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Analysis of Indonesian Corn's Competitiveness In International Trade

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Abstract

Indonesia is an agricultural country that is blessed with abundant natural resources, both biological and non-biological natural resources. Various natural products grow abundantly in Indonesia, including food crops. Understanding the relationship between exports and competitiveness can provide a more holistic view regarding the position of Indonesian corn in international competition. the ability of a commodity to compete in foreign markets or the ability to survive in the domestic market and compete with commodities from abroad. If a product has competitiveness, the product is in great demand by many consumers. The data obtained can be in the form of numbers or aggregated qualitative data. The qualitative approach provides the flexibility to gain an in-depth understanding of the phenomenon under study, while quantitative data allows for mathematical measurement and analysis, Ministry of Finance, World Bank, Agricultural Service, and other published sources. As a result of quantitative analysis calculations, conclusions can be obtained from the research carried out. Indonesian corn production has a positive and significant effect on the competitiveness of Indonesian corn.

Keywords

Indonesia, International, Competitiveness, Corn

1. Introduction

Indonesia is an agricultural country that is blessed with abundant natural resources, both biological and non-biological natural resources. Various natural products grow abundantly in

Indonesia, including food crops (Kamaludin et al., 2021). Food plants are important plants regarding their main function as food for Indonesian people (Mulyoutami et al., 2009). One of the food crops for Indonesian people is corn. Corn is one of the most important carbohydrate-producing food crops in the world, apart from wheat and rice. For residents of Central and South America, ears of corn are the staple food, as for some residents of Africa and several regions in Indonesia. Nowadays, corn has also become an important component of animal feed. Other uses are as a source of food oil and a basic ingredient for cornstarch. Various corn derivative products become raw materials for various industrial products. Demand for corn tends to increase, because the price is low and it is used all over the world.

Based on these conditions, Indonesia cannot be said to be the largest corn producer or export country in the world (Bourgeois & Kusumaningrum, 2008; Daulika et al., 2020). Over the last ten years, Indonesian corn exports have increased in average volume. This increase in exports was due to a significant increase in exports in 2015 with a growth rate of 639,886%, while in 2011 it experienced a decline with a growth rate of 70.27%. The highest corn exports were in 2015 at 250,000 tons. Indonesia's unstable corn exports are caused by the unstable amount of Indonesian corn production. Globalization of trade requires Indonesia to be able to improve its corn product competency so that it can compete with world countries. Competitiveness plays a key role. The pace of globalization will displace weak countries and benefit strong countries (Asmu'I & Akbar, 2016).

Yosep Research. (2009) explains that Indonesian corn exports are influenced by the volume of Indonesian corn production, Bas & Strauss-Kahn, (2015) the price of Indonesian corn exports, the volume of corn exports in the previous period, the volume of Indonesian corn imports, the rupiah exchange rate, the rate of development of inflation and AFTA trade liberalization . In contrast to Pratama's (2015) research, the research explains that competitiveness is influenced by Indonesian soybean production, Indonesian soybean exports, exchange rates and government policies (Wanto, 2017). This is also different from Suryana and Agustian's (2014) research which explains that the factors that influence competitive and comparative advantage are policies regarding revenue, farming costs, levels of market differences, agricultural systems, agricultural investment and economic efficiency. From the results of previous research, the test results obtained are different from each other. Therefore research needs to be carried out. The originality of the research is that the variables used in analyzing the competitiveness of Indonesian soybeans are used in analyzing the competitiveness of Indonesian corn in international trade (Zainuri et al., 2015; Haryanto, 2019).

This research aims to achieve several essential goals. First, this research aims to assess the influence of Indonesian corn production on corn's competitiveness in the international market context (Durand & Fournier, 2017). This analysis will provide an in-depth understanding of the extent to which Indonesia's corn production levels can influence its competitiveness in the global market. Second, this research also aims to investigate the impact of Indonesian corn exports on the competitiveness of these products. Understanding the relationship between exports and competitiveness can provide a more holistic view regarding the position of Indonesian corn in international competition (Carneiro, 2000).

