

Analysis Of Factors Affecting White Chili Production (Case Study on Coffee Plantations in Kembang Seri Village, Bermani Ilir District, Kepahiang Regency)

Anisa Septi Liani¹

¹Agribusiness Study Program, Faculty of Agriculture, Pat Petulai University, Rejang Lebong Regency, Curup, Indonesia

Eddy Silamat²

²Agribusiness Study Program, Faculty of Agriculture, Pat Petulai University, Rejang Lebong Regency, Curup, Indonesia

Anadiya Pingki³

³Agribusiness Study Program, Faculty of Agriculture, Pat Petulai University, Rejang Lebong Regency, Curup, Indonesia

Mira Yanuari⁴

⁴Agribusiness Study Program, Faculty of Agriculture, Pat Petulai University, Rejang Lebong Regency, Curup, Indonesia

Corresponding Author Email: anisacrp341@gmail.com

Abstract

This study was conducted in February 2025 to March 2025. This study aims to analyze the factors that influence the production of white cayenne pepper in Kembang Seri Village, Bermani Ilir District, Kepahiang Regency. The sampling technique used in this study is the Snowball sampling. It is known that the respondents used were 25 people, where the respondents were farmers who planted white cayenne pepper under coffee trees in Kembang Seri Village, Bermani Ilir District. The data analysis method in this study was Analysis of Cobb Douglas a function or equation involving two or more dependent variables that are explained (Y), and the other is called the independent variable (X). The results of this study indicate that the production factors that affect the production of white cayenne pepper at a confidence level of 95% (0.05) are land area, number of seeds, amount of organic fertilizer, amount of inorganic fertilizer, and amount of pesticides while the number of workers does not affect the production of white cayenne pepper because the results of

235



the labor analysis have a t-value smaller than the t table ($0.718 < 1.714$). Therefore, the number of workers does not significantly affect the production of white cayenne pepper in Kembang Seri Village, Bermani Ilir District, Kepahiang Regency.

Keywords: Factors, Production, White Chili Pepper, Kembang Seri, Kepahiang Regency

INTRODUCTION

The agricultural sector in Indonesia plays an important role in the national economy with an economic structure. The horticultural subsector is a branch of agriculture that discusses the cultivation of plants that produce fruits, vegetables, ornamental plants and spices and raw materials for traditional medicine. Examples of fruit plants include apples, grapes, avocados and oranges. Examples of vegetable plants are cabbage, spinach, tomatoes, and one of them is white cayenne pepper. White cayenne pepper is a horticultural commodity, where at certain times, market demand is very high.

White cayenne pepper vegetable commodity is one of the commodities currently needed by almost all levels of society. White cayenne pepper will continue to increase in line with the increasing population and the number of processing industries that require white cayenne pepper as their main raw material. For the people of Indonesia, chili is widely used by the public as a food flavoring. The need for white cayenne pepper will increase in Indonesia, because of the variety of Indonesian cuisine that uses white cayenne pepper as an ingredient in cooking.

White cayenne pepper is a shrub from the eggplant family which has the scientific name *Capsium sp.* Chili is thought to have originated from Mexico and Central America, as well as the Andes region of South America. Before spreading to other parts of the world, chili first spread to Europe via Spain and was known as chili *pepper* or *guinea pepper*. It is estimated that there are twenty species, most of which live in their home country. People in Indonesia generally only know a few types, namely red chilies, curly chilies, cayenne peppers, and paprika (Pata'dungan, 2021).

One of the villages producing white cayenne pepper in Kepahiang Regency is Kembang Seri Village, Bermani Ilir District, Kepahiang Regency is one of the regencies in Bengkulu Province, It is also one of the fertile farming areas to be used as agricultural land. One of the horticultural crops that is widely planted is white cayenne pepper. Kembang Seri Village, Bermani Ilir District, Kepahiang Regency is one of the many villages in this Kembang Seri village whose residents live in the agricultural sector, one of which is farmers growing white cayenne pepper. In 2023, cayenne pepper production was at its lowest position, this was a trigger to find out the factors that



influence cayenne pepper production in Bermani Ilir District, Kepahiang Regency.

