Jurnal Hexagro. Vol. 10. No. 2. August 2026 P-ISSN: 2459-269E-ISSN: 2686-3316
DOI: 10.36423/hexagro.v10i2.2679

ANALYSIS OF PADDY FARMING *(Oryza sativa L.) IN* BOJONGSAWAH VILLAGE, KEBONPEDES DISTRICT, SUKABUMI REGENCY

Algi Sahjul Tri Hidayah [1*], Ema Hilma Meilani[1],

[1] Muhammadiyah University of Sukabumi, Sukabumi City, Indonesia

*Correspondence: algikasep@ummi.ac.id

Submitted: 4th February 2026; Revised: 10th February 2026; Published: 28st August 2026

ABSTRACT

Lowland rice farming faces structural challenges, including an aging farmer population, which contributes to inefficiencies in cost allocation. This study aims to analyze the financial performance of farming in Bojongsawah Village, Sukabumi Regency, conducted in August 2025. The research employed a quantitative descriptive method, using a survey of 31 farmer respondents. The analysis results revealed an average Total Cost (TC) of production of IDR 12,175,173 per hectare. The financing structure was dominated by labor costs, accounting for 50.58% of total costs, indicating a high reliance on hired, non-family labor. Nevertheless, the farming business proved to be highly feasible for development, achieving a Revenue Cost Ratio (R/C) of 2.70. Farmers' economic resilience was also classified as strong, indicated by a Break-Even Point (BEP) for price at IDR 2,035 per kilogram and a BEP for production at 2,213 kilograms per hectare, positions far below the market price and actual productivity. It is concluded that technical irrigation support can ensure farm profits despite relatively high labor costs.

Keywords : Break-Even Point , efficiency , financial analysis , and lowland rice production cost .

ABSTRAK

Usahatani padi sawah menghadapi tantangan struktural berupa penuaan petani yang berdampak pada inefisiensi alokasi biaya. Penelitian ini bertujuan menganalisis kinerja finansial usahatani di Desa Bojongsawah, Kabupaten Sukabumi, yang dilaksanakan pada bulan Agustus 2025. Metode penelitian menggunakan deskriptif kuantitatif melalui survei terhadap 31 petani responden. Hasil analisis menunjukkan rata-rata Total Biaya (TC) produksi sebesar Rp 12.175.173 per hektare. Struktur pembiayaan didominasi oleh upah tenaga kerja yang mencapai 50,58% dari total biaya, mengindikasikan tingginya ketergantungan pada buruh tani luar keluarga. Meskipun demikian, usahatani terbukti sangat layak dikembangkan dengan capaian Revenue Cost Ratio (R/C) sebesar 2,70. Ketahanan ekonomi petani juga tergolong kuat, ditunjukkan oleh nilai Break Even Point (BEP) harga sebesar Rp 2.035 per kilogram dan BEP produksi sebesar 2.213 kilogram per hektare, yang posisinya jauh di bawah harga pasar dan produktivitas aktual. Dapat disimpulkan bahwa dukungan irigasi teknis mampu menjamin keuntungan usahatani meskipun biaya tenaga kerja relatif tinggi.

***Keywords**: Financial analysis, production costs, efficiency, paddy fields, break-even point.*

INTRODUCTION

The agricultural sector, particularly the plant food subsector, occupies a central position in the Indonesian economy and stability (Statistics Indonesia, 2025). Rice *(Oryza sativa L.)* Not just commodities agronomists who produce rice as a main food for more than 270 million population, but also function as a "commodity determinant" in politics, inflation, poverty line, and the dynamics

of welfare in rural areas. In discourse development, national achievement of self-sufficiency in food and sustainable agriculture is mandated by the constitution and continues to be pursued through various policies, ranging from the Green Revolution to modernization programs in agriculture and precision farming (Damayanti et al., 2025).

