

THE RICE AVAILABILITY AND BASIC FOOD CONSUMPTION OF FARMING HOUSEHOLDS IN PADENGO VILLAGE DENGILU SUBDISTRICT POHUWATO REGENCY GORONTALO PROVINCE



Indriyani Saidi¹⁾, Yuliana Bakari^{1*)}

¹Universitas Negeri Gorontalo

*Corresponding author: yulianabakari@gmail.com

To cite this article:

Saidi, I., & Bakari, Y. (2025). The Rice Availability and Basic Food Consumption of Farming Households in Padengo Village Dengilo Subdistrict Pohuwato Regency Gorontalo Province. *Jurnal Ilmiah Membangun Desa Dan Pertanian*, 10(3), 343–350. <https://doi.org/10.37149/jimdp.v10i3.1808>

Received: February 06, 2025; **Accepted:** July 30, 2025; **Published:** July 31, 2025

ABSTRACT

Food security must be achieved because food is one of the issues that need to be addressed at the individual and household levels, particularly in terms of meeting consumption needs that lead to adequate food availability. The objectives of this study are (1) to analyze the availability of food (rice) in farmer households and (2) to analyze the consumption patterns of staple foods in farmer households. The study was conducted from May to August 2024, using purposive sampling, with the Harry King nomogram formula and a 91% confidence level for the sample relative to the population. With a margin of error of 9% from the total population of 191, resulting in 60 rice farmers. The types and sources of data include primary data obtained through field surveys conducted in Padengo Village via interviews using questionnaires, as well as secondary data obtained from the Pohuwato Central Statistics Agency. Data analysis employed consumption pattern analysis using the Food Recall method and assessed the food availability of staple foods. The analysis involved two key components: Input (sources of staple foods from production, purchases, and food assistance) and Output (sold, used in social activities, or given to others). The results of this study indicate that the average food consumption pattern of farmer households in Padengo Village is 1,743 kcal/person/day, which is below the recommended energy sufficiency level of 2,100 kcal/person/day. Furthermore, the availability of staple food rice in farmer households, as seen from the household food consumption pattern, was 1,127 kcal/person/day, which is below the recommended level of 1,400 kcal/person/day.

Keywords: availability; farmers; food consumption.

INTRODUCTION

Food is a crucial issue that must be addressed by both the community and the government, as food needs have a significant impact on food security at the individual and household levels. To achieve food security, communities must be able to achieve food self-reliance, ensuring a balance between food production and the fulfillment of food consumption needs, thereby promoting food security. However, not everyone has the opportunity to access food (Hidayah et al., 2024) due to limitations in both economic and physical food access. There are three key elements in food security development: the availability of sufficient and equitable food supplies, the accessibility of food, and diverse, nutritious, balanced, and safe food consumption patterns. (Saputro & Fidayani, 2020) .

Food availability is one of the challenges that must be addressed in improving food security, particularly at the household level. Food availability is influenced by four aspects: food production within the region, purchasing power for food, food reserves or stocks, and government assistance (Sitindaon et al., 2021). According to (Faatihah et al., 2021), the availability of food that is guaranteed in terms of production, distribution, and quality, both at the national and household levels, is referred to as the achievement of food security, which includes physical access, which is the ability to achieve food security that can be seen from economic capacity, availability, and access to food, both from purchasing and production. According to Rumawas et al. (2021), food security at the household level



is the foundation for community food security, which in turn becomes a pillar for regional and national food security.

The relationship between food availability and the poverty line is very close, where households still below the poverty line are classified as poor due to limited access to sufficient staple foods. Most of Indonesia still faces food shortages, particularly among poor households that tend to have limited access to sufficient food. (Santi & Andrias, 2017) .

Pohuwato Regency is one of the regencies in the province of Gorontalo. Pohuwato Regency currently has a stock of rice aid totaling 676,150 kg distributed across 13 districts, one of which is Dengilo District. Pohuwato Regency also experiences a food shortage, affecting 18.72% of its total population of 161,730 people (BPS Pohuwato Regency, 2024). Additionally, based on data from the Pohuwato District Food Agency (2024), an initial survey conducted by the author revealed that, according to the *Food Security and Vulnerability Atlas (FSVA)*, Padengo Village in Dengilo District is classified as a low-food-security area. One of the indicators for measuring household food security is by examining the availability of food in those households. This is an interesting area for the author to research because, based on the data, Padengo Village is estimated/hypothesized to experience shortages in food availability. In this study, food availability is explained by describing the food consumption patterns of farming households, which have been rarely studied and discussed in previous research.

