

**Increasing Livelihood Strategy of Rice Farmer by Developing New Rice
Variety “Inpago Unsoed 1” in Central Java, Indonesia**

Budi Dharmawan, Ratna Satriani, Ulfah Nurdiani



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Increasing Livelihood Strategy of Rice Farmer by Developing New Rice Variety "Inpago Unsoed 1" in Central Java, Indonesia

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Keywords

community empowerment; Inpago Unsoed 1; livelihood strategy; rice productivity

Abstract

The livelihood approach is a popular concept for identifying the nexus between environmental and social entities. Strategies for sustainable livelihoods are usually used to achieve successful rural development related to food security, realize social equity and sensitivity to environmental integrity. The research uses the livelihood strategy approach to assess the farmer's acceptance in cultivating new rice variety "Inpago Unsoed 1," to increase the national rice productivity and community empowerment. The research was conducted in three sub-districts in Banyumas District, Central Java, Indonesia, from March 2nd until 28th 2021. The results show that economic and social components need to be increased since these components play an essential role in the success of farmers' development in accepting new rice varieties "Inpago Unsoed 1". In contrast, the other components, i.e., biophysical, cultural, and psychological, have less concern. Nevertheless, the effort of farmers to strive from poverty and hunger is not only done by providing their needs but also the surrounding environment that supports livelihood.

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Widhi Netraning Pertiwi, Jangkung Mulyo, Any Suryantini, Masyhuri

The aims of this research are; (1) to determine the level of risk production and cost risk in rice farming. And (2) to find out the factors effects of the risk rice farming in Java. The research locations are in three provinces, Central Java, East Java and West Java Provinces. Each province are represented...

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Price Asymmetric Evaluation on the Cocoa Market as an Effort to Increase Economic and Bargaining Position of Cocoa Farmers in Pidie, Aceh

Zakiah Zakiah, Monalisa Monalisa, Ahmad Humam Hamid, Fauzan Fauzan, Ade Ratna Juniar

The price transmission process on agricultural commodities especially at the smallholder level generally occurs imperfectly as price asymmetric. This study aims to evaluate and identify the occurrence of price asymmetric in the cocoa commodity market in the Pidie Regency. This study also aims to look...

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The Importance of Socio-Economic Factors and Climate Constraints on Farmers' Preference for Using Ciherang

Diah Arina Fahmi, Irham, Lestari Rahayu Waluyati

Ciherang is a High Yielding Variety (HYV) of Rice produced by the Indonesian Agency for Agricultural Research and Development Agency since 2000. Ciherang, as an agricultural technology innovation, is still used by most farmers in various regions in Indonesia, especially South Sulawesi as one of the national...

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The Role of Agricultural Extension Workers in Urban Agriculture Development During the Covid-19 Pandemic in Yogyakarta City, Indonesia

Retno Wulandari, Roso Witjaksono, Ratih Ineke Wati

To support urban agricultural development, the role of an extension worker is needed, where this role is needed to build farmer attitudes and participation towards, especially during the Covid 19 pandemic. The aims of this study were to describe urban agricultural activities carried out by farmers and...

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Fachrur Rozi, Ruly Krisdiana, Imam Sutrisno

The efforts have been made to prevent potential future food shortages caused by climate change. Climate change is important factor endangering sustainable food production. The local resources such as cassava are not currently considered as the main staple food. In addition, its production is not significantly...

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Assessing Multidimensional Resilience of Smallholder Plantations in Bengkulu Province, Indonesia

Apri Andani, Irham, Jamhari, Any Suryantini

The resilience of smallholder plantations implies the ability of farmers to thrive in disturbances or disruptions on their farms. The farmers try to integrate social and economic capacities and resources to adapt, tolerate, and manage the risk, and enhance their farm resilience. There are three priority...

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Response and Feasibility of Kub Chicken on Household Business Level in Rural Area Sigi District

Heni SP Rahayu, M Takdir, Asnidar, Mardiana Dewi, Naufal M Ramedia, Pujo Haryono

The Indonesian Agency for Agricultural Research and Development (IAARD) already launched many technology innovations including Kampung Unggul Balitbangtan (KUB) which is disseminated in some programs in the Ministry of Agriculture. The success of an innovation is whether the product or technology innovation...

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Export Competitiveness of Indonesia Canned Pineapple in European Union Market

Annisa Wijarani Untoro, Lestari Rahayu Waluyati, Dwidjono Hadi Darwanto

Canned pineapple is one of the main exported commodities for Indonesia processed agricultural products. Moreover, Indonesia is one of the leading exporters of canned pineapples alongside Thailand and the Philippines. The European Union (EU) is an important destination market for Indonesia where canned...

