

The role of sago (*Metroxylon* sp.) as staple food in supporting food security of household and community in Baloli Village, Masamba District, North Luwu Regency

Dwi Ahrisa Putri^{1*}, Rahmawaty A. Nadja², and Darmawan Salman³

¹Agribusiness Study Program, Faculty of Agriculture and Forestry, Universitas Sulawesi Barat, Indonesia

^{2,3}Agribusiness Department, Faculty of Agriculture, Universitas Hasanuddin, Indonesia

*Corresponding author's e-mail: dwiahrisaputri@unsulbar.ac.id

Received September 29th, 2020; revised December 23rd, 2020; accepted December 30th, 2020

ABSTRACT

Sago is one of an endemic plant in Indonesia which produce starch as staple food in several area in Indonesia like Papua, Maluku, North Sulawesi, South Sulawesi, Southeast Sulawesi, Mentawai, and West Sumatera. Sago has taken important role as one of carbohydrate source in Indonesia. This study aimed to know the role of sago in social or cultural, economic aspects and as a staple food in the level of household and community in Baloli Village, Masamba District, North Luwu Regency. The method used was survey method which was done by observation and interviews using questionnaires. The analysis used in this study was the analysis of the role of sago and food security and food consumption. The role of sago in terms of social or cultural aspects by qualitative and descriptive analysis of the economic analysis of sago farmers' income. The research proved that the role of social or cultural sago is viewed as a traditional crop that is consumed hereditary, there's also some tradition and customs which maintain the value of life which is known as local wisdom, that's reflected by the behavior in the society of Baloli Village particularly in sago cultivation and other plant parts such as leaves can also be utilized to craft into roofs and leftovers of the bark is used as fire wood and the pulp is used for animal feed. From the economic aspect, the biggest income of farmers who have their own sago palms and process them to sago starch despite the limited amount and it has not been able to support food security for household and community.

Keywords:

Sago, Staple food, Food security, Household

1. Introduction

The area of sago in Indonesia is around 1.128 million ha or 51.3 percent of the 2,201 million ha of the world's sago area producing 4-5 million tons of sago starch or only about 10 percent of potential production, followed by Papua New Guinea at 43.3%. However, in terms of utilization, Indonesia is still far behind compared to Malaysia and Thailand, which only have an area of 1.5% and 0.2% of the world's total area [1].

The area of sago in South Sulawesi is 4102 hectares with a production of 1065 tons. There is quite a lot of sago in several districts in South Sulawesi [2]. Here are some districts and areas that are still overgrown with sago trees. There are five districts that still have quite a lot of sago in South Sulawesi. Luwu Utara is a district with the largest area of 1,590 hectares with a total production of 277 tons and farmers of 2,644 people. Furthermore, Luwu with an area of 1,462 hectares with a total production of 152 tons and a total of 3,091 farmers. Next is Luwu Timur 102 hectares with a total production of 166 tons and 183 people number of farmers. The city of Palopo has an area of 667 hectares of sago, a production of 61 tons and a total of 755 farmers. Bone regency is also overgrown



with sago trees with an area of 274 hectares, the production amount is 408 tons with the number of farmers 1,436 people while the Selayar Islands is the narrowest district of the area of sago which is only 7 hectares with a total production of 1 ton and 23 farmers. The Luwu Raya area (Luwu, North Luwu and East Luwu) is a district with great potential for sago development.

Sago is also a type of local food in South Sulawesi apart from sweet potato, cassava, breadfruit, maize, and rice which has a strategic role in the development of food diversification in the regions to support food security because traditional food raw materials are available in a specific location. Traditional food is a product with a high cultural taste in the form of a combination of creations to process local resources with spices and customs and has been passed down from generation to generation. Thus, traditional food can be used as a means of realizing food diversification in strengthening national food security [3].

Sago is not just an ordinary tree. However, sago has various roles and functions that are vital and strategic for life. Starting from its role and function as a source of food and energy, socio-cultural values, to ecology. Judging from its various roles and functions, sago should be maintained, utilized, and empowered and developed [4].

In 2016, the production of sago in North Luwu was 1,938 tons and an area sago area of 1,789 Ha, is a district that has production and the highest area of sago compared to other districts in South Sulawesi [5]. Consumption of sago began to increase again. This is indicated by the habit of the people there who often consume sago even though there is rice as the staple food. Processed sago such as limestone is food that cannot be separated in every event. Hence, it is considered and necessary to determine the role of sago in social or cultural, economic aspects and as a staple food in the level of household and community in Baloli Village, Masamba District, North Luwu Regency.