Based on the above problem statement, the researcher is interested in conducting this study with the objectives of (1) analyzing the availability of rice and (2) examining the consumption patterns of staple foods among rice-farming households in Padengo Village, Dengilo Sub-district, Pohuwato District.

MATERIALS AND METHODS

This study was conducted in Padengo Village, Dengilo District, Pohuwato Regency, from May to August 2024. The type of research used was quantitative descriptive. The sampling technique used in this study was purposive sampling, where the population of interest, namely rice farmers, was observed using the Harry King Nomogram formula.

$$n = R \times N \quad (1)$$

Where: n = Number of Sample Members, R = Ratio Size (%), N = Number of Population Members

The confidence level of the sample relative to the population is 91%, with a margin of error of 9% of the total population of 191 people, resulting in a sample size of 60. Data collection techniques include primary and secondary data sources, such as observation, interviews, and questionnaires, to determine the research variables of food availability, particularly rice, and the consumption patterns of staple foods in rice-farming households in Padengo Village.

The systematic analysis of food availability, specifically the availability of staple foods, particularly rice, in rice-farming households can be calculated by subtracting Output from input (Marshya et al., 2023), as follows:

$$S = \text{Input} - \text{Output} \quad (2)$$

Where: S = availability of staple food (rice) in farming households. Input = Sources of staple food from production, purchases, and gifts. Output = Staple food sold, used for social activities, or given to others.

The categories of rice availability in farmers' households are based on consumption patterns and are divided into three: Low, Medium, and High. The Low category refers to rice availability of less than or equal to 1,400 kcal/gram/day. Moderate: 1,400 kcal/gram/day or availability is less than or equal to 1,600 kcal/gram/day. High: Rice availability per day is greater than or equal to 1,600 kcal/gram/day.

The data analysis employed in this study encompasses an examination of consumption patterns and household food availability. Based on ([BPN] National Food Agency, 2024), household food consumption patterns are assessed through both qualitative and quantitative aspects by calculating the quantity and types of food consumed, and then converting them into energy and nutrients using consumption calculations based on recommended energy adequacy levels. The

recommended Energy Adequacy Level (AKE) is 2,100 kcal/person/day. The *Food Recall* method involves recounting the foods consumed over the past month.

RESULTS AND DISCUSSION

Respondent Characteristics

The characteristics of respondents based on Padengo Village, Degilo Subdistrict can be seen in the following Table 1

Table 1. Characteristics of respondents based on Padengo Village, Degilo District, 2024

No	Respondent Characteristics	Number (Individuals)	Percentage
1	Age (Years)		
	20-29	2	3
	30-39	14	23
	40-49	22	37
	50-59	15	25
	>60	7	12
	Average	47	
2	Education		
	Elementary school or equivalent	52	87
	Junior High School/Equivalent	6	10
	High School/Equivalent	2	3
3	Number of Family Members (Persons)		
	1-3	2	43
	4	3	57
	Average	4	
4	Land Area (Ha)		
	≤1	28	47
	1 - ≤2	27	45
	2	5	8
	Average	1	

Source: Processed Primary Data, 2024

Age is used to assess physical ability, as well as mental and spiritual health, for engaging in productive activities. Human work capacity is highly dependent on age. Younger or older individuals tend to be in conditions that are not yet or no longer optimal for work. Based on the table above, the majority of respondents are aged 40–49 years, with 22 individuals representing 37% of the total. The next largest group is aged 50–59 years, comprising 15 individuals, which accounts for 25%. The smallest group is aged 20–29 years, with only two individuals representing 3% of the total. This indicates that the average age of farmers is still considered productive at 47 years. According to Damayanti and Khoirudin (2016), the productive age is defined as individuals aged under 59 years, who are more likely to fall into the food-secure category because this age group is in a physically productive condition for farmers, as their work relies heavily on physical ability.

