



Food Security Analysis of Corn Farming Households In The Buffer Area of Mandalika Special Economic Zone

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Abstract

The existence of the Mandalika Special Economic Zone (SEZ), located in Pujut District, Central Lombok Regency, is an area adjacent to many corn cultivation areas. This condition represents strategic potential for the development of corn commodities and their derivative products. On the other hand, food security is a human right that must be fulfilled. The aim of this research is to; 1) Analyze the socio-economic conditions of corn farmers in the buffer area of Mandalika SEZ; 2) Analyze the food security of corn farmers household in the buffer area of Mandalika SEZ; This research was conducted using qualitative-descriptive methods. The data collection technique used interviews with respondents guided by a questionnaire with 40 respondents determined by simple random sampling. The data analysis that will be used in this research is descriptif analysis. The research results show that (1) the average total income of corn farmers is IDR. 28,960,605.28/year, this income comes from agricultural activities amounting to IDR. 23,430,722.93/year, income from non-agricultural activities of IDR. 4,164,000/year and income from other sources (Social-Assistance) of IDR. 1,365,882/year. The average total household expenditure for corn farmers is IDR. 19,506,628/year, with details of food expenditure of IDR. 11,169,548/year, and non-food expenditure of IDR. 8,337,080/year; (2) In general, respondent farmer households included the food secure category. In distribution, there are 20% of farmers who are still in the food insecure category.

Keywords: Corn, Food Security, Mandalika, Socio-economic, Special Economic Zone.

Introduction

Corn is the second source of carbohydrates after rice which plays a role in supporting food security (Ardiana K, Widodo, & Liman, 2015). The important role of corn in the national food system is reflected in government policies that target achieving corn self-sufficiency. The

existence of the Mandalika Special Economic Zone (SEZ), located in Pujut District, Central Lombok Regency, is an area adjacent to many corn cultivation areas (Septiadi, Rosmilawati, Usman, & Hidayati, 2022). This condition represents strategic potential for the development of corn commodities and their derivative products. Studies on the development of functional food agribusiness, especially corn commodities, are important as a source of study in achieving the level of economic efficiency of corn farming. Apart from that, this large market potential must be accompanied by policies that are oriented towards the food security of farming households as the main actors in corn cultivation.

According to (Praza & Shamadiyah, 2020) there is a strong correlation between the share of food expenditure and household food security. The share of food expenditure is inversely related to food security, the greater the share of food expenditure, the lower the resilience of the household concerned. Income is one of the factors that determines household consumption patterns. Higher income indicates higher purchasing power, resulting in increased accessibility to better quality food. Apart from economic factors, other factors that also play a role in shaping consumption patterns are social, cultural and taste. All of these factors greatly determine the quality of food consumed by a household which will ultimately determine the nutritional quality and health of the household members (Ariningsih, 2016).

There was a crucial problem found, where in 2020 corn productivity in Central Lombok Regency only reached 36.71 quintals/hectare. This value is the lowest productivity value compared to the average productivity of corn farming in other districts/cities in West Nusa Tenggara Province which reached 60.58 Ku/Ha or the average productivity of corn farming in Indonesia which reached 54.74 Ku/Ha (FR, Septiadi, & Nursan, 2022). Low productivity has a direct effect on farmers' income levels and low purchasing power. This condition has the potential to become a problem for farmers in accessing food and access to sources of energy, nutrition and protein, so that farmers have the potential to become food insecure. It is thought that corn productivity is still low due to the unfavorable socio-economic conditions of farmers. Several socio-economic factors include the farmer's age, farming experience, education level, number of family members, asset ownership (capital), and land ownership (Husaini, 2012). The objectives of this research are: (1) analyzing the socio-economic conditions of corn farmers in the buffer area of Mandalika SEZ; (2) analyzing the food security of corn farmers household in the buffer area of Mandalika SEZ.

Literature Review

Research on food security analysis is relatively widely available, It's just that the author has not found research results that specifically examine the food security of corn farmers in the Mandalika Special Economic Zone. Several previous studies that are relevant to the author's research plan both in terms of analytical aspects, objectives and research objects are as follows.

(Devi, Andari, Wihastuti, & Haribowo, 2020) studied the socio-economic model and household food security in Indonesia, the results of their research informed that the factors that influence household food security are sanitation aspects (the existence of toilets and water sources in the house), the use of main fuel for cooking, household location, as well as age, status, education level and type of livelihood of the head of the household.

