Maneggio
E-ISSN : 3032-7652
https://nawalaeducation.com/index.php/MJ/index
Vol.2.No.2 April 2025
DOI : https://doi.org/10.62872/r8rxaz08

Risk Management Strategies in Agribusiness

Loso Judijanto[1]
[1] IPOSS Jakarta, Indonesia
Email: losojudijantobumn@gmail.com

Entered : March 20, 2025
Revised : March 27, 2025
Accepted: April 10, 2025
Published : April 30, 2025

ABSTRAK

Manajemen risiko produksi adalah aspek yang krusial dalam mengoptimalkan hasil produksi. Penelitian ini bertujuan untuk: 1) Meneliti berbagai faktor yang memengaruhi produksi usahatani salak di Kabupaten Sleman; 2) Menganalisis tingkat risiko produksi serta aspek-aspek yang mempengaruhi risiko tersebut dalam usahatani salak di daerah tersebut; 3) Menyusun strategi manajemen risiko yang sesuai untuk diterapkan pada usahatani salak di Kabupaten Sleman. Penelitian ini melibatkan 30 petani salak yang berada di Desa Bangunkerto, Kecamatan Turi, Kabupaten Sleman, dengan wawancara yang dilaksanakan pada bulan Oktober 2021. Komponen yang memengaruhi produksi dan risiko usahatani salak pondoh dianalisis menggunakan regresi berganda dengan model Ordinary Least Square, sementara tingkat risikonya dianalisis melalui koefisien variasi. Hasil penelitian menunjukkan bahwa variabel pupuk organik, jumlah tenaga kerja, pengalaman bertani, umur tanaman, dan jumlah rumpun berpengaruh signifikan terhadap hasil produksi. Di sisi lain, pupuk organik dan umur tanaman diketahui memiliki potensi untuk mengurangi risiko produksi.

Kata Kunci: risiko produksi, manajemen risiko, tingkat risiko produksi

ABSTRACT

Production risk management is a crucial aspect in optimizing production output. This study aims to: 1) Examine the various factors affecting salak farming production in Sleman Regency; 2) Analyze the level of production risk as well as the aspects affecting the risk in salak farming in the area; 3) Develop a suitable risk management strategy to be applied to salak farming in Sleman Regency. This research involved 30 salak farmers in Bangunkerto Village, Turi Subdistrict, Sleman Regency, with interviews conducted in October 2021. Components affecting production and risk of salak pondoh farming were analyzed using multiple regression with the Ordinary Least Square model, while the level of risk was analyzed through the coefficient of variation. The results showed that the variables of organic fertilizer, number of workers, farming experience, plant age, and number of clumps had a significant effect on production. On the other hand, organic fertilizer and crop age were found to have the potential to reduce production risk.

Keywords: *risk production, risk management, production risk level*

INTRODUCTION

Sleman Regency, located on the slopes of Mount Merapi, has fertile soil that strongly supports the development of the agricultural sector. Most of the land in this region is used for farming, and Sleman is renowned as the largest producer of *salak pondoh* (a type of snake fruit) in Indonesia. *Salak pondoh*, a fruit native to Indonesia, grows well in tropical habitats, and in 2020, its production reached 531,821 quintals, an increase from 391,929 quintals the previous year, with the majority originating from Turi District. This fruit is harvested three times a year: the main harvest occurs from November to January, the minor harvest from February to April, and the medium harvest from May to July. *Salak pondoh* from Sleman is known for its sweet taste even when not fully ripe, with thick white flesh and a crunchy texture. It also has a relatively high water content, reaching up to 78%, making it refreshingly juicy. In addition to domestic markets, *salak pondoh* from Sleman has been exported to

Maneggio
E-ISSN : 3032-7652
https://nawalaeducation.com/index.php/MJ/index
Vol.2.No.2 April 2025
DOI : https://doi.org/10.62872/r8rxaz08

Cambodia, with export volumes rising from 150 tons in 2017 to 350 tons in 2018, and 650 tons in 2019. Unfortunately, in 2020, exports dropped to 160 tons due to the COVID-19 pandemic, which caused transportation constraints.

