AL-AMWAL: JURNAL EKONOMI DAN PERBANKAN SYARI'AH (2023) Vol 15: 1-22
DOI: 10.24235/amwal.v%vi%i.11821

Al-Amwal: Jurnal Ekonomi dan Perbankan Syariah
ISSN: 2303-1573 e-ISSN: 2527-3876
Homepage: https://www.syekhnurjati.ac.id/jurnal/index.php/amwal
email: jurnalalamwal@syekhnurjati.ac.id

The Production Cost Analysis Of Agricultural Commodities On The Slopes Of Gunung Ciremai National Park

Dikdik Harjadi,*[1] Novi Satria Pradja,[2] Nurdin,[3] Egi Saripudin Pratama,[4] Irfan Aprilianto Suhara,[5] Muhammad Akmal Sayidul Fadillah[6]
**Corresponding Author*

Kuningan University[123456]

E-mail: *dikdik.harjadi@uniku.ac.id,[1] novi.satria.pradja@uniku.ac.id,[2] nurdin@uniku.ac.id,[3] 20180710029@uniku.ac.id,[4] 20200720029@uniku.ac.id,[5] 20190710007@uniku.ac.id[6]*

Abstract

Agriculture is one of the important sectors in Indonesia, so it needs special attention from the government. However, farmers often face several problems such as low prices at harvest, so they experience losses and do not know the costs incurred during the production process. This study aims to analyze the production costs of agricultural commodities on the slopes of Mount Ciremai National Park and the factors that influence production levels. Data collection uses a survey method, in the form of interviews with farmers about the components and the amount of costs incurred during the production process. The research has recorded as many as 17 types of agricultural commodities planted by the farmers. Onions, cabbage, Chinese cabbage, potatoes, and chilies are the most widely grown commodities. The commodity with the highest cost is potato, while the lowest is celery. Celery is also the type that has the highest efficient value, followed by eggplant, chili, and cabbage. The cost of purchasing manure and controlling pests and diseases has a significant positive effect on production, while the cost of purchasing synthetic fertilizers has no significant effect. The results of this study indicate that celery, eggplant, chili, and cabbage are potential commodities, especially for farmers who have limited capital. Furthermore, the use of organic fertilizers and controlling pests and diseases must be priorities for farmers in increasing their agricultural production.

***Keywords**: Agricultural Commodities, Production Costs, Vegetables Farmers*

Abstrak

Pertanian merupakan salah satu sektor yang penting di Indonesia sehingga perlu mendapatkan perhatian dari para pihak khusus pemerintah. Akan tetapi, petani seringkali menghadapi beberapa permasalahan seperti rendahnya harga pada saat panen sehingga mengalami kerugian dan tidak mengetahui secara pasti biaya yang sudah dikeluarkan selama proses produksi. Penelitian ini bertujuan menganalisis biaya produksi komoditas pertanian di lereng Taman Nasional Gunung Ciremai dan faktor-faktor yang mempengaruhi tingkat produksi. Pengumpulan data menggunakan metode survey dalam bentuk wawancara kepada para petani mengenai komponen dan dan jumlah biaya yang dikeluarkan selama produksi. Penelitian telah mencatat sebanyak 17 jenis komoditas pertanian yang ditanam oleh para petani. Bawang daun, kol, petsai, kentang, dan cabai adalah komoditas-komoditas yang paling banyak ditanam. Komoditas dengan biaya paling tinggi adalah kentang dan paling rendah adalah seledri. Seledri juga merupakan jenis yang memiliki nilai efisiensi paling tinggi, kemudian diikuti oleh terong, cabai, dan kol. Biaya pembelian pupuk kandang dan pengendalian hama-penyakit memberikan pengaruh positif yang nyata terhadap produksi, sedangkan biaya pembelian pupuk sintetis tidak berpengaruh nyata. Hasil penelitian ini menunjukkan bahwa seledri, terong, cabai dan kol merupakan komoditas potensial, khususnya bagi petani yang memiliki keterbatasan modal. Selanjutnya penggunaan pupuk organik dan pengendalian hama harus menjadi prioritas petani dalam meningkatkan produksinya pertaniannya.
Kata kunci: *Komoditas Pertanian, Biaya Produksi, Petani Sayuran*

INTRODUCTION

Agriculture is a sector in Indonesia that deserves great attention from many parties, especially the government. Farming is the livelihood of the majority of the Indonesian population (Abdullah, 2021). Based on data from the Central Statistics Agency (2022), there will be around 88.49% of Indonesia's population who work as farmers in 2021. This high percentage indicates that agriculture has an important role in development. In other words, the agricultural sector is the driving sector of the economy (Majidah et al., 2021; Kurniawati, 2020).

The agricultural sector must certainly provide benefits to farmers. The profits obtained will have an impact on the level of prosperity and independence of farmers. The more prosperous and independent the peasants, the greater the power of the peasants. Prosperous farmers and independent farmers are not easily controlled by any party. Prosperous and independent farmers will be more independent in carrying out their agricultural activities and are very helpful in ensuring the sustainability of productivity (Marliati et al., 2010).

There are conditions where the reality experienced by farmers is not as expected. For example, the price of agricultural commodities at harvest time often falls, which of course cannot be separated from supply and demand. As a result of low prices, farmers often experience losses and sometimes even crops that are ready for harvest are left to rot on agricultural land because the wages for harvesting are greater than the money earned from selling the crops. Another condition is that the farmers also often do not know with certainty the number of production costs incurred in one growing season. These conditions are often experienced by farmers on the mountain slopes of Gunung

Ciremai National Park (Udi & Ojo pers.com).

Knowledge of financial management (Layaman et al., 2020) including production costs is very important in a business. The amount of costs incurred during one growing season is very useful to determine the break-even price and the minimum required for each commodity so that the farmers do not lose. This knowledge can also be used by the farmers to determine the right time to sell when prices fluctuate. Although research has been carried out in several places on the magnitude of production costs (such as Azzura et al., 2017; Saragih et al., 2013), agricultural lands on the slopes of Gunung Ciremai National Park are still rare (Basuki 2014). Therefore, it is necessary to research the magnitude of the production costs of agricultural commodities in this area. In this regard, the general objective of this study is to analyze the costs incurred by the farmers in producing their agricultural commodities. The specific objective is to identify agricultural commodities that have high efficiency and identify factors that affect production levels. The results of this study are very useful for farmers in increasing their agricultural production and determining the appropriate time to make sales when price fluctuations occur. For local governments, the results of this research are useful in making policies related to agriculture.

LITERATURE REVIEW

Agricultural Resources

The agricultural sector is still an important sector for Indonesian society and also for national economic growth (Suratiyah, 2015; Wasdiyanta, 2017). Most of Indonesia's population (> 60%) live in rural areas and more than 50% of the population depends on the agricultural sector (Wasdiyanta, 2017). However, the available agricultural land in Indonesia is quite extensive and has not been cultivated perfectly (Suratiyah, 2015). On the other hand, the expansion of the planting area continues to be carried out to increase food production, especially rice (Retnowati et al., 2018). Based on the Center for Agricultural Data and Information Systems (2015), Indonesia is the third largest rice-producing country in the world after China and India, with an average total production in 2009-2013 reaching 67.39 million tonnes. Rice production from Indonesia contributes 9.39 percent to world rice production (Retnowati et al., 2018).

Agricultural Business

A business or company is an organization with existing resources (inputs) combined and processed to provide goods or services that customers need. The goal of most types of business is to maximize profits. Profit is the difference between total revenue and costs incurred to produce goods and services (Warren et al., 2016). The agricultural business is one of the important and profitable business sectors in several regions (Abdullah, 2021). Meanwhile, farming is the process of organizing between production factors in the form of land, labor, capital, and management which aims to produce agricultural commodities (Djamali, 2000).

