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Research Article

Analisis Risiko Produksi Dan Pendapatan Usahatani Bawang Merah (Studi Kasus Desa Panggih Kecamatan Trowulan Kabupaten Mojokerto)

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ABSTRACT
Shallots (Allium ascolonicum, L.) is a priority commodity in the development of lowland vegetables in Indonesia which is quite strategic and economical in terms of farming profits. Financially, this farming is quite profitable, on the other hand, onion farming has a fairly high level of risk, both business risk (fluctuating selling prices) and production risk. This study aims to 1. Analyze the production factors of shallots. 2. To analyze the production risk of shallot farming. 3. To analyze the income of onion farming.
Analysis of the data used is quantitative data and qualitative data with the data sources used are primary data and secondary data. The analytical tools used are risk level analysis, income analysis.
The results of the study show the risk of production and income in Panggih village, Trowulan district, Mojokerto district. Production risks faced by farmers are high prices for seeds, expensive and difficult fertilizers and pesticides with volatile selling prices of shallots, as well as unpredictable weather, pests and diseases, esecially fusarium, moller and armyworm. As for the risk analysis of shallot production from the coefficient of variation (CV) of 0.07, it means that if <0.50 then the farmer is always profitable, while the value is > 0.50 then the production risk of shallot farmers must accept the greater risk, and for the shallot income an average of IDR 16,964,303/season (2 months)

Keywords: *income, shallots, production risk*

ABSTRAK
Bawang merah *(Allium ascolonicum, L.)* merupakan komoditas prioritas dalam pengembangan sayuran dataran rendah di Indonesia yang cukup strategis dan ekonomis dipandang dari segi keuntungan usahatani. Secara finansial usahatani ini cukup menguntungkan, disisi lain usahatani bawang merah mempunyai tingkat risiko cukup tinggi baik risiko bisnis (harga jual yang berfluktuasi) maupun risiko produksi. Penelitian ini bertujuan untuk 1. Untuk menganalisis risiko produksi usahatani bawang merah. 2. Untuk menganalisis pendapatan usahatani bawang merah. Analisis data yang digunakan adalah data kuantitatif dan data kualitatif dengan sumber data yang digunakan yaitu data primer dan data sekunder. Alat analisis yang digunakan yaitu analisis tingkat risiko, analisis pendapatan.
Hasil penelitian menunjukkan risiko produksi dan pendapatan di Desa Panggih Kecamatan Trowulan Kabupaten Mojokerto. Risiko produksi yang dihadapi petani ialah harga bibit yang mahal, pupuk dan pestisida yang mahal dan sulit dengan harga jual bawang merah yang mudah berubah, serta cuaca yang tidak tentu, hama dan penyakit terutama fusarium, moller dan ulat grayak. Sedangkan untuk analisis risiko produksi bawang merah dari koefisien variasi (CV) sebesar 0,07 artinya apabila < 0,50 maka petani selalu untung sedangkan nilai > 0,50 maka risiko produksi petani bawang merah harus terima risiko semakin besar, dan untuk pendapatan bawang merah rata-rata Rp 16.964.303/musim (2 bulan)

Kata Kunci: Pendapatan, Bawang Merah, Risiko Produksi

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1. Introduction

Indonesians work hard to make sure they have enough food for their country. They have done a very good job growing a lot of rice so they don't have to depend on other countries for it. They also build things like dams and reservoirs to help grow food. The government works with everyone to make sure there is enough food for everyone. They have made sure that insects and other pests do not harm the crops. They also help farmers by giving them loans and teaching them new ways to grow food.

According to demographic data, Indonesia is a country with a strong economy that has produced positive results in the pertanian sector and positive results in the maritime sector. As an example, the pertanian/perkebunan sector is the only one that has a significant negative impact on Indonesia's economy due to its role as a sumber that raises economic growth rates and creates and distributes labor opportunities (Handoko, 2011). This fact makes Indonesia more well-known as a maritime nation with strong natural resources.