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Saputro & Fidayani (2020) conducted research on the topic of factors that influence the food security of farming households in Klaten Regency. The results of the research report that there are three variables that influence food security, including income level, price of rice and dummy knowledge of nutrition by housewives. Similar research results were also presented by (Sinaga, Lubis, & Darus, 2017), where this research analyzed the influence of community socio-economic factors on household food security in Medan. The results show that 88% of households in Medan City are categorized as food secure households.

Research Method

The method used in this research is a descriptive research method with quantitative and qualitative research approaches (Sugiyono, 2014). In this research, data collection used survey techniques, namely direct interviews with respondents guided by a questionnaire.

The location of the research was in Pujut District, Central Lombok Regency. The selection of research locations is based on unique characteristics. Pujut District is the sub-district where the buffer area of Mandalika Special Economic Zone. In this research, Rembitan Village and Mertak Village were chosen as research locations because these two villages have the largest corn land area compared to other villages in the buffer area of Mandalika SEZ. The number of respondents in this study was 40 respondents taken using Simple Random Sampling.

Data analysis in research is a descriptive method to analysis of household income. The value of farmer household income consists of income from farming activities, income from non-agricultural activities and other sources of income (social assistance).

Then to find out the farmer's household income, use the formula:

$$I = IA + INA + ISA$$

Information:

I: Farmer household income (IDR)

IA: Income from farming activities (IDR)

INA: Income from outside farming/non-agriculture activities (IDR)

ISA: Other sources of income/assistance (IDR).

Then, according to (Widyareni, 2011), the total expenditure of farmer households can be determined by calculating food and non-food expenditure with the following formula:

$$TE = FE + NFE,$$

Information:

TE: Total Farmer Household Expenditure (IDR)

FE: Expenditures for food needs (IDR)

NFE: Expenditures for non-food needs (IDR).

To determine the food security of farming households in the Mandalika SEZ Buffer Area, Central Lombok Regency, calculations were carried out to determine the proportion of expenditure on food needs to the total expenditure of farming households (Sundari & Nachrowi, 2015; Rachmah, Mukson, & Marzuki, 2017 ; Arida, Sofyan, & Fadhiela, 2015; Purwaningsih, Istiqomah, & Sutomo, 2015) with the formula:

$$PPE = FE/TE \times 100\%,$$

Information:

PPE: Proportion of food expenditure (%).

FFE: Expenditures for food needs (IDR).

TTE: Total farmer household expenditure (IDR).

Based on the formula above, if the proportion of food expenditure is low (<60% of total expenditure), then the household is categorized as a food secure household, but if the proportion of food expenditure is high (>60% of total expenditure), then the household is included category of food insecure households (Nainggolan & Ginting, 2022).

Result and Discussion

Socio-Economic Conditions of Corn Farmers in the Buffer Area of Mandalika SEZ

1. Household Income of Farmers

Household income is the amount of money earned from the work carried out by farmers. Household income is grouped into 2, namely farming income and non-farming income. Farming income is the amount of income earned by farmers from the agricultural sector such as farming, animal husbandry, farm labor, and others. Non-farming income is income obtained by farmers from outside the agricultural sector, such as trade and construction labor. Household income is one of the determining factors in the level of quantity and quality of household food. Household Which Town High income tends to improve the quality of food consumption. On the other hand, households with low income tend to consume food in moderation.

Table 1. Average Household Income of Corn Farmers in Pujut District in 2023

No.	Type of activity Productive Economy	Mark (Rp/year)	Percentage (%)
1.	Agricultural Activities:		
	a. UT Food Crops (Corn)	13.918.924,08	48,06
	b. Garden Products and annual plants	722.750	2,50
	c. Farm workers	2.956.966	10,21
	d. Breeding (cattle)	5.383.333	18,59
	e. Raising (Chickens)	448.750	1,55
	Amount (1)	23.430.722,93	80,91
2.	Non-agricultural Activities:		
	a. Construction workers	3.279.000	11,32
	b. Trader	885.000	3,06
	Amount (2)	4.164.000	14,38
3.	Other Sources of Income:		
	a. PKH	660.000	2,28
	b. BPNT	705.882	2,44
	Total (3)	1.365.882	4,72
	Total Income of Farmer's RT	28.960.605,28	100,00

Source: Primary Data Processed 2023

Based on Table 1, the average income of respondent farmers in Pujut District is IDR. 28,960,605.28 per year. This income is obtained from agricultural activities, non-agricultural activities and other sources of income. The average income obtained from agricultural activities is IDR. 23,430,722.93 per year or 80.91% of the total income, consisting of income obtained from food crop farming of Rp. 13,918,924.08 per year or 48.06%, raising livestock (cattle) IDR

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5,383,333 per year or 18.59%, farm laborers IDR 2,956,966 or 10.21%, as well as garden plant activities (annual plants) and raising chickens with contributions average to income of 2.5% and 1.55%.