This research seeks to evaluate the impact of exchange rates and government policies on the competitiveness of Indonesian corn. Analysis of the role of exchange rates and government policy

will provide a more comprehensive perspective on the factors that influence the competitiveness of Indonesian corn in the global market. The benefits of this research are very broad. For the author, this research provides an opportunity to develop the ability to analyze problems scientifically, as well as fulfill the requirements for obtaining a bachelor's degree. For the public or readers, this research is a source of relevant information regarding influencing factors on the competitiveness of Indonesian corn products. Meanwhile, for the government, it is hoped that the results of this research can become a basis for thought and consideration in making decisions related to national corn policy. Thus, it is hoped that this research can make a real contribution to the understanding and development of the Indonesian corn sector.

2. Literature Review

According to Salvatore (1997) International trade is something that is absolutely done by every country. Currently, there is not a single country that is in autarky or an isolated country without any economic relations with other countries (La Porta et al., 2000). This is because no country can meet its needs independently. The occurrence of international trade is based on differences in resources owned by each region or country. As well as the ability of a country to produce goods or services. An illustration of this is when a country wants to produce an item but the cost of producing the item is more expensive compared to buying the item from another country. So, that country will prefer to buy it from other countries. International trade can only occur if the trade benefits each party to the transaction (Moses, 1955).

According to the mercantilist view, trade is carried out by exporting as much as possible and reducing imports as little as possible. This is the only way to become a rich country. The export surplus received will be transferred into stocks of gold and precious metals. Mercantilists think that a rich country is a country that has the largest reserves of gold and precious metals. At a time when gold was still the main means of payment for international transactions, certain countries' currencies had emerged as international means of payment. For example, the pound sterling currency before World War II, apart from being a domestic currency in England, was also an international means of payment. No different from gold, almost all countries in the world at that time were willing to accept pounds sterling as payment for international transactions. Next to the pound string, the United States dollar emerged as an international currency or international "reserve currency" in line with the increasing position of the United States in the world economy, especially after World War I. The American dollar was accepted by anyone as payment for their transactions (Boediono 1991).

Competitiveness is the ability of a commodity to compete in foreign markets or the ability to survive in the domestic market and compete with commodities from abroad. If a product has competitiveness, the product is in great demand by many consumers. Competitiveness is the ability of a producer to produce a commodity at a low enough cost so that at the prices prevailing in the international market the production activity is profitable. The competitiveness of a commodity can be measured using two approaches, namely the level of profit generated and farming efficiency. The level of profit generated can be seen from two sides, namely private profit and social profit. Meanwhile, competitiveness can be seen from two indicators, namely competitive advantage and comparative advantage (Aisyah, 2015).

According to Boediono (1997) a country will only export goods that have a high comparative advantage, and import goods that have a low comparative advantage. The existence of comparative advantages can give rise to trade benefits (gains from trade) for both parties and will further encourage the emergence of trade between countries. Comparative advantage is a fundamental factor that determines international trade patterns. It can be said that if a country has a comparative advantage in the production of certain goods, then that country tends to export those goods. But it shouldn't stop just here. Must delve further into the factors that determine or influence a country's comparative advantage.

The Revealed Comparative Advantage (RCA) method was first introduced by Bela Balassa in 1965. Bela Balassa proposed a postulation about international trade which was based on the export-import ratio. RCA has been used widely in empirical research, and is even a central concept in international trade theory. Ballance et. al. stated that there is a connection between comparative advantage and RCA. This is a situation where economic conditions (EC) in various trading countries determine comparative advantage (CA) internationally. This pattern regulates the pattern of international trade, production and consumption between countries (TPC). RCA is an index that explains the comparison between the market share of a product in a country's total exports and the export market for the same product in total world exports. The RCA index which has a value equal to or more than one (1) means that the country has the competitiveness of a product above the world average and if the RCA index shows a value less than one (1) then the competitiveness of a product from that country below the world average (Yosep, 2009).

