

Net income Analysis and Risk of Caisim (*Brassica rapa*) Production Farming In Liang Anggang District, Banjarbaru City

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Abstract:

Background: Vegetable farming has a bigger obstacle compared to other commodity farming, thus affecting farmers' income and risking farming production. The risk of agricultural production is greater because agriculture is greatly influenced by various factors. The purpose of this study is to analyze the level of net income in caisim farming in Liang Anggang District, Banjarbaru City; to analyze the the risk of production in caisim farming in Liang Anggang District, Banjarbaru City; and to analyze the sources of risks in connection with caisim farming in Liang Anggang District, Banjarbaru City.

Materials and Methods: This research was conducted in the Liang Anggang District, Banjarbaru City, South Kalimantan province in January to May 2020. Site selection was done with consideration of the farmers that the majority carry out the development of vegetable farming, especially caisim. Respondents of the research conducted by sampling totaling 50 farmers from 89 farmers who plant caisim. The data processing method used are income analysis, feasibility analysis, qualitative description methods and risk analysis using the expected return.

Conclusion: Based on research and data processing of the obtained that the net income of farmers caisim farming in Liang Anggang District, Banjarbaru City amountes to Rp 1.750.870,- per farm with feasibility value of 1.95 indicating that the farm deserves to be pursued. The value of production risk in caisim farming in Liang Anggang District, Banjarbaru City is 9,7% with the expected yield of 49,75 qu / ha. The biggest sources of risk faced by caisim farmers in Liang Anggang District, Banjarbaru City, were pests, diseases, weather, climate, technology farming and managerial.

Keywords: Risk analysis, net income, caisim, farmers, farming

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I. Introduction

Vegetables are horticultural commodities that have added value and make a significant contribution to increasing income and community welfare. There are 3 (three) vegetable crop commodities which are included in the group of leaf vegetables that have been cultivated in South Kalimantan, namely caisim, kale and spinach. Of the three commodities, caisim production is most produced in the City of Banjarbaru when compared to other districts.

The production of caisim greens in Banjarbaru City during 2018 is known that Liang Anggang District is the largest producer of caisim and in the second place is in the LandasanUlin District. The production of caisim in Liang Anggang sub-district is mostly supplied by 2 (two) sub-districts, namely LandasanUlinUtara and LandasanUlin Barat. Based on data from the Agricultural Extension Centers of Liang AnggangDistrict 2019, Productivity of caisim plants in the first quarter in the amount of 350 qu / ha and secondquarter is equal to 310 qu / ha. Productivity has decreased which indicates that there is a risk in caisim farming. Changes in the production of caisim can affect farmers' incomes.

Greater risk of agricultural production occurred because agriculture is strongly influenced by nature It is often experienced in caisim production is a risk of production. Generally, production risks can originate from environmental conditions, pests and diseases, natural disasters, technology, labor and others.

Based on the background above, this study aims to determine: (1) to analyze the level of net income in caisim farming in Liang Anggang District, Banjarbaru City; (2) to analyze the risk of production in caisim farming in Liang Anggang District, Banjarbaru City; (3) to analyze the sources of risks faced in connection with caisim farming in Liang Anggang District, Banjarbaru City.

II. Material And Methods

Primary data were obtained from caisim farmer respondents through questionnaires and direct interviews with farmers about caisim farming in Liang Anggang District, Banjarbaru City, South Kalimantan Province from January 2020 to May 2020. Sample of respondents are 50 farmers.

Study Location: Liang Anggang District, Banjarbaru City, South Kalimantan Province

Study Duration: January 2020 to May 2020

Sample Size: 50 farmers

Sample size calculation: Farmer samples were taken by proportionated random sampling method, which is a randomized sampling technique that is proportional through consideration of the total population of farmers in the area. The research in Liang Anggang District was taken in 2 sub-district namely Landasan Ulin Utara and Kelurahan Landasan Ulin Barat. Samples of farmers were obtained by 50 farmers from a population of 89 farmers. Calculation of caisim farmer respondents is as follows:

• Subdistrict Landasan Ulin Utara

$$n_i = \frac{52}{89} \times 50 = 29 \text{ farmers}$$

• Subdistrict Landasan Ulin Barat

$$n_i = \frac{37}{89} \times 50 = 21 \text{ farmers}$$

Statistical analysis

To answer the first aim, two types of analysis are used: revenue analysis and feasibility analysis.

