Ann PUBLISHER Journal of Agricultural Sciences (Agrosci)
e-ISSN 3047-2423
p-ISSN 3032-7547

Analysis of Shallot Farming Income in Pabedilan District, Cirebon Regency

Yogi Ricardo [1], Camelya Francisca [2], Ela Amelia [3], Dina Dwirayani [4]
[1] Swadaya Gunung Jati University, Cirebon, Indonesia, Email yogiricardo22@gmail.com
[2] Swadaya Gunung Jati University, Cirebon, Indonesia, Email franciscacamelya@gmail.com
[3] Swadaya Gunung Jati University, Cirebon, Indonesia, Email ellaamel00@gmail.com
[4] Swadaya Gunung Jati University, Cirebon, Indonesia, Email ddwirayani.ugj@gmail.com
Corresponding Author : Email yogiricardo22@gmail.com

Abstract:
Background. One of the leading commodities in Cirebon Regency is shallots. Differences in planting seasons can affect farmers' incomes.
Aims. The purpose of this study is to analyze the income and feasibility of shallot farming in the dry season and rainy season.
Methods. This research was conducted in Pabedilan District, one of the largest shallot production centers in Cirebon Regency. Data collection in this study was conducted through surveys and interviews using structured questionnaires with 30 respondents, comprising the same group of shallot farmers in both the dry and rainy seasons. The analysis methods used in this study include calculating income, revenue, r/c ratio, b/c ratio, and performing a t-test to compare income between the rainy season and the dry season.
Result. The results of this study show that the average total cost of the dry season is Rp. 138,829,827.74, the rainy season is Rp. 152,388,777.74, and the income of farming in the dry season is Rp. 74,408,560.75, and the rainy season amounted to Rp. 250,425,154.12, the dry season revenue was 213,238,388.49 and the rainy season was 402,813,931.86, the dry season r/c ratio was 1.53, the rainy season was 2.64, the dry season b/c ratio was 0.53, the rainy season was 1.64, the statistical test showed a significant difference between the income of the two seasons with a significance value of 0.027.
Conclusion. This finding indicates that shallot farming in Pabedilan District is feasible in both seasons; however, it is more profitable when carried out during the rainy season.

Keywords: Cost, income, acceptance, eligibility, shallot farming business

INTRODUCTION

Indonesia is an agrarian country where most of the population makes a living as farmers, producing a diverse range of commodities, and has excellent potential in terms of area, climate, and soil fertility. Cirebon Regency is one of the regions in West Java Province that has

horticultural diversity and contributes significantly to the local economy, and meets food needs in various regions based on climatic and geographical conditions. One of the popular horticultural commodities in Cirebon Regency is the onion, as shallot farming has a high value in the economic field (Mangkat).

Based on data, shallot production in Cirebon Regency over the past six years has shown fluctuations every year but has a stable average growth (2019-2024). According to the Cirebon Regency Agriculture Office, factors that affect changes in shallot production are climate and high rainfall, as well as pest and disease attacks. Pabedilan District is the largest shallot production center in Cirebon Regency. Based on data on shallot production in Pabedilan District over the past six years, it also shows a yearly change in output of 9% (2019-2024). According to the BPP of Pabedilan District, the factors that affect the change in shallot production in Pabedilan District are climate change, market conditions, and the quality of shallots.

Changes in shallot production in Cirebon Regency and Pabedilan District affect farm income. Production that continues to change every year is influenced by fluctuations in input costs, planting seasons, climate, weather, market conditions, the quality of shallots, and changing selling prices, resulting in variations in farmers' income. Shallot production is significantly influenced by climatic conditions, particularly during the dry and rainy seasons. The impact of these climatic conditions, namely soil moisture and environmental stability, can be exacerbated by the existence of uncertain climate change, which increases the risk of crop failure and economic losses. In the dry season, farming costs tend to be higher than in the rainy season because the need for labor and resources increases, while yields can be lower (Maghfirah et al. 2024). Meanwhile, according to (Fadilah 2024) The dry season has a lower total cost of Rp. 11,042,735/Ha, higher revenue of Rp. 27,048,320/Ha, and a larger income of Rp. 16,005,585/Ha compared to the rainy season, which reached a cost of Rp. 11,154,570/Ha, revenue of Rp. 26,681,500/Ha, and an income of Rp. 15,526,930/Ha. Therefore, despite these differences and uncertainties, research on farming analysis remains fascinating and relevant to be carried out to determine the income of farming and the feasibility of shallot farming in both dry and rainy seasons. This study aims to investigate the income and feasibility of shallot farming businesses in both the dry and rainy seasons in Pabedilan District, Cirebon Regency.