However, empirical evidence reveals that paddy farming in Indonesia is still grappling with the challenges of a slow structural economic transformation (World Bank, 2024). While this sector remains the largest absorber of labor, it exhibits relatively stagnant labor productivity compared to the manufacturing and service sectors (BPS Sukabumi Regency, 2026). Phenomenon This is exacerbated by fragmentation of acute land, where the majority of farmers operate on a small scale (<0.5 hectares), which is the theoretical limit for achieving *economies of scale* (Alamysah, 2025). Conditions. This creates high vulnerability to external, both market and financial in nature , biophysical (OECD, 2023).

Entering the third decade of the 21st century, rice paddy farming is facing existential threats in the form of global climate change and volatile input prices (FAO, 2023). Phenomenon anomaly climate like *El Niño-Southern Oscillation* (ENSO) has changed the pattern of rainfall drastically, causing a shift in seasonal planting and an increase in the frequency of extreme incidents in the form of drought and long-term flooding (Kusumasari, 2016). On the other hand, the increased price means production fertilizers and pesticides are often no longer compared with the price of selling grain at the level of farmers, creating a phenomenon of *cost-price squeeze* that suppresses profit margins (World Bank, 2025). For farmers, successful farming is not only measured by the height of physical production, but more crucially by efficiency costs and sustainable income (Azizi et al., 2025) .

Bojongsawah Village in the Regency of Sukabumi represents a typology of strategic peri-urban agriculture. However, it faces pressure from urbanization and demography. At an altitude of 500-600 meters above sea level, this area has a superior agroclimate, supported by infrastructure, irrigation, technical, and semi-technical sources from the Cimuncang River. Relative water availability is guaranteed, making this area one of the vital rice-growing areas in District Kebonpedes, with rice fields

covering 200 hectares (47.6% of the total area) as the dominant use.

Although supported by factors conducive to an environment and adequate irrigation, farming in Bojongsawah Village faces internal challenges, including structural power aging (aging farmers) and limitations on land mastery. Condition: This potential trigger is an allocative inefficiency, where the high cost of power can grind income farming. If not managed with tight control of the financial situation. Therefore, evaluating the performance economy has become urgent to ensure that the support infrastructure is in good condition and is truly converted into welfare for farmers.

Given field conditions that influence farmers' production activities, the research focused on evaluating financial conditions in depth. Based on the description mentioned, the formulation problem in the study is as follows: How does the analysis of paddy farming in Bojongsawah Village examine the aspects of structure costs, revenue, income, *Break Even Point* (BEP), and *Revenue Cost Ratio* (R/C)?

RESEARCH METHODS

Sampling Techniques

Taking a technique sample using purposive sampling. Criteria established inclusions include: (1) farmers active in doing cultivation in season planting last; (2) status as taker decision main (owner, cultivator, or tenant), not just laborer farmers; and (3) have experience farming for at least two years. To ensure stability in input management. Based on the criteria and in accordance with Roscoe's rule regarding sample size, the study is descriptive, with a fixed number of respondents, up to 31 farmers. The number is considered adequate for approaching normal distribution in simple statistical data analysis (Deras & Gultom, 2023; Padjari et al., 2021).

Data Collection and Operationalization of Variables

The data collected consists of primary and secondary data. Primary data were obtained through an interview guided by a structured questionnaire for 31 respondents. Secondary data collected through studies documentation at the institution related, including Bojongsawah Village monograph and publication of the Central Statistics Agency (BPS) of Bojongsawah, Regency of Sukabumi, for a complete context, demographics, and agroclimate of the study area (TW Damayanti et al., 2025) .

Data Analysis Techniques

Data analysis was performed with details as follows:

1. Profit Analysis

   The equation used refers to Soekartawi, (2016) is :

   - $TC = TFC + TVC$
   - $TR = P \times Q$
   - $\pi = TR - TC$

2. Financial Feasibility Analysis *(R/C Ratio)*

   Referring Sinaga et al., (2024) , The formula used is :

   $$R/C = \frac{TR}{TC}$$

3. Break-Even Point Analysis

   Referring Asir et al., (2022) , eq mathematically is as follows:

   $$BEP_Q = \frac{TFC}{P - AVC}$$

Study implemented in August 2025, using a descriptive, quantitative approach and a survey to analyze the performance of financial rice farming. The research location was deliberately determined in Bojongsawah Village, District Kebonpedes, Regency Sukabumi. Election location. This is based on the consideration that Bojongsawah Village is the center of rice production, with the largest rice field in the sub-district, namely 200 hectares, consisting of irrigation technical, half technical, and simple.