1. Revenue Analysis

Farm income is obtained based on the difference between revenue (TR) and all costs (TC). Farm receipts are multiplications between production and selling prices. Costs are all expenses used in a farm (Soekartawi, 1995). So the income formula can be written as follows:

$$\pi = TR - TC$$

Information:

π = Farm income (Rp)

TR = Total Revenue (Rp)

TC = Total Cost (Rp)

Where: $TR = PQ$

Information:

TR = Total Revenue (Rp)

P = Price (Rp)

Q = Number of production (kg)

$$TC = FC + VC$$

Information:

TC = Total farming costs in the farming period (Rp)

FC = Cost of fixed costs (Rp)

VC = Cost of variable costs (Rp)

2. Feasibility Analysis

Business feasibility is carried out using the R / C approach. R / C is the abbreviation of Revenue Cost Ratio or known as the comparison between total revenue (R) and total cost (C) with the formula:

$$a = \frac{R}{C}$$

Information:

a = Comparison between Total Revenue and Total Cost

R = Total Revenue

C = Total Cost

If $R/C = 1$, then farming is not profitable does not also lose or break even. Then if the $R/C < 1$, the business is not feasible and if the $R/C > 1$ the farm is worth the effort [15].

The magnitude of the risk of caisim farming is used to measure by the expected return. Expected return is calculated based on the sum of the expected values with the probability of each event that is the highest, lowest and normal way of doing caisim farming. While the production risk is measured by productivity that is based on the assessment results of calculation of variance, standard deviation, and the coefficient of variation. Opportunity Formula [14].

$$\text{Opportunity (P)} = \frac{W}{n}$$

Where:

W = frequency of occurrence calculated caisim productivity opportunities (and condition high, normal, and low)

n = Number of events (total number of events)

To find the highest, normal and lowest productivity opportunities by dividing the total frequency of caisim productivity opportunities (high, normal and low) divided by the total number of events. Expected Return Formula [14].

$$E(R_i) = \sum_{i=0}^m P_i \cdot R_i$$

Where:

$E(R_i)$ = Expected Return

P_i = Opportunity of an event

R_i = Return (Productivity)

Formula of Variance:

$$\sigma_t^2 = \sum_{j=1}^m P_{ij} (R_{ij} - \check{R}_i)^2$$

Where:

σ_t^2 = Variance of return

P_{ij} = Opportunity of an event

R_{ij} = Return (Productivity)

\check{R}_i = Expected return

Formula of Standard Deviation:

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

Where:

σ_t^2 = Variance

σ_t = Standard deviation

Formula of Coefficient Variation [2]:

$$CV = \frac{\sigma_t}{\check{R}_i}$$

Where:

CV = Coefficient variation

σ_t = Standard deviation

\check{R}_i = Expected return

The sources of risk faced are related to the production or cultivation of caisim in Liang Anggang District, Banjarbaru City, using qualitative descriptive methods which are assisted by a questionnaire.

III. Results and Discussion

Characteristics of Respondents

The age group of respondents is mostly in the productive age group. However, there are 12% of farmers who are not in the productive age group. The average age of respondent farmers is 51 years. Farmer age is related to the level of work productivity and ease of adopting technology in agriculture. Young farmers in general will find it easier to learn technology and be able to decide on the application of technology in their farming.

Table no1: Age of respondent farmers in Liang Anggang District, Banjarbaru City

Age of Respondent (years)	Number of Respondents (people)	Percentage (%)
30 – 45	16	32
46 – 60	28	56
≥ 61	6	12
Total	50	100

The intended education is the last formal education undertaken by the respondent farmers in school. The education of respondents obtained was divided into elementary, junior high, and high school education. The average farmer education level is elementary school. The high number of respondents who have only attended primary school or about 6 years shows a lack of awareness of the importance of formal education. Lack of awareness to take normal education is partly due to the interests of family workers to conduct farming activities, economic conditions that are less able and the availability of places to take formal education. Farmers' high education will facilitate understanding and acceptance, especially with the addition of informal education such as counseling and training that can provide direct lessons on the success of farming.

Table no2.Educational level of respondent farmers in Liang Anggang District, Banjarbaru City..

