight gain is 1.362 or 5.67%. Improvement of vegetable cultivation system based on the results of analysis occupied the priority scale 5 of 24 programs directed to the development of vegetable commodity areas. The hierarchy of L1-A2 (Building on the authority with agricultural finance institution) weighs 0.576 (2.4%), the L1-A2 hierarchy is the 20th priority scale, and so on.

Strategy of Development of Vegetable Development Area

The vegetable commodity is not currently a popular commodity in Pandeglang Regency, farmers in Pandeglang Regency prefer rice commodity, as the main commodity in its farm. Based on FGD results because farmers have not been able to control the risks due to weather changes or selling prices. The weather in Pandeglang District varies greatly with elevation, this weather difference is an important factor supporting variations or varieties of vegetables. Therefore, vegetative commodity development strategy is needed, which leads to the development of a vegetable area. There are 4 strategies namely Level 1 Hierarchy ie factors in the development of vegetable area, level 2 hierarchy; Important actors (stakeholders) are related to factors in the hierarchy of level 1, level 3 hierarchy; Objectives of stakeholders in the region related to the development of Vegetable area, level 4 hierarchy; Scenario pattern of vegetable palm area development in Pandeglang Regency.

CONCLUSIONS AND RECOMMENDATIONS

This research produces a model of development of vegetable commodities development strategy and development of the vegetable area of Pandeglang Regency which consists of 24 programs. Based on the analysis and priority scale obtained 4 highest scores are 1) Improvement of PAD in agriculture sector; 2) Training and processing of the (fresh handling and manufacturing) of preservative vegetables; 3) Enhancement of knowledge of farmers on business management; And 4) Personnel proportionally based on the size of farmer groups, but that does not mean that 20 other programs are ignored.

Refference

AgusRomadhon and Sucipto (2010).*Potential Mapping of Commodities and Design of Development In District Blega, Bangkalan Madura*. Agrovigor volume 3 No. 2 September 2010 ISSN 1979-5777. Indonesia

Ari Krisnohadi, Riduansyah1 (2016) *Analysis of Horticultural Area Development With Geographic Information System Application And Analytical Hierarchy Process (AHP).* Tropical Pedon Journal of Issue 1 Vol 1 (37-47) Indonesia

Darmaputra, L.G, Y. Koesmaryono, and I. Santosa. 2006. *Rainfall Based Patchery Plantation in Lampung Province*. Journal of Agromet Indonesia.

Farida Nurland (2011). *Zoning study on the development of superior commodities of Jeneponto Regency*. Journal of Agriculture Socio-Economic, Volume 8, Number 1, February 2011.

Muh. Taufik (2012). *The strategy of Vegetable Agribusiness Development in South Sulawesi*. Journal Research and Agricultural Research and Developmenat of agricultural 3 (2), 2012. Bogor Indonesia

Nurdin (2011).*Evaluation of Land Suitability for Banana Development in Boalemo District, Gorontalo*.Agropolitan Scientific Journal volume 4 number 2 sept 2011

Nusantoro, Jayanto. 2011. *Model of Local Superior Product Development through Cluster Approach iProvince Lampung*. National Seminar of Applied Economics Faculty of Economics, Muhamdiyah University Metro.Indonesia

Saptana, sumaryanto and supena friyatno (2011).*Analysis of Comparative and Competitive Advantages of Potato and Cabbage Commodities in Wonosobo Central Java*. Agropolitan Scientific Journal Volume 4 No. 2 September 2011

Wibowo, Aris Supriyo, at.al (2016). *Clustering Of Vegetables Commodities For Agricultural Development Planning in Pandeglang Region*. International Journal of Agriculture Innovations and Research. Volume 5. Issue 1.