Higher education is one of the basic needs of life because it enables individuals to develop and adopt more advanced perspectives. Education influences behavior and the adoption rate of innovations. Based on the table, the highest level of education is elementary school/equivalent, with 52 people, or 87%, followed by junior high school/equivalent, with six people, or 10%, and the lowest level of education is senior high school/equivalent, with two people, or 3%. Low educational levels influence consumption patterns, as people lack knowledge about the definition of healthy and nutritious food, and instead choose foods that are filling without considering their nutritional value. Higher educational levels lead to better knowledge in selecting, processing, and consuming food. In line with the study by Pangemanan et al. (2021), educational level influences the absorption of information and innovations related to the availability and consumption patterns of food, affecting household food security. The extent of household food consumption is influenced by an individual's educational level and their awareness of the importance of education, which leads households to allocate their income toward education and reduce other expenditures.

The number of family members or dependents within the household itself who live together under one roof. Farmer households with 1 to 3 dependents number 26, accounting for 43% of the total number of households. The most significant number of dependents is 4 to 6 people, with 34

households accounting for 57% of the total, and the average number of dependents is 4. The size of a family's needs is determined by the number of dependents in the family, which in turn affects the amount of food available to that family. In line with the results of Banita's (2017) analysis, it is partially shown that the number of family members has a significant effect on the availability of staple foods in households. On the one hand, the number of family members reduces food security because the more family members there are, the greater the burden on the family to meet their food needs (Lukri et al., 2016).

Land is the primary input in agricultural production, serving as a productive asset for farmers. It is a crucial factor that contributes significantly to agricultural activities. A larger land area increases the potential for achieving high production outcomes. It can be seen that the majority of farmers in Padengo Village have land areas ranging from 0.25 to 1 hectare, with 56 farmers accounting for 93% of the total. The smallest land area is 2 hectares, which is held by four farmers, accounting for 7% of the total. An increase in land area can enhance agricultural productivity, which in turn influences food availability and household consumption patterns. In line with the study, the availability of rice in Gorontalo Regency is influenced by the size of the rice field land area. The larger the land area, the greater the rice production, where land area significantly influences food sufficiency dynamics.

Food Availability of Rice Farming Households in Padengo Village

According to Ibrahim (2023), food availability is crucial for national food security development at the household level and therefore requires attention. One of the pillars of household food security is the availability of sufficient food within a household to meet its basic needs (Fallo et al., 2019).

Food availability in rice-farming households in this study is focused solely on rice produced by those households. Padengo Village, located in Dengilo Subdistrict, Pohuwato District, is renowned for its significant rice farming production. Household rice availability can be determined by rice paddy production, purchases, and government food assistance, all of which are based on staple foods such as rice. Additionally, household rice stocks or reserves are the portion of agricultural production set aside from previous harvests for household consumption. Household rice availability influences community consumption patterns. Household rice availability among farmers can be observed through the inputs and outputs generated.

Table 5. Household rice availability of rice paddy farmers in Padengo Village

Input	Average Availability			%
	Kg/Planting Season	Kg/Month	Kg/Day	
Farm Production	1.165	291	10	94.95
Purchases	0	0	0	0.00
Loan	32	8	0.27	2.61
Food assistance	30	8	0.25	2.45
Total Input	1,227	307	10	10
Output	1,165	291	10	94.95
Sales	1,065	266	9	99.10
Social activities	10	2	0.08	0
Given to Other Parties	0	0	0	0
Total Output	1074	269	9	100.00
Input-Output (Availability)	152	38	1	

Source: Processed Primary Data, 2024

It can be seen that the availability of rice for farmer households in Padengo Village, Dengilo Subdistrict, is mainly obtained from production generated by rice paddy farming. The average production output reaches 1,165 kg per growing season, equivalent to 291 kg per month or 10 kg per day, with a percentage of 94.59%. Rice paddy farming production has a significant influence on the availability and consumption patterns of rice in households. In line with the study by Wehantouw et al. (2021), rice production has a positive and significant impact on the Food Security Index in North Sulawesi. This is supported by the study (Lusiana et al., 2021), which shows that rice production is a primary factor that significantly influences the dynamics of food sufficiency in farmer households.

Based on purchase inputs with a 0% percentage, it can be concluded that rice-farming households do not rely on purchases for rice availability, as they obtain rice from their own production and government food assistance. To address the shortage of rice availability in households, farmers typically borrow rice from rice granaries at a rate of 32 kg per growing season, 8 kg per month, and

0.27 kg per day, with a percentage of 2.61%. In return, farmers will repay the same amount of rice during the next harvest by deducting a portion of their harvest to settle the rice debt. As a result, rice-farming households in Padengo Village do not purchase rice.