Education	Number of Respondents (people)	Percentage (%)
Elementary school	38	76
Middle School	11	22
High school	1	2
Total	50	100

The main occupation of respondents is more as farmers (98%). In addition there are farmers with the main work as entrepreneurs in the market. The main work as a farmer shows that farming activities require the most hours of work and/or the job contributes the highest income compared to other jobs. Limited ability and expertise to start other businesses make farmers more dependent on farming to meet their daily needs.

Table no 3. The main work of Respondents in Liang Anggang District, Banjarbaru City

Main work	Number of Respondents (people)	Percentage (%)
Farmers	49	98
Entrepreneur (trader)	1	2
Total	50	100

Side jobs are other jobs that are done besides the main work. The main job as a farmer who spends more work time makes as much as 64% of farmers do not have side jobs. Side jobs are done by respondents because the income earned from basic work does not meet the needs of daily living or because there is still time left after doing basic work so as to provide additional income for the family.

Tablono 4.Side job of Respondents in Liang Anggang District, Banjarbaru City

Side job	Number of Respondents (people)	Percentage (%)
Do not have a side job	32	64
Farmers	1	2
Construction workers	12	24
Livestock	2	4
Project Worker	1	2
Driver	1	2
Grass finder	1	2
Total	50	100

Family burden are the number of family members of respondents who live in one household and live in the house. Farmers respondents the burden average has 3 people. The number of burden indicates the size of the dependents of the family's living costs. Family burden can also be used as a source of family labor in spare time (being at a productive age but still undergoing formal education or having other main jobs). However, if there are family members who are not in their productive age, this will increase the cost of family life.

Tablono 5.Family burden of Respondents in Liang Anggang District, Banjarbaru City

Number of burden (people)	Number of Respondents (people)	Percentage (%)
1	1	2
2	13	26
3	23	46
4	10	20
5	3	6
Total	50	100

Long time farming is one indicator that indirectly shows the experience in farming. Most respondents have been farming for > 20 years (56%). The longer experience gained in farming, the better the farmers are able to manage their businesses better and to overcome farming problems. This also affects the decision making in farming activities. In addition, farmers also have more support, especially production facilities, labor, and marketing of products. The average long time farming is 25 years.

Tablono 6.Long time farming of Respondents in Liang Anggang District, Banjarbaru City

Long time farming (years)	Number of Respondents (people)	Percentage (%)
10 - 20	22	44
> 20	28	56
Total	50	100

The respondent's land area is the area of the respondent's land that is used for farming. Based on the area of land managed, farming in Liang Anggang District, Banjarbaru City, is carried out by overlapping farming methods, where one land is planted with two or more types of plants by setting the time of harvest and planting.

Generally farm land is relatively narrow because the location is in urban areas and land is relatively fertile so that with a narrow land area farmers already benefit from their farming. Average area of farmland by 0,43 ha. Farming is carried out by farmers, especially vegetables and fruits with high economic value such as caisim, leeks, celery, long beans, large chillies, cayenne peppers, tomatoes, eggplant, beans, cucumbers, kale and others. In addition, land is also used to grow rice both local and superior rice types.

Tablono 7.The area farming of respondents in Liang Anggang District, Banjarbaru City.

Area (Ha)	Number of Respondents (people)	Percentage (%)
0,20 – 0,39	22	44
0,40 – 0,59	22	44
0,60 – 0,79	5	10
≥0,80	1	2
Total	50	100

The area of caisim farming is the area of land planted with caisim by respondents in Liang Anggang District, Banjarbaru City. The area of caisim farming is in the range of 0,03 – 0,09 ha (80%). Generally the land cultivated by farmers is relatively narrow, in this case all respondent farmers have an average area of land for caisim farming of 0,08 ha.

Tablono 8.The area of caisim farming respondents in Liang Anggang District, Banjarbaru City.

Area of caisimfarming (ha)	Number of Respondents (people)	Percentage (%)
0,03 – 0,09	40	80
0,10 – 0,16	6	12
0,17 – 0,23	3	6
0,24 – 0,30	1	2
Total	50	100

The status of farmers' land ownership determines the amount of farmers' income. The status of land ownership that is cultivated most is own land as many as 29 people or 58%. The definition of borrowed land is land use where there is an agreement between the farmer and the land owner that the land will be used by the farmer for farming so that the land becomes preserved and the owner lends voluntarily meaning that there is no demand for rent or profit sharing payments. Leased land is land use where farmers pay landowners as much as the area of land planted. In this case, the agreed price is Rp 50.000 / stock or Rp 1.750.000 / ha for one planting period .