RESULT AND DISCUSSION

Characteristics of Farmers

Farmers' socioeconomic characteristics are internal factors that influence decision-making behavior in farm management. A survey of 31 respondents in Bojongsawah Village revealed a demographic profile that reflects the challenges of agricultural regeneration.

The majority of farmers (45.16%) are in the elderly age group (>64 years), while those in the young, productive age category (<50 years) account for only 22.58%. This aging age structure has implications for reduced physical work capacity, so farmers tend to substitute family labor for outside labor (farm laborers) for heavy work. This is in line with the national phenomenon explained by Susilowati, (2016) that the dominance of elderly farmers (>55 years) is a serious threat to agricultural sustainability due to low technological and physical adoption capacity. This is in line with the opinion of Hasyyati, (2025) who stated that the dominance of elderly farmers makes farming less efficient because of slow mechanization adoption.

Regarding education, 70.97% of respondents completed only elementary school. This low level of formal education is a barrier to implementing precision farming, which requires the ability to accurately calculate inputs. However, this limited education is offset by extensive farming experience. 67.74%

of respondents have more than 30 years of farming experience. This extensive experience provides a wealth of tacit knowledge that gives farmers a deep understanding of local agro-climatic conditions, although it often makes them resistant to new innovations and more comfortable with maintaining conventional farming patterns (Ngadi et al., 2023; Padjari, 2021).

In terms of family responsibilities, the majority of farmers (51.61%) have a moderate number of dependents (3-4 people) and an average cultivated land area of 0.58 hectares. This situation encourages farmers to maximize cropping intensity to meet household economic needs, even on relatively small land areas.

Cost Structure

Farming efficiency is largely determined by farmers' ability to allocate production factors. Based on the analysis, the average total production costs incurred by farmer respondents in Bojongsawah Village were IDR 12,175,173 per hectare per planting season. This cost structure was dominated by variable costs at 70.14% (IDR 8,539,919), while fixed costs contributed 29.86% (IDR 3,635,254).

Table 1. Cost Structure of Paddy Farming in Bojongsawah Village, 2025

Cost Components	Average Cost (IDR/Ha/MT)	Percentage (%)
Fixed Costs		
Land Costs (Rent/Tax)	1,651,613	13.57
Equipment Depreciation	1,983,641	16.29
Total Fixed Costs	**3,635,254**	**29.86**
Variable Costs		
Seed	715,039	5.87
Fertilizer (Urea, NPK, Manure)	1,578,460	12.96
Pesticide	87,904	0.72
Labor (Planting and Maintenance)	6,158,516	50.58
Total Variable Costs	**8,539,919**	**70.14**
Total Production Cost	**12,175,173**	**100.00**

Source: Processed primary data, 2025

The dominance of variable costs is primarily due to the high labor component, which accounts for 50.58% of total production costs. This finding is consistent with research indicating that labor costs are the largest component of the cost structure of conventional rice farming, often accounting for 40-50% of total operational costs due to the scarcity of young workers. This indicates that farming in the research location remains labor-intensive, particularly in planting and maintenance activities. The farming financing pattern in Bojongsawah Village demonstrates striking efficiency in plant protection. Pesticide cost

allocation was recorded as very low, at only 0.72% of total production costs. This condition occurs because the intensity of Plant Pest Organism (OPT) attacks in the research location is relatively low and rarely causes economic losses, unlike in other, more vulnerable production centers. When faced with symptoms of OPT attacks, local farmers tend not to rely on chemical insecticides. They prefer mechanical control and independently produce botanical pesticides using local materials. This low-cost strategy provides a distinct comparative advantage over rice farming in disaster-prone areas, which often require higher operational costs for risk mitigation (Oktania et al., 2021; Ariana, 2021).