Farm Business Income

Income is important for someone to meet their daily needs. Everyone tries to have

income so that they can meet all their needs, at least meet their basic needs (Munandar et al., 2020). Farming income is the multiplication between the amount of production and the selling price. Meanwhile, farming costs are all expenditures used in a farming business. Furthermore, the net income of farming is the difference between receipts and expenses (Soekartawi, 2002). The total farm expenses are the value of all inputs that are used up or expended in production but do not include farm family labor. Farming expenses include cash and non-cash expenses. Cash expenditures are expenditures based on the value of money so all expenditures for farming purposes that are paid in kind are not included in cash expenditures (Efendi, 2016).

Farming income consists of gross income and net income. Gross income is all income earned by farmers in farming for one year which can be calculated from the sale or exchange of produce valued in rupiah based on the price per unit weight at the time of harvest. Net income is all income earned by farmers in one year reduced by production costs during the production process (Gustiyana, 2004)

Determinants of Production Costs and Revenue

Farming costs and income are influenced by many factors and are very complex. These factors can be broadly divided into two groups. The first group is internal and external factors, and the second is management factors. Internal and external factors will jointly affect farming costs and income. Internal factors include the farmer's age, education, knowledge, experience and skills, number of family workers, land area, and capital. Meanwhile, external factors are availability, price, demand, and selling price (Suratiyah, 2015). In the research by Saragih et al. (2013), cropping patterns and organic fertilizers partially have a significant effect on vegetable productivity, which will ultimately increase income.

Agricultural Superior Variety Seed Development

The increase in population demands an increase in the productivity of agricultural products. For this reason, it is necessary to make efforts to select and develop superior seeds. The use of superior seeds is one of the determining factors in plant production, not only determining the level of productivity but also the quality of the product produced and the efficiency of the production process (Suryati et al., 2019). The results showed that about 60% of the increase in agricultural crop productivity was determined by the genetic quality of the plant varieties used. In addition to increasing productivity, superior seeds can reduce the risk of yield failure due to drought, disturbance of plant-disturbing organisms, and increase nutrient content (Hasnam, 2007).

The development of seed technology in Indonesia has long been carried out. The National Nuclear Energy Agency (BATAN) is one of the institutions that developed this seed technology. In the seeding of crops, BATAN has enriched the number of national varieties (Batan 1997). An increase in the number of superior varieties is expected to increase productivity, speed up harvest time, be resistant to pests, and have other advantages (Haryanto, 2010). BATAN has so far produced 20 new varieties (Suryati et

al., 2019). Suryati et al. (2019) have also tested rice types, where the use of superior varieties has increased rice productivity and increased farmers' income.

Constraints in Agricultural Business

Even though agriculture is one of the leading sectors in Indonesia, the agricultural business has several obstacles. These obstacles include the low income of farmers as a result of the weak bargaining position of farmers, regional infrastructure, as well as the low quantity, quality, and continuity of production, climate change which often causes drought, weak institutions, and weak farmer organizations (Kasimin, 2013; Basuki, 2014). Fundamental problems are still faced by farmers in the development of horticultural agribusiness in rural areas. These problems are the prices of agricultural production facilities which continue to increase, while the prices of primary agricultural products are very volatile (Saragih and Jef, 2016). Price fluctuations can occur in the short term, namely per month, per week, or even per day, or can also occur in the long term (Pardian et al., 2016). Increased agricultural production that has not been accompanied by a significant increase in income and welfare of farmers in their farming business is another critical problem that is still being faced (Mahubessy et al., 2020).

METHODS

Research sites

The research was conducted in two areas, namely the Karangsari Block, Kuningan Regency and the Argamukti Block, Majalengka Regency. The two blocks are on the slopes at the foot of Gunung Ciremai but are outside the Gunung Ciremai National Park area. Both locations are large vegetable-producing areas in Kuningan and Majalengka Regencies.

Types of Data Collected

The data collected is data related to production activities. These data outline the types of commodities and the costs required from land preparation to harvest. Furthermore, the costs required include fixed costs and variable costs. Fixed costs include land tax, land rent, and equipment depreciation. Variable costs include land preparation costs, purchasing seeds, planting fees, purchasing fertilizers (synthetic and organic), purchasing pesticides, maintenance fees, harvesting fees, buying harvest equipment, and transportation costs (Efendi, 2016; Suryanto & Juniawan, 2018).

Data collection

Data collection was carried out through observation, interviews, and a literature study (Efendi, 2016). Observations were made to determine the condition of farming including types of plants. Interviews were conducted by visiting farmers who were on their farms. The farmers who were used as informants were not farmers who were randomly selected from a list of the farmer population, but every farmer who was directly encountered in the field during data collection. The interview material was

prepared in advance in writing so that the data obtained was relevant to the information needed. The number of informants in the Karangsari block was 108 and in the Argamukti block was 122, bringing the total number of informants to 230 people. The determination of the number of informants is not based on the proportion of the farmer population in the two blocks due to limited information about the total farmer population. The number of informants has met the minimum limit, > 30 informants (Alwi 2012) so that they are considered representative.

Data analysis

Data analysis was carried out in the form of calculations related to production costs and income. The value approach used is the prevailing price. This analysis includes calculating fixed costs, variable costs, total costs, total income, net income, and farming efficiency. The formula for each of these calculations are as follows (Kartasapoetra, 1988; Suratiyah, 2015; Suryanto and Juniawan, 2018; Laiya et al., 2017; Layaman, 2022):

Fixed costs (FC)
FC = tax + equipment depreciation

Variable costs (VC)
VC = Seeds + Fertilizers + Pesticides + Labor + Transportation + Containers

Total cost (TC)
TC = (FC) + (VC)

Total revenue (TR)
TR = (Py).(Y)

Notes:
TR = Total income (Rp)
Py = Commodity price (Rp/Kg)
Y = Amount of production (Kg)

Net income (π)
(π) = TR – TC

Farming efficiency (R/C)
R/C = TR/TC

The criteria for farming efficiency are as follows:
R/C < 1: Farming is not profitable
R/C = 1 : Farming business breaks even
R/C > 1 : Profitable farming and efficient use of production costs.

Data analysis also performs descriptive calculations in the form of mean values

and standard deviations for production, costs, and income variables. The formula used is as follows:

Average value

$$\bar{X} = \frac{\sum X_i}{n}$$

Where

$\bar{X}$ = average value of a variable
Xi = the value of a variable for the i-th participant
n = number of participants

Standard deviation

$$S^2 = \frac{\sum X_i^2 - \frac{(\sum X_i)^2}{n}}{n-1}$$

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

Where

Xi = the value of a variable for the i-th participant
n = number of participants
S^2 = the value of the diversity of a variable
S = standard deviation value of a variable

The mean difference test has been used to identify the level of difference of several variables obtained from the Karangsari Block and the Argamukti Block. The test used is the Mann-Whitney (U) test because the data is not normally distributed, with the help of SPSS software. Furthermore, this study has also identified the effect of the total cost of purchasing synthetic fertilizers (Rp), manure (Rp), and pest and disease control drugs (Rp) on production levels (kg) through multiple regression with a generalized linear model approach. As with the mean difference test, the multiple regression calculations also use SPSS software.

RESULT AND DISCUSSION

1. Plant Commodities

The study was conducted on 230 informants who were farmers, originating from the Argamukti Block, Majalengka Regency, with 122 respondents, and the Karangsari Block, Kuningan Regency, with 108 respondents (Table 1). This study recorded 17 types of agricultural commodities planted around the foot of Gunung Ciremai, of which 14 species were distributed in the Argamukti block and 11 types in the Karangsari block (Table 1). As in other places in the highlands, most of the types of crops grown in the two blocks are vegetables. Only two types are not classified as vegetables, namely corn, and cassava, although cassava leaves and young corn are often used as ingredients for cooking vegetables. Spring onions, cabbage, petsay, chilies, and tomatoes are the most commonly grown types of vegetables in the study area. This research indicates that these types are commodities that are preferred by farmers in farming. However, the results of this study were slightly different from the results of research in Banjarnegara Regency, where petsai and chili peppers were not classified as the types that were widely grown in the highlands (Pujiharto, 2011). The high interest of farmers in the

research location to plant the five types is thought to be due to high demand and easier marketing.