METHOD

This research was conducted in the Pabedilan District, Cirebon Regency. The selection of the location for this research was carried out using purposive sampling, specifically in a small area of Cirebon Regency. This research was conducted from December 2024 to June 2025. The data collection method used was by survey and recall interviews *(stimulated recall interview),* shallot farming business in the dry season and the rainy season in the 2024/2025 planting season. The number of samples used was 30 samples in each season (dry season and rainy season) from 2 villages with the majority of shallot farmers in Pabedilan District, Cirebon Regency, namely Pabedilan Kaler Village and Pabedilan Wetan Village. According to (Sigh, 2012) The sample size considered representative ranges from approximately 30 to 500 samples. Interviews were conducted using questionnaires. The analysis methods used for this study are as follows:

1. Farming income is the difference between the income and the total production costs incurred by farmers in one planting season (Verdayanti, et al. 2020). The formula for analyzing farm income can be written as follows:

$$PD = TR - TC$$

Information:

PD = farm income (Rp/planting season)

TR = total revenue (Rp/planting season)

TC = total cost (Rp/planting season)

2. Revenue is the total money that farmers receive from production without taking into account the production costs obtained from the sale of products (Wua, et al. 2024). Revenue is influenced by production volume (sales) and prices (Amili et al. 2020). Receipts are the result of multiplication between production and selling price (Ibrahim, et al. 2021). The formula for the acceptance analysis can be formulated as follows:

$$TR = P \times Q$$

Information:

TR = *total revenue*/total revenue (Rp)

P = *price*/price (Rp)

Q = *quantity*/quantity (Rp)

3. R/C Ratio is a comparison between revenue (R) and cost (C) to determine the feasibility of a business (Alam and Khoerudin 2019). The formula for the R/C ratio analysis is as follows.

$$\text{R/C} = \frac{\text{Total Penerimaan}}{\text{Total Biaya}}$$

Interpretation of the results:

R/C > 1 = profit (eligible)

R/C = 1 = no profit and loss (BEP)

R/C < 1 = loss (inappropriate)

4. B/C Ratio is a comparison between profit and total costs incurred (Taufik et al. 2023). The formula for B/C Ratio analysis can be written as follows:

$$\text{B/C} = \frac{\text{Total Pendapatan}}{\text{Total Biaya}}$$

5. The t-test is a statistical method to test for significant differences between two groups (Syafriani et al. 2023) In this study, a paired sample t-test analysis was employed. According to (Hernikawati 2021) The paired sample t-test is a technique used to perform hypothesis tests on paired data or non-independent data. Paired data are presented as a single person or research project that produces two different results. In this study, the difference in rainy and dry season shallot farming income was tested among the same farmers, with a significance level of 5%. This analysis was carried out using SPSS version 27 software.

$$t = \frac{\bar{d}}{s_d / \sqrt{n}}$$

Information:

$\bar{d}$ = average income difference between the two seasons (rainy season and dry season)

s_d = standard deviation from the difference

n = number of data pairs (n = 30)

Criterion:

If the significance value (Sig. 2-tailed) < 0.05, then there is a significant difference between the two seasons.

DISCUSSION

Pabedilan District is one of the largest shallot production centers in the Cirebon Regency area, with an average annual production of 89,050 quintals (2019-2024). The area has fertile agricultural land and is supported by an adequate irrigation system. Soil conditions and climate suitable for farming activities in the horticulture field allow farmers in this area to produce high-quality shallots. Shallot farmers in Pabedilan can produce shallots up to 4 harvests a year. The following are the characteristics of the respondents of shallot farming in Pabedilan District, Cirebon Regency.

Table 1: Distribution of Respondent Farmer Characteristics

No.	Characteristic	Number (people)	Present (%)
1.	**Age (years)**		
	≤30	0	0
	31-40	4	13,33
	41-50	15	50,0
	51-60	7	23,33
	≥61	4	13,33
	Sum	**30**	**100**
2.	**Education**		
	Finishing Elementary School	17	56,67
	Junior High School Graduation	7	23,33
	High School Graduation	5	16,67
	Sum	**30**	**100**
3.	**Experience (years)**		
	1-10	2	6,67
	11-20	14	46,67
	≥20	14	46,67
	Sum	**30**	**100**
4.	**Number of Family Dependents (person)**		
	1-2	5	16,67
	3-4	24	80,00
	5-6	1	3,33
	Sum	**30**	**100**

The total cost of shallot farming comprises both fixed costs and variable costs. Fixed costs are expenses whose total remains constant throughout one growing season. (Faisal, et al. 2023) In this study, fixed costs comprise land rental costs and loan repayments, according to previous research. (Nurhaedah, 2023) in which there is a land rental fee. A non-fixed cost is a variable cost that varies in relation to production. In this study, non-fixed costs comprise the expenses for seeds, fertilizers, pesticides, labor, and other miscellaneous fees, including farmer contributions, irrigation, and transportation. The following table presents an analysis of costs, revenues, R/C Ratios, B/C Ratios, and income comparison tests (t-test) for the dry and rainy seasons in the 2024/2025 planting season.