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The Implementation of Farmer Partnership and the Factor Affecting Potato Farmers' Income in Ijen District, Bondow...

Tiyas Anggraeni Juliawati, Soetriono, Joni Murti. M. Aji

Potatoes are one of the horticultural commodities that can be the national alternative food needs, but price is a problem faced by potato farmers. Then the researcher tries to find the solution to this problem by using farmer partnership. The purposes of these studies were, (1) analyze whether there...

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Assessing the Appropriate Technology Options on Utilizing Oil Palm Biomass for Rural Development in Riau Province

Zulfi Prima Sani Nasution, Rizki Amalia, Ratnawati Nurkhoiry, Sachnaz Desta Oktarina, Muhammad Ansori Nasution

Oil palm cultivation by smallholders is an agriculture sub-sector that urgently requires transformative changes to support rural development in Indonesia. A transformation of this sub-sector requires the adoption of new and innovative approaches that support sustainable outcomes. This paper presents...

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Profitability and Land Equivalent Ratio of Maize and Soybean Intercropping on Dryland Agroecosystem

Ria Rustiana, Taslim Sjah, Lalu Wiresapta Karyadi, Anas Zaini, Ahmad Suriadi

The provision of sufficient and sustainable food continues to increase as the population increases. A strategic effort to increase land productivity is the

intercropping planting system. However, to what extent the profitability ; land efficiency of the intercropping system, especially maize and soybea

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Training Need Analysis Model at Central Java Agricultural Training Center

Nugroho Hasan, Widiyanto Widiyanto, Agung Wibowo

The training need analysis model is a strategy in the process of gathering information about needs that can be addressed by organizing training programs. This research aims to find out the training needs analysis model in the Central Java Agricultural Training Center. This research employed a descriptive...

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Development of Environmentally and Economically Patchouli Cultivation Using *System Dynamic Analysis* in Aceh Jaya Regency, Indonesia

Sofia Keumalasari, Anisa Nabila, Cut Intan Maulina, Ahmad Humam, Indra, Agus Nugroho

Patchouli oil is one of the Indonesian essential commodities accounting for approximately 95 % of the world market. Patchouli farming requires generous support of inputs. This situation puts traditional Patchouli farmers in a dilemma between boosting the quantity or protecting the environment. This study...

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Development of a Language Tourism Village Based on Local Natural Resources and the Local Community (A Case Study in Karanganyar Regency, Central Java, Indonesia)

Agung Wibowo, Dimas Rahadian Aji Muhammad, Eny Lestari, Ravik Karsidi

Human beings and the environment are a dynamic part of the ecosystem, and this is true for both traditional and modern communities. The boom in tourism development will have a detrimental effect if it is not based on ecological principles. The purpose of this research is to discover a development model...

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Social Cultural Dynamics in the Development of a Banana Center Leading to Sustainable Agricultural Development (A Case Study in Karanganyar Regency, Central Java)

Eny Lestari, Agung Wibowo, Paramita Rahayu

The approach to sustainable development is essentially an activity that combines economic, social, and environmental aspects. The development of a banana plantation in Jenawi has until now not been optimal, and farmers have needed skills in cultivation, processing, and marketing their produce in order...

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Existence Capacity of Rays Fisheries for Fisheries Resource Management in East Nusa Tenggara Province

Dati Nawastuti, Dwidjono Hadi Darwanto, Jangkung Handoyo Mulyo, Suadi

Rays fishery products in the international market especially luxury products, medicine, and tonic during the last decades are quite high. Government has issued regulations to protect, to use and to trade this species but it needs understanding from all stakeholders for good application of the issued...

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Comparative Advantage Analysis of Indonesia's Clove (*Syzygium aromaticum*) Export in International Market

Ayunina Zenti, Ratna Satriani, Adwi Herry K.E

The plantation sub-sector has a role in the national economy. Clove is one of the leading commodities of the plantation sub-sector, so Indonesia has the potential as an exporter country of this commodity. This study aims to analyze whether Indonesian cloves have a comparative advantage in the international...

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Economic Efficiency of Rice in South Lampung Regency

Aryan Ari Sepri YH, Masyhuri, Lestari Rahayu Waluyati

This study aims to determine the factors that affect rice production and determine the level of economic efficiency of rice farming. The research was conducted in Taman Agung Village, Kalianda Sub-District and Sidorejo Village, Sidomulyo Sub-District, South Lampung Regency with 85 farmers as respondents....