Indonesia has progressed well in growing food despite challenges around the world. “Airlangga (Economis Minister) said Then in Q2-2022, the agricultural sector showed consistency with a positive growth of 1.37% (yoy) and contributed 12.98% to the national economy. This positive trend also helped maintain the welfare of farmers with the highest Farmer Exchange Rate (NTP) achievement in March 2022, which was 109.29, while the NTP in July 2022 was recorded at 104.25. (Kementerian Koordinator Bidang Perekonomian Republik Indonesia, 2022).

From Rice to Onions, These are the Republic of Indonesia's Agricultural Production Targets for 2023 Agro industry Indonesia's Main Agricultural Commodity Production Targets in 2023 Rice : 54.5 Million. Sugarcane: 37.2 Million, Corn: 23 Million, Coconut: 13 Million Chili: 2.9 Million shallots: 1.7 Million. Garlic: 45.45 thousand tons (Katadata, 2022) Red onion is a horticultural commodity that has many levels high dependence on imports. This is also supported by the statement that (Abinowo, 2001) stated that based on production trend analysis, shallot commodity has weaknesses in export development, but has a trend of sufficient production of domestic horticulture is still relatively higher than the production level achieved and is expected to continue increase.

The Central Java Statistics Agency found that the price of shallots this year has doubled. In January, they made the price a little bit more, and in February, they made the price a little bit more than that. At the beginning of the year, the price of shallots purchased by the public rose far from usual because there were not enough shallots due to bad weather. so that farmers do not pick the shallots they plant because they are not happy with them. They may even pick it up and then throw it away. The bank is helping farmers in a village learn how to turn shallots into paste so that the price of shallots does not fluctuate too much and they last longer (Kompas, 2023). Inside risk farming caused by factors selling price of products, production costs, area land, the experience of farmers in farming and the presence of causal factors risk will affect the attitude of farmers in trying to farm, whether to behave 3 reject, accept or neutral to the risk by looking at the gain. income in business (Nutrisia, 2004).

The research conducted by (Putri et al., 2018) aimed to analyze the risks associated with shallot production in Songan B Village located in Kintamani District, Bangli Regency.

The village has a farmer group that spans across both lowlands and highlands. One of the major issues encountered by the farmers is the inconsistency in shallot productivity, indicating the presence of production risks. The study's objective was to identify the different types of risks and conduct an analysis of shallot production. Both qualitative and quantitative analyses were employed for this purpose. The results of the study indicated that the production risks faced by shallot farmers in Songan B village included climatic conditions, pests, and diseases. The risk level of shallot production in the highlands (KV = 3.09) and lowland areas (KV = 2.46) was relatively high, with the level of risk being greater in the highlands due to larger expected production variances and standard deviations of productivity compared to the lowlands. The results of this study suggest that farmers must have the ability to identify the specific risks that can affect their production, in order to make preparations for potential drops in yield. The study was conducted with a specific focus on the cultivation of shallots in Panggih Village, located in the Trowulan District of the Mojokerto Regency. The researchers placed particular emphasis on analyzing production, production risks, and the income generated from the cultivation of shallots in Panggih Village.

2. Method

The type of research that the researcher intends to carry out in this study is Quantitative Descriptive. The research approach for this thesis is the quantitative research approach, which is defined as a research method rooted in positivism philosophy. The purpose of this method is to study a specific population or sample by collecting data using research instruments and then analyzing the data quantitatively to test hypotheses. The research is scheduled to take place in June 2022 in Panggih Village, Trowulan District, Mojokerto Regency, which was chosen because it is one of the villages where several farmers grow red onions. According to (Gay et al., 2009), for descriptive method research, a minimum of 10% of the population is needed, while for relatively small populations, at least 20% is required. For correlation research, a sample of 30 respondents is required, and for experimental and comparative research, each group should have a sample of 30 respondents. Fifteen populations of onion farmers were represented in the study, with a total of 15 respondents.

The subjects of this study are farmers whose primary occupation is farming. Understanding the socioeconomic status of each farmer is necessary to comprehend their individual perspectives on managing and promoting their farm activities. Farmers with experience in their field and those with higher education possess a better understanding of potential solutions and discussions. Gender is also a factor to consider among peasant farmers. In research, data sources are crucial for obtaining accurate information. This study utilizes two sources: primary and secondary data. Primary data is information obtained directly from the original source, such as data collected through questionnaires, focus groups, interviews with informants, and panels. The authors collected primary data through interviews and discussions.

