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Improving Porang (Amorphophallus Mueller) As Beneficially Product For Farmers Community Around The Forest In Semanu District Gunung Kidul Regency

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Abstract

Porang (Amorphophallus Mueller) is one of the local rootstocks in Indonesia. The last time the farmer's community around the Forest in Semanu District did not know about Porang. Regarding the Information technology advantage in the last decade, people have known about the benefit of the cultivation of Porang. One of the derivative products in Processing is Porang Chips. The Product has a great opportunity as raw material for Food, Cosmetics, and other industries needed. The demand and also The price of Porang in the future time is forecasting an increase. There is a lack of supply and demand in the international market. To Fulfill the market, any program has been conducted to cultivate porang. One of the programs had done in Gunung Kidul Regency, supported by The National Society Porang Farmers (P3N), collaborated with the research team of Universitas Pembangunan Nasional Veteran Yogyakarta. The research aim to 1) describing the activities of the program to improve Porang in Semanu District and 2) analyzing the internal and external factors that influence the farmer community around the Forest to cultivate and produce Porang to hold this program regarding improving the Product. The method of the research is analytical descriptive, and close to study in survey mode. To choose a location by the purposive method. All the farmers of the P3N porang program as respondents. The number of the respondent are 40 farmers that had conducted by sensus method. By the Multiple regression statistical model, The result of the research showed that this program had received by farmer communities at a medium level, and the factors internal that influence the farmers to hold this program are educational background and farmer experience. On the other hand, the external factors that influencing this program are farmers Communities, Activities of extension, and Information access.

Keywords: Porang, Adoption, P3N, Internal factor, External factor, Around Forest.

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I. INTRODUCTION

Porang (Amorphophallus muelleri) in Indonesia is called yellow Iles Iles. It is a herbaceous, perennial plant producing a single leaf each year from a tuberous rootstock.The plant is harvested from the wild for local use as a food. It is increasingly harvested on a commercial basis for its tuber, which has a wide range of applications in the food industry, Cosmetic industry, Tire industry, and other industrial elsewhere. It is a plant worthy of cultivation. Porang is able to process raw materials. Porang tubers cannot be directly consumed, but it is necessary to process in advance (Sumarwoto, 2012). Bulbs iles-iles contains carbohydrate-shaped polysaccharides called glucomannan, that composed of mannose and glucose. Polymer glucomannan has a special character that is its properties between cellulose and galactomannan so that it can become crystals and form fine fibers. In addition, glucomannan can be inflated in water up to 138-200% quickly while in starch, only inflate 25% (Sumarwato, 2007). The Product must be processing before as food, but it is necessary to process in advance. Bulbs Porang contains carbohydrate-shaped polysaccharides called glucomannan (Sumarwoto,2012).

One of the processing products is Porang Chips. In 2019, The demand for Porang chips was around 3400 tons /year, but the availability in the supply of Porang chips and Porang powder in Indonesia lower than its demand.

The Production of Porang around Indonesia is 600 -1000 tons/year. (BPS,2019) The demand of the Indonesian Porang Chips and Powder almost from the foreign market, especially demand to export to Japan, China, Vietnam, and Thailand. To fulfill this condition, there is any program of improving Porang cultivation as a beneficially Product. One of the programs is supported by The National Society Porang Farmers (P3N).

In mid of 2019, The P3N conducted activities in Gunungkidul regency. Many kinds of programs have been supporting to improve the Porang cultivation. In Semanu District, one of the locations of the Gunungkidul area, the program has been doing. The farmer communities were interested in the program, and any kind of dissemination and also extension had been conducted in these communities.

Based on this background, this research aims to 1) Describe the activities.

Of the program to improve Porang in Semanu District and 2) to analyze the internal and external factors that influence the farmer community around the Forest to cultivate Porang to hold this program regarding improving the Product.

II. RESEARCH METHODOLOGY

The Analytical descriptive method had been implemented as a basic method. The research site is located at the P3N program area in Semanu Gunungkidul. This location had chosen as a location by a purposive method. Semanu Gunungkidul is one of the areas that is the first time the communities

farmers know about the porang, many dissemination Program collaboration between P3N and Universitas Pembangunan Nasional Veteran Yogyakarta's research team had done to improve the beneficially of Porang. The activities were conducted from April until October 2020. Data collection techniques used in the qualitative questionnaire. We also collect data through observation, interview, and documentation. Farmers' respondent determination technique is done by sensus sampling that is a data source sampling technique with all the farmers that conducted the program (Gittinger, 1986). 40 Farmers had been interviewed to get information about all the programs and their participation in this program.

Data analyzed by statistical techniques analysis. Regarding exploring the Factors, both the internal and external, that influence the farmer to follow and join this program, its calculation by Multiple Regression Analysis. All the information and the result of these activities can be described with the result of this analysis.