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Comparative Advantage of Myanmar's Selected Fruits in the Global Market

Saw Yan Naing, Masyhuri, Dwidjono Hadi Darwanto

The objective of the paper is to measure the comparative advantages of Myanmar's selected fruits, namely bananas, dates, mangoes, oranges, plums and watermelon using the United Nations Comtrade yearly data during the period 2011 to 2020. The methods of Balassa revealed comparative advantage (RCA), symmetrical...

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Comparative Advantage, Technical Efficiency and Risks Production of Inpari Unsoed 79 Agritan Farms in Saline Soil, Pemalang Regency

Altri Mulyani, Irene Kartika Eka Wijayanti, Ratna Satriani, Budi Dharmawan

One of the efforts to increase rice production is using marginal land, such as saline soil. The advantages of Inpari Unsoed 79 Agritan seeds are tolerance of saline soil, leafhoppers, and high productivity. This study aims to: Analyze the comparative advantage of Inpari Unsoed 79 Agritan on saline soil,...

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The Identification of Local Wisdom in *Lebak* Swampland Management (Shallow and Middle Type) and Its Relation c Rice Farmers' Household Income in Ogan Ilir Regency

Eka Mulyana, Indri Januarti, Friska Syaiful, Dini Damayanthi

Lebak Swampland is a sub-optimal land that has potentially been used by the community as an integrated agricultural land, generally located in basin areas, forming in various depths and durations of inundation, so that it requires different management techniques. In its management, lebak swampland is...

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Sustainable Livelihoods of Indigenous Community: A Bibliometric Study

Muh. Syukron

Literature has shown the significance of sustainable livelihoods for community development to reduce poverty, address sustainable development goals, and increase well-being. However, indigenous people face threats to their identity, livelihoods, and sustainability. Nevertheless, little attention has...

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Labor Productivity and Its Managerial Implications at XYZ Tea Processing Company, Indonesia

Azizatul Nurhayati, Putri Perdana

As one of the business units of A-University, XYZ should be managed based on appropriate managerial principles and apply Smart Eco Bioproduction.

This study was conducted to understand the workload and managerial implications needed to increase employee productivity. The method used in this study is...

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Development Model of Business in Local Food Processed in Women Farmers Group "An-Naba" in Gamping Sub-District, Sleman District

Mesalia Kriska, Syarifah Alfi Nurumami, Alka Arisma

The development of local food processed businesses has been widely carried out in the Special Region of Yogyakarta, but not all are managed in groups. One of the groups that developed this industry is the Women Farmers Group (KWT) "An-Naba" in Sleman Regency. This group has received several awards in...

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Consumer Preference Towards Layer Chicken Eggs and Native Chicken Eggs in Yogyakarta

Fildzah Shabrina Putri, Any Suryantini, Jangkung Handoyo Mulyo

Protein needs in the body can be met by consuming chicken eggs. Native chicken eggs were the first to be consumed and produced in Indonesia, but layer chicken eggs are more widely consumed and produced than native chicken eggs. The study aimed to determine consumer attitudes and consumer preferences...

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Household Poverty Analysis of Local Farmers and Transmigrants in Gorontalo District

Amelia Murtisari, Irham Irham, Jangkung Handoyo Mulyo, Lestari Rahayu Waluyati

Transmigration program is normally used to improve the welfare and reduce poverty of transmigrants which consist of both Local and Non Local Transmigrants. The objectives of this study are 1) to measure the poverty level of local farmers households and transmigrant farmers households based on their household...

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Adi Britanianto, Lestari Rahayu Waluyati, Azizatun Nurhayati

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Strengthening Community Economics on the Slopes of Merapi through Innovation in Merapi Coffee Management Regional Potential of Sleman Regency

Dyah Permata Budi Asri, Edy Sriyono, Subeni

Merapi Coffee is a superior product of local potential in Sleman Regency because it attracts domestic and foreign tourists. This can also be seen from the great demand for this Merapi Coffee product, especially after the Helsinki Coffee Festival exhibition, which has been participated in by the Sleman...

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Implementation of Role Playing's Learning Model on the Agribusiness' Entrepreneurship Course Using Brainwave Technology

Budi Dharmawan, Anisur Rosyad, Alpha Nadeira Mandamdari, Lutfi Zulkifli, Sunendar, Lusia Maryani Silitonga

Before learning occurs, the lecturer must do strategic planning and hopes that learning will achieve optimum goals by designing a role-playing approach based on SWOT analysis to build optimal learning achievement. This experimental study uses SWOT analysis with the role-playing paradigm of learning on...