Table 2: Cost structure, revenue, and income of shallot farming for the dry season and rainy season 2024/2025 per hectare

N			Dry season				Rainy season		
O	Component	Vol	Price (Rp)	Value (Rp)	%	Vol	Price (Rp)	Value (Rp)	%
1	Fixed costs								
	Land Lease (Ha)	1	7.130.000	7.130.000	13	1	6.430.000	6.430.000	12
	Loan (Ha)	1	18.240.000	18.240.000	5	1	18.220.000	18.220.000	4
2	Non-fixed costs								
	Seeds(kg)	1.557	43.673	68.033.333	49	1.604	41.958	67.317.778	44
	Fertilizer (kg)	89,1	82.296	7.328.356	5	88,74	75.602	6.709.244	4
	Pesticides (Liters)	50,4	142.936	7.207.700	5	43,23	167.607	7.245.700	5
	Labor (hok)	87	431.968	37.466.961	27	108	424.470	45.735.911	30
3	Other costs	1	710.144	710.144	1	1	710.144	710.144	0
	Total Cost	1	138.829.827	138.829.827	100	1	152.388.778	152.388.778	100
4	Acceptance	9.919	21.497	213.238.388		15.381	26.190	402.813.932	
5	Income			74.408.560				250.425.154	

Based on Table 2, the total production costs incurred in the dry season by shallot farmers in the 2024/2025 planting season in Pabedilan District are Rp. 138,829,827.74/ha/ planting season and are Rp: 152,388,777.74/ha/ planting season in the rainy season. In the dry season, the largest cost component is seedlings, which account for 49% of the total cost in the dry

season and 44% in the rainy season, with a total seed price of Rp. 68,033,333.33/ha/planting season and Rp. 67,317,777.78/ha/planting season in the rainy season. This is because shallot farmers in Pabedilan sub-district choose to use Bima Brebes seeds, which are superior varieties known for their high quality, productivity, and good growing power, albeit at a relatively expensive price. The fertilizers that shallot farmers most widely use in the dry season in Pabedilan sub-district are Urea, NPK 25, NPK 16, Poska, KCL, TSP, DGW, Za, Saprodap, and in the rainy season the fertilizers used are Urea, NPK 25, NPK 16, Poska, KCL, TSP, Kamas, DGW, Za, Saprodap, Regen, Subur kali, Calcium, Glower, Blower, KCL Mahkota, NPK Grower, Grenka, Kali Patent, Bolomite Limestone, Pearl NPK, Yara, Petropos, Furadan. Fertilizer application is made three times per planting season. The pesticides used in the dry season are Anthrakol, Sagritop, Ditan, Simega, Arjuna, Besmol, Triget, Gropea, Buldol, Aritob, Detazeb, Ramazol, Gandasil, Supremo, Dakonil, Incipio, Furadan, Simodis, Sanvit, Losmine, Polespor, Endur, Super Fruit, Sekor, Born OK and in the rainy season the pesticides used are Anthrakol, Sagritop, Ditan, Arjuna, Besmol, Simega, Triget, Gropea, Buldol, Tremazol, Gandalis, Dakonil, Detazeb, Gracia, Sekor, Supremo, Incipio, Simodis, Furadan, Plekat, Sanvit, Regen, Losmine, Indropol, Gol OK, Endur, Sagribit, Suprider, Buah Super. The application of this drug or pesticide is carried out as many as 16-20 sprays in one planting season. The labor used in the rainy season is more than in the dry season, because in the rainy season, there are land clearing activities in the first planting season, which affect the amount of costs incurred. The labor cost before normalization is the daily wage paid by the average male farmer, which is Rp. 70,000/Hok and women are Rp. 50,000/Hok. After normalizing to units per hectare based on the total cost of work per unit of work activities per hectare, an average of Rp. 431,968/hok was obtained in the dry season, and Rp. 424,470/hok in the rainy season. Other costs include the expenses incurred by farmers for contributions to farmer groups and village governments, transportation for crops, and irrigation per planting season.