To produce high-quality *salak*, it is essential for farmers to plan production processes that meet established quality standards. Moreover, in managing farming businesses, adequate production inputs are required to support optimal yields. Paying attention to the factors that affect production will help farmers manage their farming operations and determine the right action priorities. In the realm of organic farming, farmers often face risks that can hinder their activities and cause losses. Agriculture is an industry filled with pressure, and its business management is marked by risk and uncertainty. For instance, farmers may face risks when rainfall does not occur or occurs at inappropriate times, making risk mitigation crucial. In every production process, especially in agriculture, production risk is a key factor in decision-making related to input allocation, which then affects the level of output achieved. Threats that can influence cultivation productivity include risks related to land, seeds, fertilizers, pesticides, and labor.

According to Nurbudiati and Wulandari, identifying sources of risk is a crucial step in determining mitigation strategies. Risk is a major challenge because the dynamics of production and price uncertainties can impact expected productivity and income. Potential risks in farming generally stem from the production inputs used. Every input must be properly managed to achieve optimal results. Managing production inputs is one way to reduce the adverse effects of possible risks. In this regard, Pratiwi and her colleagues have conducted research on the analysis of production, price, and income risks in *salak* farming in Turi District, Sleman Regency. However, the study only analyzed the extent of production risks without examining the factors that influence those risks. Therefore, the objectives of this study are: To examine the factors that affect *salak pondoh* farming production in Sleman Regency; To analyze the magnitude of production risk along with its influencing factors; and To develop appropriate risk management strategies for *salak pondoh* farming in Sleman Regency.

METHODS

This study adopts a descriptive analysis method, with the primary aim of identifying problems by understanding the condition of the research object, whether currently occurring or in the past, based on data collected in the field. The research location was selected purposively, as Turi District in Sleman Regency is known as the center of *salak pondoh* cultivation in the Special Region of Yogyakarta. In this study, a total of 30 respondents, who are *salak pondoh* farmers from Bangunkerto Village, Turi District, Sleman Regency, were involved, and interviews were conducted in October 2021. The internal factors that influence *salak* production include land area, labor resources, capital, level of technology, as well as the farmers' ability to manage household income and number of family members.

The research findings indicate that the significant factors contributing to *salak pondoh* production are land area, number of plants, use of organic fertilizers, and amount of labor. Additionally, several other production factors were also considered to enrich the analysis. The data analysis process was conducted using multiple regression with the help of EViews software. Before proceeding with the multiple regression test, classical assumption tests were carried out, including tests for normality, multicollinearity, and heteroscedasticity. Moreover,

Maneggio
E-ISSN : 3032-7652
https://nawalaeducation.com/index.php/MJ/index
Vol.2.No.2 April 2025
DOI : https://doi.org/10.62872/r8rxaz08

to measure the level of risk, coefficient of variation analysis was conducted. This stage aimed to assess the risk in *salak pondoh* farming in Sleman Regency. The production risk of *salak pondoh* farming can be calculated using the following formula:

$$CV = \frac{V}{E}$$

Where (CV) is the coefficient of variation of production risk in *salak pondoh* farming, (V) is the standard deviation of *salak pondoh* production (in kg), and (E) is the mean production of *salak pondoh* (in kg). Before calculating the coefficient of variation, the average production and standard deviation from the *salak pondoh* farmers must be determined. The variance can be mathematically formulated as follows:

$$V^2 = \frac{\sum_t^n = 1(Ei - E)^2}{n-1}$$

Where (V^2) is the production variance, the summation symbol indicates the total, (E_i) is the production received by each farmer (in kg), (E) is the average farmer production (in kg), and (n) is the number of respondents in the study. The formula for calculating standard deviation is:

$$V = \sqrt{V^2}$$

RESULT

The analysis of the components influencing *salak pondoh* production was conducted to identify the factors that play a role in increasing production yield. The median production data of *salak pondoh* over one year was used as the dependent variable, while the independent variables consisted of land area, plant age, number of clumps, organic fertilizer, and labor. The following is the result of the *salak pondoh* production function analysis obtained through multiple regression.