The distribution of basic food assistance in Padengo Village is provided through the Family Hope Program (PKH). The Family Hope Program involves the disbursement of funds that are then directly converted into basic food staples, specifically rice. The disbursement of PKH funds to its members is carried out four times a year, and can be collected using a special card held by the recipient at designated distribution points under the supervision and guidance of PKH. The average availability of rice obtained from government distribution is 30 kg per planting season. When converted into monthly units, the average rice availability is 8 kg per month. In daily units, the average rice availability is 0.25 kg per day. The percentage of rice availability for farming households obtained from government distribution is 2.45%. This is because not all rice-farming households are included in the Family Hope Program. The community included in the program is limited to specific categories. However, those who do not receive basic food assistance often receive other forms of social assistance, such as BLT (Direct Cash Assistance). This aligns with the study by Hamid et al. (2013) on the analysis of household food consumption patterns in Tarakan Barat District, where the government's food assistance program, Raskin, significantly influences household food consumption patterns. In contrast, research conducted by Benusu et al. (2013) on factors influencing the availability of basic food staples in farmer households in Meotroi Village, Laen Manen Sub-district, Belu Regency, found that rice assistance had no significant impact on the availability of basic food staples. This is because the rice assistance was only received by a few households categorized as poor and those with elderly members.

The average output sales of rice-farming households in Padengo Village were 1,065 kg per growing season, equivalent to 266 kg per month or 8.87 kg per day, with a percentage reaching 99.10%. In contrast to the study by Marshya et al. (2023), households did not engage in sales output because they did not produce rice to meet their own consumption needs; instead, they purchased rice.

Based on Table 2 above, the average availability obtained from the difference between input and Output for rice-farming households in Padengo Village is 120 kg per growing season, 30 kg per month, and 1 kg per day. As seen from the results of this study, rice availability in rice-farming households in Padengo Village is primarily generated through self-production and food assistance programs, such as the Family Hope Program (PKH), to meet household consumption needs. Based on this, rice-farming households in Padengo Village do not purchase rice for consumption needs. This research finding contrasts with a study conducted by the National Institute of Social and Development Research (Marshya et al., 2023), where household rice availability was obtained through purchases, ensuring that their consumption needs are always met.

Meanwhile, rice availability, as indicated by the food consumption patterns of rice-farming households in Padengo Village, is 1,127 kcal/person/day, which is still below the recommended daily intake of 1,400 kcal/person/day. This means that rice availability in rice-farming households in Padengo Village is still classified as low food security. This aligns with data from the Pohuwato Food Agency, which classifies Padengo Village as a low-food-security village in Dengilo Subdistrict. This situation arises due to an imbalance between production and consumption, as farmers sell most of their rice production rather than setting aside part of it for their consumption over a sufficient period until the next harvest, ensuring that carbohydrate intake, particularly from rice, is consistently met. Additionally, the community's reliance on government food assistance has become a benchmark for their inability to store rice, as evidenced by the declining purchasing power of the community for rice. Unbeknownst to them, this food assistance provides only short-term relief, weakening the economic foundation and eroding the community's spirit and innovation for entrepreneurship.

Analysis of Food Consumption Patterns of Rice Farming Households in Padengo Village.

Food consumption patterns are formed from eating habits that persist over a long period, typically years or even generations. The food consumption patterns of rice-farming households in Padengo Village were obtained using the *Food Recall* method, where respondents recounted all the foods they consumed over one month, as shown in the following table.

As shown in the table above, the food consumption pattern of rice-farming households in Padengo Village is as follows: rice consumption is 38 kg per month, or 313 grams per day, with a calorie content of 1,127 kcal per gram per day. The food consumption pattern of rice-farming households in Padengo Village is dominated by rice-based foods, with rice accounting for 65%. According to Wehantouw et al. (2021), rice consumption has a positive and significant impact on the Food Security Index (FSI). This is because the rice food group is one of the main staple foods

consumed by the community daily as a source of energy for the body. Additionally, most of the population in Padengo Village are farmers, which supports the availability and higher consumption patterns of rice-based foods compared to other foods. In line with the study (Adha & Suseno, 2020) on the consumption patterns of staple foods and their contribution to energy sufficiency in Sukadamai Village, where the majority of the population still relies on rice as the primary food source, with a meal frequency of twice a day. Therefore, the consumption of rice is the highest compared to other foods.