There are two primary methods for collecting data in this study. The first method involves direct engagement with shallot farmers in Panggih Village. The second method involves collecting secondary data. As defined by (Nur & Bambang, 2013), secondary data

is information obtained by researchers indirectly through intermediary media and recorded by a third party. Examples of secondary data sources include company records and documentation, attendance records, salary information, company financial reports, government reports, magazine articles, and other data sources. This research requires the collection of secondary data to support and strengthen the study. This includes obtaining information on the shallot commodity, reviewing the results of previous studies on the shallot commodity, and gathering other data that supports the research such as government policies from the minister of agriculture and data and information from the Vegetable Research Institute. (Soekartawi, 2011) asserts that income analysis involves reviewing financial acceptance.

minus all costs incurred in production. For calculating farm income can be used the following formula:

Pd = TR-TC

TR = Y.Py

TC = FC + VC

Where :

Pd: Farming income

TR : Total Revenue (total revenue)

TC : Total cost (total cost)

FC : Fixed costs

VC : variable cost (variable cost)22

Y : Production obtained in a farming business (output)

Py : Output price

Income in this case is the amount of money earned or received by the company from an activity, almost all of the proceeds from product sales (Soekartawi, 2002).

3. Result

Description of the Research Area Mojokerto Regency is one of the Regencies in Java Province East, where the total area is 969,360 Km2 or around 2.09% of the area of East Java Province, with details of the use/utilization of the area as follows: Settlements 132,440 Km2. Agriculture 371,010 Km2. Forest 289,480 Km2 Plantation 170,000 Km2. Swamps/reservoirs 0.490 Km2 Critical land 0.200 Km2 Grasslands 1,590 Km2.Shrubs/reeds 0.720 Km2. Mojokerto Regency has 18 Districts, 299 Villages and Villages. One of them is Trowulan District. Total area of Trowulan District approximately 46,336 km2 which is divided into 16 villages and consists of 59 hamlets. The administrative boundaries of the Trowulan District are as follows; (BPCB Jawa Timur, 2015) 24 to the east: Sooko, Puri and Jatirejo districts.to the south: the KPH forest of Jombang Regency To the west: Mojoagung District and Jombang Regency to the north: Sumobito District and Jombang Regency . Characteristics of Farmers

Characteristics of respondents who can influence that is based on age, length of farming, level of education, number of dependents, land area and The main job. (Hernanto, 1991). In this study there were 15 respondents who comes from shallot farmers in Panggih village, Trowulan district. As for The characteristics of the respondent farmers in this study

were divided into several criteria namely farmer age, gender, farmer education, cultivated land area, and land status. Age of Respondents A person's age can affect a person's ability and condition physically affecting the results of performance. The results of data collection are obtained from the respondents showed that the ages of the respondents varied from 25. from 25 years old to 65 years old. The age composition of the respondents is presented in Primary data sources processed in 2022. the distribution of shallot farmers in Panggih Village based on criteria The age of the farmers was divided into three groups namely, ages 20-30 years, 31-50 years, 51-70 years. year. Most respondents aged 31-50 years, namely 8 people (53.33%), then 51-70 years 6 people (53.33%) and last 20-30 years 1 person (6.66 %). According to (Sukiyono, 2005) the population belongs to the productive age. According to (Sukiyono, 2005) the population belongs to the productive age if the age range is 15-59 years. So that the respondent farmers belong to age

Productive amounted to 31 farmers or about 96.875%. Productive age where farmers still able to make their own decisions, where is someone at that age have a mature mind in determining all decisions especially related to his business. The land area has a slightly different coverage area, the extent can know the size used cultivation. Farmers' land area in the Village Panggih is divided into 3 land areas, namely 250 m^2, 350 m^2 and 700 m^2. Land area most farmers are 700 m^2 12 people (80%), land area and the most a little on a land area of 350 m^2 which is only 1 person and 250 m2 2 people. Land area used by farmers for shallot cultivation is quite extensive

Panggih Village is one of the hamlets in the east of the District Trowulan which has an area of 1.52 km^2 with a population of 3,620 people resident. It has a male population of 1,847 people and 1,773 women with a total of 1,219 households. The economy in Panggih village has several partial livelihoods Most of them are self-employed, and followed by farmers and ranchers, private employees, apparatus state officials, teaching staff and health workers.