A country's currency exchange rate is differentiated into nominal exchange rate and real exchange rate. The nominal exchange rate is the relative price of the currencies of two countries. (Mankiw, 2003). For example, USD 1 is worth IDR 9,500 on the money market. Meanwhile, the real exchange rate is related to the relative prices of goods between two countries. The real exchange rate states the rate at which economic actors can trade goods from one country for goods from other countries. A country's real exchange rate will influence a country's macroeconomic conditions, especially net exports or the trade balance. This influence can be formulated as a relationship between the real exchange rate and net exports or trade balance (Mankiw, 2003).

This previous research is a reference for research that the author conducted, several previous studies. Joseph, (2009). Analysis of Competitiveness and Factors Affecting Indonesian Corn Exports in the Malaysian Market Pre and Post Economic Crisis. Bogor. Bogor Agricultural Institute, This research uses the RCA (Revealed Comparative Advantage) method to measure the competitiveness of Indonesian corn in the Malaysian market and the factors that influence Indonesian corn exports are carried out using multiple linear regression analysis with the dependent variable being the volume of Indonesian corn exports in the Malaysian market (tons) and the independent variables are the volume of Indonesian corn production (tons), the domestic price of corn (Rp/ton), the export price of Indonesian corn (US $/ton), the volume of corn exports in the previous period (tons), the volume of Indonesian corn imports (tons).), the rupiah exchange rate (Rp/US$) and the rate of inflation development in Indonesia (percentage) plus dummy variables before and after the implementation of AFTA trade liberalization. The variables used in this research had a real influence on Indonesian corn exports in the Malaysian market before the economic crisis, but after the economic crisis from 1999 to 2008 the variables used in this study had no real influence on corn exports.

Suryana and Agustian, (2014) Analysis of the competitiveness of corn farming in Indonesia. Bogor. Center for Socioeconomic and Agricultural Policy. This research uses policy analysis matrix (Policy Analysis Matrix, PAM). PAM is used to analyze feasibility both privately and socially, competitive advantage (financial efficiency) and comparative advantage (economic efficiency), as well as the impact of government intervention or policy on the commodity system. The PAM method thoroughly analyzes policy variables regarding revenue, farming costs, level of market differences, agricultural systems, agricultural investment, and economic efficiency. Based on research, corn profits are quite profitable, corn farming is economically and financially efficient and has comparative and competitive advantages. Based on the results of this research, it can be concluded that with a comprehensive policy to increase corn production and implementing it synergistically between related institutions, corn self-sufficiency can be achieved in a relatively short time. can be realized, even have the opportunity to export.

Primary. (2015) Competitiveness of Indonesian soybeans. Semarang State University. This research discusses the competitiveness of local Indonesian soybeans by analyzing internal and external factors of soybean agribusiness in Indonesia. This research uses the RCA method to measure the competitiveness of Indonesian soybeans against world soybeans. To measure influencing factors using multiple linear regression analysis. The variable used is RCA as the dependent variable and the independent variables are Indonesian soybean production (tons), Indonesian soybean exports (tons), exchange rate (Rp/US$) and added dummy variables, before and after the implementation of the 2011 Gema Palagung policy. Based on research The independent variables that have a significant effect on competitiveness are soybean production and soybean exports.

Mochamad Yuzi Zakariyah. Analysis of the Competitiveness of Indonesian Tea in the International Market. Brawijaya University. Department of Agricultural Socioeconomics. This research discusses the competitiveness of Indonesian tea against world tea by analyzing comparative advantage and competitive advantage. The method used in this research is RCA to determine the level of competitiveness of Indonesian cocoa, ISP to determine whether Indonesia is in the exporter or importer category and the Herfindal index and Concentration Ratio to analyze market structure. The results of the research show that the RCA value of tea commodities is > 1, Indonesian tea tends to be an exporter and the structure of the international tea market has medium concentration and has an oligopoly type of market. A hypothesis can be interpreted as a statement whose existence is still weak and needs to be tested for truth. Based on theory and previous research, a hypothesis will be formulated in the research.

(H1) It is suspected that Indonesian corn production has a significant effect on the competitiveness of Indonesian corn

(H2) It is suspected that Indonesian corn exports have a significant effect on the competitiveness of Indonesian corn

(H3) It is suspected that the exchange rate has a significant effect on the competitiveness of Indonesian corn

(H4) It is suspected that government policy has a significant influence on the competitiveness of Indonesian Corn.