Apart from that, income is also obtained from non-agricultural activities and other sources of income. Income from non-agricultural activities is IDR. 4,164,000 per year or 14.38% of the total income, consisting of trading business activities amounting to Rp. 885,000 per year or 3.06%, as well as working as a construction worker for Rp. 3,279,000 per year or 11.32%. Meanwhile, the average income from other sources is Rp. 1,365,882 or 4.72% of the total income, consisting of income obtained from PKH sources or assistance amounting to Rp. 660,000 per year or 2.28% and BPNT assistance of Rp. 705,882 per year or 2.44%. The contribution to farmers' household income from other sources is relatively small, this is because not all respondents receive this assistance. The details are as follows.

Table 2. Respondents Recipients of Poverty Alleviation Program (Social-Assistance)

No	Poverty Alleviation Program	Number of Recipients	Percentage (%)
1	BPNT	10	25,00
2	PKH	11	27,50

Based on Table 2, farmer households that received Poverty Alleviation Program assistance from the Government were 10 farmers who received Non-Cash Food Assistance (BPNT) or 25 percent of respondent farmers, and there were 11 farmers who received the Family Hope Program (PKH) or 27.5 percent of farmers. respondents.

Farmers' income in Pujut District from largest to smallest is obtained sequentially from agricultural activities, non-agricultural activities and other sources of income. The largest income obtained from agricultural activities is from food crop farming activities, business cattle, while the smallest income is obtained from business raising chicken.

2. Farmer Household Expenditure

Farmer household expenditure are costs incurred for consumption by all household members. In this research expenditure households are classified into expenditure for food and non-food consumption without regard to the origin of the product, meaning that the amount of expenditure is still taken into account even if the product is obtained from the garden, own farming or in the form of a gift.

Table 3. Details of Average Household Food Expenditures for Corn Farming Households

No	Types of Food Consumption	Average/ Month (Rp)	Percentage (%)
1.	Staple Food:		
	a. Rice	185.500	19,93
	b. Tubers	24.167	2,60
	c. Instant noodles	19.571	2,10
	Amount (1)	229.238	24,63
2.	Onion		
	a. Animal Side Dishes:		

No	Types of Food Consumption	Average/ Month (Rp)	Percentage (%)
	-Beef	50.000	5,37
	-Fish	90.270	9,70
	- Counts	30.175	3,24
	Jumla (2a)	170.445	18,31
	b. Lauk Nabati :		
	-Tahu	24.150	2,59
	-Tempe	22.725	2,44
	Jumla (2b)	46.875	5,0
3	Vegetables	76.875	8,26
4	Frying Oil	54.725	5,88
5	Sugar	29.778	3,20
6	Fruits	32.909	3,54
7	Drink	22.881	2,46
8	Bumbu-bumbuan	25.000	2,69
9	TEA	14.471	1,55
10	Coffee	24.833	2,67
11	Shrimp crisp	11.667	1,25
12	Other instant foods	30.000	3,22
13	fried food	15.714	1,69
14	Packaged Cigarettes	137.000	14,72
15	Chopped Cigarettes	8.385	0,90
	Total Food Consumption	930.796	100

Source: Primary Data Processed 2023

Based on Table 3, it can be seen that the average food expenditure for farmer households in Pujut District is IDR. 930,796 per month or IDR. 11,169,548/year. The highest expenditure costs come from the costs of spending staple food, namely rice, amounting to IDR. 185,500 per month with a share of 19.93 percent of all food expenditure.

The staple food rice is the highest expenditure incurred by households. The large expenditure for purchasing rice is because rice is the staple food for household frequency of fulfilling meals an average of 3 times a day, this can also influence people's food consumption patterns to meet the need for rice as the main basic need so that rice ranks first among other food needs groups. The majority of farming households meet their rice consumption needs by buying at the market. At the time the research was conducted, the price range for rice purchased and consumed by respondents reached a price of Rp. 9,000 – Rp. 10,000/kg with good quality. Meanwhile, the average consumption of rice is 0.23 kg/capita/day. There is little expenditure on consuming tubers because people do not really like or are interested in them even though tubers are included in the staple food. Tubers are only consumed a few times a month or when there is a desire to consume it.

