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Factors of Failure of the 2022 Rice Harvest for Local Rice Varieties of Banjar Rice

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Abstract

In 2022 farmers experienced rice crop failures caused by certain things that resulted in a decrease in Banjar's local rice supply. The purpose of this study was to determine the factors of rice crop failure experienced by rice farmers which resulted in a decrease in local rice supplies. This research study uses a qualitative method descriptive approach located in Anjir Serapat Muara I Village with data collection techniques through observation, interviews and documentation. The data collection was analyzed using data reduction techniques, data presentation, then Verification. Selanjutnya in testing the validity of data using triangulation and extended observation. The results of the research obtained by researchers that the factors of rice crop failure are caused by OPT, namely Tungro disease which breeds widely due to the rainy season and there is no dry season, This is supported by the condition of the La Nina phenomenon that is occurring in 2022 which has an impact on climate change which has an influence on the increase or spread of Tungro pest attacks. This rice harvest failure was not only experienced by Anjir serapat muara I farmers, but also felt by farmers in other sub-districts around Barito Kuala. This rice harvest failure made the acquisition of rice a little so that farmers suffered losses and local rice supplies became reduced, and caused local rice prices to be expensive.

Keywords: Crop failure factor; Local rice, Rice farmers.

Abstrak

Pada tahun 2022 petani mengalami gagal panen padi yang disebabkan oleh hal-hal tertentu yang mengakibatkan penurunan pasokan beras lokal Banjar. Tujuan dari penelitian ini adalah untuk mengetahui faktor-faktor gagal panen padi yang dialami oleh petani padi yang mengakibatkan penurunan pasokan beras lokal. Penelitian ini menggunakan pendekatan deskriptif metode kualitatif yang berlokasi di Desa Anjir Serapat Muara I dengan teknik pengumpulan data melalui observasi, wawancara dan dokumentasi. Pengumpulan data dianalisis menggunakan teknik reduksi data, penyajian data, kemudian Verifikasi. Selanjutnya dalam pengujian validitas data menggunakan triangulasi dan observasi diperluas. Hasil penelitian yang diperoleh peneliti bahwa faktor gagal panen padi disebabkan oleh OPT, yaitu penyakit Tungro yang berkembang biak secara luas karena musim hujan dan tidak ada musim kemarau, Hal ini didukung dengan kondisi fenomena La Nina yang terjadi pada tahun 2022 yang berdampak pada perubahan iklim yang berpengaruh terhadap peningkatan atau penyebaran serangan hama Tintro. Gagal panen padi ini tidak hanya dialami oleh petani Anjir serapat muara I, tetapi juga dirasakan oleh petani di kecamatan lain di sekitar Barito Kuala. Kegagalan panen padi ini membuat

perolehan beras sedikit sehingga petani mengalami kerugian dan persediaan beras lokal menjadi berkurang, dan menyebabkan harga beras lokal menjadi mahal.

Kata Kunci: Faktor Kegagalan Panen; Padi Lokal, Petani Padi.

PRELIMINARY

According to observations made by researchers in Anjir Serapat Muara I Village in 2022 they experienced problems in rice farming, namely rice harvest failure. The crop failure caused a lack of local Banjar rice grown by the farmers there due to the crop failure that hit the area there. The occurrence of this rice crop failure has only occurred in this year 2022, this has become a community discussion. Given also that Anjir Serapat I Village works mostly as a farmer according to the Village Head of Anjir Serapat Muara I (interview, December 7, 2022) this is also reviewed from the condition of the area which is planted a lot of rice farming.

Barito Kuala Regency, precisely in Anjir Serapat Muara I village, the livelihood of the Anjir Serapat Muara I village community is mainly as farmers. In accordance with the conditions of the surrounding environment as their livelihood orientation there is as a farmer to be able to fulfill their economy. Local rice or local rice cultivated by farmers there on average plant local varieties of rice such as Arjuna local rice conveyed by Mr. Hk (51 years) as a farmer through (interview, March 22, 2023). This is close to the Anjir Serapat area where people work as farmers, planting rice in the fields using traditional methods and trying to produce as much rice as the farmers can get. The people of Anjir Serapat around 1990 slowly switched to local varieties and slowly cultivated local varieties. the reason Anjir Serapat farmers still plant local varieties is because they are relatively more expensive to sell, because superior rice or rice is less popular with local residents (Darlan, 2020).