Potatoes are among the types that are widely planted in the Argamukti Block, as in Banjarnegara Regency (Pujiharto, 2011), but little is planted in the Karangsari Block (Table 1). However, this study has not yet obtained accurate information on the factors causing the small number of farmers in the Karangsari block to plant potatoes, although some farmers reasoned that the potato containers in the block are still rare, making it difficult to market them.

Table 1. List of Types of Plants and Number of Informants

No	Types of Plants	Number of Informants		
		Karangsari Block	Argamukti Block	Total
1	Spring onion (bawang daun)	15	43	58
2	Cabbage (kol)	32	19	51
3	Petsay	28	10	38
4	Potato (kentang)	1	18	19
5	Chilli (cabai)	8	9	17
6	Tomatoes (tomat)	7	4	11
7	Ginger (jahe)	9	0	9
8	Red onion (bawang merah)	0	6	6
9	Corn (jagung)	5	0	5
10	Carrot (wortel)	1	3	4
11	Cauliflower (kembang kol)	0	3	3
12	Mustard (sawi)	1	2	3
13	Celery (seledri)	0	2	2
14	Beans (buncis)	0	1	1
15	Red beans (kacang merah)	0	1	1
16	Eggplant (terong)	0	1	1
17	Cassava (singkong)	1	0	1
	Total	108	122	230

2. Production Cost

To determine the costs incurred during one growing season, the components that are taken into account include the costs of purchasing tools, land processing, purchasing fertilizers, purchasing pest and disease control drugs, maintenance, purchasing harvest equipment, and harvest wages. This study obtained the results that the production costs incurred for each type of plant have different magnitudes. In addition to the cultivated area, this difference occurs due to several factors such as the cost of seeds, fertilizers, pest and disease control, and labor (Mahubessy et al., 2020). Although varied, the difference in fixed costs between types of crops is not large; a minimum of IDR 66,142 and a maximum of IDR 222,348. However, the difference in costs for variable costs is quite large; a minimum of IDR 1,464,500 and a maximum of IDR 13,572,950 (Table 2). In this study, the costs that are calculated are costs incurred, land owners or cultivators are not included in the calculation of labor costs.

Table 2 Average Fixed Costs and Variable Costs for each Type of Plant

No	Types of Plants	Fixed Cost (Rp)	Variable Cost (Rp)	Total Cost (Rp)
1	Spring onion	92,154	8,603,534	8,695,688
2	Cabbage	116,324	5,066,546	5,182,869
3	Petsay	89,150	3,508,625	3,597,775
4	Potato	130,918	13,572,950	13,703,868
5	Chilli	103,232	5,946,265	6,049,497
6	Tomatoes	222,348	7,983,227	8,205,576
7	Ginger	66,142	8,491,222	8,557,364
8	Red onion	96,574	9,048,500	9,145,074
9	Corn	85,000	8,370,200	8,455,200
10	Carrot	83,604	5,203,625	5,287,229
11	Cauliflower	85,000	2,329,667	2,414,667
12	Mustard	86,667	2,900,500	2,987,167
13	Celery	97,500	1,464,500	1,562,000
14	Beans	181,667	7,611,000	7,792,667
15	Red beans	90,167	2,668,250	2,758,417
16	Cassava	88,333	5,910,000	5,998,333
17	Eggplant	150,000	1,645,375	1,795,375
	Average	106,555	6,814,549	6,921,104

The average combined production cost of all commodities from the two research sites in one growing season was Rp. 6,921,104.00 (S = 8,265,418.07; n = 230). If the combined production costs of all commodities from the two locations are compared, then there is a significant difference (U = 5310; P = 0.011) between the production costs in the Argamukti Block (mean = 7,949,345.43; S = 9,653,709.04; n = 122) with Karangsari Block (mean = 5,759,571.73; S = 6,185,180,54; n = 108). The average production cost in the Argamukti block which is higher than in the Karangsari block indicates that agriculture in the Argamukti block is more intensive than in the Karangsari block. Some farmers in the Argamukti block have used land processing machines, while farmers in the Karangsari block have not used these machines.

Table 3. Average production costs (Rp) and total revenue in one growing season for each respondent for each type of plant and cultivated land in the Argamukti Block, Majalengka Regency and Karangsari Block, Kuningan Regency

No	Types of Plants	Argamukti Block		Karangsari Block		Combined Production Costs (Rp)	Combined Total Revenue (Rp)
		Production Cost (Rp)	Total Revenue (Rp)	Production Cost (Rp)	Total Revenue (Rp)		
1	Spring onion	9,249,838	14,199,079	7,107,126	10,716,667	8,695,688	13,298,455
2	Cabbage	5,836,315	18,184,737	4,794,886	7,675,000	5,182,869	11,590,392
3	Petsay	3,114,747	5,145,500	3,770,285	6,292,500	3,597,775	5,990,658
4	Potato	14,245,997	20,693,167	3,945,556	6,660,000	13,703,868	19,954,579
5	Chilli	5,605,352	24,118,167	6,549,160	20,331,250	6,049,497	22,336,088
6	Tomatoes	5,079,458	9,680,000	9,991,929	9,079,286	8,205,576	9,297,727
7	Ginger			8,557,364	6,975,556	8,557,364	6,975,556
8	Red onion	9,145,074	14,541,667			9,145,074	14,541,667

9	Corn			8,455,200	7,480,000	8,455,200	7,480,000
10	Carrot	6,432,000	16,550,000	1,852,917	3,000,000	5,287,229	13,162,500
11	Cauliflower	2,414,667	5,746,667			2,414,667	5,746,667
12	Mustard	2,982,417	1,375,000	2,996,667	500,000	2,987,167	1,083,333
13	Celery	1,562,000	16,112,500			1,562,000	16,112,500
14	Beans	7,792,667	14,625,000			7,792,667	14,625,000
15	Red beans	2,758,417	6,000,000			2,758,417	6,000,000
16	Cassava			5,998,333	10,500,000	5,998,333	10,500,000
17	Eggplant	1,795,375	6,500,000			1,795,375	6,500,000
	Average (Rp)	7,949,345	15,180,540	5,759,572	8,607,269	6,921,104	12,093,960

The commodity that requires the highest average production cost is potato, which is Rp. 13,703,868.00/farmer/season (Table 3). However, this value is lower than the cost of planting potatoes in Merek Village, Karo Regency, which is Rp. 17,099,180.00/petani/season (Gultom & Gea, 2020). Meanwhile, the average cost incurred by each potato farmer in Getasan District, Semarang Regency is around Rp. 9,395,900.00/season (Hanif et al. 2019). One of the causes of high production costs for this type of potato is the high cost of purchasing seeds, which can reach 60% of the total production costs. Capacity building for farmers in potato seeding techniques is needed to reduce the cost of purchasing seeds (Pratama & Febrianti 2019). Research has noted that the price of potato seeds can reach Rp. 45,000/kg. Another source stated that the price of seeds for G4 in some places was around Rp. 20,000/kg (Pratama & Febrianti 2019).

Meanwhile, the commodity that requires the lowest production cost is celery, which is Rp. 1,562.000,00/farmer/planting season (Table 3). When compared with costs elsewhere, these costs are not much different from those in Pancasari Village, Sukasada District, Buleleng, where the average production cost required for each arable land is Rp. 1,398,933.60/planting season (Pande et al, 2020). This study also shows that potato is an agricultural commodity that requires the most capital, while celery is a commodity that requires the lowest capital. In other words, potato cultivation is more suitable for farmers with large capital, while celery is for farmers with small capital. The high amount of capital that must be owned is also suspected to be another cause of the small number of farmers in the Karangsari block who grow potatoes.