Farm Business Income and Revenue

Farm income is a function of total production multiplied by the selling price of dry-harvested grain (GKP). Average land productivity in Bojongsawah Village is relatively high, reaching 5.98 tons/ha, with a farm-gate selling price of IDR 5,500/kg. Detailed analysis of income and revenue is presented in the following table.

Table 2. Analysis of Income and Revenue of Rice Farming Business in Bojongsawah Village, 2025

Description	Value (Rp)
Total Revenue (TR)	**32,898,393**
Fixed Cost (TFC)	3,635,254
Variable Cost (TVC)	8,539,919
Total Cost (TC)	**12,175,173**
Income (π)	**20,723,220**

Source: Processed primary data, 2025

Based on Table 2, farmers' net income reaches IDR 20,723,220 per planting season. This high income is due to the support of adequate irrigation infrastructure (technical and semi-technical) in Bojongsawah Village. which guarantees the availability of water. This is different from the findings of Bellitürk & Sundari (2023) and Hidayatulloh et al., (2022) on rain-fed lowland rice farming in Brebes Regency, where dependence on rainfall causes farmers' income to tend to be lower (IDR 7,901,274/ha) due to the higher risk of water uncertainty.

Farming Business Feasibility Analysis

Financial feasibility analysis serves as a validation instrument to measure capital efficiency and farm resilience to market shocks. A summary of the financial performance of lowland rice farming in Bojongsawah Village, including efficiency indicators such as the R/C Ratio and BEP (Table 3).

Table 3. Summary of Rice Farming Feasibility Indicators in Bojongsawah Village , 2025

Description	Unit	Mark
Revenue Cost Ratio (R/C)	Ratio	2.70
Break-Even Point (BEP) Price	IDR/Kg	2,035
Break Ecen Production Break-Even Point (BEP)	Kg/Ha	2,213

Source: Processed primary data, 2025

Based on Table 3, the interpretation of farming feasibility can be described as follows:

Revenue Cost Ratio (R/C)

The calculation results show an R/C ratio of 2.70. This means that every Rp 1.00 spent generates Rp 2.70 in revenue. This value is well above the feasibility threshold (R/C > 1), indicating that the rice farming business in Bojongsawah Village is highly feasible.

Compared with previous research, the feasibility value at the study site demonstrated highly competitive performance. The R/C of 2.70 is higher than that of rain-fed lowland rice farming in Capar Village, which had an R/C of 1.60 (Hidayatulloh et al., 2022) . This difference confirms that guaranteed technical irrigation in Bojongsawah Village provides more cost efficiency and optimal yields than rain-fed land. A comparative study by Lestari et al. (2022) confirmed that farming on technically irrigated land has a significantly higher level of technical efficiency and income than rain-fed land due to the minimal risk of water stress. Furthermore, this condition is also significantly more profitable than floating lowland rice farming in flood-prone areas of Banyumas Regency, which recorded an R/C value of 0.56, making it unfeasible (Oktania et al., 2021) . This comparison shows that the stability of the growing environment in Bojongsawah Village is a key factor in business success compared to areas with extreme agro-climatic constraints (floods or drought).

Break-Even Point (BEP)

Analysis The position of the farming business is also in a wide safe zone, indicated by the following BEP indicators:

- Break-Even Price: Rp 2,035/kg. This value is well below the actual market price. Farmers will not incur losses as long as the price of unhusked rice remains above IDR 2,035.
- Break-even point production: 2,213 kg/ha. With an actual productivity of 5,980 kg/ha, farmers' production volume has significantly exceeded the break-even point.

The wide margin between actual conditions and the break-even point proves that rice farming in Bojongsawah Village has strong resilience to market

price fluctuations and the risk of decreased production, in contrast to farming in disaster-prone areas, which have a high risk of crop failure, making it difficult to reach the break-even point (Oktania et al., 2021) .