Tablono 9.Land ownership in of respondents Liang Anggang District, BanjarbaruCity .

Land Status	Number of Respondents (people)	Percentage (%)
Own ownership	29	58
Borrow	15	30
Rent	6	12
Total	50	100

Structure Costs of Caisim Farming

Structure costs of caisim farming is the composition of costs incurred in caisim farming activities for the last one planting period per farm with an average area of 0,08 ha in the form of variable costs and fixed costs. Variable costs consist of the costs of seeds, fertilizers, medicines and labor. Fixed costs consist of shrinkage of tools, land costs, and own capital interest.

Tablono 10.Structure Costs of caisim farming in Liang Anggang District, Banjarbaru City.

Cost component	total (unit)	Price (Rp / unit)	Average cost (Rp)
Variable cost			1.668.750
- Seed (g)	42,1	25.000/25g	42.100
- NPK fertilizer (kg)	13,75	3.000	41.250
- Manure (kg)	275	550	151.250
- Insecticide (ml)	96,25	90.000/250 ml	34.650
- Pesticides (ml)	82,50	90.000/250 ml	29.700

- Labor (HOK)	8,24		1.369.800
Fixed cost			171.670
- Shrinkage of tools (unit)	6		16.796
- Land (ha)	0,08		144.200
- Own capital interest			10.674
Total production costs			1.840.420

Net income

The caisim farming are usually sold by farmers to traders in the form of ties. The results of caisim production in Liang Anggang District, Banjarbaru City, in the last period obtained an average harvest of 6.282 small bundles or the equivalent of 394,40 kg for an average land area of 0,08 ha with a selling price range of Rp 8.500,- /kg or Rp 10.000,- /kg. The total farm receipts are obtained by multiplying production and selling prices. Based on the average production yield and the selling price obtained an income of Rp 3.584.550,-.

Farm net income is the difference between total revenue (R) and total cost (C). The result of the reduction in total revenues of Rp 3.584.550, - with a total cost of Rp 1.840.420, - was Rp 1.744.130.

A farm that will be carried out is considered to be profitable or acceptable if an analysis of the business feasibility can be identified using the R/C approach. Based on the comparison of total revenues of Rp 3.584.550 and total costs of Rp 1.840.420, it is known that the feasibility of caisim farming in Liang Anggang District, Banjarbaru City is worth 1,95. The feasibility value of 1,95 indicates that the farm is economically profitable and feasible to be cultivated because it is greater than 1.

Tablano 11.Net Income of caisim farming in Liang Anggang District, Banjarbaru City within one planting period per farming

Description	values (Rp)
receipts (R)	3.584.550
Total variable costs	1.668.750
Total fixed costs	171.670
Total cost (C)	1.840.420
Net income	1.744.130
R/C to total costs	1,95

Risk Analysis of Caisim Farm Production

An assessment of production risk in this study was obtained using caisim productivity data three times period of planting. This risk analysis is carried out in normal farming process conditions in farming conditions that usually occur every planting period without extreme disruption or uncertain conditions such as occurring during a natural disaster. Caisim productivity is the amount of caisim production per certain area during one production period. The measurements taken in this study are in quintals per hectare (qu/ha).

The most caisim productivity is included in the low category with a frequency of 95. The total productivity of the low category is 4.430,3 qu/ha with a frequency of 95, obtained an average low productivity category of 46,63 qu/ha. Low category productivity opportunities are obtained by dividing the low category frequency 95 to the total frequency of 150 so that the probability of 0,63 is obtained.

The opportunity for caisim farmers in Liang Anggang District, Banjarbaru City, reached a low productivity of 0,63, which can be interpreted if the caisim farmers were doing caisim farming for 3 times ofperiod planting, resulting in a low production rate frequency of 63%.

Tablano 12.The average productivity of caisim and opportunities obtained by caisim farmers in Liang Anggang District, Banjarbaru City.