Interestingly, the second largest expenditure component is expenditure on purchasing cigarettes (packaging and pieces). For packaged cigarettes alone, the expenditure is IDR. 137,000 per month, this value is close to the expenditure for purchasing rice as a staple food. Food expenditure on cigarettes is the second largest expenditure, meaning that the majority of farming households consume cigarettes. This means that respondent farmers still place cigarette consumption as primary expenditure. The average person who consumes cigarettes in

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Farming households are generally adult men, the large consumption of cigarettes is because cigarettes contain nicotine which can cause a person to become "addicted" or addicted to cigarettes. Many respondents also said that it was better not to eat rice than not to smoke. On average, one adult male consumes one pack of cigarettes per day, they think that cigarettes can soothe the soul and mind. So smoking is a necessity for a person's psychology. The average price of the cigarettes they consume per day is IDR. 15,000 per pack.

Table 4. Details of Average Monthly Non-Food Expenditures of Corn Farming Households in Pujut District in 2023

No.	Types of Non-food Consumption	Average/ month (Rp)	Percentage (%)
1	Gas/Petroleum	37.575	5,41
2	Cleanliness/Sanitation	61.163	8,80
3	Education	250.026	35,99
4	Credit	50.475	7,27
5	Electricity	87.250	12,56
6	Gas	87.282	12,56
7	Clothes	120.987	17,41
Total Non-food Consumption		694.757	100

Source: Primary Data Processed 2023

Table 4 shows that the average non-food expenditure of farmer households in Pujut District is IDR. 694,757/month or IDR. 8,337,080/year, where the largest expenditure is non-food expenditure for education amounting to Rp. 250,026/month or around 35.99% of the total non-food expenditure of farmer households and the smallest non-food expenditure is non-food expenditure for purchasing gas/petroleum amounting to Rp. 37,575/month, around 5.41% of the total non-food expenditure of farmer households.

3. Proportion of Food Expenditures to Total Expenditures

Based on Table 5, it can be seen that the average food expenditure of corn farming households is greater than non-food expenditure. Farmer household food and non-food expenditures each amount to IDR. 930,796/month or 57.26% and IDR 694,757 or 42.74% of total expenses. So the average total expenditure of farmer households per month is IDR 1.863,668/month.

Table 5. Average Household Expenditures for Corn Farmers in Pujut District in 2023

No	Production Type	Total Expenditures per Month (Rp)	Percentage (%)
1	Food	930.796	57,26
2	Non Food	694.757	42,74
Amount		1.863.668	100

Source: Primary Data Processed 2023

According to Engel's law, when there is a decrease in income, the portion spent on food increases. Conversely, if income increases, consumers will spend his income for food with increasingly smaller portions. Based on Engel's law, respondent farmers have relatively low incomes (Zulkifli, Jokolelono, & Lutfi, 2015).

Food Security Analysis of Household Food Expenditures

The share of food expenditure is the ratio between food expenditure and total household expenditure per month. The share of food expenditure can be used as an indicator to measure household food security. If the share of food expenditure is <60 percent of total expenditure, then the household is categorized as a food secure household, but if the share of food expenditure is ≥ 60 percent of total expenditure, then the household is included category of food insecure households (Samantha, Menganti, & Amaliah, 2021). The results of this research show that the average of food expenditure of corn farmer households in the research location is 57.26% of total household expenditure, meaning that in general the respondent farmer households included the food secure category.

Although in general households farmer respondents are categorized as food secure, but based on the distribution of each household There are still 20% farmers who included the food insecure category or as many as 8 farmer households (Table 6). There needs to be support in the form of a policy from the government to farming households related to improving farmer welfare both in terms of human resources, education, economics and in terms of fulfilling nutritional intake so that it can help in increasing the food security of farming households in achieving quality human resources and competitive (Astuti, 2022).

Table 6. Distribution Household Based on Food Expenditure Share

Production Share	Number (Households)	Percentage (%)	Is.
Food Expenditure Share < 60%	32	80	Food Security
Food expenditure share $\geq 60\%$	8	20	Food Insecurity
Amount	40	100	

Source: Processed Primary Data, 2023

Conclusion

The average total income of corn farmers is IDR. 28,960,605.28/year, with details of income from agricultural activities of Rp. 23,430,722.93/year, income from outside agricultural activities of Rp. 4,164,000/year and income from other sources of IDR. 1,365,882/year. The average total household expenditure for corn farmers is IDR. 19,506,628/year, with details of food expenditure of IDR. 11,169,548/year, and non-food expenditure of IDR. 8,337,080/year. Respondent farmer household food expenditure in the research location was 57.26% of total household expenditure, meaning that in general respondent farmer households were included in the food secure category. In distribution, there are 20% of farmers who are still in the food insecure category, and the remaining 80% are in the food insecure category.

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