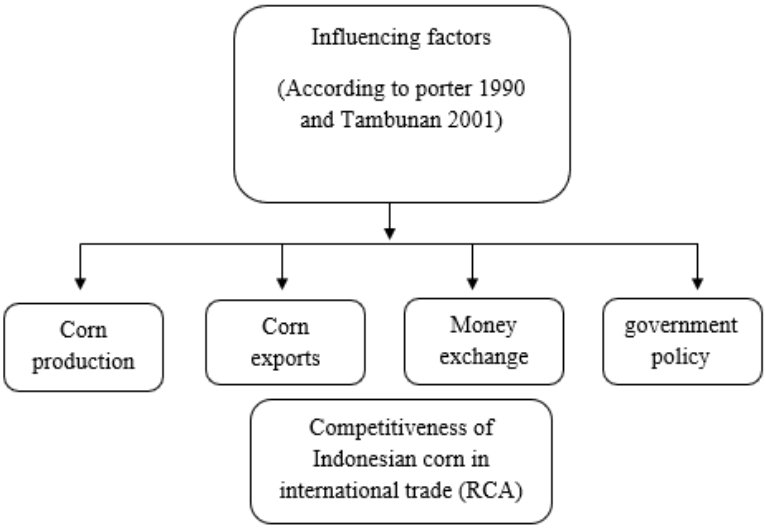

Figure 1. Theoretical Thinking Framework

3. Research Methods

This research adopts a qualitative method with quantitative data types. The data obtained can be in the form of numbers or aggregated qualitative data. A qualitative approach provides the freedom to gain an in-depth understanding of the phenomenon under study, while quantitative data allows for mathematical measurement and analysis. The analysis process was carried out using statistical and econometric methods, demonstrating a careful analytical approach to the collected data. The data source on which this research is based is secondary, namely data recorded systematically and in time series data over a 30-year period, starting from 1986 to 2015. Data comes from various sources such as review publications, the Central Bureau of Statistics (BPS), Food and Agriculture Organization (FAO), Ministry of Trade, Ministry of Finance, World Bank, Department of Agriculture, and other published sources. It is hoped that this diversity of data sources can provide greater precision and accuracy in research, thereby providing a more comprehensive understanding of the phenomenon that is the focus of the analysis.

4. Results And Discussion

Indonesian corn production is a farming activity to produce corn products by utilizing agricultural land. By increasing Indonesia's corn production, it can meet domestic needs, if it produces at a large capacity it can open up opportunities for international trade. Based on data, corn production patterns in Indonesia tend to fluctuate, as does land area. But not with productivity. Indonesia's corn productivity over a period of 30 years, in the period 1986 - 2015 there was an increase. can be seen in Table 1.

Table 1 shows that corn production patterns in Indonesia tend to fluctuate, as does land area. But not with productivity. Production conditions before the implementation of Gema Palagung 2001 in the period 1986-2000 reached the highest peak in 1998 with total production of

10,110,557 tons. The increase in corn production was supported by an increase in corn harvested area in Indonesia by 15.57%. And the lowest occurred in 1987 with total production of 5,156,000 tons. Production conditions after the implementation of Gema Palagung 2001 in the 2001-2015 period reached the highest peak in 2015 with total production of 19,612,435 tonnes, but the increase in corn production in 2015 was not supported by an increase in the area of corn harvested in Indonesia because in 2015 the harvested area corn decreased by 1.29%.