Category	Class interval (qu / ha)	Upper and lower limits	Frequency	Total Productivity (qu / ha)	Average Productivity (qu / ha)	Opportunity
Rendah	39,17 – 50,00	38,67 – 50,50	95	4.430,3	46,63	0,63
Normal	51,00 – 61,84	50,51 – 62,34	51	2.742,6	53,78	0,34
Tinggi	62,84 – 73,67	62,35 – 74,17	4	278,4	69,60	0,03

In assessing the risk of caisim plant production in Liang Anggang District, Banjarbaru City, it can be seen the size of income expected from caisim farming activities. The amount of expected income can be seen from the expected return value. Based on the calculation results, the expected return value is 49,75, which means that farmers in Liang Anggang District, Banjarbaru City, expect the yield of 49,75 qu / ha.

Variance and standard deviation is a unit of measurement that describes the irregularities that occurred in the farm as well as measure how much data spread middle value. The smaller the distribution of data, the better, because it shows clustered data at a calculated average value. Based on the calculation results, the value

of variance is 23,47. The magnitude of fluctuations in production, prices and profits derived by farmers or risks borne can be seen through the large standard deviation. The standard deviation obtained is a value of 4,85. This shows that the production of caisim has low production risk. The smaller the standard deviation, the lower the risk faced by farmers in farming activities.

The coefficient of variation is the ratio between the risk that must be borne with the amount to be obtained in the production process. The coefficient value of variation is directly proportional to the risk faced by farmers where the greater the value of the coefficient of variation, the higher the level of risk faced by farmers. The coefficient of variation value is 0,097 which can be interpreted that every time they do caisim production, farmers will experience a loss of 9,7% of caisim production.

The low risk of loss is 9,7% with the expectation of harvest 49,75 qu which is in the low productivity class. Farmers in Liang Anggang District continue to carry out caisim farming. This is because farmers think they still get a sizable profit. In addition, farmers in South Kalimantan are the type of farmers who receive the results or benefits as long as these benefits are still able to meet the needs of family life.

Tableno 13.The result of Risk of caisim production in Liang Anggang District, Banjarbaru City.

No	Condition	Opportunity (Pi)	Productivity(Ri)	(Pi).(Ri)	(Ri- \bar{R}_i) ²	Ri- \bar{R}_i) ² . (Pi)
1	Low	0,63	46,63	29,38	9,73	6,13
2	Normal	0,34	53,78	18,28	16,24	5,52
3	High	0,03	69,59	2,09	394,02	11,82
<i>Expected return E (Ri)= 49,75</i>					<i>Variance$\sigma_t^2 = 23,47$</i>	
					<i>Standart deviation$\sigma_t = 4,85$</i>	
					<i>Coefficient Variation = $\frac{\sigma_t}{R_i} = \frac{4,85}{49,75}$</i>	
					<i>= 0,097</i>	

Risk Sources

After knowing the magnitude of the risk, the next step is to identify the sources of risk. It aims to get information about the causes of risk of caisim farming and events that cause harm to farmers. Based on the results of interviews with respondents, it can be explained that the source of risk of farming production originating from outside is the factor of pest, disease, climate and weather. While the sources of risk in farm production from inside are farming technology and managerial.

The highest order of production risk level according to farmers in Liang Anggang District, Banjarbaru City, are pests, diseases, weather, climate, farming technology and managerial.

Pest. Pests are one of the sources of production risk in caisim farming. Pest attacks experienced by caisim farmers in Liang Anggang District, Banjarbaru City include pest of hanging caterpillars, grasshopper pests, ant pests and small white butterfly pests.

Pests that attack more caisim plants are leaf-eating pests such as hanging caterpillars. The characteristic of a caterpillar attack is a white patch that leaves over time with holes. Severe attacks can result in the leaves of the plant only the bones only. Severe attacks on caisim crops can result in crop failure so that farmers do not get income during the planting period.

Attack conditions occur from nursery to harvest. To deal with pest attacks, farmers in Liang Anggang District, Banjarbaru City, are implementing the use of pest control drugs. The use of these drugs leads to the expenditure of medicine costs as well as the expenditure of labor costs to carry out spraying activities.

Disease. The disease that often attacks caisim plants belonging to farmers in Liang Anggang District, Banjarbaru City is a fungus attack. Characteristic of a fungal attack is the leaves appear brown spots on the edge of the leaf then extends to the middle and visible black spots in the middle of the spot. In addition, other characteristics can be in the form of patches on pale light green to yellow leaves. Severe attacks can cause plants to look stunted, wet plants, slimy to rot.