Table 1. Factors Affecting Salak Pondoh Production in Turi District

Variabel independen	Expected	Regression Coefficient
Constanta		1.675
Ln Luas lahan (m^2)	+	0,124 ns
Ln Pupuk organik (kg)		-0.069**
Ln Tenaga Kerja (HOK)		-0.047**
Ln Usia petani (tahun)	-	0,349 ns
Ln Pendidikan (tahun)	+	0,016 ns
Ln Pengalaman (tahun)		0.219**
Ln Umur tanaman (tahun)	-	-0.385**
Ln jumlah rumpun	+	0.812***
R2 yang disesuaikan		0.958
F		83.495***
Sig F		0.000

Source: Primary data analysis 2021

Notes: *** is significance at the 99% confidence level (α = 0.01), ** is significance at the 95% confidence level (α = 0.05), * is significance at the 90% confidence level (α = 0.10), and ns is not significant.

Based on the results of regression analysis listed in Table 1, the value of adjusted R2

Maneggio
E-ISSN : 3032-7652
https://nawalaeducation.com/index.php/MJ/index
Vol.2.No.2 April 2025
DOI : https://doi.org/10.62872/r8rxaz08

was recorded at 0.958, which means that 95.8% of the variation of the dependent variable can be explained by the variation of the independent variables in this model, namely land area, plant age, number of clumps, and organic fertilizers. Meanwhile, the remaining 4.2% of the variation is explained by other variables not included in this model. In addition, by looking at the significance value of F, it can be concluded that simultaneously, the independent variables in the regression model have a significant effect on the production of salak pondoh at a confidence level of 99%. The effect of each independent variable on the dependent variable can be further analyzed using a T-test or partial test. The following is an explanation of the influence and interpretation of each independent variable on the dependent variable.

DISCUSSION

Land Area

In this study, it was found that the land area used for *salak pondoh* cultivation in the Special Region of Yogyakarta (DIY) did not have a significant effect on production. This indicates that differences in land size do not contribute substantially to yield outcomes. Instead, production results are more influenced by the number of clumps managed by farmers within each unit of land. This finding aligns with a study by Darmansyah et al., which stated that land area also had no significant effect on *Siam* orange production in Sambas Regency. However, this opinion differs from the findings of Hakim et al., who argued that land area had a significant effect on increasing *salak* production. Even though land area may increase, without the optimization of the number of clumps and plant rejuvenation, it will not significantly impact *salak pondoh* production.

Plant Age

Based on the analysis, it was found that the age of *salak pondoh* plants had a significant effect on production in DIY, with a 95% confidence level. The coefficient for plant age was 0.385, meaning each additional year in plant age leads to a 0.385% decrease in production. Generatively planted *salak pondoh* begins to bear fruit at 8–10 years old, and yields can continue to increase if well maintained. However, if care is lacking, production will decline as the plant ages. This finding is consistent with research by Darmansyah et al., which showed that plant age significantly affected orange production in Sambas Regency.

Number of Clumps

The number of *salak pondoh* clumps also showed a significant effect on production in DIY at a 99% confidence level. The coefficient was recorded at 0.812, which means that every 1% increase in the number of clumps can increase production by 0.812%. This indicates that the more clumps present within a given area, the higher the production. Research by Widaningsih et al. showed that one *salak* clump can produce an average of 5.8 fruits per year.

Organic Fertilizer (Compost)

The use of organic fertilizer was found to have a significant negative effect on *salak pondoh* production in DIY at a 95% confidence level. Every 1% increase in the amount

Maneggio
E-ISSN : 3032-7652
https://nawalaeducation.com/index.php/MJ/index
Vol.2.No.2 April 2025
DOI : https://doi.org/10.62872/r8rxaz08

of organic fertilizer results in a 0.069 decrease in production. This aligns with studies by Novianto and Wulandari, as well as Novianto and Setyowati, which revealed that organic fertilizer has a significantly negative effect on production. The reason is that the soil in the study location is already nutrient-rich due to pruned *salak pondoh* frond residues that serve as natural fertilizers.

Labor (Workdays)

Labor allocation by farmers for *salak pondoh* cultivation, from seedling to harvest, showed a significant negative effect on production in DIY at a 95% confidence level. A 1% increase in labor leads to a 0.047 decrease in production. *Salak pondoh* cultivation does not require intensive care, so allocating more labor may actually reduce production. This finding contrasts with research by Purba et al., which stated that labor does not significantly affect *salak* production.