Based on Table 2, the total revenue from shallot farming in the rainy season is greater than in the dry season, which is Rp. 402,813,931.86/ha//planting season in the rainy season and Rp. 213,238,388.49/ha/planting season in the dry season. This is because the productivity and selling price of shallots in the rainy season are higher than in the dry season, thus affecting the total receipt. So that the income of shallot farmers in the rainy season is greater than the dry season, which is Rp. 250,425,154.12/ha/planting season in the rainy season and Rp. 74,408,560.75/ha/planting season in the dry season.

Table 3. R/C Ratio and B/C Ratio for Dry Season and Rainy Season of Shallot Farming 2024/2025

Yes	Dry season			Season Rain		
1.	Acceptance	Total Cost	R/C Ratio	Acceptance	Total Cost	R/C Ratio
	213.238.388,49	138.829.827,74	1,53	402.813.931,86	152.388.777,74	2,64
2.	Income	Total Cost	B/C Ratio	Income	Total Cost	B/C Ratio
	74.408.560,75	138.829.827,74	0,53	250.425.154,12	152.388.777,74	1,64

Based on Table 3 values, the R/C ratio of the dry season is 1.53, while the R/C Ratio of the rainy season is 2.64. Therefore, shallot farming is feasible in both seasons. Value *R/C ratio.* The largest in this study is smaller when compared to the survey (Wemaf, et al. 2023) With a value *R/C ratio* of 3.08. Shallot farming in Pabedilan District is feasible because the R/C Ratio value exceeds 1. The value of the R/C ratio in the rainy season is greater than in the dry season because the revenue in the rainy season is higher; therefore, the profit obtained by farmers is greater in the rainy season, which is as much as Rp. 2.64 for every Rp. 1 spent. This indicates that shallot farming will be more efficient when carried out during the rainy season. The B/C Ratio in the dry season is 0.5, and in the rainy season it is 1.64. This indicates that the profitability of farming businesses will be higher during the rainy season, as farmers will receive a net profit of Rp. 1.64.

Table 4. Descriptive Statistics of Shallot Farming Income

Season	Average Income (Rp)	Baku Junction (Rp)
Rainy Season (PMH)	60.903.865,60	92.046.997,01
Dry Season (PMK)	29.751.220,83	119.046.558,03

Table 5. Results of the Paired Sample t-Test of Farming Income in the Rainy and Dry Seasons

Variable	Mean Difference (Rp)	Std. Deviation	Std. Error Mean	T Count	Df	Sig. (2-tailed)
PMH-PMK	31.149.147,71	73.465.849,13	13.412.967,59	2,322	29	0,027

Based on Table 4, the average income from shallot farming in the rainy season is Rp. 60,903,865.60 while the average farming income in the dry season is Rp. 29,751,220.83. The rainy season increase is greater than the income of the dry season. Furthermore, based on the results of the paired t-test in Table 5, a value of t = 2.322, a degree of freedom (df) of 29, and a significance value (Sig. 2-tailed) of 0.027 were obtained. Because the p-value < 0.05, there is a statistically significant difference between farming income in the rainy season and the dry season. It can be concluded that shallot farming will be more profitable if it is carried out in the rainy season.

CONCLUSION

Based on the results and discussion above, it can be concluded that the income of shallot farming in Pabedilan District, Cirebon Regency, in both the rainy season and the dry season is profitable, but more profitable in the rainy season. The income obtained in the rainy season is greater than that in the dry season, which is 250,425,154.12/ha/planting season in the rainy season and Rp: 74,408,560.75/ha/planting season in the dry season.

Shallot farming in Pabedilan District, Cirebon Regency, is equally feasible in both the rainy and dry seasons. This is evidenced by the R/C Ratio values in both seasons being greater than 1. Specifically, in the rainy season, the R/C Ratio value is 2.64, and in the dry season, it is 1.53. The value of the B/C Ratio in the rainy season is greater than the dry season, with the value of the B/C Ratio in the rainy season being 1.64 and the value of the B/C Ratio in the dry season being 0.53. The results of the comparison test of shallot farming income in the rainy season and dry season were statistically significant with a significance value of 0.027. This indicates that shallot farming in Pabedilan District, Cirebon Regency, is more profitable and feasible during the rainy season.

The author's advice to farmers in this study is to capitalize on the potential of the rainy season as the primary time for shallot cultivation, as the higher income obtained makes farming more financially feasible. Farmers are also advised to focus on cost efficiency and strive for adequate irrigation during the dry season, ensuring that water needs are met and yields remain optimal.