The use of seeds that are not good and of good quality and supported by weather changes can be the cause of pests and diseases that can easily attack caisim plants. In addition, vegetable crops, especially caisim greens are never separated from the interference of weeds (weeds). Weeds that appear are often rivals of caisim plants that are cultivated, especially competition in getting water, sunlight and nutrients and often weeds become pests that are often a big threat to caisim plants.

The weather. Another source of risk is weather which raises production risks in doing caisim farming. Weather is an air condition that occurs in a relatively narrow place with a relatively short time. Chinese caisim farmers in Liang Anggang District, Banjarbaru City, face rainy season conditions with high rainfall. Damage to plants especially in conditions of heavy rainfall accompanied by strong winds. In addition, flooded and inundated land also causes disruption to plant growth and even causes losses before harvest. The continued condition of high rainfall is an explosion of pests and diseases.

Facing this flooding problem, farmers overcome it by making beds higher than the surrounding land, making gutters around the beds so that plants are not inundated or making drainage drainage around the beds.

In addition to rainfall, long drought also results in losses of production. Increased temperature and lack of water supply for plants can result in crop failure because the plant will die of drought. This drought conditions provide additional costs for production expenses such as water needs, equipment and labor.

Climate. Climate is the average weather that occurs for a relatively longer period (around 30 years) and covers a large area. Climate change that is not in accordance with the normal cycle causes caisim plants to be more susceptible to pests and diseases, experiencing a high level of damage (crop failure) due to the long dry season and the rainy season with high rainfall accompanied by strong winds. Because the changes that occur cannot be predicted with certainty, so often the shifting or changing cropping patterns are not successful.

Farming Technology. Technology is a tool, machine, method, process, activity or idea created to facilitate human activities in daily life. Farming technology is the application of technology by farmers in the framework of farm management. The application of farmers in the management of caisim farming in Liang Anggang District is quite good, but still requires enhancement or improvement, especially in the use of technology.

An important example is the lack of knowledge about effective pest and disease control resulting in excessive use of pest control drugs. In addition, the lack of ability to analyze the needs of plant fertilizers results in high production costs because it provides excess fertilizer needs to the farm. The condition of the planted land also requires special attention such as crop rotation that is good and right so that the surrounding plants do not plant plants that host pests and diseases.

Improved farming technology can be obtained by farmers from agricultural extension. Agricultural counseling is basically a non-formal education process as an effort to influence the behavior of farmers to achieve a better quality of life, through agribusiness-oriented agricultural activities. The intended behavior includes knowledge, skills and attitudes. Effective counseling is expected to help improve the welfare of farmers in particular and meet the food needs of the community in general.

Managerial. Managerial is a science that arranges everything correctly. Managerial farming is the ability of farmers to plan and manage the cost structure and carry out farming activities correctly.

The success and failure of farming that farmers do basically depends on their ability to regulate and manage the factors of production that they control. If a farmer is good at managing the farming they do, their farming will succeed. Meanwhile, if a farmer is not able to manage his farm well, the farm they manage is likely to fail. That is, the farmer as a farm manager must be able to organize natural, working and asset to enable their agricultural production and productivity can be worth optimal.

The ability of caisim farming farmers in Liang Anggang District of Banjarbaru City to take management actions and farming activities is inadequate. Good farming planning is expected to provide high yields and increase in income for farmers. The lack of expertise of farmers in managing farming comes from the inability to make decisions to change attitudes, receive knowledge and skills. Despite having long farming experience, farmers basically need a change in their understanding of caisim farming

Changes in farmers' attitudes in conducting farming can be obtained in agricultural counseling. The existence of farmer groups in general gives a big influence to farmers to improve and emulate other farmers' managerial better such as proper and balanced fertilization, control of pest attacks with trap crops, have a good and correct farming work plan, skills in making organic fertilizer, understanding of farmer group administration and regularly attending meetings to increase knowledge.

IV. Conclusion

Net income of caisim farming obtained by farmers in Liang Anggang District, Banjarbaru City is Rp 1.744.130,- /farming with a feasibility value of 1,95 which shows that the farm is feasible to be cultivated.

The Value of production risks in the farming caisim in District Liang Anggang City Banjarbaru amounted to 9,7% with expectations of results as much as 49,75 qu / ha.

The biggest sources of risk faced by caisim farmers in Liang Anggang District, Banjarbaru City, were pests, diseases, weather, climate, farming technology and managerial.

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