CONCLUSION

This study concludes that paddy farming in Bojongsawah Village is financially viable, even though the cost structure is heavily burdened by labor wages due to an aging workforce. Despite this structural challenge, the business achieves high efficiency with an R/C ratio of 2.70 and a net income of IDR 20,723,220 per planting season, supported by optimal land productivity. Furthermore, the significant margin between the break-even point and the actual market price confirms that these farmers possess strong economic resilience against price volatility and production risks.

Authors declaration

Consent to participate

Authors are agreed

Consent to publication

The authors agree to publish this data

Conflict of interest

The authors declare no conflict of interest

REFERENCES

Alamysah, R. (2025). *Analisis Usahatani Padi Sawah (Oryza sativa L) di Kelurahan Limusnunggal Kecamatan Cibeureum Kota Sukabumi*. Universitas Muhammadiyah Sukabumi.

Arifin, B. (2020). *Ekonomi Beras Kontemporer: Data Baru, Tantangan Baru*. Gramedia Pustaka Utama.

Asir, M., Nendissa, S. J., Sari, P. N., Indriana, Yudawisastra, H. G., Abidin, Z., Indriani, R., Nurdiana, Hakim, A. R., Kristini, W., Suryana, A. T., Ratri, W. S., & Soeyatno, R. F. (2022). Ekonomi Pertanian. In E. Damayanti (Ed.), *Widina Bhakti Persada Bandung* (1st ed., Vol. 3, Issue 1). Widina Bhakti Persada Bandung.

Azizi, A. N., Mulyanti, H., & Rahmawati, L. A. (2025). Adaptasi Petani Padi terhadap Perubahan Iklim di Desa Kabalan dan Sumberwangi, Kecamatan Kanor, Bojonegoro. *Jurnal Sains Agro*, *10*(2), 152–160. https://doi.org/10.36355/jsa.v10i2

Bellitürk, K., Sundari, R. S. (2023). The Power of Earthworm: Vermicompost drives Sustainable Agriculture. Books. Earthworm Technology in Organic Waste Management. Elsevier. 1:307-321. ISBN: 978-0-443-16050-9. https://doi.org/10.1016/B978-0-443-16050-9.00018-9

Bestari, B. P. (2021). *Analisis Risiko dan Pendapatan Usahatani Padi Sawah (Oryza sativa) di Kecamatan Tumijajar Kabupaten Tulang Bawang Barat*. Universitas Lampung.

BPS Kabupaten Sukabumi. (2021). *Kecamatan Kebonpedes dalam Angka 2021*. BPS Kabupaten Sukabumi.

BPS Kabupaten Sukabumi. (2026).

Keadaan Ketenagakerjaan Kabupaten Sukabumi Agustus 2025.

Damayanti, T. W., Sazuli, Isma, S., Mardila, S. A., & Reflis. (2025). Strategi Terpadu Peningkatan Produksi Padi di Indonesia: Suatu Analisis Literatur Komprehensif. *Hidroponik: Jurnal Ilmu Pertanian Dan Teknologi Dalam Ilmu Tanaman*, *2*(3), 01–12. https://doi.org/10.62951/hidroponik.v2i3.503

Deras, S., & Gultom, M. (2023). Efesiensi Usahatani Padi Sawah Pada Musim Hujan dan Musim Kemarau. *Jurnal Agriust*, *3*(1), 32–37. https://doi.org/10.54367/agriust.v3i1.2581

FAO. (2023). *The State of Food and Agriculture 2023. Revealing the true cost of food to transform agrifood systems*. https://doi.org/10.4060/cc7724en

Hasyyati, Z. (2025). Regenerasi Petani: Dampak Aging Farmers dan Modal Manusia terhadap Produktivitas Padi di Indonesia. *Jurnal Ekonomi Pertanian Unimal*, *8*(2), 37–50. https://doi.org/10.29103/jepu.v8i2.26039

Hidayatulloh, J., Noor, T. I., & Sudrajat. (2022). Analisis Kelayakan Usahatani Padi Sawah Tadah Hujan di Desa Capar Kecamatan Salem Kabupaten Brebes. *Jurnal Ilmiah Mahasiswa Agroinfo Galuh*, *9*(1), 289–296.