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Response of Agricultural Extension Agents in Yogyakarta Special Region Towards Social Media Application as the Agricultural Extension Media

Alia Bihrajihant Raya, Diah Fitria Widhiningsih, Mesalia Kriska

In order to improve communication effectiveness, the performance of source, message, channel, and receiver is necessary. In agricultural extension and communication, the channels become very important that the extension agent as a source can carry out the technology transfer successfully. Not only mass...

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The Sustainability of Household-based Urban Farming in Yogyakarta City

Riesma Andiani, Roso Witjaksono, Wanda Anastia Sari, Elia Mustika, Hega Deri Hernandau, Fadhila Annisa Puspadjati, Nadia Annastana, Yerman Aprilyanus Hia

Due to the quantity and quality degradation of urban land for farming activity, the Yogyakarta City Government has started to conduct studies to prove the importance of developing an urban farming program. Based on the studies, it is known that implementing urban farming in the form of a household-base...

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Sustainable Livelihood Approach Farming Communities in Temoloyo River Basin, Kebumen Regency

Nisrina Galuh Afifah, Widyawati Sumadio, Andry Rustanto

The Sustainable Livelihood Approach is a concept for measuring human or community efforts in existing livelihood assets and activities needed as a means of life to cope with and improve pressure, maintain, or increase assets and capabilities but not destroy existing natural resources. One of the sources...

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Managerial Competence Level Among Urban Farmers in Yogyakarta City

Nungki Maghdalia, Irham, Hani Perwitasari

Urban Farmers as entrepreneurs need to have managerial qualities. Managerial competencies help them to develop their farm. The aims of this study are (1) to describe the socioeconomic characteristics of urban farmers, (2) to determine personal managerial competence level such as planning, organising,...

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The Impact of Climate Variability on Economic Sustainability on Urban Agriculture: A Case Study in Yogyakarta City, Indonesia

Riskie Amanda Wahyu Primaningrum, Irham, Hani Perwitasari

The impact of climate variability on life has been widely studied. Climate variability has an impact on urban agriculture. It is suspected that the level of knowledge and the impact of climate variability would influence the sustainability of urban agriculture in the economic aspect. This study aims...

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Value Chain Analysis of Turmeric in Ponorogo District, East Java

Gusti Randy Pratama, Devi Urianty Miftahul Rohmah, Rustamaji, Hidayatun Nufus

Turmeric has a long history of use as a spice and a traditional medicine in many Asian countries, especially in Indonesia. Ponorogo District is one of the turmeric producers in East Java Province. Turmeric has been cultivated by the local community for herbal medicine and a source of income for the village...

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Empowering Quality Cococraft Craftsmen Through Strengthening Partnerships Network

Dumasari Dumasari, Budi Dharmawan, Sulistiyani Budiningsih

Empowerment through strengthening partnerships is urgent and crucial for quality cococraft craftsmen. The research location was determined using a

purposive sampling area technique at a quality cococraft craft center in Purbalingga Wetan District, Purbalingga Regency, Central Java Province, Indonesia....

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Determinant Factors of the Consumption on Traditional Herbal Medicine as Processed Biopharmaceutical Products Post Covid-19 Pandemic in the Special Province of Yogyakarta, Indonesia

Arif Wahyu Widada, Gilang Wirakusuma, Aji Pangayoman

The Covid-19 pandemic has created a significant economic recession in almost all countries in the world, including Indonesia. Almost all economic sectors experienced negative growth except for the agricultural sector with positive growth. One of the agricultural commodities suspected of experiencing...

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Analysis of Paddy Production to Support Food Security in The West and East Coasts of North Sumatra

Mitra Musika Lubis, Bakti Darma, Ginting Rahmanta, dan Ayu Sri Fajar

This study aims to analyze rice production in the last 10 years (2010 – 2019) to support food security in the west and east coasts of North Sumatra province. The research location was determined using a purposive method by analyzing the West Coast and East Coast regions. The sample area is the West Coast...

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Adoption of New Farming Technology as an Effort for Creating Food Security and Development of Barns in Rural

Livia P Faradila, Adibta D Notari, Ranny N Jati, dan Sunarru S Hariadi

The study about adoption of new farming technology as an effort for creating food security and development of barns in rural, conducted in three places, they are in 1) Gempol Village, Karanganom Sub-district, Klaten Regency, 2) Pendowoharjo Village, Sewon sub-district, Bantul Regency, and 3) Canden Village,...