Chili is a type that is widely planted, with an average production cost of Rp. 6,049,497.00/farmer/planting season. However, this production cost is much different from that in Waiheru Village, Teluk Ambon Baguala Subdistrict, where the average production cost for planting chilies is Rp.48,900.00/farmer/planting season (Mahubessy et al. 2020). Apart from the factors mentioned in the paragraph above, this difference is also thought to be due to differences in land area.

3. Production

The combined average production of all commodities from all research locations in one growing season was 2,928.21 kg/cultivated land (S = 3221.51; n = 230). Furthermore, the average combined production of all commodities between the two study locations was not significantly different (U = 6286.500; P = 0.548); the average production in the Karangsari block was 3,134.44 kg (S = 3,352.77; n = 108) and in the Argamukti block, it was 2,745.64 kg (S = 3,103.11; n = 122). The commodity with the

lowest average production was chili, which was 882 kg/cultivated land (Table 4). In the research by Mahebessy et al. (2020) in Waiheru Village, Teluk Ambon Baguala District, the average chili production is around 194.29 kg/cultivated land. Meanwhile, the commodity that had the highest average production besides cassava was tomato, which was 6,020 kg/cultivated land (Table 4). For the tomato commodity, the average production in Kaisabu Baru Village, Sorawolio District, Baubau City is around 940 kg/cultivated land (Wulandari et al., 2019), and in Babulu Darat Village, Babulu District, North Penajam Paser Regency, around 3,950 kg/cultivated land (Wahyuni, 2013). These data inform that the production of chilies and tomatoes in the research location is higher than in other locations.

Table 4. Average production (Kg) of each cultivated land for each type of plant in one growing season in the Argamukti Block, Majalengka Regency, and the Karangsari Block, Kuningan Regency

No	Types of Plants	Production Average (Kg)		Average Production of All Locations (Kg)
		Argamukti Block	Karangsari Block	
1	Cassava		7,000.00	7,000.00
2	Tomatoes	9,625.00	3,960.00	6,020.00
3	Cabbage	3,439.47	3,603.13	3,542.16
4	Petsay	1,975.00	3,980.36	3,452.63
5	Carrot	4,166.67	1,000.00	3,375.00
6	Spring onion	2,805.47	2,420.00	2,705.78
7	Ginger		2,686.67	2,686.67
8	Celery	2,495.00		2,495.00
9	Potato	2,528.33	900.00	2,442.63
10	Beans	2,250.00		2,250.00
11	Corn		1,780.00	1,780.00
12	Red beans	1,500.00		1,500.00
13	Mustard	1,750.00	1,000.00	1,500.00
14	Red onion	1,095.83		1,095.83
15	Eggplant	1,000.00		1,000.00
16	Cauliflower	895.00		895.00
17	Chilli	1,135.89	596.25	881.94
	Average (Kg)	2,745.64	3,134.44	2,928.21

4. Total Revenue

Total revenue is the result of sales of the commodities cultivated. The average sales of all types of commodities from all research locations in one planting season is Rp. 12,093,960.00 (S = 15,512,694.46; n = 230). By comparing the two research locations, there was a significant difference in sales results between the Argamukti block and the Karangsari block (U = 4,621; P = 0.000), where the average sales proceeds in the Argamukti block were Rp. 15,180,540.16 (S = 18,507,285.29; n = 122), while in the Karangsari Block it was Rp. 8,607,268.51 (S = 10,225,167.37; n = 108). The commodity with the lowest average sales yield was mustard greens, which was Rp. 1,083,333.00, while the largest was chili, which was Rp. 22,336,088.00 (Table 3). In Waiheru Village, Teluk Ambon Baguala District, the average sales yield from chili was

Rp. 6,800,150.00/farmer/planting season, while mustard greens were Rp. 3,559,005/farmer/planting season (Mahubessy et al., 2020). In Darussalam District, Aceh Besar Regency, the average income of farmers from selling mustard greens is Rp. 1,934,602/farmer/planting season (Azzura et al., 2017). These data show that revenue from sales of chili peppers is generally greater than income from sales of mustard greens.

5. Net Income

Net income is the result of deducting from sales results from the total costs incurred starting from land preparation, the production process, and harvesting. The average net income of all commodities from the two study locations was Rp. 5,172,856.56 (S = 11,676,664.94; n = 230), but often experienced losses of up to Rp. 10,271,667.00 if prices were down. The average income in the Karangsari Block is Rp. 2,847,696.78 (S = 8,233,649.00; n = 108), while in the Argamukti Block, it was Rp. 7,231,194.72 (S = 13,747,507.99; n = 122), and the two are significantly different (U = 4858.50; P = 0.001). The results of this study indicate that the average income of farmers in the Karangsari block is lower than that in the Argamukti block.

The type that had the highest average net income was chili (Rp. 16,286,591.00) followed by celery (Rp. 14,550,500.00). As previously mentioned, chili also has an average production cost that is below the average production cost of all commodities. This indicates that the cost of chili production is relatively cheap and has a large profit opportunity. Of the 17 respondents who planted chilies, only 1 person experienced a loss (Table 6). This also indicates the large profit opportunities from growing chilies. Meanwhile, the commodity that provided the lowest net income was mustard greens, which was (-) Rp. 1,903,834.00 (Table 5). However, the results of this study are different from the results of research in Karangmukti Village, Salawu District, Tasikmalaya Regency, where net income from planting mustard greens is positive (Gunawan et al., 2017). This also indicates that mustard greens can be profitable if it is done efficiently and the selling price is at the normal farmer level.

Table 5. Average Net Income (Rp) for each respondent for each type of plant in one growing season in the Argamukti Block, Majalengka Regency and the Karangsari Block, Kuningan Regency

No	Types of Plants	Average Net Income (Rp)		Average Net Income of All Locations (Rp)
		Argamukti Block	Karangsari Block	
1	Chilli	18,512,815	13,782,090	16,286,592
2	Celery	14,550,500		14,550,500
3	Carrot	10,118,000	1,147,083	7,875,271
4	Beans	6,832,333		6,832,333
5	Cabbage	12,348,422	2,880,114	6,407,523
6	Potato	6,447,170	2,714,444	6,250,711
7	Red onion	5,396,593		5,396,593
8	Eggplant	4,704,625		4,704,625
9	Spring onion	4,949,242	3,609,541	4,602,767
10	Cassava		4,501,667	4,501,667
11	Cauliflower	3,332,000		3,332,000
12	Red beans	3,241,583		3,241,583

13	Petsay	2,030,753	2,522,215	2,392,883
14	Tomatoes	4,600,542	- 912,643	1,092,152
15	Corn		- 975,200	- 975,200
16	Ginger		- 1,581,809	- 1,581,809
17	Mustard	-1,607,417	- 2,496,667	- 1,903,833
	Average (Kg)	**7,231,195**	**2,847,697**	**5,172,857**

Farmers based on interview results often experience losses. The study recorded that 86 respondents (37.39%) experienced losses out of a total of 230 respondents. Respondents who planted petsay and tomatoes experienced losses more than those who received profits (Table 6). Losses generally occur because prices fall during the harvest season and some occur due to crop failure. The number of farmers who grow parsley and tomatoes suffer more losses than those who earn profits. The research results of Tanaya et al. (2020) in North Lombok Regency, where tomatoes are one of the commodities that have the greatest production risk based on income. Based on the results of interviews, the price of petsay can reach Rp. 300.00/kg and tomatoes Rp. 1,500.00/kg.