According to farmers in the tidal swamp or lebak areas, they generally only cultivate local varieties of rice. (Masganti dkk., 2017). In connection with the Anjir Serapat Muara I area which is included as Barito Kuala Regency is one of the areas of some communities utilizing tidal land areas for rice farming processing which contributes to around 16.23% it is based on BPS data in 2015.(Khollis & Tharziansyah, 2022). In this case farmers who plant local varieties of rice because it is generally known that in a community utilizing the surrounding environment as a local wisdom related to the environment, This happens to meet the needs of his life in terms of social and economic aspects (Susanto dkk., 2021). This crop failure caused a decrease in rice production in South Kalimantan, specifically in Barito Kuala Regency in 2022. This can be seen in the following table:

Table 1.1 Rice area and production in Barito Kuala Regency

Year	Harvest Area (Ha)	Production (Ton)
2021	62782	221360
2022	57403	186868

Source: (BPS, 2023)

Based on the table, the area and production of rice harvest have decreased. The decline in rice production in Barito Kuala that contributed to the decline included Anjir Serapat Muara I village farmers who experienced damaged rice caused by certain factors. Hearing that there is a comprehensive crop failure in Anjir Serapat Muara I sub-district, this is a problem that needs to be analyzed, especially since the livelihood of the majority of people in Anjir Serapat Muara I village is as farmers, in that case of course there are factors that cause the crop failure to occur which results in a decrease in the supply of local rice or banjar rice.

METHOD

The research method used in this study uses a qualitative method with a descriptive approach.. The implementation of this research began on November 2, 2022 - May 1, 2023. aims to find out the factors causing rice crop failure that hit rice farmers against local or banjar rice. The place of this research is in Anjir Serapat Muara I Village, Barito Kuala Regency, the target of the research is rice farmers in the village. The following are the resource persons in this research :

Table 1.2 Research Subject

No	Name Initials	Address	Jobs	Interview Date
1	KA	Anjir Serapat Muara I	Village Head of Anjir Serapat Muara I	December 7, 2022
2	Mj	Anjir Serapat Muara I	Farmer	November 29, 2022
3	Mr	Anjir Serapat Muara I	Farmer	November 29, 2022
4	Rm	Anjir Serapat Muara I	Farmer	November 29, 2022
5	NI	Anjir Serapat Muara I	Farmer	November 07, 2022
6	Hk	Anjir Serapat Muara I	Farmer	March 22, 2023
7	Zr	Anjir Muara	Merchant	March 24, 2023
8	JH	Anjir Muara	Camat Anjir Muara	March 24, 2023
9	M.Y	Anjir Pasar	Camat Anjir Pasar	May 1, 2023

Resouce : Interviewee Subject Table (processed on July 7, 2023)

There are various kinds of data collection techniques including, 1) observations made at Anjir Serapat Muara I by observing the condition of the farmers' agricultural lands. 2) Interviews to gather information from farmers. 3) Documentation was required as part of the data collection of the damaged farmland as well as additional or retroactive information from local news media. In analyzing the data, the researcher followed the opinion of Miles and Huberman (1994), in (Harahap, 2020) steps of analyzing data by reducing data, displaying data and drawing conclusions. While in the stage of testing the validity of the data with the technique of extending observation, triangulation.