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Economic Sustainability of Certified Rice Farming at Piat UGM

Fatkhiyah Rohmah, Hani Perwitasari, Triya Andriyani

Rice productivity can be increased by using certified rice seeds, but the availability is still an obstacle for farmers, especially from information and prices. Therefore, The Center for Agrotechnology Innovation, Universitas Gadjah Mada (PIAT UGM) develops certified rice seeds so that the supply of...

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Can Indonesian Biopharmaceutical Plant Grab a Chance in Global Market?

Ginger Trade Revisited

Gilang Wirakusuma

Biopharmaceutical plants have shown remarkable expansion since the outbreak of COVID-19. Ginger, one of the leading biopharmaceutical crops, grows rapidly in transactions in the global market. Among many countries, Indonesia has consistently been one of the world's main suppliers of the ginger. This...

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Socio Economic Factors Affecting Adoption and Non-Adoption of Modern Hive in Stingless Beekeeping Practices in Malaysia

Norhidayah Che Soh, Marlia Musa, Mohd Mansor Ismail

The study aims to investigate the socio-economic factors affecting the adoption of modern hives in stingless beekeeping in Malaysia. A total of 117 stingless beekeepers were selected as respondents using purposive sampling technique. The data were analyzed using descriptive statistic, factor analysis...

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Increasing Livelihood Strategy of Rice Farmer by Developing New Rice Variety "Inpago Unsoed 1" in Central Java, Indonesia

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ABSTRACT

The livelihood approach is a popular concept for identifying the nexus between environmental and social entities. Strategies for sustainable livelihoods are usually used to achieve successful rural development related to food security, realize social equity and sensitivity to environmental integrity. The research uses the livelihood strategy approach to assess the farmer's acceptance in cultivating new rice variety "Inpago Unsoed 1," to increase the national rice productivity and community empowerment. The research was conducted in three sub-districts in Banyumas District, Central Java, Indonesia, from March 2nd until 28th 2021. The results show that economic and social components need to be increased since these components play an essential role in the success of farmers' development in accepting new rice varieties "Inpago Unsoed 1". In contrast, the other components, i.e., biophysical, cultural, and psychological, have less concern. Nevertheless, the effort of farmers to strive from poverty and hunger is not only done by providing their needs but also the surrounding environment that supports livelihood.

Keywords: community empowerment, Inpago Unsoed 1, livelihood strategy, rice productivity.

1. INTRODUCTION

Indonesia faces obstacles in providing food to reach every corner of the region [1]. Availability of strategic food, including rice, can be met partly from domestic production and imports. One of the critical elements in producing food is the availability of land for agriculture. Agricultural land can be broadly divided into dry land and paddy fields [2]. Based on [3], 46 percent of rice fields in Indonesia are non-irrigated rice fields, including rain-fed rice fields. The rice productivity on this land is generally lower than the rice yield in irrigated rice fields. Data on the area of agricultural land in Indonesia for 2016 - 2018 can be seen in Table 1.

Table 1. Data on the area of agricultural land in Indonesia 2016-2018 (Ha).

Land Type	2016	2017	2018
Rice field	8,187,734	8,164,045	7,105,145
- Irrigation Rice	4,782,642	4,745,809	3,804,391
- Non-irrigated rice field	3,405,092	3,418,236	3,301,053
Tegal/Garden	11,539,826	11,704,769	11,697,807
Farm/Huma	5,074,223	5,248,488	5,256,223
Temporarily Uncultivated Land	11,941,741	12,168,012	10,770,888
Amount	36,743,524	37,285,314	34,830,063

The increasing Indonesian population is creating the need for national rice as the leading staple food of the Indonesian people. The national rice consumption rate per capita in 2019 was 94.9 kg/cap/year, while the

consumption contribution of the grain group was 64.4 percent of the total consumption. The level of consumption of these grains has exceeded the recommended composition of 50 percent [4].

On the other hand, rice production shows a decline from year to year. The publication of the Central Bureau of the Statistics Republic of Indonesia shows that rice production in 2019 amounted to 31.31 million tons, decreased by 2.63 million tons or 7.75 percent compared to 2018. Harvested area in 2019 of 10.68 million hectares, a decrease of 700.05 thousand hectares or 6.15 percent compared to 2018 [5]. The high rate of conversion of rice fields has implications for the decline in the availability of rice for the population. This rate will decrease rice production, which can threaten the population's food security [6]. Data from [7] shows that raw rice fields decreased from 8.16 million hectares in 2017 to 7.10 million hectares in 2018 or decreased by 12.97 percent. These areas spread around Indonesia, especially on Java Island.