Table 6. The number of respondents who experienced profit and loss based on the species planted in the Argamukti Block and Karangsari Block

No	Types of Plants	Argamukti Block		Karangsari Block		Total		Total
		Profit	Loss	Profit	Loss	Profit	Loss	
1	Spring onion	31	12	10	5	41	17	58
2	Cabbage	13	6	18	14	31	20	51
3	Petsay	4	6	10	18	14	24	38
4	Potato	13	5	1		14	5	19
5	Chilli	9		7	1	16	1	17
6	Tomatoes	2	2	2	5	4	7	11
7	Ginger			5	4	5	4	9
8	Red onion	5	1			5	1	6
9	Corn			2	3	2	3	5
10	Carrot	3		1		4	0	4
11	Cauliflower	2	1			2	1	3
12	Mustard		2		1	0	3	3
13	Celery	2				2	0	2
14	Beans	1				1	0	1
15	Red beans	1				1	0	1
16	Cassava			1		1	0	1
17	Eggplant	1				1	0	1
	Total	**87**	**35**	**57**	**51**	**144**	**86**	**230**
	Prosentase					**62,61**	**37,39**	**100**

6. Farming Efficiency (R/C)

The ratio of sales results to production costs can be used to determine the level of efficiency of the farming business (Efendi 2016). In other words, the greater the value

of the ratio, the greater the level of efficiency or profit. This study found that celery has the highest ratio value compared to other types (Table 7). This type of celery is not included in the type that is widely planted by farmers. This study is in line with the results of research in the Saring Sei Binjai Village, Tanah Bumbu Regency, where the efficiency value for this type of celery is 19.26 (Bahrun, 2015). However, this study is much different from the results of research in Pancasari Village, Buleleng Regency, where the efficiency value is 1.88 (Pande et al., 2020). The difference in the ratio is thought to be due to differences in harvesting methods, although the method of harvesting in Pande's study was not mentioned. The harvest method at the research location was carried out by crushing the branches of each celery plant, not pulling it out all at once, so that it could be harvested several times.

Table 7. Average Ratio of Sales Results to Costs of each respondent for each type of plant in the Argamukti Block, Majalengka Regency and Karangsari Block, Kuningan Regency

No	Types of Plants	Ratio of Sales Results to Production Costs (R/C)		Total
		Argamukti Block	Karangsari Block	
1	Celery	10.24		10.24
2	Eggplant	3.62		3.62
3	Chilli	4.21	2.75	3.52
4	Cabbage	3.58	2.53	2.92
5	Cauliflower	2.68		2.68
6	Petsay	3.32	1.89	2.26
7	Red beans	2.18		2.18
8	Beans	1.88		1.88
9	Carrot	1.84	1.62	1.78
10	Cassava		1.75	1.75
11	Spring onion	1.75	1.39	1.65
12	Red onion	1.61		1.61
13	Potato	1.54	1.69	1.55
14	Tomatoes	1.71	0.98	1.25
15	Corn		0.90	0.90
16	Ginger		0.89	0.89
17	Mustard	0.58	0.17	0.44
	Average	**2.47**	**1.86**	**2.18**

Meanwhile, of the 6 types of plants that were planted the most (Table 1), the type with the highest ratio was chili, then cabbage and petsay, but the value was still far below celery (Table 7). Although relatively large, the efficiency value for chili in this study is far below the efficiency value of chili cultivation in Waiheru Village, Teluk Ambon Baguala District, with a value of 13.91 (Mahubessy et al., 2020).

Tomatoes are also classified as the most widely planted plant species but have a low-efficiency value of 1.25. This value is smaller than the results of Efendi's research (2016) in Mandesan Village, Selopuro District, Blitar Regency, which is 1.8. These results indicate that agricultural activities for tomato species in the research location are less efficient than those in Mandesan Village. In addition, the results of this study also

show that celery cultivation is the most efficient and has a low risk of loss compared to other types. However, the number of samples for this type of celery from this study was only 2 pieces so further research on the same type with more numbers is also needed to obtain more valid data.

Ginger, corn, and mustard based on the research results are classified as inefficient plant species, with an efficiency value of < 1. However, this result is different from the results of research in Kertajaya Village, Panawangan District, Ciamis Regency, where the efficiency value of ginger is 2.73 (Saadudin et al., 2017) or in Cijulang Village, Central Jampang District, Sukabumi Regency, where the efficiency value of ginger is 3.1 (Rosadi et al., 2020). The efficiency value for corn in Pongongaila Village, Gorontalo Regency is 1.92 (Abdullah, 2021) and in Labae Village, Cita District, Soppeng Regency is 2.7 (Suyanti et al., 2020). In fact, in Bitefa Village, East Miomaffo District, TTU Regency, the efficiency value for corn reaches 24.85 (Kune, 2017). Research by Azzura et al. (2017) in Darussalam District, Aceh Besar District, obtained an efficiency value for mustard greens of 1.76, while the results of research by Gunawan et al. (2017) in Karangmukti Village, Salawu District, Tasikmalaya Regency of 4.3. The description shows that the cultivation of ginger, corn, and mustard can be profitable as long as it is carried out carefully and there is a reduction in costs that have no significant effect on production.

Price also greatly affects the value of efficiency. In the study of Azzura et al. (2017), planting mustard greens has an efficiency value of > 1 because the selling price of mustard greens is Rp. 4,200/kg. Meanwhile, the price at the research site is Rp. 500 – 1,000/kg. If the price of mustard greens at that time was Rp.4000/kg, then the farmers in the Karangsari block and the Argamukti block would also have an efficiency value of > 1 so that they would benefit. Therefore, in addition to efficiency in production costs, prices also play an important role in the income level of farmers.

7. Break Even Point

The break-even point for capital (BEP) is a condition that describes the results of farming obtained equal to the capital issued (Sunarjono, 2000). At this point, farming does not make a profit when viewed from income and does not experience losses and profits (Efendi, 2016). The average break-even point for production prices of all types of commodities combined is Rp. 3,880.00/kg (S = 4,495.95; n = 230). If grouped by study location block, the average combined minimum price for all commodities in the Karangsari Block is Rp. 3,614.50/kg (S = 5,445.77; n = 108), while in the Argamukti block it is Rp. 4,115.05/kg (S = 3,451.34; n = 122) and the two were significantly different (U = 4,921.00; P = 0.001).

The type that has the lowest average production price break-even point is celery, which is Rp. 649.00/kg (Table 8). This value is much lower than the results of the research by Pande et al. (2020) in Pancasari Village, Sukasada District, Buleleng Regency, where the celery break-even point is Rp. 3,926/kg and the results of Bahrun's research (2015) in Saring Sei Binjai Village, Kusan Hilir District, Tanah Bumbu Regency, where the celery break-even point is Rp.2,598 /kg. Meanwhile, the type that has the highest break-even point in this study is chili, which is Rp. 12,626.00/kg (Table 8). In the research by Mahebessy et al. (2020) in Waiheru Village, Teluk Ambon Baguala District, the chili break-even point is Rp. 2,517/kg. This value is 5 times lower than the results of this study.

Tomatoes, which in this study were one of the types of plants most in demand by farmers for planting, had an average break-even point of Rp. 4,119.00/kg (Table 8). However, this research is different from the results of Efendi's research (2016) in Mandesan Village, Selopuro District, Blitar Regency, where the break-even point is Rp. 2,734/kg. This also shows that planting tomatoes in research locations can be done efficiently so that the total costs incurred can be reduced.

Table 8. Breakeven Points of Production Prices for Agricultural Plants in the Argamukti Block, Majalengka Regency and the Karangsari Block, Kuningan Regency

No	Jenis	Cost to production ratio (Rp/Kg)		The combined ratio of all locations (Rp/Kg)
		Argamukti Block	Karangsari Block	
1	Chili	9,180	16,503	12,626
2	Red onion	9,039		9,039
3	Potato	6,660	4,384	6,540
4	Tomatoes	802	6,014	4,119
5	Corn		4,026	4,026
6	Cauliflower	3,972		3,972
7	Ginger		3,906	3,906
8	Spring onion	3,396	3,759	3,490
9	Beans	3,463		3,463
10	Carrot	2,449	1,853	2,300
11	Mustard	1,815	2,997	2,209
12	Cabbage	2,374	1,525	1,842
13	Red beans	1,839		1,839
14	Eggplant	1,795		1,795
15	Petsay	1,966	1,631	1,719
16	Cassava		857	857
17	Celery	649		649
	Total	4,115	3,614	3,880

7. Dominant Factors that Determine Production

Farmers to increase their production will apply fertilization and control of pests and diseases. The fertilizers used are synthetic fertilizers which are often referred to as chemical fertilizers and manure which are often also referred to as basic fertilizers. Multiple linear regression analysis was carried out to test the effect of fertilization and pest control on production. Research has found that two variables together have a significant effect on commodity production. The two variables are basic fertilizer application (P = 0.000) and pest control (P = 0.000) (Table 9). Both of these variables have a positive influence on the amount of agricultural production.