Table 6. Average Food Consumption Patterns of Rice Farming Households

Food	Consumption			
	Kg/Month	Gram/Day	kcal/Gram/Day	Percentage
Rice	38	313	1.127	65
Corn	4	36	129	7
Tubers	3	23	83	5
Cooking oil	6	17	138	8
Egg	2	17	21	1
Fish	15	121	181	10
Fruit	3	23	11	1
Vegetables	3	25	10	1
Sugar	3	22	33	2
Tofu and tempeh	2	15	10	1
Total	77	611	1,743	100

Source: Processed Primary Data, 2024

Corn consumption in farming households is 7%, significantly lower than rice consumption. This is because corn is primarily used in households as a supplementary food or mixed with rice for consumption, and its primary use is as feed for chickens.

Root vegetable consumption reaches 5%. This consumption has not yet reached the recommended contribution from the tuber food group, which is around 6% of the total energy requirement of 2,100 kcal. Several factors contribute to the low consumption of tubers in this village, including the community's reliance on a single type of tuber, cassava, due to factors related to access and purchasing power for food. To meet their tuber needs beyond cassava, such as sweet potatoes, purple yams, potatoes, and others, they must purchase them. This is due to cultural factors, habits, or perceptions that cassava is more readily available compared to other tubers, such as potatoes.

Furthermore, the residents of Padengo Village are not fully aware of the nutritional and health benefits of diverse root crops. The lack of education and awareness about the importance of balanced consumption of root crops may lead to residents remaining uninterested in consuming them. Similarly, a study conducted by the National Nutrition Center () (Karimah et al., 2023) found that the quality of tuber consumption among the Indonesian population in 2020 was low, reaching only 42.9% of the recommended amount (108 grams per capita per day), with the lowest consumption recorded in East Nusa Tenggara (22 grams per capita per day). However, this differs from the tuber consumption in Papua Province, which was relatively high at 349.3 grams per capita per day.

Cooking oil consumption among rice-farming households in Padengo Village was 8%. Cooking oil and fat consumption is influenced by the frequency of cooking oil purchases, which occurs 3 to 4 times a month, with an average consumption of 5 to 6 liters per month. This consumption pattern underscores the importance of health awareness and effective household budget management in selecting suitable cooking oils and fats.

The consumption pattern of animal-based foods includes fish, meat, eggs, and dairy products such as milk. Examining the proportion of animal-based food consumption among the population in Padengo Village reveals a notable difference, as it is primarily obtained from fish and eggs. This is because animal-based food sources, such as meat and milk, are consumed by the population only at certain times of the year. Egg consumption is 1%, and fish consumption is 10% in rice-farming households in Padengo Village.

The contribution of vegetable and fruit consumption in rice-farming households in Padengo Village is 1%. Vegetable and fruit consumption in households can be obtained from self-production, purchases, or gifts. In this study, fruit consumption is obtained from self-production and gifts from close relatives. The average fruit consumption in households comes from bananas and papayas. This has become a pattern or lifestyle for the community in Padengo Village because these fruits are easily accessible to the community, particularly bananas and papayas. These fruits are produced locally because the production system and maintenance are relatively straightforward. Unlike vegetable consumption, households can only access vegetables by purchasing them. Vegetables obtained

through purchases include kangkung, eggplant, and others. Limited access to backyard gardens is one factor influencing the community's ability to access vegetables.

Sugar consumption in this study refers to the addition of white sugar to coffee and tea. The average sugar consumption in rice-farming households in Padengo Village is 2%. Sugar consumption is not only important for daily household needs but is also used as a primary ingredient in the food industry. The use of sugar in households for processed foods is limited to specific occasions, such as during the preparation of traditional cakes for Eid al-Fitr and other festive occasions.

Protein is one of the essential nutrients that serve as an energy source alongside carbohydrates, which are vital for the body. Additionally, according to Verawati et al. (2021), the lower a population's ability to meet its dietary needs, such as protein intake, the weaker its food security becomes. Animal protein sources include fish, meat, milk, and eggs, while plant-based protein sources include soybeans, legumes, grains, and pulses. Tofu and tempeh are processed products made from soybeans through a fermentation process. The average monthly consumption of tofu and tempeh, which fall under legume-based foods, is approximately 1%.