Banyumas District is a district in Java Island with several areas that rely on rainwater for irrigation or called rainfed rice fields. The sub-districts with the highest rainfed rice fields are Purwojati, Lumbir, Gumelar, Wangon, and Ajibarang.

Problems often encountered in rainfed rice fields include degraded soil conditions, high evaporation, drought, flooding, and lack of water management [8]. This condition causes rainfed rice fields in general to only plant one to two times a year. This condition significantly affects the amount of rice production or less high yielding on rainfed rice fields and income earned by the rainfed farmer to meet the basic needs of the farmer family. The lack of income earned by farmers makes them do the non-farm to meet their daily needs [9].

Relying on the unavailability of high-yielding on rainfed rice fields, Jenderal Soedirman University (Unsoed) has implemented an assembly program for rainfed rice varieties with high yields and quality, i.e., Inpago Unsoed 1. This cross between high-yielding dry tolerant upland rice and aromatic rice is expected to produce rainfed rice of increased products, resistance to pests and diseases, a shorter harvest time, and a flavorful sauce and rice that consumers are interested in.

Therefore, rainfed rice farmers must have appropriate livelihood strategies for their survival. As stated by [10] that rainfed rice farmers who apply the livelihood concept have higher incomes and welfare. [11] argues that livelihood strategies consist of capabilities, assets (including material and social resources), and activities for means of living. A livelihood is sustainable if it can cope with and recover from stresses and shocks, maintain or enhance capabilities and assets, and damage the existing natural resource base. The choice of a livelihood strategy for rainfed rice farmers that includes the rainfed

rice fields as one of its assets is a form of local wisdom. [12] explains that local wisdom is an order of human life that cannot be separated from the culture amid local communities living in an area.

Fighting for sustainable livelihoods and overcoming vulnerabilities related to water availability, most people who make a living as farmers must carry out strategies for their livelihoods. Livelihood strategies describe the efforts made by the community in achieving an adequate livelihood. Livelihood strategy approaches are concerned with how communities manage or combine available or owned livelihood assets, respond to changes that occur, and determine priorities for maintaining or improving livelihoods [13][14]. The livelihood strategy approach is anything of value or a collection of capital used to make a living. The livelihood strategy approach consists of 5 (five) components, namely Biophysical, Economic, Social, Cultural, and Psychological [15][16].

From the things that have been described, it is necessary to study the livelihood strategy approach of "Inpago Unsoed 1" rice farmers in Purwojati, Lumbir, and Ajibarang Sub-districts, Banyumas District, Central Java, Indonesia. The research objective is to assess the farmer's acceptance in cultivating new rice varieties "Inpago Unsoed 1".

2. MATERIAL AND METHODS

This research was conducted in Purwojati, Lumbir, and Ajibarang Sub-districts. These areas were determined purposively based on the sites with the highest number of rainfed rice fields and cultivated with new rice variety "Inpago Unsoed 1". This research was conducted from March 2nd until 28th, 2021. This research method uses descriptive qualitative research methods. Key informants were determined using the purposive sampling method, which consisted of 20 farmers of "Inpago Unsoed 1". Supporting informants in this study were determined using the snowball sampling method.

The data collection method was carried out using 3 (three) methods: interviews, non-participant observations, and document studies. The data analysis method uses Miles and Huberman interactive data analysis, consisting of stages, namely data collection, data reduction, data presentation, and drawing conclusions and verification. The validity of the data in this study was tested using source and technical triangulation. Triangulation of data sources was carried out on the farmers of "Inpago Unsoed 1", while technical triangulation was carried out by searching for data using different data collection techniques. Researchers used data collection methods with interview techniques, non-participant observation and simultaneously documented studies on research subjects. The non-participant observation method was used to see the conditions and

general picture that happened in the field. On the other hand, the interview method was conducted to seek and find answers from 25 research subjects interviewed.