Table 9. Test of the dominant factors that influence the production (kg) of agricultural commodities in the Karangsari Block and the Argamukti Block

Parameter	B	Wald Chi-Square	df	Sig.
(Intercept)	1,203.629	30.253	1	0.000
Cost of basic fertilizer (Rp)	0.001	50.805	1	0.000
Cost of synthetic fertilizers (Rp)	0.000	1.621	1	0.203
Pest and disease control costs (Rp)	0.001	19.736	1	0.000

The results of this study are in line with the results of research by Saragih et al. (2013) in Purba District, Simalungun Regency in terms of providing organic fertilizers and synthetic fertilizers, but not in line with efforts to eradicate pests and diseases. Eradication of pests and diseases in Purba District, Simalungun Regency has no significant effect (Saragih et al., 2013). These results indicate that farmers in increasing their agricultural production should focus on the use of manure and control of pests and diseases. The use of manure has several advantages. Manure is easier to obtain and cheaper than synthetic fertilizers. In addition, manure can add organic matter to the soil which is needed by soil microorganisms.

Implications

One of the problems that farmers often face is unstable product prices (Laila et al., 2017; Djakfar et al., 2019), often even reaching below the break-even point. Under these conditions, farmers often wait for prices they deem profitable. Therefore, the results of research related to the break-even point can be used as a reference for farmers to make sales decisions. Another problem faced by farmers is the limited information on the efficiency value of each type of commodity. Research results related to farming efficiency can help farmers choose the types of commodities to be planted.

The role of the government is also very necessary for unstable prices. The government through regional agricultural extension officers needs to provide input to farmers regarding the types that should be planted so that there is no accumulation of certain types during the harvest season. A large number of products can be a trigger for lower prices (Saleh et al., 2022). Another activity that needs to be done is to provide counseling to farmers regarding efficient farming methods (Respikasari et al., 2015). It is also necessary to provide post-harvest processing training on a household or group scale for certain types (Jumiati et al., 2023) so that product value can increase (Merlinda et al., 2021) especially when the price of pre-processed products decreases (Nauly et al., 2022).

Farmers also have problems related to synthetic fertilizers, especially subsidized ones. Today, on the one hand, farmers' dependence on synthetic fertilizers is getting higher (Medah & Bahar, 2018; Hidayat et al., 2020; Abdullah et al., 2023) because one of the reasons is the fear of crop failure from farmers if do not use this type of fertilizer (Mansyur, 2016). On the other hand, the availability of synthetic fertilizers is experiencing scarcity due to various factors such as reduced quotas by the government, production volume, and excessive use (Darwis and Saptana 2010; Kautsar et al., 2020). Meanwhile, based on the results of this study, the use of synthetic fertilizers has a smaller effect on crop production when compared to the use of manure. Therefore, the results of this study can be valuable information for farmers. Farmers do not need to worry about the scarcity of synthetic fertilizers and simply switch to using manure or other organic fertilizers.

To independently meet the need for manure, a government program in the form of livestock assistance to farmers needs to be carried out because not all farmers have livestock. The livestock given can be goats. Taking livestock feed in the form of grass can be done after the farmers have worked so that it does not interfere with farming activities. Applying manure will also help restore soil damage due to excessive use of synthetic fertilizers (Rosalina et al., 2021). In the end, this program will become an environmentally friendly agricultural program (Artawan et al., 2017). To support the program, training is needed to increase farmers on environmentally friendly agriculture

(Mariyono 2015). In the end, besides being able to reduce dependence on synthetic fertilizers, the use of manure derived from livestock itself can also reduce production costs and increase net income.

CONCLUSION

Production costs for each type of commodity show varying values. The commodity that requires high production costs is potatoes and the lowest is celery. The commodities that are classified as efficient in their production process are celery, eggplant, chili, and cabbage so these types can be a priority, especially for farmers who have limited capital. The use of manure and pest and disease control are factors that have a positive effect on production, so these two factors should be a concern for farmers to increase their production. This study has several limitations, namely: the number of informants for each commodity varies, the units used in relation to production are informants, not land area, and have not accommodated intercropping plants so further research is needed to improve these limitations.

Acknowledgment.

Thank you to the Director of Research, Technology and Community Service (DRTPM), Directorate General of Higher Education, Research and Technology, Ministry of Education, Culture, Research and Technology who has provided funding for this research through the 2022 Assignment Research Program. Thanks also go to the Head of Karangsari Village, Kuningan Regency, and the Head of Argamukti Village, Majalengka Regency, who have granted research permits in their administrative area.

REFERENCES

Abdullah, A. A., Imran, S., & Sirajuddin, Z. (2023). Adopsi inovasi pupuk organik untuk pengelolaan lingkungan berkelanjutan di Kecamatan Tilongkabila Provinsi Gorontalo. *Jurnal Ilmiah Membangun Desa dan Pertanian (JIMDP)*, *8*(3), 102-109. https://doi.org/10.37149/JIMDP.v8i3.362

Abdullah, M. K. (2021). Implementasi perhitungan biaya produksi usaha tani jagung (studi penelitian di Dusun Tumba, Desa Pongongaila, Kecamatan Pulubala). *Jurnal Cafetaria*, *2*(2), 91-97. https://doi.org/10.51742/akuntansi.v2i2.362

Alwi, I. (2012). Kriteria empirik dalam menentukan ukuran sampel pada pengujian hipotesis statistika dan analisis butir. *Jurnal Formatif*, *2*(2), 140-148. http://dx.doi.org/10.30998/formatif.v2i2.95

Artawan, I. W. B., Astiti, N. W. S, & Sudarta, W. (2017). Tingkat pengetahuan petani dalam penggunaan pupuk organik dan penerapannya pada budidaya tanaman padi sawah (Kasus di Subak Penarungan, Kecamatan Mengwi, Kabupaten Badung). *E-Jurnal Agribisnis dan Agrowisata*, *6*(4), 505-512. https://doi.org/10.24843/JAA.2017.v06.i04.p05

Azzura, D., Marsudi, E., & Usman, M. (2017). Analisis pendapatan usahatani sayur-sayuran dan faktor-faktor yang mempengaruhinya di Kecamatan Darussalam Kabupaten Aceh Besar. *Jurnal Ilmiah Mahasiswa Pertanian Unsyiah*, *2*(3), 92-105. https://doi.org/10.17969/jimfp.v2i3.3958

Bahrun. (2015). Kegiatan dan pendapatan usaha tani seledri (*Apium gravioles* L) di Desa Saring Sei Binjai Kecamatan Kusan Hilir Kabupaten Tanah Bumbu Provinsi

Kalimantan Selatan. *Ziraa'ah*, *40*(3), 198-202. http://dx.doi.org/10.31602/zmip.v40i3.233

Basuki, R.S. (2014). Identifikasi permasalahan dan analisis usahatani bawang merah dataran tinggi pada musim hujan di Kabupaten Majalengka. *Jurnal Hortikultura*, *24*(3), 266-275. https://repository.pertanian.go.id/handle/123456789/732

[BATAN] Badan Tenaga Nuklir Nasional. (1997). Undang Undang Nomor 10 Tahun 1997 tentang Ketenaganukliran. Jakarta.

[BPS] Badan Pusat Statistik. (2022). Persentase Tenaga Kerja Informal Sektor Pertanian (Persen), 2019-2021. https://www.bps.go.id/indicator/6/1171/1/persentase-tenaga-kerja-informal-sektor-pertanian.html. (diunduh pada tanggal 20 Juli 2022).