Table 1. Land area-Productivity-Corn Production in Indonesia 1986 – 2015

Year	Harvested Area (Ha)	Productivity (ku/ha)	Production (tons)
1986	3.143.000	18.84	5.920.000
1987	2.626.000	19.63	5.156.000
1988	3.406.000	19.53	6.652.000
1989	2.944.000	21.03	6.193.000
1990	3.158.000	21.32	6.734.000
1991	2.909.000	21.50	6.256.000
1992	3.629.000	22.03	7.995.000
1993	2.881.466	22.06	6.355.214
1994	3.047.378	22.16	6.752.146
1995	3.595.700	22.64	8.142.863
1996	3.685.459	24.97	9.200.807
1997	3.301.759	26.26	8.671.647
1998	3.815.919	26.49	10.110.557
1999	3.456.357	26.63	9.204.036
2000	3.500.318	27.65	9.676.899
2001	3.285.866	28.45	9.347.192
2002	3.126.833	30.88	9.654.105
2003	3.358.511	32.41	10.886.442
2004	3.356.914	33.44	11.225.243
2005	3.625.987	34.54	12.525.894
2006	3.345.806	34.70	11.609.463
2007	3.630.324	36.60	13.287.527
2008	4.001.724	40.78	16.317.525
2009	4.160.659	42.37	17.629.748
2010	4.131.676	44.36	18.327.636
2011	3.864.692	45.65	17.643.250
2012	3.957.595	48.99	19.387.022
2013	3.821.504	48.44	18.511.853
2014	3.837.019	49.54	19.008.426
2015	3.787.367	51.78	19.612.435

Indonesian corn exports are the transportation of corn commodities from Indonesia to other countries. This process is often used by countries as the main strategy to compete at the international level. Indonesian corn exports tended to fluctuate during 1986 -2015. It can be seen in figure 1.

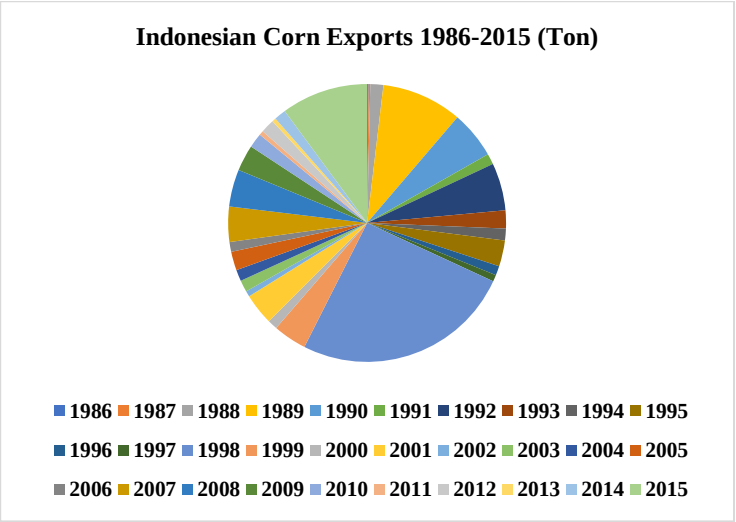

Figure 2. Indonesian Corn Exports to the World 1986 – 2015

In Figure 5, the condition of Indonesian corn exports before the implementation of the 2001 Gema Palagung policy for the period 1986-2015 reached its highest peak in 1998 at 632,515 tons and the lowest occurred in 1997 at 18,957 tons. Export conditions after the implementation of the 2001 Gema Palagung policy for the period 2001-2015 reached the highest peak in 2015 at 250,000 tons and the lowest occurred in 2013 at 11,418 tons.

Test normality with the Kolmogorov-Smirnov test, with the test criteria, if the One Sample Kolmogorov Smirnov results are asymptotically significant above the 0.05 significance level, it shows a normal distribution pattern. If the One Sample Kolmogorov Smirnov results at asymptotic significance below the 0.05 significance level do not show a normal distribution pattern, then the regression model does not meet the assumption of normality.

Table 2. Results of the One-Sample Kolmogorov-Smirnov Normality Test

N		**30**
Normal Parameters	Mean	,0000000
	Std. Deviation	,03219783
Most extreme Differences	Absolute	,116
	Positive	,116
	Negative	-,098
Test statistic		,116
Asymp. Sig		,200[c,d]

Based on table 2, the Test Statistics value is 0.116 and Asymp.Sig is 0.200, which is greater than 0.05, so it can be concluded that the data is normally distributed. This data can be used for research because good data is data that is normally distributed. The analytical tool used in this research is IBM SPSS Statistics Version 24. The test results are as follows.