METHOD

This research was conducted in Kembang Seri Village, Bermani Ilir District, Kepahiang Regency. Intentionally (*purposive*) considering that Kembang Seri Village is one of the villages producing white cayenne pepper located under the coffee tree. This research was conducted from February 2025 to March 2025. . The types of data used in this study are primary data and secondary data.

The sampling technique used in this study is the technique *Snowball sampling* namely a sampling technique that is initially small in number, then this sample selects its friends to be respondents, and so on so that the number of respondents becomes large like a snowball that rolls the longer the larger the respondents used, namely 25 people, where the respondents taken are farmers who plant white cayenne pepper under coffee trees in Kembang Seri Village, Bermani Ilir District. *Snowball Sampling* is a technique for determining respondents by identifying initial respondents who then recommend other respondents who meet the research criteria (Ramdhan, 2021)

Analysis *Cobb douglass* is a function or equation involving two or more dependent variables that are explained (Y), and the other is called the independent variable (X). The solution to the influence between Y and X is by regression, namely the variation of Y will be influenced by the variation of X. Mathematically, the Cobb Douglas function can be written with the formula (Rahim and Hastuti, 2008).

$$Y = a X_1^{b_1} X_2^{b_2} X_3^{b_3} X_4^{b_4} X_5^{b_5} X_6^{b_6} \text{ and}$$

To interpret these parameters, this is done by transporting them into a multiple linear form (*Multiple Linear*) then analyzed using the least squares method (Afif et al., 2023).

$$\ln Y = \ln b_0 + b_1 \ln X_1 + b_2 \ln X_2 + b_3 \ln X_3 + b_4 \ln X_4 + b_5 \ln X_5 + b_6 \ln X_6 + e$$

Where :

Y	: Production Quantity (Kg)
Lnbo	: Number of Intercepts/ Constants
X ₁	: Land Area (Ha)
X ₂	: Number of Seeds (Gr)
X ₃	: Total Workforce (HKSP)
X ₄	: Amount of Organic Fertilizer (Kg)



- X_5 : Amount of inorganic fertilizer (Kg)
 X_6 : Amount of Pesticide (ml)
 E : Stochastic disturbance or error rate
 $B_1b_2b_3b_4b_5$: Regression Coefficient

RESULTS AND DISCUSSION

Respondents taken in this study were white cayenne pepper farmers in Kembang Seri Village, Bermani Ilir District, Kepahiang Regency. Based on data collected from 25 cayenne pepper farmers who were respondents, the identity of respondents based on the age of white cayenne pepper farmers can be presented in table 6 as follows.

Table of Respondent Characteristics Based on Age of White Chili Farmers in Kembang Seri Village, Bermani Ilir District

No	Age (Years)	Number of Respondents (People)	Percentage (%)
1	30 -40	8	32
2	41 – 50	14	56
3	51 – 60	3	12
	Amount	25	100

Source: Primary Data After Processing, 2025

From the table, it can be seen that the age of white cayenne pepper farmers in Kembang Seri Village, the age of white cayenne pepper farmers in the range of 30-45 years is 18 people who get a percentage of (72%), the age of white cayenne pepper farmers in the range of 46-60 years is 7 people who get a percentage of (8%). This can support the processing of their farming business and work fully in doing business, so that it can help achieve optimal white cayenne pepper production. We can conclude that the productive age of farmers is very helpful for these farmers in processing their farming business

To facilitate the discussion that will be carried out, the Cobb-Douglas production function model is presented in table 12 as follows. Table of Regression Coefficient Values of Each White Chili Pepper Farming Production Factor

No	Variables	Regression Coefficient	Standard Error (Sb)	t count	T able
	Intercept	3,737	1,596	2,341	1,714