Farmer Age

Based on the analysis, the age of farmers did not show a significant effect on *salak pondoh* production in DIY. This suggests that there is no substantial difference between young and older farmers in terms of production. A study by Rama et al. confirmed that age does not influence production results.

Education

The education level of farmers also showed no significant effect on *salak pondoh* production in DIY. This is supported by research from Rama et al., which indicated that education does not affect rice production, whether on wet or dry land. Most farmers tend to rely on ingrained habits for their farming practices.

Farming Experience

Farming experience proved to have a significant effect on *salak pondoh* production in DIY, at a 5% significance level. This shows that farmers with more experience in cultivating *salak pondoh* tend to achieve higher production yields.

Factors Influencing the Production Risk of Salak Pondoh

This analysis aims to identify various factors affecting the production risk of *salak pondoh*. In this study, the variance data from the regression results was used as the dependent variable, while the independent variables included land area, plant age, number of clumps, organic fertilizer use, labor, farmer age, education, and experience. Table 2 presents the analysis results of the components that influence *salak pondoh* production risk in Turi District.

Table 2. Factors Affecting the Production Risk of Salak Pondoh in Turi District

Variabel independen	Diharapkan	Koefisien Regresi
Constanta		0.103
Ln Luas lahan (m^2)	-	0,008 ns
Ln Pupuk organik (kg)		-0.007**
Ln Tenaga Kerja (HOK)		-0,003 ns
Ln Usia petani (tahun)	+	0,005 ns

Maneggio
E-ISSN : 3032-7652
https://nawalaeducation.com/index.php/MJ/index
Vol.2.No.2 April 2025
DOI : https://doi.org/10.62872/r8rxaz08

Ln Pendidikan (tahun)	-	0,005 ns
Ln Pengalaman (tahun)		0,007 ns
Ln Umur tanaman (tahun)	+	-0.029**
Ln jumlah rumpun	-	-0,010 ns
R2 yang disesuaikan		0.433
F		3.768***
Sig F		0.007

Source: Primary data analysis 2021

Notes: *** is significance at the 99% confidence level (α = 0.01), ** is significance at the 95% confidence level (α = 0.05), * is significance at the 90% confidence level (α = 0.10), and ns is not significant.

From the analysis of the variance coefficient of productivity parameters, it is evident that factors such as plant age, use of organic fertilizer, and labor tend to reduce production risk. On the other hand, factors such as land area, number of clumps, farmer's age, education, and experience are known to increase production risk with a 90% confidence level. However, the t-test performed on all independent factors showed that only plant age and organic fertilizer have a significant effect on production risk. This finding contradicts the research by Darmawan et al., which stated that plant age and organic fertilizer do not have a significant effect on the production of Siam oranges in Sambas Regency.

Causes of Risk Reduction

The risk reduction identified in this study highlights the importance of proper management of factors that influence salak pondoh production. Based on the analysis, there are four variables in the model that potentially reduce risk: plant age, number of clumps, organic fertilizer, and labor. Among these variables, plant age and organic fertilizer show significant effects in reducing production risk. Salak pondoh trees planted generatively usually start fruiting at the age of 8–10 years. At an average age of 20 years, salak pondoh trees can remain productive, provided they are well maintained.

According to Guntoro, there has been no research that definitively determines the productive age of salak pondoh trees. However, several experts state that salak pondoh trees generally remain productive until around 50 years old, which suggests that salak pondoh has an economic lifespan of up to 50 years. In addition to plant age, the use of organic fertilizer also has a significant influence in reducing production risk. Organic fertilizer improves soil fertility, and fertile soil contributes to increased production due to better land productivity. Moreover, organic fertilizer makes plants more robust and more resistant to pests and diseases, as well as external factors such as wind, which could otherwise reduce production potential. It is important to use high-quality organic fertilizer, namely compost that has been fermented to decompose easily, support plant growth, and reduce the likelihood of excessive weed growth.