Kusumasari, B. (2016). Climate Change and Agricultural Adaptation in Indonesia. *Mimbar*, *32*(2), 243–253.

Lestari, D. I., Noor, T. I., & Isyanto, A. Y. (2022). Analisis Efisiensi Teknis Usahatani Padi Sawah Tadah Hujan di Desa Bengbulang Kecamatan Karangpucung Kabupaten Cilacap. *Jurnal Ilmiah Mahasiswa Agroinfo Galuh*, *9*(1), 297–305.

Mamondol, M. R. (2016). Analisis Kelayakan Ekonomi Usahatani Padi Sawah di Kecamatan Pamona Puselemba. *Envira*, *2*(1). https://doi.org/10.31227/osf.io/gujx8

Mubarok, R. S., Heryadi, D. Y., Hidayati, R., Sundari, R. S. (2025). Comparison of Organic Rice Crops Income before and after Fuel Price Increase. *Agricola,* 15(2), 167-175.

Ngadi, N., Zaelany, A. A., Latifa, A., Harfina, D., Asiati, D., Setiawan, B., Ibnu, F., Triyono, T., & Rajagukguk, Z. (2023). Challenge of Agriculture Development in Indonesia: Rural Youth Mobility and Aging Workers in Agriculture Sector. *Sustainibility*, *15*(2), 922. https://doi.org/doi.org/10.3390/su15020922

OECD. (2023). *Agricultural Policy Monitoring and Evaluation 2023*. OECD Publishing. https://doi.org/10.1787/b14de474-en

Oktania, A., Suyono, & Sutanto, A. (2021). Analisis Kelayakan Usahatani Padi Sawah Apung pada Lahan Sawah Rawan Banjir di Kabupaten Banyumas. *Jurnal Ekonomi Pertanian Dan Agribisnis*, *5*(3), 762–775. https://doi.org/10.21776/ub.jepa.2021.005.03.14

Padjari, I., Sundari, R. S., Umbara, D. S. (2021). Hubungan antara Peran Penyuluh Pertanian dengan Partisi Petani dalam Usahatani Padi Hitam di Kelurahan Cikalang

Kecamatan Tawang Kota Tasikmalaya. *Mimbar Agribisnis*. 7(2), 1537-1544

Sinaga, R., Noravika, M., Herawati, Widiastuti, M. M. D., Sukmaya, S. G., S., N. M. W., Noviana, R., Rizkiyah, N., Nurliah, Wijayati, P. D., Putri, T. A., Fathin, S., Liana, L., & Zainuddin, A. (2024). *Ilmu Usahatani* (R. Sinaga (ed.); 1st ed.). Widina Media Utama.

Soekartawi. (2016). *Analisis Usahatani*. UI-Press.

Sundari, R.S., Umbara, D. S., Hidayati, R., Fitriadi, B. W. (2021). Peran Penyuluh Pertanian terhadap Produksi Padi Sawah di Kabupaten Tasikmalaya. *Agriekonomika*, 10(1), 59–67.

Sundari, R. S., Fitriadi, B. W. (2024). Groundwork for Understanding the Principles and Importance of Sustainable Agriculture. Fundamental Sustainable Agriculture. IKSAD Publishing House. 29-66. ISBN: 978-625-367-977-4, http://dx.doi.org/10.5281/zenodo.14382979

Statistics Indonesia. (2025). *Laporan Perekonomian Indonesia 2024*. Statistics Indonesia.

Statistics Indonesia. (2026). *Profil Kemiskinan di Indonesia September 2025*. Statistics Indonesia.

Susilowati, S. H. (2016). Fenomena Penuaan Petani dan Berkurangnya Tenaga Kerja Muda Serta Implikasinya bagi Kebijakan Pembangunan Pertanian. *Forum Penelitian Agro Ekonomi*, *34*(1), 35–55.

World Bank. (2024). *Unleashing Indonesia's Business Potential*.