1	Land Area (X1)	0,068	0,025	2,718**	
2	Seed (X2)	0,133	0,236	1,863**	
3	Labor (X3)	0,290	0,404	0,718 ^{ns}	
4	Pupuk Organik (X4)	0,575	0,171	3,370**	
5	Organik (X5)	0,774	0,299	2,584**	
6	Pesticides (X6)	0,600	0,487	1,732**	
	Adjusted R ²	0,831			
	F count	20,647			
	F table	2,53			

Source: Primary Data after Processing, 2025

Information :

ns = Not Affected

** = Very positive influence at 95% confidence level (0.05)

The results of the regression equation are as follows:

$$Y = 3.737 + 0.068 + 0.133 + 0.290 + 0.575 + 0.774 + 0.600 + e$$

The F test explains the influence between production and production factors together, obtained F count is 20.647 and F table is 2.53 at a confidence level of 95% (0.05). This means that production factors (land area, number of seeds, number of workers, number of organic fertilizers, number of inorganic fertilizers, and number of pesticides) together have a very real effect on the production of white cayenne pepper because F count is greater than F table. From the table above, the results of the determination analysis from the results of multiple linear regression analysis are known, based on the output, the Adjusted R figure is obtained² of 0.831 (83.10%) indicates that the percentage contribution of the influence of independent variables, namely land area, seeds, labor, organic fertilizer, inorganic fertilizer, and pesticides to the white cayenne pepper production variable is 83.10% or the variation of independent variables used in the model is able to explain 83.10% of the variation of the dependent variable. While the remaining 16.90% is influenced by other variables that are not included in this model.

Based on the table above, it is known the influence of each production factor on the production of white cayenne pepper. The influence of these production factors is described as follows:

a. Land area

Based on the results of the t-test, it shows that the use of land area has a positive



effect on production at a 95% confidence level (0.05). Because the calculated t is greater than the t table ($2.718 > 1.714$). This means that the coefficient value of 0.068 shows the effect on the production of white cayenne pepper, the effect of land area is suspected to be due to good land conditions and the wider the land area, the higher the production results will be.

b. Number of Seeds

The results of the t -test at a 95% confidence level (0.05) indicate that seeds have a positive effect on the production of white cayenne pepper, because the calculated t is greater than the t table ($1.863 > 1.714$). This shows that the use of seeds has a positive effect on the production of white cayenne pepper. Because the more seeds are used (according to recommendations) the production will increase. Where if the addition of one unit of seeds will be followed by an increase in production of one unit. The coefficient value of 0.133 shows the effect on the production of white cayenne pepper. In this study, seeds determine the superiority of a commodity, superior seeds tend to produce production with good quality. So the more superior the seeds of agricultural commodities, the higher the agricultural production that will be achieved. The seed variable has a positive and significant effect on the amount of white cayenne pepper production.

c. Total Workforce

The results of the t -test at a 95% confidence level (0.05) indicate that labor does not have a significant effect on the production of white cayenne pepper, because the calculated t is smaller than the t table ($0.718 < 1.714$). This means that if the addition of labor by one unit will not affect production because the number of workers employed on agricultural land is not the main benchmark for increasing the production of white cayenne pepper produced, but rather prioritizes the skills and tenacity of the workers.

d. Amount of Organic Fertilizer

Based on the results of the t -test, it shows that the use of organic fertilizer has a positive effect on production at a 95% confidence level (0.05). Because the calculated t is greater than the t table ($3.370 > 1.714$). This means that the coefficient value of 0.575 means that if the addition of fertilizer is one unit, it will increase production by one unit. Organic fertilizer is applied before planting during land preparation. The provision of manure is intended so that nutrients are maintained even though the land is used continuously. Other production factors, namely fertilizer, greatly influence agricultural efforts, namely as a nutrient that is given or added to plants so that plants can grow well.



e. Amount of Inorganic Fertilizer

Based on the results of the t-test, it shows that the use of organic fertilizer has a positive effect on production at a confidence level of 95% (0.05). Because the calculated t is greater than the t table ($2.854 > 1.714$). This means that the coefficient value of 0.774 means that if the addition of inorganic fertilizer is one unit, it will increase production by one unit. This means that the content of inorganic fertilizer plays a very important role in fertilizing the soil so that the production produced is optimal. Because the more inorganic fertilizer is used (according to the needs and recommended dosage standards) will increase production.