RESULTS AND DISCUSSION

Factors of Rice Harvest Failure in Anjir Serapat Muara I Village

The factor of rice crop failure in Anjir Serapat Muara I Village is caused by the Plant Disease Organism Factor in Indonesian abbreviated (OPT), namely Tungro Disease. OPT or referred to as Plant Disturbing Organisms, often of course interfere with the process of plant growth so that crops are managed to be damaged and the results are not maximized due to organisms that interfere with plants. (Ariefin dkk., 2022). Regarding crop failure caused by Tungro, it was conveyed by Mr. M.Y (54 years old) Head of Anjir Pasar Sub-District that in 2022 the cause of rice crop failure in the Barito Kuala region was caused by the Tungro disease factor which increased due to the rainy season and there was no dry season, This increases the proliferation of tungro pests. This statement about crop failure is also felt by farmers in Sungai Gampa Village, Barito Kuala Regency, according to the following (Kompas, 2022) Aspiannor as a farmer there felt the Tungro pest attack caused by the absence of the dry season.. Based on this statement, according to (Siwi, *et al*., 1987) and the results of observations (Carino, 1980) in (Praptana & Yasin, 2015) that the increasing population of green leafhoppers is susceptible to being influenced by conditions of humidity and rainfall and according to the population of green leafhoppers in the rainy season more than the dry season.

Tungro disease that attacks rice plants including in the Anjir Serapat Muara I area can be said to be among the types of plant invading organisms (OPT). According to (Qisthi dkk., 2021) the names of organisms that often attack rice plants include Tungro disease, bacterial blight, leaf spot disease, stem rot and leaf midrib rot. Plant disease organisms that cause losses to plants are pests and plant diseases. If a plant is sick and does not run according to its general physical function properly, then it has an impact on its production, even this can result in plant death and crop failure (Wati dkk., 2021). Based on this statement, the cause of rice crop failure is caused by Plant Disease Organisms, a type of plant disease carried by rice pests. According to the experience of Mr. Hk (64 Years) as a farmer that the cause of damage to his rice dikarekan pests that attack his paddy until the harvest fails.

According to Mr. Mr. (44 years old) the characteristics of the damaged rice are the color of the rice that changes from green to yellow and some to brown, the growth of the paddy becomes low and stunted, the paddy fruit is not intact and does not even bear fruit at all (interview, December 2, 2022). This statement was also conveyed by Anjir Pasar Sub-District Head M.Y. (54 years old) that generally, according to known information, the characteristic of damaged paddy is that the paddy is shrunken or conical (interview, May 1, 2023). Based on

this opinion in accordance with the statement (Semangun, 2004) in (Wati dkk., 2021) The characteristics of tungro disease include changes in the color of rice from yellow to orange, stunted plants this becomes an obstacle to plant growth. The damage to the paddy can also be seen from the color it is like the color of dead banana leaves, and the paddy is stomping down. Rice plants that are attacked and damaged by tungro pests cause the exact characteristics conveyed in terms of the color also changing improperly. If, examined from the damage to the rice in the picture occurs due to pests and diseases that are characterized by physical damage to the rice plant. According to (Wati dkk., 2021) The characteristic of tungro rice disease is that the leaves turn orange and the growth becomes undue or stunted.

According to Mr. Mr (44 years old) the environmental conditions of his paddy fields are different than the conditions of rice fields in 2021, now in 2022 the conditions of his paddy fields are not favorable, because the environmental conditions interfere with the growth process of his paddy. This condition is in accordance with the statement from him saying that the paddy is jerking down, because the soil condition is not good because it is like being blocked by mud instead of the original soil, so this prevents the rice roots from going deeper into the soil and Mrs. Rm (44 years old) also argues that the paddy is jerking down, and the paddy roots are covered by another type of soil which makes it difficult for the rice roots to penetrate the roots of the soil so that the paddy can go deeper into the soil, if there is a dry season then, of course, the roots will sink deeper. However, in 2022 there was no drought, so the soft soil covering the original soil was covered. Opinions about rice stomping down are not only shared by them but also by other farmers, especially in Anjir Serapat muara I village, Mr. Hk said:

"The rice that is planted jerks down, because it is like there is another soil that covers the original soil, so the roots are not strong enough to bind to the original soil, as if the original soil is covered with mud first, then the original soil that usually binds the soil juice, so it is like being covered by another soil, therefore, if you want to pull out the rice it is easily lifted, because it is not too strong bound to the original soil, just ask the farmers here, of course it is also like that for their rice." (interview, March 22, 2023)

Based on this statement, climate change factors also hinder the growth process of rice seen from its characteristics through the condition of the physical environment of the land which is disturbed, which of course hinders the growth process of rice.