Table 3. Test results for coefficient of determination, F test and T test

Dependent Variable: Y				
Independent Variable	**t-statistic**	**Prob.**	**F-statistic**	**Prob.**
RCA	3,465	,002	131,616	,000[b]
Production	2,557	,017		
Export	20,312	,000		
Exchange rate	3,281	,003		
Government policy	2,027	,041		
R square	,955			
SEE	,03468			
F table	2,74			
T table	1,70814			

Based on research, it is known that the calculated F value is 131.616 with a probability of 0.000. Because the probability is smaller than 0.05, it can be said that the regression model can be used to predict Indonesian corn production, Indonesian corn exports, exchange rates and government policies as a whole have an effect on RCA. If the decision is taken from a comparison of F count and F table with the following hypothesis:

- H0: $\beta 1 = 0$, All independent variables simultaneously are not significant explanations of the dependent variable
- H1: $\beta 1 \neq 0$, all independent variables are simultaneously significant explanations of the dependent variable

Before making a comparison, you need to know the f table first. Number of samples n=30, number of independent variables (k=4) obtained f table 2.74. Testing criteria are: If the calculated F value ≤ F table, then the hypothesis H0 is accepted. If the calculated F value ≥ F table, then the hypothesis H1 is accepted. Based on the research, it can be concluded that the calculated f value is (131.616) > f table (2.74), so the hypothesis H1 is accepted, meaning that all independent variables (Indonesian corn production, Indonesian corn exports, exchange rates and government policy) simultaneously (together) is a significant explanation of the dependent variable (RCA). In this T test, the degrees of freedom used are 95% or $\alpha = 5\%$ (0.05). Before making a comparison, you need to know the f table first. Number of samples n=30, number of independent variables (k=4) obtained t table 1.70814.

Indonesian corn production has a t count of 2.557 > t table 1.70814, so H1 is accepted, meaning that the Indonesian corn production variable has a significant effect on the competitiveness of Indonesian corn. Judging from the probability that corn production is 0.017, it is smaller than the error rate of 0.05. This also proves that Indonesian corn production has a significant effect on the competitiveness of Indonesian corn.

Indonesian corn exports have t count 20.312 > t table 1.70814. So H1 is accepted, meaning that the Indonesian corn export variable has a significant effect on the competitiveness of Indonesian corn. Judging from the probability of corn exports of 0.000 being smaller than the error rate of 0.05, this also proves that Indonesian corn exports have a significant effect on the competitiveness of Indonesian corn. The exchange rate variable has a calculated t of 3.281 > t

table of 1.70814, so H1 is accepted, meaning that the exchange rate variable has a significant effect on the competitiveness of Indonesian corn. Judging from the probability that the exchange rate is 0.003, it is smaller than the error rate of 0.05. This also proves that the exchange rate has a significant effect on the competitiveness of Indonesian corn. Government policy has a t count of 2.027 > t table 1.70814, so H1 is accepted, meaning that the government policy variable has a significant effect on the competitiveness of Indonesian corn. Judging from the probability that government policy is 0.041, it is equal to an error rate of 0.05. This also proves that government policy has a significant influence on the competitiveness of Indonesian corn.

5. Conclusion

Based on the results obtained from quantitative analysis calculations, conclusions from the research carried out were obtained. Indonesian corn production has a positive and significant effect on the competitiveness of Indonesian corn by 2,557. So if there is an increase in Indonesian corn production, the competitiveness of Indonesian corn will increase. Indonesian corn exports have a positive and significant effect on the competitiveness of Indonesian corn by 20,312. So if there is an increase in Indonesian corn exports, the competitiveness of Indonesian corn will increase. The exchange rate has a positive and significant effect on the competitiveness of Indonesian corn by 3.281. So if there is an increase in the exchange rate, the competitiveness of Indonesian corn will increase. Government policy has a positive and significant effect on the competitiveness of Indonesian corn by 2.027. So with government policy, the competitiveness of Indonesian corn will increase. Based on the conclusions obtained from the results of this research, there are several suggestions that are expected to increase the competitiveness of Indonesian corn in international trade. Based on the results of the analysis of the regression coefficient values for Indonesian corn production, Indonesian corn exports and the rupiah exchange rate against the US dollar and positive government policies, it is necessary to increase Indonesian corn production and exports in order to increase the competitiveness of Indonesian corn and have a comparative advantage in international trade. Based on the results of the Gema Palagung policy analysis with a positive value, it is hoped that the government can maintain the policies that have been implemented. As is known, Indonesia has great potential in the agricultural sector, it is hoped that the government will give more focus to agriculture, not only corn but also other agricultural crops that can be developed so that they have comparative advantages and are competitive in international competition and can improve the Indonesian economy.