2. Methods

This research was conducted in Baloli Village, Masamba District, North Luwu Regency. This location was chosen by purposive sampling with the consideration that the area is an area with a lot of sago production, the people in the area consume a lot of sago, and there are still sago farmers. The research method used is a survey method, which is a method that takes a sample from a population and uses a questionnaire as the main data collection tool. The population in this study were households that consumed sago as the staple food. The sample was determined by simple random sampling (simple random sampling) where the total population of the household was 321 households. The determination of the sample was taken as much as 10% in order to obtain a sample of 32 households. The respondents were determined based on the previous field orientation, the population was quite homogeneous, so that the number of respondents could describe the general population condition.

The role of sago in terms of social aspects can be described qualitatively by describing the benefits of sago which give a characteristic feature in the social environment of the community at the research site, while from the economic aspect of sago it can be determined by calculating the income of sago farmers by:

a. Farming Revenue

$$TR = Y \times P_y \quad (1)$$

Information: TR = Total Revenue (total revenue)
Y = Production obtained by farming
P_y = Y Price

b. Total Cost of Farming

$$TC = FC + VC \quad (2)$$

Information: TC = Total Cost (total cost)
FC = Fixed Cost (fixed cost)
VC = Variable Cost (variable cost)

c. Farm Income

$$\pi = TR - TC \quad (3)$$

Information: π = Income
TR = Total Revenue
TC = Total Cost

3. Results and Discussion

3.1 Social and Cultural Role of Sago

The cultural activities of a family, a community group, a country, or a nation have a strong and lasting influence on what, when and how people eat. Culture determines not only what food, but for whom, and under what circumstances it is eaten. Cultural patterns relating to a society and the food habits that follow them develop around the meaning of food and its suitable use. This cultural pattern affects people in choosing food. It also affects what types of food should be produced, how it is processed, distributed, prepared, and served [6].

Baloli Village, located in Masamba District, is no different from other areas in North Luwu. Sago is seen as a traditional plant that is consumed from generation to generation, besides that there are traditions and customs that create life values in the environment known as local wisdom. This local wisdom is reflected in the behavior of the Baloli Village community in cultivating and processing sago plants. This is in line with the opinion of Louhenapessy [7] that in the sago grove, the oldest tree leads the clump. This system shows wisdom, leadership, and succession where the leader will be fully responsible to his members and leadership energy is channeled to the next tree so that when the oldest tree dies, the next tree takes over leadership and leadership succession occurs.

3.2 Economic Role of Sago

The economic aspect referred to in this study is the sago farmers who use their land or other people's land to earn income. There are 15 sago farmers who are also members of the respondent's household. Some of the criteria for sago farmers in the research location are (a) landowners who only sell sago stalks, (b) sago farmers who process from planting to become sago starch and (c) farmers who buy sago stems until they are processed. There are 5 sago farmers for each criterion so that the total number is 15 farmers who can be identified in terms of sago farming.

Table 1. Income of sago farmers A in Baloli Village, Masamba District, North Luwu Regency, 2012

No	Uraian	Value (Rp) per Trunk
1	Total production of sago (trunk)	1
	Price	140,000
	Total production of roof (sheet)	19
	Price	500
	Revenue	149,500
2	Variable cost	
	Labor wages	13,111
	Variable cost in total	13,111
3	Fixed cost	
	Tool depreciation value	64,975
	Fixed cost in total	64,975
4	Total cost (TC)	78,086
5	Net revenue	71,414

The income of sago farmers with criterion A, namely farmers who only sell their sago stalks, get a net income of Rp.71,414. Sago farmers with this criterion in addition to selling stems also sell roofs made of sago leaves. An average of 1 rod can be sold per year for Rp.140.000 and the production of roofs that can be produced is as many as 19 pieces with an average price of Rp. 500,- per sheet so that the revenue earned is Rp.149,500,- For variable costs, there are no means of production because the nature of the sago plant does not require intensive care like other crops. Labor wages are meant as wages paid from the time of planting and maintenance which is quite simple, namely thinning for spacing and weeding by clearing the grass around the plantations so the total variable cost is Rp. 13,111,-. Fixed costs in the criteria of this farmer, namely the depreciation value of equipment of Rp.64,975, so the total cost is Rp. 78,086,- which is obtained from the total variable and fixed costs. Thus, the income of criterion A farmers is still very small.

The criteria for these B sago farmers to be farmers who own their own sago fields and participate in processing them until they produce sago starch that is ready for sale. Revenue was obtained from reducing revenues with costs amounting to mRp. 1,213,023,- minus the average price of sago stalks of Rp.140,000,- so that a net income of Rp.1,073,023,- was obtained. With this net income, it must be divided again by 4 workers, each of which gets Rp. 268,256,-. In this case, the calculation of the sago farmer criteria B is different from the calculation in general because the owner of the sago land in the research location who also works gets more than the

workers and is not divided equally among the other workers. Sago owner's income is Rp. 408,256,- this is obtained by means of the average price of sago stalks plus the net income of the workers. This is calculated on the basis that the processing of the sago stalks into starch is done by mutual assistance, where the wages are agreed upon when the proceeds from the sale of sago are received.