Generally, what prevents the rice from growing is related to the roots that do not bind strongly to the soil, the rice that seems to be lowered down or stomping, this is also influenced by the environment because the roots that support it are not the original soil but like other types

of soft soil, so this inhibits the roots of the paddy from absorbing water and food for rice growth, Moreover, the roots are an important part of the plant, such as rice plants, the roots play an important role in absorbing water and substances needed by rice, as stated (Siregar & Sulardi, 2018) The root is an anatomical part of the plant that has a function in absorbing food substances and water in the soil. In accordance with this statement, the roots of rice plants become the main foundation in the growth of paddy, if the roots do not bind strongly to the original soil core then, the growth of paddy is hampered because it cannot accommodate food substances and water in the soil. These are the characteristics of damaged rice as well as a factor inhibiting the process of rice growth in Anjir Serapat Muara I Village. So, if the process of transporting food and water for rice is inhibited, then this triggers the occurrence of poor rice growth, in this case if the rice is attacked by plant disease then, the plant disease will be more developed and malignant, and accelerate the death of the plant. If plant diseases have proliferated and are not controlled, they are prevented by burning the land, but this action is not always effective (Ariefin dkk., 2022).

In 2022 in South Kalimantan Province, precisely in the Barito Kuala Regency area in Anjir Serapat Muara I village, Farmers experienced rice crop failure caused by increased Tungro disease, because this is related to the year 2022 the occurrence of the La Nina phenomenon in Indonesia so that it has an impact on the intensity of rain. According to (Santhiawan & Suwardike, 2019) La Nina phenomenon is a condition where the temperature in the sea surface area of the Pacific Ocean region warms up, which in turn results in high rainfall intensity in parts of Southeast Asia, including Indonesia. In Indonesia in 2022 there is a La Nina phenomenon based on a statement from Goeroeh Tjiptanto, Head of the Kal-Sel First Class Climatology Station in (Yulianus, 2023) said South Kalimantan experienced a wet dry season or dry season with rain intensity above the norm in 2020 - 2022 due to the La Nina phenomenon. We know that according to (Ruminta, 2016) in (Saputra dkk., 2023) One of the food crops that are vulnerable to climate change is rice paddies. this happens because rice paddies are closely related to the climatic component of the water element. In the case that climate change is currently having an impact on rice farming in Anjir Serapat Muara I village, namely an increase in Tungro pests that damage rice plants to crop failure. This factor is caused by climate change which affects the rice season, causing an increase in pest problems.

According to (Mendes dkk., 2022) said a variety of problems faced by the agricultural sector, especially rice crops, including global climate change which has an impact on climate anomalies that have the effect of increasing pests and diseases that have the potential to damage the growth of food crops. Generally, it is known that the cause of crop failure that occurs in

Anjir Serapat Muara I village is due to the Tungro pest disease. This can happen According to Mr. M.Y (54 years old) Head of Anjir Pasar, the Tungro pest can cause crop failure due to the widespread development of the Tungro disease pest, the Tungro pest can multiply to increase due to the rainy season factor and there is no dry season. Based on this, according to the statement (Yuliani & Widiarta, 2017) that tungro can spread rapidly if supported by the source of inoculum, the density of green leafhopper pests, rice varieties that are easily susceptible to attack, planting that is not done simultaneously, rainy season factors and high environmental humidity, this can expand the development of green leafhopper pests.

The increase in Tungro pest disease because it is supported by the rainy season which is closely related to climate change over the La Nina phenomenon, including those that cause crop failure in the Anjir Serapat Muara I area of Barito Kuala Regency caused by an increase in Tungro disease in rice plants. According to (Hattori, 2011; Suciantini, 2015) in (Santhiawan & Suwardike, 2019) The occurrence of the La Nina natural phenomenon is an increase in the intensity of rainfall in general or normally and an increase in air temperature humidity. In this case, it has a negative impact on food crop production, especially rice, the impact can have an impact on flooding and an increase in the attack of plant disrupting organisms.