Shallot farming is a seasonal crop where farmers serve as manager in activities. Characteristics of farmers in shallot farming is one of the determinants of success in farming. In addition to input management production and production output of shallot farming can get results maximum production. Where the selling price is determined by the middleman or the market price. So that the revenue that will be obtained by farmers is reduced by the costs incurred incurred during the production process which is also affected production risks. And income depends on the number of receipts shallot farming reduced by the total cost of production. In the process Farm production cannot be separated from risks and uncertainties..

Cost is any activity carried out on a business requires physical and non-physical sacrifices, either directly or indirectly. Cost production in farming can be in the form of cash, labor wages, costs purchase of fertilizers, costs of seeds, costs of pesticides, and so on. (Kuswadi, 2005) classify costs based on cost behavior patterns, namely:.

Fixed costs are costs that must be incurred by farmers its use does not run out in one production period, namely depreciation of tools and taxes as in the table below:

Table 1. The Average Fixed Cost Of Shallot Farmers In Panggih Village

costs	Fixed	Cost depreciation/year (IDR)	Cost depreciation /season(2 months)	Uniit	Description
land	Rent	1,763,333	293,889	m2	(one's own)
	Taxes	118.966	19.827	Unit	
	Crescent	128000	19827	Unit	
	Buckets	35000	21333	Unit	
	Sprayer	19000	5833	Unit	
	Taxes	138.933	23155	Unit	

Source: primary data processed in 2022

In farming there are fixed costs that must be incurred by farmers it doesn't run out in one use. In onion farming Panggih village farmers on average are 2 months, so the land rent is IDR 1,763,000 divided into 6 seasons, namely Rp. 203,889/season, and depreciation of tools with each hoe Rp. 21,333, Sickle Rp. 5,833, Bucket Rp. 3,167, Sprayer Rp. 23,155 and tax IDR 19,827/ season. So farmers for fixed costs IDR 367,204/season.

Variable costs or variable costs are costs incurred depending on the number and amount of goods issued such as seeds, fertilizers, pesticides, labor and rental of production support equipment.

Table2. The Average Variable Cost Of Farmers In Panggih Village.

No	Means	Value (IDR)
1	Seed	9,413,333
2	Fertilizer	1,458,500
3	Pesticides	287,393
4	Labor	2,795,000
5	Tractor rental	263,333
6	Rent diesel	90,000
7	Solar	35,933
Total		14,121,492

Source: primary data processed in 2022

Table 2 shows that the average variable cost of seed farmers is Rp 9,413,333, use of fertilizer Rp 1,236,000 use of pesticides Rp Rp 387,393, as well as for labor costs divided into land processing, planting, fertilizing and maintenance as well as harvesting at the overall cost is 2,795,000.

To use tractors and diesel, farmers rent belonging to farmer groups and individuals who own tractors or diesel. For land processing 30 farmers use mini tractors where the land planted with shallots is in the form of beds, the use of mini tractors is very efficient and effective. For mini tractor rental average variable cost is IDR 263,333. And for diesel too the same as rental tractors belonging to farmer groups or individuals, Plants shallots in the dry season need 2 or 4 days watering/watering. The cost of renting diesel for drilling during cultivation is Rp. 263,333 with fuel expenditure for tractors and diesel is Rp 35.933.