References

Aisyah, N. (2015). Analisis Daya Saing dan Kebijakan Usahatani Pada, Jagung dan Kedelai Provinsi Jawa Tengah. Semarang: Universitas Negeri Semarang.

Asmu'i, A. I., & Akbar, S. (2016). Revitalization of plantation strategic policies to promote regional competitiveness in South Kalimantan Province. BISNIS & BIROKRASI: Jurnal Ilmu Administrasi dan Organisasi, 22(3), 180-198.

Bas, M., & Strauss-Kahn, V. (2015). Input-trade liberalization, export prices and quality upgrading. Journal of International Economics, 95(2), 250-262

Boediono. (1991). Ekonomi Internasional, Edisis pertama**.** Yogyakarta : BPFE

Bourgeois, R., & Kusumaningrum, D. (2008). What cereals will Indonesia still import in 2020?. Bulletin of Indonesian Economic Studies, 44(2), 289-312.

Carneiro, A. (2000). How does knowledge management influence innovation and competitiveness?. Journal of knowledge management, 4(2), 87-98.

Daulika, P., Peng, K. C., & Hanani, N. (2020). Analysis on export competitiveness and factors affecting of natural rubber export price in Indonesia. Agricultural Socio-Economics Journal, 20(1), 39-44.

Durand, C., & Fournier, S. (2017). Can geographical indications modernize Indonesian and Vietnamese agriculture? Analyzing the role of national and local governments and producers' strategies. World Development, 98, 93-104.

Haryanto, T. (2019). Impact of government policies on the competitiveness of soybean farming system in indonesia: study in bangsalsari district, east java province. Journal of Developing Economies, 4(1), 52-62.

Kamaludin, M., Narmaditya, B. S., Wibowo, A., & Febrianto, I. (2021). Agricultural land resource allocation to develop food crop commodities: lesson from Indonesia. Heliyon, 7(7).

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (2000). Investor protection and corporate governance. Journal of financial economics, 58(1-2), 3-27.

Mankiw, G. N. (2003). Macroeconomics 5th Edition. New York: Worth Publishers.

Moses, L. N. (1955). The stability of interregional trading patterns and input-output analysis. The American Economic Review, 45(5), 803-826.

Mulyoutami, E., Rismawan, R., & Joshi, L. (2009). Local knowledge and management of simpukng (forest gardens) among the Dayak people in East Kalimantan, Indonesia. Forest Ecology and Management, 257(10), 2054-2061.

Pratama, W. (2015). Analisis Daya Saing Kedelai Indonesia. Semarang: Universitas Negeri Semarang. Semarang.

Salvatore, D. (1997). Ekonomi internasional. (Terjemah : Haris Munandar). Jakarta: Erlangga.

Suryana, A., & Agustian, A. (2014). Analisis daya saing usaha tani jagung di Indonesia. Analisis Kebijakan Pertanian, 12(2), 143-156.

Wanto, H. S. (2017). Analisis daya saing jagung Indonesia di Perdagangan Internasional. PROSIDING, 1(6), 434-441.

Yosep, F. (2009). Analisis Daya Saing dan Faktor-Faktor yang Mempengaruhi Ekspor Jagung Indnesia di Pasar Malaysia Pra dan Pasca krisis Ekonomi. Bogor: Institut Pertanian Bogor. Bogor.

Zainuri, A., Wardhono, A., & Ridjal, J. A. (2015). Competitiveness improvement strategy of soybean commodity: study of food security in East Java-Indonesia. Agris on-line Papers in Economics and Informatics, 7(665-2016-45091), 99-106.