Although labor variables do not show a significant effect in reducing risk, in the practice of salak pondoh cultivation, labor is still needed, especially for pruning, pollination, and fruit thinning. If the maintenance of salak pondoh is carried out more intensively especially pruning and thinning production risk can be minimized. For optimal results, pruning should ideally be carried out at least every 3–4 months to avoid overly dense growth and to facilitate pollination, thinning, and harvesting. Salak pondoh trees require human assistance for pollination to achieve

Maneggio
E-ISSN : 3032-7652
https://nawalaeducation.com/index.php/MJ/index
Vol.2.No.2 April 2025
DOI : https://doi.org/10.62872/r8rxaz08

optimal yields, after which thinning is necessary so that the number of fruits in a bunch is not too many, allowing the salak fruit size to reach the ideal level.

Causes of Increased Risk

In addition to the factors that can reduce risk potential, there are several aspects that may increase production risk. These include land area, farmer's age, education, and experience. Although their impact is not always significant, these factors can still contribute to risk. For example, the more land a farmer manages for cultivation, the more challenges are faced. In such cases, farmers often need to hire additional labor outside the family to assist in managing the land. To mitigate the increased risk due to land expansion, adding labor can be a solution to ensure optimal land management.

Coefficient of Variation

It is important to measure the level of risk faced in farming in order to determine its severity. The level of farming risk can be seen through variance, standard deviation, and coefficient of variation. Variance is measured by summing the squared differences between the return and the expected return, multiplied by the probability of each event. Meanwhile, the standard deviation is calculated as the square root of the variance, and the coefficient of variation (CV) is measured as the ratio of the variance to the expected return of an asset. The level of risk in salak pondoh production can be seen in Table 3.

Expected Result (E)

The expected result is calculated by summing the total productivity produced by salak pondoh farmers in one year, then dividing it by the number of harvest periods in one year, which is twice. This value represents the expected net production amount in each future production cycle. The average number of production observations is 10,324.643 kg, which reflects the farmers' expected production in future periods.

Variance (V^2)

The greater the variance value, the greater the possible deviation, and this means the risk faced by farmers is also greater. Conversely, a smaller variance value indicates lower risk. In this study, the obtained variance value was 134,216.256.

No.	Periode	Produktivitas (Kg/Ha)
1	Waktu tanam 1 (Kg/Ha)	11719.683
2	Waktu tanam 2 (Kg/Ha)	8929.603
	Median (E)	10324.643
	Varians ($V2$)	134216.256
	Deviasi Standar (V)	366.355
	Koefisien Variasi (CV)	0.035
	Batas Bawah (L)	9591.932

Source: Primary data analysis 2021

Standard Deviation (V)

The standard deviation is the square root of the variance. Therefore, the standard deviation value is directly correlated with the variance. The greater the variance, the higher the standard deviation. This means that the risk borne by farmers also increases. In this study, the standard deviation value was 366.355.

Coefficient of Variation (CV) and Lower Bound Value (L)

Maneggio
E-ISSN : 3032-7652
https://nawalaeducation.com/index.php/MJ/index
Vol.2.No.2 April 2025
DOI : https://doi.org/10.62872/r8rxaz08

The coefficient of variation is the ratio between the standard deviation and the expected return. The higher the coefficient of variation, the greater the risk that must be faced. In the calculation, the coefficient of variation was found to be 0.035, which means that for every 1 kg of yield obtained by the farmer, there is a production risk of 0.035 kg. This figure indicates a very low risk parameter, considering that a coefficient of variation (CV) of 0.5 is generally considered normal. Previous studies have shown that the CV of salak production reached 0.5, meaning that out of 100 harvests, there is a possibility of crop failure in 50 harvests based on the expected total production. On the other hand, another study mentioned that the production risk of salak pondoh is lower, with a CV of 0.04.

The lower bound value is obtained from the difference between the expected return and twice the standard deviation. Based on the calculation, the minimum production threshold (L) obtained was 9,591.932 kg/ha. This figure represents the minimum amount that must be produced by salak pondoh farming in the next planting season. Referring to the relationship between CV and L, if the CV value exceeds 0.5, then the L value will also increase. This indicates that the higher the CV value above 0.5, the greater the production risk that must be borne by farmers, with a potential loss equal to L. Conversely, if the CV is at 0.5, the farmer will be spared from significant production risk.