The research objectives were analyzed using internal and external factor analysis and SWOT analysis. Analysis of internal and external factors using IFAS and EFAS matrices. Internal factors consist of strengths and weaknesses, while external factors consist of opportunities and threats, as shown in Table 1 below:

Table 1. Internal Factor Analysis Summary (IFAS) Matrix and External Factor Analysis Summary (EFAS) Matrix

Internal Factors	Weight	Rating	Score (Weight X Rank)
Strength:	1.00		
Weakness:			
Sub-Total			
Opportunity:	1.00		
Threat:			
Total			

Source: [17]

Based on the IFAS and EFAS matrices to find out the position of the program based on the current condition of the program, it is continued with an analysis using an internal-external matrix (IE). The IE matrix can be seen in Figure 1 below:

		<i>good</i> 3.00-4.00	<i>Average</i> 2.00-2.99	<i>Weak</i> 1.00-1.99
EFE	<i>good</i> 3.00-4.00	I <i>Growth and Build</i>	II <i>Growth and Build</i>	III <i>Hold and Maintain</i>
	<i>Average</i> 2.00-2.99	IV <i>Growth and Build</i>	V <i>Hold and Maintain</i>	VI <i>Harvest and Divest</i>
	<i>Weak</i> 1.00-1.99	VII <i>Hold and Maintain</i>	VIII <i>Harvest and Divest</i>	IX <i>Harvest and Divest</i>

Source: [18]

Figure 1. The External-Internal matrix

The result from the IE matrix is then combined with the model from Stubbs and Cocklin [19], which introduces the sustainability phase model to know the sustainability level from each component of the livelihood strategy approach.

3. RESULTS AND DISCUSSION

The results of data analysis show that the livelihood strategies of "Inpago Unsoed 1" rice farmers include three methods. The results also show that although there are variations in approach, they cannot be separated from agricultural activities in general. Most of them depend on agricultural activities (40%), some rely on livestock and farming activities or a mixed strategy (39%), and only a small proportion (15%) depend on commercial activities, in this case, business.

Livelihood strategies applied by farmers are, of course, followed by income earned. Most of more than half of the farmers (55%) are low-income. Others have moderate income (35%). Only a small percentage (10%) earn a high income. Although farmers have varied their livelihood strategies, most of the income levels are still low. This statement is in line with the findings of [20] that livelihood strategies impact farmers' income. The condition of "Inpago Unsoed 1" rice farmers shows that the average livelihood strategy revolves around farming with low income. This condition cannot be separated from the characteristics of the capital owned. The features of people's livelihoods in villages in Banyumas District show that the assets' unsustainability influences unsustainable conditions.

The characteristics of livelihood capital impact the income of the average livelihood strategy as a farmer. The research results by [21] show that the lack of money, primarily financial and social, impacts the low income of farmers. Thus, efforts to improve assets will impact the strategy and increase the income of "Inpago Unsoed 1" rice farmers in the Banyumas District. Improvements in livelihood assets can improve the livelihoods of "Inpago Unsoed 1" rice farmers where conditions of a decent living level can overcome various shocks and pressures [22].

The livelihood strategy approach was chosen by the household, in this case, the "Inpago Unsoed 1" rice farmers, which is influenced by the control of components [23][24]. Component of livelihood strategy approach includes Biophysical, Economic, Social, Cultural, and Psychological. The more ownership of assets by rice farmers in Banyumas District, the more varied household livelihood strategies. Improvements in livelihood assets can improve the livelihoods of "Inpago Unsoed 1" rice farmers where conditions of a decent living level can overcome various shocks and pressures [25]. We use the livelihood strategy approach to investigate the achievement of environmental and social objectives of "Inpago Unsoed 1" rice farmers in Banyumas.

Table 2. Key components of the livelihood strategy approach of "Inpago Unsoed 1" rice farmers in Banyumas District

Component	Aspects of components	Total score	Average score	Sustainability level
Biophysical	Anticipated construction; anticipated lack of maintenance and decay of existing structures and facilities; due degradation or improvement of human and biophysical health; unknowns regarding size and extent of development growth	120	1.7	Low
Economic	Anticipated alteration of the economic system; anticipated distribution of benefits and burdens from development; decline or increase in property values; speculation and investment; 'goodness of fit' between development and community	187	2.6	Middle to high
Social	Potential increase or decrease in social opportunities; anticipated maintenance or decay of social cohesion and patterns of interaction; differential construction of opportunities and threats; investment of time, money, or energy for support of or resistance to the project; organizational changes; changes in social stability	172	2.2	Middle to high
Cultural	Perceived potential of development to destroy or preserve culture; anticipated new values needed for altered livelihood; perceived impacts of initial and long-term contact with new development	76	1.5	Low
Psychological	Changes in mental health; increases/decreases in stress, anxiety, and anger (through the ability to benefit/lose); increases/decreases in perceived efficacy; the speed of change and ability to cope; degree of participation/uncertainty regarding development; pressure to conform to dominant attitude regarding the development	61	1.2	Low

Source: Own result. Adopted from [26][27]

The psychological component of "Inpago Unsoed 1" rice farmer shows an unsustainable or low level. The low psychological component certainly affects the achievement of the targeted "Inpago Unsoed 1" rice farmers' sustainable livelihoods. Following theoretical studies from [28], farmers' characteristics of high or sustainable psychological components will impact achieving goals in their lives. The psychological component will show the skills and abilities, health, experience of someone who synergizes to carry out the livelihood strategies.