Darwis, V., & Saptana. (2010). Rekonstruksi kelembagaan dan uji teknologi pemupukan: Kebijakan strategis mengatasi kelangkaan pupuk. *Analisis Kebijakan Pertanian, 8*(2), 167-186. 10.21082/akp.v8n2.2010.167-186

Djakfar, M., Khasanah, U., & Meldona. (2019). Studi inovasi dan praktik akad ganda sistem keuangan islam tradisional berbasis fatwa ulama lokal. *Al-Amwal: Jurnal Ekonomi Dan Perbankan Syari'ah*, *11*(2), 241-258. 10.24235/amwal.v11i2.5188

Djamali, A.R. (2000). Manajemen Usaha Tani. Jurusan Manajemen Agribisnis, Politeknik Negeri Jember. Jember.

Efendi, Y. (2016). Analisis usahatani tomat (*Lycopersicon esculentum* Mill) di Desa Mandesan Kecamatan Selopuro Kabupaten Blitar. *Journal Viabel Pertanian*, *10*(2), 51-61. https://doi.org/10.35457/viabel.v10i2.143

Gultom, L.S., & Gea, D.Z. (2020). Analisis agribisnis kentang (*Solanum tuberosum* L) Desa: Merek, Kecamatan Merek, Kabupaten Karo, Provinsi Sumatera Utara. *Jurnal Darma Agung*, *28*(2), 178-186. http://dx.doi.org/10.46930/ojsuda.v28i2.616

Gunawan, S.S., Soetoro, & Sudradjat. (2017). Analisis biaya, pendapatan dan R/C usahatani sawi pahit (*Brassica juncea*) (Studi Kasus pada Kelompok Tani Panorama Tani Makmur Desa Karangmukti Kecamatan Salawu Kabupaten Tasikmalaya). *Agroinfo Galuh*, *4*(1), 577-580. http://dx.doi.org/10.25157/jimag.v4i1.1600

Gustiyana, H. (2004). Analisis Pendapatan Usahatani untuk Produk Pertanian. Jakarta: Salemba Empat.

Hanif, M. A., Marwanti, S., & Rahayu, W. (2019). Analisis ekonomi dan strategi pengembangan usahatani kentang di Kecamatan Getasan. *Agrista*, *7*(4), 72-82.

Haryanto. (2010). Respon galur mutan padi sawah berumur genjah terhadap berbagai takaran pupuk NPK dan pengairan. *Jurnal Ilmiah Aplikasi Isotop dan Radiasi*, *6*(1), 69–85. http://dx.doi.org/10.17146/jair.2010.6.1.512

Hasnam. (2007). Status perbaikan dan penyediaan bahan tanaman jarak pagar (*Jatropha curcas* L). Prosiding Lokakarya II Status Teknologi Tanaman.

Hidayat, R. A., Iskandar, J., Gunawan, B., & Partasasmita, R. (2020). Impact of green revolution on rice cultivation practices and production system: A case study in Sindang Hamlet, Rancakalong Village, Sumedang District, West Java, Indonesia. *Biodiversitas*, *21*(3), 1258-1265. 10.13057/biodiv/d210354

Jumiati, Hasriani, Hamzah, Laya, M. A. H., Fajrina, F., Wantoro, B. H., & Yuliana. (2023). Pelatihan penanganan panen dan pasca panen pada Kelompok Tani Mamampang penghasil cabai organik di Kota Makassar. *To Maega: Jurnal*

Pengabdian Masyarakat, *6*(2), 234-243. http://dx.doi.org/10.35914/tomaega.v6i2.1577

Kartasapoetra. (1988). Teknologi Budaya Tanaman Pangan di Daerah Tropis. Jakarta: Bina Aksara

Kasimin, S. (2013). Keterkaitan produk dan pelaku dalam pengembangan agribisnis hortikultura unggulan di Propinsi Aceh. *Jurnal Manajemen dan Agribisnis*, *10*(2), 117-127. https://doi.org/10.17358/jma.10.2.117-127

Kautsar, M. R., Sofyan, & Makmur, T. (2020). Analisis kelangkaan pupuk bersubsidi dan pengaruhnya terhadap produktivitas padi (*Oryza sativa*) di Kecamatan Montasik Kabupaten Aceh Besar. *Jurnal Ilmiah Mahasiswa Pertanian*, *5*(1), 97-107.

Kune, S.J. (2017). Analisis pendapatan dan keuntungan relatif usahatani jagung di Desa Bitefa Kecamatan Miomaffo Timur Kabupaten TTU Simon Juan Kunea. *Agrimor*, *2*(2), 23-24. https://doi.org/10.32938/ag.v2i02.271

Kurniawati, S. (2020). Kinerja sektor pertanian di Indonesia. *Prosiding Seminar Akademik Tahunan Ilmu Ekonomi dan Studi Pembangunan* 2020. Pp.24-31.

Laila, A. N., Anindita, R., & Koerniawati, T. (2017). Analisis volatilitas harga sayuran di Jawa Timur. *Pertanian dan Agribisnis (JEPA)*, *1*(2), 143-154. 10.21776/ub.jepa.2017.001.02.7

Laiya, R. H., Murtisari, A., & Boekoesoe, Y. (2017). Analisis keuntungan petani pada usahatani jagung hibrida di Desa Daenaa Kecamatan Limboto Barat Kabupaten Gorontalo. *Agrinesia*, *2*(1), 56-64.

Layaman, L. (2022). *Statistika; Aplikasi Dalam Penelitian Manajemen* (No. r2beq). Center for Open Science.

Layaman, Robbani & Haffidza, F. (2020). Literation and financial inclusion among creative economic msmes; a comparative study. *Al-Amwal: Jurnal Ekonomi Dan Perbankan Syari'ah*, *12*(2), 181-190. https://doi.org/10.24235/amwal.v12i2.6374

Mahubessy, M., Pattiselanno, A. E., & Matitaputty, I.T. (2020). Analisis faktor-faktor yang mempengaruhi pendapatan petani sayur di Desa Waiheru Kecamatan Teluk Ambon Baguala. *AGRILAN: Jurnal Agribisnis Kepulauan*, *8*(1), 26-39. http://dx.doi.org/10.30598/agrilan.v8i1.949

Majidah, Z., Sukidin, & Hartanto, W. (2021). Peranan sektor pertanian dalam pembangunan ekonomi Kabupaten Jember (ditinjau dari PDRB, penyerapan tenaga kerja dan indeks harga konsumen). *Jurnal Pendidikan Ekonomi: Jurnal Ilmiah Ilmu Pendidikan, Ilmu Ekonomi, dan Ilmu Sosial*, *15*(1), 97-102. https://doi.org/10.19184/jpe.v15i1.18482

Mansyur, F. (2016). Tingkat Pengetahuan Petani terhadap Dampak Negatif Penggunaan Pupuk Anorganik terhadap Produksi Padi di Desa Kalukuang Kecamatan Galesong Kabupaten Takalar. Makasar: Fakultas Pertanian Universitas Muhammadiyah Makassar.

Mariyono, J. (2015). Green revolution- and wetland-linked technological change of rice agriculture in Indonesia. *Management of Environmental Quality: An International Journal*, *26*(5), 683-700. http://dx.doi.org/10.1108/MEQ-07-2014-0104

Marliati, Sumardjo, Asngari, P. S., Tjitropranoto, P., & Saefuddin, A. (2010). Faktor-faktor yang berpengaruh terhadap kemandirian petani tanaman pangan beragribisnis di Kabupaten Kampar, Provinsi Riau. *Forum Pascasarjana*, *33*(3), 221-228.

Merlinda, S., Purnamasari, V., Suwanan, A. F., & Munir, S. (2021). Mukhabarah: profit loss sharing financing scheme in agricultural land management (Study in Tumpang District). *Al-Amwal: Jurnal Ekonomi dan Perbankan Syari'ah*, *13*(2), 268-278. 10.24235/amwal.v%vi%i.9121

Munandar, A., Mahrani, & Mashadi. (2020). Analisis pendapatan petani karet di Desa Gunung Kesiangan Kecamatan Benai Kabupaten Kuantan Singingi. *Jurnal Green Swarnadwipa*, *9*(2), 178-184.