f. Amount of Pesticides

Based on the results of the t-test, it shows that the use of pesticides has a positive effect on production at a 95% confidence level (0.05). Because the calculated t is greater than the t table ($1.732 > 1.714$). This means that the coefficient value of 0.600 means that the addition of pesticides by one unit will be followed by an increase in production by one unit. Based on the results of interviews with several respondents in Kembang Seri Village, they said that spraying was not carried out on a schedule, but they sprayed when symptoms of attack had occurred, and the pesticides used were in accordance with the recommended dose.

Based on the explanation, the factors that affect the production of white cayenne pepper are land area, number of seeds, amount of organic fertilizer, amount of inorganic fertilizer, and amount of pesticide. While the number of workers does not affect the production of white cayenne pepper, this is because the results of the labor analysis have a t-count value smaller than the t table ($0.718 < 1.714$). Therefore, the number of workers does not have a significant effect on the production of white cayenne pepper.

CONCLUSION

Based on the results of research on white cayenne pepper farmers in Kembang Seri Village, Bermani Ilir District, Kepahiang Regency, it can be concluded that the production factors that influence the production of white cayenne pepper at a confidence level of 95% (0.05) are land area, number of seeds, amount of organic fertilizer, amount of inorganic fertilizer, and amount of pesticides while the number of workers does not affect the production of white cayenne pepper. This is because the results of the labor analysis have a t-count value smaller than the t table ($0.718 < 1.714$). Therefore, the number of workers does not have a significant effect on the production of



white cayenne pepper in Kembang Seri Village, Bermani Ilir District, Kepahiang Regency.

REFERENCE

- Adana, A. H., Haryanto, L. I., Fitriah, N., & Soerinda, I. T. (2023). Analysis of the influence of substitute and complementary goods on the demand function of chili in Indonesia. *JIA (Journal of Scientific Agribusiness): Journal of Agribusiness and Agricultural Socio-Economic Sciences*, 8(1), 18–25.
- Adlini, M. N., Dinda, A. H., Yulinda, S., Chotimah, O., & Merliyana, S. J. (2022). Qualitative research methods of literature studies. *Edu Maspul Journal*, 6(1), 974–980.
- Afif, Z., Azhari, D. S., Kustati, M., & Sepriyanti, N. (2023). Scientific Research (Quantitative) Along with Paradigms, Approaches, Basic Assumptions, Characteristics, Data Analysis Methods and Output. *Innovative: Journal Of Social Science Research*, 3(3), 682–693.
- Al Islami, I. L., Indriyani, I., Wardani, F. D., Hidayat, M. R., Romadhoni, R. A., & Wardana, R. J. (2023). Analysis of Factors Affecting Chili Production in Klatakan Village, Kendit District, Situbondo Regency. *Proceedings of the Unars National Seminar*, 2(1), 7–16.
- Andayani, S. A., Dinar, D., Marina, I., Sumantri, K., Sulaksana, J., Umyati, S., & Dani, U. (2021). Increasing added value through processing of horticultural products. *BERNAS: Community Service Journal*, 2(4), 833–836.
- Banung, Y. F., Yudiari (2023). Analysis of Factors Affecting Chili Pepper Farming Production. *Agrimeta: Journal of Ecosystem Balance-Based Agriculture*, 13 (25), 44-51.
- Boki, H. A., Pangemanan, P. A., & Rori, Y. P. I. (2023). Analysis of Chili Farming Income in Bongo Empat Village, Paguyaman District, Boalemo Regency. *Agri-Socioeconomics*, 19(3), 1491–1496.
- Chandra, I. (2023). Contribution of Chili Farming Income to Total Family Income (Case Study of the Panca Urip Merta Sari Farmer Group in Mengwitani Village, Mengwi District, Badung Regency). *Mahasaraswati University, Denpasar*.
- Depi, P. (2014). Analysis of Factors Affecting Red Chili Production (Capsic year L) In Kampung Melayu Village, Bermani Ulu District.
- Hanum, F. R. (2023). Analysis of Income and Factors Affecting Chili Plant Production in Dolat Rayat Village, Dolat Rayat District, Karo Regency.
- Kusumaningrum, S. I. (2019). Utilization of the agricultural sector to support Indonesia's economic growth. *Transaction*, 11(1), 80–89.
- Metris, D., Meyana, Y. E., Mardika, N. H., Srem, A. I. A., Annisa, N. N., Pandiangan, H., Awaluddin,