CONCLUSION

Factors affecting salak pondoh production include the use of organic fertilizer, labor, experience, plant age, and number of clumps. The risk of salak pondoh production is low, which is reflected in the small coefficient of variation. The coefficient of variation that is closer to zero indicates that the median variability in the distribution is very low. Thus, this indicates that the risk faced in obtaining production tends to be low.

REFERENCES

Ambarawati, I. G. A. A., Wijaya, I. M. A. S., & Budiasa, I. W. (2018). Mitigasi Risiko Produksi Padi Melalui Asuransi Pertanian: Perspektif Petani. *Jurnal Manajemen dan Agribisnis*, *15*(2), 129-135. doi: 10.17358/jma.15.2.129

Annisaurrohmah, Herawati, W., & Widodo, P. (2014). Keanekaragaman kultivar salak pondoh di Banjarnegara. *Biosfera, 3*(2), 71-83

Bakdiyah, R. M., Barokah, U., & Sundari, M. T. (2020). Manajemen Risiko pada Produksi Gula di Pabrik Gula Mojo Kabupaten Sragen. *Jurnal Manajemen Indonesia*, *20*(1), 13-21. doi: 10.25124/jmi.v20i1.2793

Basyarahil, A., Irham, & Waluyati, L. R. (2016). Upaya Mitigasi Risiko Produksi pada Usahatani Cabai Merah Pesisir di Kabupaten Kulon Progo. *Ilmu Pertanian*, *1*(1), 37-46. doi: 10.22146/ipas.9295

Bimantio, M. P., & Putra, D. P. (2021). Simulasi Pengadaan Usaha Turunan Berbasis Buah Dan Limbah Salak Pondoh Untuk Meningkatkan Pendapatan Industri Salak Pondoh Di Kabupaten Sleman. *AGROINTEK : Jurnal Teknologi Industri Pertanian*, *15*(3), 756-767

BPS Kabupaten Sleman. (2021). Sleman dalam Angka. Yogyakarta: BPS Kabupaten Sleman Darmansyah, E.,Muani, A., & Radian. (2017). Analisis Risiko Produksi Usahatani Jeruk Siam Pontianak di Kabupaten Sambas. *Jurnal Sosial Ekonomi. dari Sosial Ekonomi Pertanian*, *6*(1),13.23. doi:10.1093/jpe/rtx056/4396360/Small-scale-genotypic-richness-

stabilizes-plot

Donsley Tamalonggehe, Luntungan, A., & Maramis, M. (2015). Pengaruh Luas Lahan Dan Harga Produksi Tanaman Salak Di Kabupaten Sitaro (Studi Kasus Kecamatan Tagulandang). *Jurnal Berkala Ilmiah Efesiensi*, *15*(01), 197-207

Febriawan, G., Hadi, S., & Wijayanti, F. N. (2018). Analisis Faktor-Faktor Yang Mempengaruhi Risiko Ledokombo Kabupaten Jember. *Agribest*, *02*(02), 79-91

Ghozali, M. R., & Wibowo, R. (2019). Analisis Risiko Produksi Usahatani Bawang Merah di Desa Petak Kecamatan Bagor Kabupaten Nganjuk. *Jurnal Ekonomi Pertanian Dan Agribisnis*, *3*(2), 294-310. doi: 10.21776/ub.jepa.2019.003.02.7

Guntoro, S. (2004). *Salak Bali*. Yogyakarta: Kanisius

Hadijanto, D. K., Masinambow, V. A. J., Pingkan, I., & Rorong, F. (2020). Analisis Pendapatan Petani Salak Di Kabupaten Minahasa Tenggara. *Jurnal Pembangunan Ekonomi Dan Keuangan Daerah*, *21*(3), 17-31

Hakim, T., Lubis, Z., & Sibuea, M. B. (2018). Analisis Faktor-Faktor Yang Mempengaruhi Produksi Salak Pondoh di Desa Tiga Juhar Kecamatan Stm Hulu Kabupaten Deli Serdang Provinsi Sumatera Utara. *Jurnal Ilmu Peternakan dan Agronomi Panca Budi*, *3*(2), 39-51