According to BMKG Indonesia in (Tysara, 2023) revealed that after 3 consecutive years of La Nina since 2020, it is predicted that in 2023 there will be an El Nino phenomenon in Indonesia. Based on this statement that now the La Nina phenomenon is happening in 2022 which has an impact on the intensity of rainfall in Indonesia including the South Kalimantan region. With regard to this, it has an impact on climate change which has an influence on the increase or spread of Tungro pest attacks in Anjir Serapat Muara I village. The spread of Tungro Disease can occur widely, according to Mr. M.Y (54 years) said that the spread of tungro pests occurs because through the circulation of water and air, this is what causes Tungro pests to increase and spread widely (Interview dated May 1, 2023). Based on this statement that the spread of Tungro disease and pests that spread can increase because it is supported by the rainy season factor, this is what causes the spread of Tungro pests and results in crop failure, especially in Anjir Serapat Muara I Village.

Mr. Rn (27 years old) said that the failure of the rice harvest in 2022 resulted in a lot of damage to rice which was fatal enough to cause crop failure, in 2021 there were indeed some damaged rice but not widespread, but in 2022, the damage to the rice was quite severe and even resulted in heavy losses for farmers in Anjir Serapat Muara I village, this did not only happen in Anjir Serapat Muara I Village, but also other kelurahan areas. Based on information from an

interview with the Head of Anjir Pasar Subdistrict, Mr. M.Y (50 years old), the failure of the rice harvest in the Anjir Town area is almost 75% of the rice farms that have experienced crop failure, so the farmers suffered losses due to the hitch. In 2022, the damaged rice is more than in 2021, in a rice field, only a few clumps of rice can be harvested and the damage to the paddy is evenly distributed on the land owned by Mr. Mr. (44 years old) and the income obtained is only a little.

Rice Damage in Anjir Serapat Muara I Village

Image. 1.1 Rice environmental conditions

Resource : Personal Documentation (retrieved on December 11, 2023)

Image 1.2 Rice stalks

Resource: Personal Documentation (retrieved on December 29, 2023)

Image 1.3 Rice Fruit

Resource: Personal Documentation (retrieved on December 29, 2023)

Rice farming in Anjir Serapat Muara I village, farmers plant local varieties of rice because in general, rice farms in the area are more suitable to use local varieties, as said by Mr. Hk (46 years old) the rice seeds that are generally planted in the Anjir Serapat Muara I area are Arjuna seeds. In this case, with regard to the rice planted by Anjir Serapat Muara I farmers, it is related to planting local Arjuna rice, but due to crop failure, there is a lack of local Banjar rice supply, which triggers an increase in the price of local rice. Based on this, local rice is

generally grown because of the suitability of the agricultural environment. Generally, not only Arjuna local rice is in short supply, but also other types of local rice such as Siamese rice, unus and others.

According to the researcher's observation, the price of local banjar rice jumped up because the supply of local rice was reduced due to crop failure which not only occurred in the Anjir Serapat Muara I area, but also farmers in other Barito Kuala areas who experienced crop failure. The occurrence of a local rice crisis or banjar rice caused by the failure of the local rice harvest which led to the scarcity of rice to be able to meet food needs and the supply of local rice decreased production. This decline in production is what causes the price of local rice to be expensive. According to researcher observations at Anjir market, the price of local rice has risen, this was also conveyed by Mr. Mr. (44 years old) regarding banjar rice which has risen in price. According to some traders, the price of rice has risen due to crop failure, which has led to a shortage of local rice, According to Adnan's statement (2022) The increase in rice prices occurred in a number of types of local rice, one of which is peat rice, which previously cost around Rp.14,000/kilogram, now the price has risen to Rp. 17,000/kilogram (Abdullah, 2022). Researchers conducted observations at the Anjir Muara market where the prices of local rice such as Siamese, Arjuna, Unus and Mayang rice were higher than usual, due to the lack of local rice production supplies. In accordance with the statement (Aprilia, 2021) The limited supply of goods in the market will cause the price of certain goods to be expensive.