Table 2. Income of sago farmers B in Baloli Village, Masamba District, North Luwu Regency, 2012

No	Uraian	Value (Rp) per Trunk
1	Total production of sago starch (trunk)	43
	Price	34,000
	Total production of roof (sheet)	20.0
	Price	3,000
	Revenue	1,522,000
2	Variable cost	
	Production input	
	Labor wages	14,375
	Variable cost in total	146,431
3	Variable cost	
	Production input	
	Labor wages	162,546
	Variable cost in total	162,546
4	Total cost	308,977
5	Total income	1,213,023
6	Sago trunk income	140,000
7	Net revenue	1,073,023
8	Labor wages net income	268,256
9	Net income owner + labor	408,256

The income of criterion C sago farmers who only buy sago stalks and then process them into sago starch. The criteria for sago farmers in this case can be known by the details of the costs incurred, besides that the revenue obtained is only on sago stalks, the sago farmers in Baloli Village do not produce roofs so that they receive an income of Rp. 1,431,740,- then deducted by the total costs Rp.449,608,- so that to obtain a total income of Rp. 982,132,-. The total income is then divided according to the number of workers as many as 4 people so that each farmer gets Rp. 245,533,-. This income is not much different from the income of workers in criteria B sago farmers. This is because only the roof can be produced so that it can be sold and becomes additional income for criteria B sago farmers.

Each of the criteria for sago farmers, whose income has been detailed, it can be seen that the income of sago farmers in Baloli Village is very little and has not been able to support family needs. Respondent farmers also recognized that a job as a sago farmer was a job that did not make a big contribution to their life, especially in terms of finance. Working to process sago can be likened to them like a job that is done when there is no other work to do. This has also become one of the problems

that have arisen in Baloli Village and also North Luwu in general, that with the reduction of sago land, the very large land conversion has led to farmers' interest in leaving this commodity by switching to commodities with higher selling value. However, there are still sago processing plants, although the number has decreased. Food security is largely determined by factors of food availability, access, and utilization, especially for vulnerable groups. Food availability at the household level is a direct factor affecting food security at the household level. Food availability refers more to food storage and availability of staple food.

Table 3. Income of sago farmers C in Baloli Village, Masamba District, North Luwu Regency, 2012

No	Uraian	Value (Rp) per trunk
1	Total production of sago starch (trunk)	42
	Price	34,000
	Revenue	1,431,740
2	Variable cost	
	Production input	
	Labor wages	262,944
	Variable cost in total	
	Variable cost	262,944
3	Variable cost	
	Production input	
	Labor wages	186,664
	Variable cost in total	186,664
4	Fixed cost in total	449,608
5	Total cost (TC)	982,132
6	Net revenue	245,533

4. Conclusion

The social/cultural role of sago, namely sago is seen as a traditional plant that is consumed from generation to generation, besides that there are traditions and customs that create life values known as local wisdom which is reflected in the behavior of the people of Baloli Village in cultivating sago plants. Kapurung is the only type of processed food from sago for the people in Baloli Village, while other parts of the sago plant are used, namely sago leaves which are used as roofs, the remaining bark is used as firewood and the dregs are used for animal feed.

The economic role of sago is known by analysing the income of sago farmers who are divided into 3 criteria, namely a) sago landowners who only sell sago trunk, b) sago farmers who process from planting to become sago starch, c) farmers who buy sago trunk to process them. The three criteria for farmers, the one with the greatest income is the farmer with criterion B because sago is owned by the landowner who also processes his sago to become sago starch, even though the amount is small and cannot support his living needs, c) From the aspect of food security, the availability of rice and sago is very different, the availability of rice is greater than sago. This is

because the consumption of sago, which was once known as a staple food, is replaced by rice. The type of food consumed by the population in Baloli Village is the dominant population who consumes healthy food, which can be concluded that the types of food are varied, and the nutrients they consume are more and support good food quality. Thus, sago as a staple food has not been able to support household and community food security in Baloli Village, Masamba District, North Luwu Regency.

Acknowledgements

Author expresses thankful to Prof. Dr. Ir. Rahmawaty A. Nadja, M.S and Prof. Dr. Ir. Darmawan Salman, M.S, as the supervisor who has spent a lot of time guiding the author in the preparation of this thesis. Dr. Ir. Rahmadanih, M.Si who has provided input and criticism for the improvement of this thesis.

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