Production Risk of Shallot Farming (Harwood, 1999) in (Paloma et al., 2020) explained some risks that often occur on farms and can lower levels farmer's income, namely Production Risk, price risk, institutional risk, risk Financial Shallot farming in Panggih Village, Trowulan District, Regency Mojokerto has various production risks which are a challenge for farmers red onion. Based on the results of research conducted in Panggih Village there several things that become the risk of shallot production. As for sources production risks as follows

a. Fertilizers and pesticides

From the research results, one of the risks of shallot farming is price Fertilizers and pesticides are expensive and sometimes farmers experience scarcity fertilizer. As for seeds where prices are unstable, with changes fast and significant price.31

b. Weather

Erratic weather greatly affects the cultivation of shallots, so for shallot cultivation in unfavorable weather need more care.

c. Pests and diseases

In erratic weather, shallots are prone to disease and pests, the disease that most often attacks shallots is fungus (Fusarium and moller), while for pests are armyworms. Almost all shallot farmers in Panggih Village have threats the above risks. The highest risk level for shallot cultivation is pests and pests disease. Almost all shallot farmers in Panggih Village have threats

the above risks. The highest risk level for shallot cultivation is pests and pests disease.

4. Discussion

Production and Income Risk Analysis. Risk Analysis According to (Hernanto, 1991)in (Rosmitha, 2022), this shows that if CV > 0.5 then the risk of production on farming borne by farmers increases is large, while the CV value, while the CV value is <0.5, the farmer will be more profitable or break even. Where the coefficient of variation is a measure of variation that can be used to compare a data distribution that has the same unit different This production risk is analyzed with the coefficient of variation. Coefficient value a small variation indicates a low variability of the average value of the distribution. This matter represents a small risk. As for the risk analysis of onion production red color in Panggih Village, Trowulan District, Mojokerto Regency 32.

Table 3. Analysis of the risk of onion production in Panggih Village

Description	Total
Average yield	1,267
Standard deviation	91.930
Coefficient of Variation (CV)	0.045

Source: primary data processed in (2022)

Analysis of the coefficient of variation from shallot farming production is used for determine the level of production risk of shallot farming. The smaller the value coefficient of

variation, the smaller the level of risk faced by farmers. Conversely, the greater the value of the coefficient of variation, the greater the level risks faced by the farmer. To take a deeper look at the risks faced by onion farmers can be seen in Panggih Village, Trowulan District, Mojokerto Regency in Table 8, which shows the average production of shallot farming is 1,267 kg and the standard deviation is 91.930 while for the coefficient variation (CV) of 0.045%. This means for every one kg of rice production obtained by farmers, the risk faced is 0.045 Kg. This matter shows that the production risk of shallot farmers in Panggih Village Trowulan District is classified as low.

According to (Soekartawi, 2011), income analysis is acceptance minus all costs incurred in production. shows an average total receipt of IDR 31,675,000 with results production of 1,267 at a price of IDR 25,000 with variable costs consisting of seeds of IDR 9,413,333, fertilizer Rp. 1,458,500, pesticides Rp. 287,393, labor Rp. 2,795,000, Rp. 263,333 for tractor rental, 90,000 for diesel and Rp. 35,933 for fuel.Fixed costs consist of land rental fees of IDR 293,889, land taxes of IDR 19,828 and equipment depreciation of IDR 53,488. So the average total cost is Rp 14,710,697 with an income of IDR 16,964,303.

5. Conlusion

Shallot farming is a seasonal crop where farmers serve as manager in activities. Characteristics of farmers in shallot farming is one of the determinants of success in farming. In addition to input management production and production output of shallot farming can get results maximum production. Where the selling price is determined by the middleman or the market price. So that the revenue that will be obtained by farmers is reduced by the costs incurred incurred during the production process which is also affected production risks. And income depends on the number of receipts shallot farming reduced by the total cost of production. In the process Farm production cannot be separated from risks and uncertainties.

1. Production risk experienced by farmers in Panggih Village, Trowulan District Mojokerto Regency one of which is production risk. which factor Affecting is the expensive price of fertilizers and pesticides, bad nature (weather). erratic, resulting in plants susceptible to pests and diseases, The biggest causes of production risk are pests (army caterpillars) and fungal diseases (fusarium, moller and powdery mildew). Obtained from the coefficient value (CV) namely 0.045%, where shallot farmers are in Panggih Village, Trowulan District Mojokerto district has a low level of risk.

2. For the average income of shallot farmers in Panggih Village, District Trowulan Mojokerto Regency IDR 16,964,303/season with an average. approximately 617 m2 of land.

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