Nauly, D., Gustia, H., Rosdiana, Yuningsih, Y., & Dwiputro, H. (2022). Peningkatan Pengetahuan Petani melalui Penyuluhan Pascapanen Cabai pada Kelompok Tani Kebun Berseri, Bintaro, Jakarta Selatan. *Agrokreatif, 8*(2), 204-211. https://doi.org/10.29244/agrokreatif.8.2.204-211

Pande, N. M. V. D. S., Dewi, R. K., & Dewi, I. A. L. (2020). Pendapatan usahatani seledri (*Apium graviolens* L) di Desa Pancasari Kecamatan Sukasada Kabupaten Buleleng. *Jurnal Agribisnis dan Agrowisata*, *9*(3), 375-383. https://ojs.unud.ac.id/index.php/JAA/article/view/67683

Pardian, Pandi, Noor, T. I., & Kusumah, A. (2016). Analisis perminataan dan penawaran bawang merah di Propinsi Jawa Barat. *Jurnal Agricore, 1*(2), 149-157. https://doi.org/10.24198/agricore.v1i2.22711

Pratama, R. A., & Febrianti, T. (2019). Pengembangan unit usaha budidaya kentang melalui program kemitraan masyarakat di Kabupaten Garut. *Prosiding Seminar Nasional Sinergi Dan Strategi Akademisi, Business dan Government (ABG) dalam Mewujudkan Pemberdayaan Masyarakat Yang Berkemajuan di Era Industri 4.0.* pp.934-940.

Pujiharto. (2011). Kajian potensi pengembangan agribisnis sayuran dataran tinggi di Kabupaten Banjarnegara Propinsi Jawa Tengah. *Agritech*, *8*(2), 154 – 175.

Respikasari, Ekowati, T., & Setiadi, A. (2015). Analisis efisiensi ekonomi faktor-faktor produksi usahatani padi sawah di Kabupaten Karanganyar (Economic efficiency analysis of rice farming production factors In Karanganyar Regency). *Value added: Majalah Ekonomi dan Bisnis*, *11*(1), 1-17. https://doi.org/10.26714/vameb.v11i1.1667

Retnowati, D., Damayanti, D. U., Lestari, E. F., Alfitri, M. E., Adriani, D., Wildayana, E., & Zahri, I. (2018). Harga pokok produksi padi sawah lebak dan faktor yang mempengaruhinya di Kecamatan Sirah Pulau Padang Kabupaten Ogan Komering Ilir. *Prosiding Seminar Nasional Lahan Suboptimal 2018, Palembang 18-19 Oktober 2018 "Tantangan dan Solusi Pengembangan PAJALE dan Kelapa Sawit Generasi Kedua (Replanting) di Lahan Suboptimal"*.

Rosadi, Milla, A. N., & Sukmawani, R. (2020). Analisis pendapatan usahatani jahe gajah di Kelompok Tani Ridomanah XIIB, Desa Cijulang, Kecamatan Jampang Tengah, Kabupaten Sukabumi, Jawa Barat. *GRISINTECH Journal of Agribusiness and Agrotechnology*, *1*(2), 69-78. https://doi.org/10.31938/agrisintech.v1i2.281

Rosalina, F., Sukmawati, S., & Febriadi, I. (2021). Sosialisasi pemanfaatan limbah organik sebagai upaya pengurangan ketergantungan pupuk kimia kepada kelompok tani di Keluarah Majener. *DedikasiMU (Journal of Community Service)*, *3*(4), 1190-1198. http://dx.doi.org/10.30587/dedikasimu.v3i4.3258

Saadudin, D., Rusman, Y., & Pardani, C. (2017). Analisis biaya, pendapatan dan R/C usahatani jahe (*Zingiber officinale*) (Suatu Kasus di Desa Kertajaya Kecamatan

Panawangan Kabupaten Ciamis). *Jurnal Ilmiah Mahasiswa Agroinfo Galuh*, *3*(2), 1-7. http://dx.doi.org/10.25157/jimag.v3i1.216

Saleh, A. R., Hasan, M., Nurdiana, Inanna, & Supatminingsih, T. (2022). Analisis faktor penyebab turunnya harga jual beli sayuran di Pasar Cakke Kecamatan Anggeraja Kabupaten Enrekang. *Intelektiva*, *3*(9), 55-63. https://www.jurnalintelektiva.com/index.php/jurnal/article/view/741

Saragih, & Jef, R. (2016). Strategi pengembangan agribisnis hortikultura di wilayah pedesaan". *Prosiding Seminar Ilmiah Nasional Dies Natalis USU*. 64: 63-70.

Saragih, M. F. A., Hasnudi, & Wahyono, T. (2013). Analisis pendapatan petani dan faktor-faktor yang mempengaruhi produktivitas sayur mayur di Kecamatan Purba Kabupaten Simalungun. *Agrica (Jurnal Agribisnis Sumatera Utara)*, *6*(2), 85-92. http://ojs.uma.ac.id/index.php/agrica.

Soekartawi. (2002). Analisis Usahatani. Jakarta: Universitas Indonesia Press.

Sunarjono. (2000). Pengembangan Usaha Tani dan Faktor-faktornya. Jakarta: Pustaka Ilmu.

Suratiyah, K. (2015). Ilmu Usahatan edisi revisi. Jakarta: Penebar Swadaya.

Suryanto, & Juniawan, H. (2018). Alokasi waktu dan tingkat pendapatan petani merica di Desa Bantimurung Kecamatan Bone Bone Kabupaten Luwu Utara. *Journal TABARO*, *2*(1), 164-171. http://dx.doi.org/10.35914/tabaro.v2i1.110

Suryati, N., Amin, Z., Andry, & Humaidi, E. (2019). Pendapatan petani padi varietas hasil iradiasi Badan Tenaga Nuklir. *Jurnal Penelitian Pertanian Terapan*, *19*(3), 192-198. https://doi.org/10.25181/jppt.v19i3.1287

Suyanti, V., Marhawati, & Syam, A. (2020). Analisis biaya dan pendapatan usahatani jagung di Desa Labae Kecamatan Citta Kabupaten Soppeng. *Indonesian Journal of Social and Educational Studies*, *1*(1), 48-57. https://doi.org/10.26858/ijses.v1i1.15196

Tanaya, I. G. L. P., Rosmilawati, Usman, A., & Hidayati, A. (2020). Analisis risiko produksi usahatani sayuran di Kabupaten Lombok Utara. *Agribusiness Management & Extension*, *21*(2), 69-81. https://doi.org/10.29303/agrimansion.v21i2.383

Wahyuni, S. (2013). Analisis pendapatan dan pemasaran usahatani tomat (*Lycopersicum esculentum* Mill.) di Desa Babulu Darat Kecamatan Babulu Kabupaten Penajam Paser Utara. *EPP*, *10*(1), 52-57.

Warren, C.S., Reeve, J. M., Duchac, J. E., Suhardianto, N., Kalanjati, D. S., Jusuf, A. A., & Djamkan, C. D. (2016). Pengantar Akuntansi. Jakarta: Salemba Empat.

Wasdiyanta. (2017). Keuntungan usahatani padi (*Oryza sativa* L) di Desa Keladan Baru Kecamatan Gambut Kabupaten Banjar Provinsi Kalimantan Selatan. *ZIRAA'AH*, *42*(1), 84-90. 10.31602/zmip.v42i1.647

Wulandari, F, Saediman, & Zani, M. (2019). Analisis pendapatan usahatani tomat di Kelurahan Kaisabu Baru Kecamatan Sorawolio Kota Baubau. *Jurnal Ilmiah Agribisnis (Jurnal Agribisnis dan Ilmu Sosial Ekonomi Pertanian)*, *4*(3), 61-65. http://dx.doi.org/10.33772/jia.v4i3.7905