The lack of local rice supply is due to the rice harvest failure in Barito Kuala Sub-district and has previously been conveyed by M.Y (50 years old) Head of Anjir Pasar Sub-district that there was a crop failure of around 75% including in the Anjir Serapat Muara I area. Local rice harvest failure is not only in Barito Kuala District, but also in other districts in South Kalimantan. According to Mrs. Zr (40 years old) as a rice trader, regarding the price of local rice, now the price has increased so much, there is even a price twice the usual price now local rice of the Mayang type in 2021 costs Rp. 12,000, now the price is Rp. 19,000 and other local rice is between Rp. 17,000 to Rp. 18,000. Based on this local rice, now the prices of local rice have increased due to crop failure so that it causes local rice to be expensive and this triggers the scarcity of local banjar rice due to lack of production.

The failure of local rice harvests experienced by farmers results in losses, especially for people who only prioritize the fulfillment of their economic lives who only work on rice farming, so they can only meet their daily needs, but they are not enough to be able to meet their secondary needs. Prices of economic food goods, including local rice, have risen and

become expensive. Harvest failure is not only experienced by farmers in Barito Kuala Regency, but also in other districts such as Banjar Regency. According to Syamsir, South Kalimantan DPKP in (Susanto, 2023) Food shortages are experienced by around 1,000 farmers in HSS, Banjar and Barito Kuala districts. Rice planting and harvesting failures that occurred from several decades this year were caused by increasing pests, bad weather and floods. Based on this, it has an impact on the decline in rice production in South Kalimantan in the two years of decline. One of the reasons why rice prices are now expensive, which affects inflation, is due to a decrease in rice production of 90,107 hectares in 2022.

CONCLUSION

The factor of rice crop failure in Anjir Serapat Muara I village is caused by the factor of Rice Plant Disturbing Organisms (OPT), namely Tungro Disease. Tungro disease can cause crop failure because the disease spreads and extends so that the potential damage to rice becomes quite fatal which ultimately causes crop failure. Tungro disease becomes widespread supported by the presence of weather that is often rainy and there is no dry, this is also supported by climate change conditions over the La-Lina phenomenon in 2022 which has an impact on the intensity of rainfall in Indonesia including the South Kalimantan region. With regard to this, it has an impact on climate change which has an impact on the increase or spread of Tungro pest attacks. The failure of the rice harvest caused a shortage of local rice supply, which led to the scarcity of local rice which resulted in the price of local rice rising, due to the failure of the harvest which was not only experienced by Barito Kuala farmers, but also in other districts, such as Banjar and HSU.

ADVICE

Suggestions for writers or future researchers, the author is not too deep in exploring the causes of crop failure due to the limitations of the researcher's study in the scope of Social Studies Education, so the next researcher, can use this research as reference material and also general information to help future researchers, find out more about the causes of crop failure in the Anjir Serapat Muara I community. The researcher's suggestion is that when the planting period has arrived, agricultural extension workers should better monitor the development and monitor rice farming in the community in order to anticipate crop failures, especially in Anjir Serapat Muara I village, while with regard to the scarcity of local rice, the Anjir Serapat Muara I community should consume other types of rice that are more affordable, such as Javanese rice or imported rice that is more affordable.

Bibliography

Abdullah, Fuad Iqbal. (2022). Akibat Gagal Panen Harga Beras di KalSel Naik Drastis. diakses pada tanggal 21 Desember 2022, pukul 00.37. https://www.beritasatu.com/ekonomi/1005801/akibat-gagal-panen-harga-beras-di-kalsel-naik-drastis

Aprilia, Cindy Sovhie. (2021). Perilaku panic buying dan berita hoaks covid-19 di kota Bandung. Jurnal Ilmu Komunikasi, Volume 10, No. 1. DOI: https://doi.org/10.35508/jikom.v10i1.3600

Arifien., Rivandi .P.R., dkk. (2022). Pengantar Ilmu Pertanian. Padang : PT Global Eksekutif Teknologi.

BPS Kalsel. (2023). Provinsi Kalimantan Selatan Dalam Angka. Banjarbaru : BPS Kalsel.

Darlan, Saifullah.(2020). Moral Ekonomi Petani Dalam Mempertahankan Padi Varietas Lokal (Studi Etnografi Pada Masyarakat Petani Sawah Anjir Serapat). Doctoral (S3) thesis, Universitas Muhammadiyah Malang.