BIBLIOGRAPHY

Alam, Asep Saepul, and Muh Heri Khoerudin. 2019. "Analysis of Farming and Marketing of Pandanwangi Rice (Case Study in the Bangkit Farmer Group, Babakan Karet Village, Cianjur District, Cianjur Regency)." *Agroscience (Agsci)* 9(2):153. doi: 10.35194/agsci.v9i2.780.

Amili, Fadel, Asda Rauf, Yanti Saleh, Department of Agribusiness, and Faculty of Agriculture. 2020. "Analysis of Paddy Rice Farming (Oryza Sativa, L) and Its Feasibility in Mootilango District, Gorontalo Regency." *Agrinesia* 4(2):2020.

Fadilah, S. R. I. 2024. "LAMBU SUB-DISTRICT BIMA REGENCY By: Sri Fadilah FACULTY OF AGRICULTURE Analysis of Costs and Income of Shallot Farming in Lambu District, Bima Regency (Year : 2024 ; Pages) Keywords: Cost and Income of Shallots."

Faisal, Nurul, Nurdin, and Akbar. 2023. "Analysis of the Income and Feasibility of Shallot Farming in Tanete Village, Anggeraja District, Enrekang Regency." *Mediaagro Journal of Agricultural Sciences* 19(2):193–203.

Hernikawati, Dewi. 2021. "Analysis of the Impact of the COVID-19 Pandemic on the Number of Visits to E-Commerce Sites in Indonesia Using a Paired T-Test." *Journal of Communication and Media Studies* 25(2):191. doi: 10.31445/jskm.2021.4389.

Ibrahim, Rahman, Amir Halid, and Yuriko Boekoesoe. 2021. "Cost and Income Analysis of Technical Non-Irrigated Rice Farming in Tenilo Village, Limboto District, Gorontalo Regency." *AGRINESIA: Scientific Journal of Agribusiness* 5(3):40.

Maghfirah, Geubrina, Eka Intan, Kumala Putri, Yeni Yanti, Chairul Amni, and Irda Yunita. 2024. "In the Rainy and Dry Seasons: Feasibility Analysis of Red Chili and Shallot Planting Systems in the Rainy and Dry Seasons." 7(2).

Mangkat, Rama Rizki, Joachim N. K. Dumais, and Theodora Maulina Katiandagho. 2022. "Analysis of Shallot Farming Income in Mopusi Village, Lolayan District, Bolaang Mongondow Regency." *Agri-Socioeconomics* 18(1):23–28. doi: 10.35791/agrsosek.v18i1.55166.

Nurhaedah, Nurhaedah, Andi Nuddin, and Moh Nadir. 2023. "Analysis of Shallot Farmers' Income Based on the Use of Organic and Inorganic Fertilizers in Anggeraja District, Enrekang Regency (Case Study of Pekalobean Village)." *Journal of Agribis* 11(2):164–79. doi: 10.46918/agribis.v11i2.1930.

Sugiyono. 2012. *Quantitative, Qualitative, and R&D Research Methods*. Bandung: Alfabeta.

Syafriani, Dewi, Ayi Darmana, Feri Andi Syuhada, and Dwy Puspita Sari. 2023. "Textbook of Statistical Differentiation for Educational Research (How and Processing with SPSS)." *Cv.Eureka Media Letters* 1–50.

Taufik, dk, Suhartina, Irma S, and Nita A. 2023. "Analysis of Return Cost Ratio and Benefit Cost Ratio in Goat Farming Business in Tandassura Village, Limboro District, Polewali Mandar Regency." *Journal of Agros Agriculture* 25(1):150–58.

Verdayanti, Gesti, Muhammad Irfan Affandi, and Ani Suryani. 2020. "An Analysis of Income and Economic Scale of Shallot Farming in Metro Cities." *Journal of Agribusiness Sciences* 8(2):210. doi: 10.23960/jiia.v8i2.4055.

Wemaf, Petronela, Jeter D. Siwalette, and Marfin Lawalata. 2023. "ANALYSIS OF SHALLOT FARMING INCOME (Allium Cepa) IN YAFAWUN VILLAGE, KEI KECIL TIMUR DISTRICT, SOUTHEAST MALUKU REGENCY." *Agrilan: Journal of Archipelago Agribusiness* 11(3):260. doi: 10.30598/agrilan.v11i3.1883.

Wua, Inka Gratya, Tri Oldy Rotinsulu, and George M. V. Kawung. 2024. "Analysis of Income and Feasibility of Small Industry Businesses in East Motoling District." *Scientific Periodical Journal of Efficiency* 24(2):61–72.