- M., Fadri, Z., Kusumawardani, E., & Sampe, F. (2024). Human Resource Management. Tri Scientific Education Foundation.
- Murniati, A. (2022). The Effect of Manure on the Growth and Production of Chili Plants (*Capsicum Frutescens*. L) in Bengo Village, Bengo District, Bone Regency. *Journal of Civilization Balance*, 2(1), 39–45.
- Pata'dungan, A. M. (2021). Response of White Chili Plants (*Capsicum frutescens* L.) to Earthworm POC Administration. *AgroSaint*, 12(2), 119–124.
- Purba, E. W. (2024). The Effect of Planting Media and NPK Fertilizer on the Growth and Production of Chili Plants (*Capsicum Frutescens* L.) in Polybags.
- Rahmi, R., Yulinda, R., & Sauqina, S. (2022). The Effect of Dutch Jackfruit Leaf Extract (*Annona muricata* L.) Concentration as a Biopesticide on the Mortality Rate of Whitefly Pests (*Bamisa tabaci*) in Chili Plants (*Capsicum frutescens* L.). *Oryza (Journal of Biology Education)*, 11(2), 39–45.
- Ramdhan, M. (2021). Research methods. Cipta Media Nusantara.
- Rianti, T. S. M., & Maula, L. R. (2023). Analysis of Price Risk and Income of Chili Farming Business in Kediri Regency. *Jurnal Agrimax: Agribusiness, Rural Management, and Development Extension*, 3(2), 149–158.
- Salma Nabilah, H. (2024). Analysis of Factors Affecting the Price of Cayenne Pepper in West Java Province. Wijayakusuma University.
- Santoso, R. A., Syaputra, A., Raharja, B. O. O., & Permatasari, N. (2024). Analysis of Literature Review on the Effectiveness of Planning and Controlling Production Cost Budgets in Companies. *Nusantara Journal of Multidisciplinary Science*, 1(6), 333–341.
- Saranani, M. (2023). Controlling Chili Plant Pests and Its Impact on Farmers' Income in Lalopisi Village, Meluhu District. *Journal of Plant Science Research*, 2(2), 115–126.
- Sari, J. P., Utama, S. P., & Sumantri, B. (2024). Analysis of Income from Chili Farming Business in Sumber Urip Village, Selupu Rejang District, Rejang Lebong Regency. *Journal: Agricultural Review*, 3(1), 1–15.
- Sarina, S., Silamat, E., & Puspitasari, D. (2017). Analysis of factors influencing red chili production in Kampung Melayu Village, Bermani Ulu District, Rejang Lebong Regency. *Africa Journal: Agronomy and Aquaculture Information Media*, 13(2), 57–67.
- Siregar, F. A. (2023). The use of organic fertilizers to improve soil quality and plant productivity.
- Syamsurizal, A., & Sutoyo, E. (2023). Utilization of Organic Fertilizer to Increase Corn Crop Yields in Campa Village, Madapangga District. *SYNC: UIKA Jaya Community Service Journal*, 1(1),



10–17.

Vitasari, H. (2023). Analysis of Income and Feasibility of Chili Farming in Mamburungan Timur Village, Tarakan City.

Wisnu Jati, N. S., & Siswati, E. (2021). Analysis of production and productivity of cayenne pepper (*Capsicum frutescens* L) in Indonesia. *Journal of Socio-Agribusiness Science*, 21(1).