The consumption of staple foods in Padengo Village remains relatively homogeneous, as evidenced by data obtained through field surveys and subsequent data analysis. The data shows that staple food consumption is still dominated by rice. This is undoubtedly because most people in Padengo Village work as rice farmers, so their food consumption is primarily dominated by rice. Additionally, economic factors also play a role in the dietary patterns of adults, who tend to consume rice as their staple food because it is easier to store and more practical to prepare (Titaley et al., 2020). In line with the research conducted by Adha & Suseno (2020), it was found that most people in Sukadamai Village consume rice more frequently than other foods, as evidenced by a frequency of rice consumption of 2.25 times per day, compared to corn and other foods, which are significantly lower. To enhance dietary diversity, it is hoped that the community can implement food diversification and utilize other local foods at the household level. This is also a priority for the government, emphasizing the importance of education in informing the community about the benefits of diversification in achieving food security in a region. Food security at the individual and household levels serves as a benchmark for overall food security in an area.

CONCLUSION

The availability of rice in farming households is 38 kg per month, equivalent to 1,127 kcal/gram/day. This consumption is still below the recommended level of 1,400 kcal/gram/day or 47 kg/month per household. Meanwhile, the food consumption pattern of rice-farming households is 1,743 kcal/gram/day, which is still insufficient to meet the government's recommended Energy Adequacy Level (EAL) of 2,100 kcal/gram/day.

REFERENCES

- Adha, A. S. A., & Suseno, S. H. (2020). Patterns of staple food consumption and their contribution to energy adequacy levels in Sukadamai Village. *Journal of Community Innovation Center*, 2(6), 988–995. <https://journal.ipb.ac.id/index.php/pim/article/view/33271/20676>
- Amin, F., Fadilah, N., Garancang, S., & Abunawas. (2023). The concept of quantitative research on population, sample, and data analysis. *Jurnal Pilar*, 14(1), 15–31. <https://doi.org/10.38035/jim.v3i1.504>
- Badan Pangan Nasional. (2024). *Directory of national and provincial food consumption development 2019–2023* [Direktori Pengembangan Konsumsi Pangan Nasional dan Provinsi 2019–2023].
- Badan Pusat Statistik Kabupaten Pohuwato. (2024). *Pohuwato district in figures 2024* (p. 313). <https://pohuwatokab.bps.go.id/>
- Banita, D. (2017). *Analysis of the availability of staple foods and consumption patterns in farmer households in Wonogiri District* [Undergraduate thesis, Universitas Sebelas Maret]. <https://digilib.uns.ac.id/dokumen/detail/29732/Analisis-Ketersediaan-Pangan-Pokok-Dan-Pola-Konsumsi-Pada-Rumah-Tangga-Petani-Di-Kabupaten-Wonogiri>
- Benusu, P. C., Aspatria, U., & Picauly, I. (2013). Factors influencing the availability of staple foods in farmer households in Meotroi Village, Laen Manen District, Belu Regency. *Journal of Food, Nutrition, and Health*, 5(1), 715–724. <https://doi.org/10.51556/ejpazih.v5i1.87>
- Damayanti, V. L., & Khoirudin, R. (2016). Analysis of factors influencing food security in farmer households (Case study: Timbulharjo Village, Sewon, Bantul). *Journal of Economics & Development Studies*, 17(2). <https://doi.org/10.18196/jesp.17.2.3735>