In addition, the results of the study also show that the psychological component of "Inpago Unsoed 1" rice farmer is not sustainable because most farmers do not take part in unsustainable training and training. To achieve a sustainable psychological component, farmers should take a lot of ongoing and organized training. This finding is in line with [29] that ability increases along with education and training. Knowledge increases due to having access to information, and workability increases due to health, skills, and motivation.

The economic component is usually an economic asset that is a picture of household control of the ease of fulfilling the financial aspect of savings, wages, credit, and debt or goods of economic value [30][31]. The access of farmers to financial capital varies greatly depending on the type of need and openness to opportunities to take advantage of it. "Inpago Unsoed 1" rice farmers in Banyumas District have financial capital in unsustainable or low categories. The source of assets to obtain financial capital is limited. Low financial capital will also affect farmers' sustainable livelihood strategies because financial capital will

provide many alternatives for future strategies. The low financial capital will also contribute to the amount of income obtained by farmers. The characteristics of livelihood capital impact the income that the average livelihood strategy is as a farmer. The research results by [32] show that the lack of money, primarily financial and social, impacts the low income of farmers.

The biophysical component owned by "Inpago Unsoed 1" rice farmer in Banyumas District generally still shows a low or unsustainable category. Mastery of biophysical components illustrates the ease of access to facilities and infrastructure supporting households, i.e., farmers, in surviving [33]. The biophysical component refers to the ownership of one's biophysical assets in the family.

"Inpago Unsoed 1" rice farmers in Banyumas District who generally have low physical capital have not been able to achieve the expected sustainable livelihoods. Biophysical components or money have a good or high sustainability value if farmers intensify and diversify their livelihood strategies. This condition is indicated by many or increasing business strategies in biophysical components to maintain their sustainable livelihoods [34].

The cultural component owned by the "Inpago Unsoed 1" rice farmer in Banyumas District is in the medium category, the highest among the five other components. "Inpago Unsoed 1" rice farmers who have cultural components can be used to gain access to a better livelihood. The cultural component comes from nature and is used to meet its needs [35]. The cultural component is also considered very important because

humans cannot live on environmental services and food from nature [36].

The cultural component owned by "Inpago Unsoed 1" rice farmers in Banyumas District has survived because it is generally in the medium category. [37] results that the cultural component owned by farmers is directly proportional to their livelihood strategies. The higher the level of sustainability with a cultural component, the farmers' livelihood strategies will be higher than just for survival. However, this has not been achieved because other assets or capital are low or unsustainable.

Ownership of assets or social component of "Inpago Unsoed 1" rice farmer in Banyumas District is still low or unsustainable. The social component describes the ease in social networks used by households, both formal and informal, which are the foundation for survival [38]. The social component shows how families interact with other communities in their social environment. The social component is considered capable of increasing mutual trust and reducing the cost of working together [39].

The social component of "Inpago Unsoed 1" rice farmers in Banyumas District is low because their participation in farmer organizations/groups is still meager, and many are not even involved. So that the faulty social component also affects the strategies they take and low incomes. [40] shows that a lack of capital, primarily financial and social, impacts the low income of farmers. Increasing indicators of social component owned by "Inpago Unsoed 1" rice farmers in realizing sustainable livelihoods can be done in several ways. [41] Increasing community access to economic institutions, optimizing existing community institutions, especially in every government program, integrating informal institutions with formal institutions, and re-activating existing cooperatives or establishing farmer's cooperatives would increase sustainable livelihoods.

4. CONCLUSION

Based on the results described in the previous discussion, the following conclusions can be drawn as follows.

1. Livelihood strategies applied by farmers are, of course, followed by income earned. Most of more than half of the farmers (55%) are low-income. Others have moderate income (35%). Only a small percentage (10%) earn a high income. This condition shows that although farmers have varied their livelihood strategies, most income levels are still low.
2. The economic and social components need to be increased since these components play an essential

role in successfully accepting new varieties "Inpago Unsoed 1" at the farmer level. In contrast, the other components, i.e., biophysical, cultural, and psychological, have less concern. Nevertheless, the effort of farmers to strive from poverty and hunger is not only done by providing their needs but also the surrounding environment that supports livelihood.

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