Hidayati, N. (2013). Sifat Fisik dan Kimia Buah Salak Pondoh di Kabupaten Sleman. *Agros*, *15*(1), 166-173

Mahayani, I. G. A. A. D., Susrusa, I. K. B., & Budiasa, I. W. (2017). Analisis Risiko Usahatani Salak Organik di Desa Sibetan Kecamatan Bebandem Kabupaten Karangasem. *Jurnal Agribisnis Dan Agrowisata*, *6*(3), 408-416. doi: 10.24843/jaa.2017.v06.i03.p09

Novianto, F. W., & Setyowati, E. (2009). Analisis Produksi Padi Organik di Kabupaten Sragen. *Jurnal Ekonomi Pembangunan*, *10*(2), 267-288

Nurbudiati, K., & Wulandari, E. (2020). Risiko dan Strategi Produksi Kentang di Garut, Indonesia. *Caraka Tani: Jurnal Pertanian Berkelanjutan*, *35*(2), 191-202. doi: 10.20961/carakatani.v35i2.34072

Pemerintah Kabupaten Sleman. (2021). *Salak Pondoh Sleman di Ekspor Ke Kamboja*. Retrieved from http://www.slemankab.go.id/18596/salak- pondoh-sleman-di- ekspor-ke-kamboja.slm

Prajoko, M. A., Santosa, A., & Juarini. (2019). Analisis Optimalisasi Faktor- Faktor Produksi Salak Pondoh Di Kelompok Tani "Si Cantik" Kecamatan Turi Kabupaten Sleman. *Jurnal Dinamika Sosial Ekonomi*, *20*(2), 145-159 Pratiwi, M., Agustono, A., & Qonita, A. (2019). Analisis Risiko Produksi, Harga dan Pendapatan Usahatani Salak di Kecamatan Turi Kabupaten Sleman. *Prosiding Sumber Daya Pertanian Berkelanjutan Dalam Mendukung Ketahanan Dan Keamanan Pangan Indonesia Pada Era Revolusi Industri 4 tahun 2016*, *3*(1), 135-142

Purba, D. D. P., Balatif, F., Masitah, T. H., & Panjaitan, F. A. B. (2021). Analisis Faktor-Faktor Produksi Yang Mempengaruhi Pendapatan Petani Salak Pondoh (Salacca Edulis Reinw). *Wahana Inovasi, 10*(1), 190-199

Rama, R., Nurliza, & Dolorosa, E. (2016). Analisis Risiko Produksi Usahatani Padi Lahan Basah dan Lahan Kering di Kabupaten Melawi. *Jurnal Sosial Ekonomi Pertanian*, *5*(1), 73-88

Maneggio
E-ISSN : 3032-7652
https://nawalaeducation.com/index.php/MJ/index
Vol.2.No.2 April 2025
DOI : https://doi.org/10.62872/r8rxaz08

Risqiyah, I. A., & Santoso, I. (2017). Risiko Rantai Pasok Agroindustri Salak Menggunakan Fuzzy Fmea. *Jurnal Manajemen dan Agribisnis*, 14(1), 1 - 3. 11. doi: 10.17358/jma.14.1.1

Sarwono. (2006). *Metode Penelitian Kuantitatif dan Kualitatif*. Graha Ilmu Sholihah, E., Irham, I., & Masyhuri, M. (2018). Manajemen Risiko Produksi pada Beras Organik di Daerah Istimewa Yogyakarta. *Habitat*, *29*(3), 92-98. doi: 10.21776/ub.habitat.2018.029.3.11

Suharso, S., Legowo, M. A., & Setiadi, A. (2017). Strategi Pengembangan Salak Nglumut Bersertifikat Prima 3 Di Kabupaten Magelang. *Agrisocionomics: Jurnal Sosial Ekonomi Pertanian*, *1*(1), 44-53. doi: 10.14710/agrisocionomics.v1i1.1642

Widaningsih, N., Hidayat, M. H., & Musair, M. (2013). Analisis Pendapatan Usaha Tani Salak Bali (Sallacca edulis Reinw) di Desa Batu Nindan Kecamatan Basarang. *Ziraa'ah, 38*(3), 1-7