Harahap, Nursapia. (2020). Penelitian Kualitatif. Medan : Wal Ashri Publishing.

Khollis, I.N. & Tharziansyah, M. (2022). Pusat Penelitian Dan Pengembengan Tanaman Padi Di Kabupaten Barito Kuala. Lanting Journal Of Architecture, 11(1).

Kompas TV, Banjarmasin. (2022). Hama Tungro Serang Padi di Batola, Petani Akui 80% Gagal Panen. Diakses pada tanggal 6 Juni 2023. https://www.kompas.tv/article/360457/hama-tungro-serang-padi-di-batola-petani-akui-80-gagal-panen.

Masganti, Noor, M., Alwi, M., dkk. (2017). Agroekologi Rawa. Depok : Rajawali Press.

Mendes, J. A., Sembiring, J., & Limbongan, A. (2022). Pelatihan pembuatan insektisida nabati bagi kelompok tani di Kampung Yasa Mulya, Distrik Tanah Miring Merauke. Jurnal Pengabdian Masyarakat Indonesia, 2(6), 803-808.

Praptana, R., & Yasin, M. (2015). Epidemiologi dan strategi pengendalian penyakit tungro. Iptek Tanaman Pangan, Vol 3, No 2.

Qisthi, R. T., Novita. K., Husnul K., dkk. (2021). Pengendalian Hama dan Penyakit Tanaman Pangan dan Horlikultura. Makassar : Jurusan Biologi FMIPA UNM. DOI: https://doi.org/10.32734/jpt.v5i2.2995.

Santhiawan, P., & Suwardike, P. (2019). Adaptasi Padi Sawah (Oryza sativa l.) Terhadap Peningkatan Kelebihan Air Sebagai Dampak Pemanasan Global. Agro Bali: Agricultural Journal, 2(2), 130-144.

Saputra, I., Prasmatiwi, F. E., Abidin, Z., & Setiawan, A. (2023). Persepsi Petani Padi Sawah Irigasi dan Tadah Hujan terhadap Perubahan Iklim di Kabupaten Lampung Selatan. Jurnal Ekonomi Pertanian dan Agribisnis, 7(1).

Siregar, Maharadi.,Sulardi. (2018). Agribisnis Budidaya Padi. Medan : Fakultas Ekonomi Universitas Panca Budi.

Susanto, Denny. (2023). Ribuan Petani di Kalimantan Selatan Terancam Kekurangan Pangan. Diakses pada tanggal 6 Mei 2023. https://mediaindonesia.com/nusantara/575057/ribuan-petani-di-kalimantan-selatan-terancam-kekurangan-pangan.

Susanto, H., Subiyakto, B., & Khairullah, M. (2021). Anjir serapat sebagai jalur ekonomi masyarakat kawasan aliran sungai sejak era kolonial. Sejarah dan Budaya: Jurnal sejarah, Budaya, dan Pengajarannya, 15(2).

Tysara, Laudia. (2023). El Nino di Indonesia 2023, Wilayah Yang Terdampak dan Antisipasinya. Diakses pada tanggal 2 Juni 2023. https://www.liputan6.com/hot/read/5282028/el-nino-di-indonesia-2023-wilayah-yang-terdampak-dan-antisipasinya.

Wati, Cheppy., Arsi., dkk. (2021). Hama dan Penyakit Tanaman. Bogor : Yayasan Kita Menulis.

Yuliani, D., & Widiarta, I. N. (2017). Pengendalian penyakit tungro melalui eliminasi peran vektor wereng hijau dengan pengendalian ramah lingkungan tungro disease control through the elimination vector role of green leaf hopper with environment friendly control. Agric, Vol. 29, No 2.

Yulianus, Jumarto. (2023). El Nino Berpeluang Terjadi, Kalsel Diminta Waspadai Karhutla. diakses pada tanggal 6 Juni 2023. https://www.kompas.id/baca/nusantara/2023/04/13/el-nino-berpeluang-terjadi-kalsel-diminta-waspadai-karhutla.