- Faatihah, A., Sukayat, Y., Setiawan, I., & Judawinata, M. G. (2021). The COVID-19 pandemic: The downfall and revival of agriculture—Strategies to break the food supply chain for rice-farming households during the COVID-19 pandemic. *Mimbar Agribisnis: Jurnal Pemikiran Masyarakat Ilmiah Berwawasan Agribisnis*, 7(1), 309–319. <https://jurnal.unigal.ac.id/mimbaragribisnis/article/view/4529>
- Fallo, Y. K., Lango, A. N., & Ernanteje, H. (2019). Access and availability of staple foods in farmer households in Napi Village, Kie District, South Central Timor Regency. *JEXCEL: Jurnal Ekonomi dan Ekonomi Pembangunan*, 8(1), 52–59. <https://ejournal.undana.ac.id/index.php/JEXCEL/article/view/1334>
- Hamid, Y., Setiawan, B., & Suhartini. (2013). Analysis of household food consumption patterns: Case study in Tarakan Barat Subdistrict, Tarakan City, East Kalimantan Province. *Agrise*, 13(3), 175–190. <https://agrise.ub.ac.id/index.php/agrise/article/view/104>
- Hidayah, R., Ayu, I. W., Wijayanti, N., & Wartiningsih, A. (2024). Analysis of household food security in Sumbawa Regency. *Journal of Technology and Environmental Research*, 7(1), 161–168. <https://doi.org/10.58406/jrktl.v7i1.1618>
- Ibrahim, J. T. (2023). *National food security in Indonesia* (October Issue).
- Karimah, N. I., Sukandar, D., & Heryanto, Y. (2023). Consumption of tubers in Indonesia. *Jurnal Gizi dan Dietetik Indonesia*, 2(1), 45–52. <https://doi.org/10.25182/jigd.2023.2.1.45-52>
- Lukri, V., Damayanti, V. L., Khoirudin, R., & Rifki, R. (2016). Analysis of factors influencing household food security among farmers (Case study: Timbulharjo Village, Sewon, Bantul). *Journal of Economics & Development Studies*, 3(2), 17. <https://doi.org/10.18196/jesp.17.2.3735>
- Lusiana, R., Rauf, A., & Indriani, R. (2021). Factors influencing the dynamics of food sufficiency in rice-farming households in Gorontalo City. *Jurnal Gizi Terapan*, 10(2), 174–185. <https://doi.org/10.31850/jgt.v10i2.773>
- Marshya, A., Amrullah, A., & Busthanul, N. (2023). Availability of staple foods in farmer households in remote areas. *Journal of Social and Economic Defense*, 19(1), 19–27. <https://journal.unhas.ac.id/index.php/jsep>
- Pangemanan, M. R., Kindangen, V. A. J., & Masinambow, F. (2021). Analysis of the availability of staple foods and food consumption patterns in farming households in Pasan, Tombatu Timur, and Belang Districts, Minahasa Tenggara Regency. *Journal of Economic and Financial Development*, 22(3), 1–21. <https://doi.org/10.35794/jpekd.35502.22.3.2021>
- Rumawas, V. V., Nayoan, H., & Kumayas, N. (2021). The role of the government in achieving food security in Minahasa Selatan District (A study of the Minahasa Selatan Food Security Agency). *Journal of Governance*, 1(1), 1–12. <https://ejournal.unsrat.ac.id/v3/index.php/governance/article/view/33652>
- Santi, S., & Andrias, D. R. (2017). The relationship between food availability and the regularity of Raskin receipts with the food security status of Raskin recipient households. *Indonesian Nutrition Journal*, 10(2), 97–103. <https://doi.org/10.20473/mgi.v10i2.97-103>
- Saputro, W. A., & Fidayani, Y. (2020). Factors Influencing Food Security in Farmer Households in Klaten District. *Jurnal Agrica*, 13(2), 115–123. <https://doi.org/10.31289/agrica.v13i2.4078>
- Sitindaon, J. E., Lubis, S. N., & Sirait, B. (2021). Analysis of Household Food Security in Medan City Based on Food Availability Aspects. *Darma Agung*, 29(3), 386–392. <http://dx.doi.org/10.46930/ojsuda.v29i3.1222>
- Syahputra, T., Yetri, M., & Armaya, S. D. (2017). Decision-making system in determining the quality of fresh food intake using the SMART method. *Journal of Technology and Information Systems*, 4(1), 7–13. (Tambahkan tautan atau DOI aktif jika tersedia)
- Titaley, C. R., Sallatalohy, N. M., & Adam, F. P. (2020). Food Security Status and Socioeconomic Factors of the Coastal Community in Buru Selatan District. *Jurnal Agritech*, 40, 1–12. <https://doi.org/10.22146/agritech.37009>
- Verawati, B., Afrinis, N., & Yanto, N. (2021). The relationship between protein intake and food insecurity in relation to stunting incidence among toddlers during the COVID-19 pandemic. *Prepotif: Journal of Public Health*, 5(1), 415–423. <https://doi.org/10.31004/prepotif.v5i1.1586>
- Wehantouw, D. V., Kindangen, P., & Walewangko, E. N. (2021). Analysis of factors influencing food security levels in North Sulawesi Province. *Journal of Regional Economic and Financial Development*, 22(3), 132. <https://doi.org/10.35794/jpekd.35496.22.3.2021>