Multiple regression generally explains the relationship between multiple independent or predictor variables and one dependent or criterion variable. A dependent variable is modeled as a function of several independent variables with corresponding coefficients, along with the constant term. Multiple regression requires two or more predictor variables, and this is why it is called multiple regression. (Greene,1993) .The Multiple regression had been done to analyze the Internal Factor and also the External factor that Affecting of farmers to join this program and produce the Porang chip. The multiple regression equation explained above takes the following form:

$y = b1x1 + b2x2 + b3x3 + b4x4\ldots + box + c.$

The variables of this matrix form as follow :

y = Participation to Follow the Program (Score)

X1 = Age (year)

X2 = Educational Background (Year)

X3 = Farmer experience (year)

X4 = Farmer Community Group (Dummy variable 1= Member of Organisation of Farmer Communities Group; 0 = not member)

X5 = Activities of extension (Amount of attendance in extension activities during the program six months)

X6 = Information Acces (Dummy variable 1= Have Gadget, 0 = Do not Have Gadget)

X7 = Land area (Ha)

X8 = Number of Household (number of people /Household)

Here, bi's (i=1,2…n) are the regression coefficients, which represent the value at which the criterion variable changes when the predictor variable changes. (Miles,2001); Pedhazur (1997). The result of the statistical data analysis showed the variable that influenced the independent variable in this model, and then the conclusion of the research brings us to give any kind of the suggested policy to improve the Porang in the Semanu district.

II.1. The Activities of Farmers Communities for Improving Porang in Semanu District Gunung Kidul Regency

Semanu is a good place to cultivate Porang (Amorphophallus muelleri) because the land in this place contains mineral substances that appropriately support the growing up of Porang. The climate condition is suitable for Porang. It's found in the wild, anywhere such as on the edge of the teak forest, under bamboo clumps, on the banks of rivers, in shrubs, and in places under varying shade. To achieve high tuber production required shade 50-60 % (Jansen et al. 1996). The plant grows from the lowlands to an altitude of 1000 m above sea level, with temperatures between 25-35o C, while its rainfall is between 300-500 mm per month during the growth period. At temperatures above 35o C, the leaves of the plant will burn, while at low temperatures cause dormant of Porang.

Ermiati and Laksmanahardja (1996), Hetterscheid, and Ittenbach (1996) said that Porang grows well on lightly textured soils that are in sandy clay conditions; the structure is loose and rich in nutrients. In addition, it is also well dramatized, with a high humus content, soil pH 6 - 7.5 (Jansen et al. 1996). Further stated that to achieve optimal tuber weight, it takes growth time up to three years (Rijono, 1999).In addition to the above requirements, it is also necessary to note the state of the growing environment of Porang. The ideal shade as cultivated in around Forest. In Semanu the farmers cultivate around the Teak Forest. The density level of the shade should be around the intensity of the rays 50%. The recent condition is based on the rapid development of Porang cultivation; there are many kind Places in Indonesia that improving Porang. The biggest area is in East Java (Sumarwoto, 2019).

The National Society of Porang Farmers (P3N) collaboration with Team of community Service Faculty of Agriculture Universitas Pembangunan National "Veteran" Yogyakarta had been conducting the program to improve the Porang and its derivatives Product in Semanu District. This program adopted the Standard operation system of Porang The standard operation system (SOP) to improve Porang in Communities of a farmers group in Semanu contain from the on the farm until the off-farm activities.

There is consist of 8 (eight) program step that must do the farmer. Each component of the Standard operation System in this program have the weight of the assessment to adopt Technology. Table 1 below shows the level of the farmer to adopt the Technology to improve Porang.

Table 1. Standard Operation System Of Improving Porang Program in Semanu District

No	Component	Percentage (Weighted) (%)
1	Land preparation	10
2	Tuber seed preparation	10
3	Tuber bed	10
4	Cultivation	20
5	Fertilization	15
6	Sprinkling	10
7	Weeding	10
8	Harvesting	15

Source: Sumarwoto,2019

III. RESULT AND DISCUSSION

Improving Porang for the farmer's community group in Semanu assessment by their all activities to follow the program by Standard Operation System. Adoption rates are measured by two stages. The first stage measures the adoption rate of farmers by scoring based on the weight of the value and the percentage of each component. Phase 2 is classified based on adoption rates of the low, medium, and high levels. The level of adoption technology of farmers that follow this program is shown in table 2. These are accounted for by the Total component. Table 2 Shown about the Classification of participation and Adoption Technology of Porang by farmers.

Table 2. The participation of farmers on its program and level of technology adoption.

Participation and Adoption	Classification	Score	Result (Average)	Category
- 44,99%	Low	1		
45 - 64,99 %	Medium	2	61 %	Medium
65 - 100 %	High	3		

Source: Primary Data Analysis, 2020

The adoption of Technology to improve Porang in Semanu District is at the middle level. It happened because almost farmers in Semanu just know about porang and its benefit. They are doubtful about the benefit of the Cultivation of Porang. They follow this program because of propaganda and testimony of some people in Television and social media (Internet, Whatshap, Instagram, magazine, etc.) about the benefit of the porang They hope to get the profit and get much money when harvesting

come down like success farmer, but on the other hand, there are many constraints to cultivate porang, for example, the cultivate of Porang only in the wet season in one time in a year, so in their mind, there is a long time to get beneficially of Porang. Another reason the farmer said that the price of the tuber seed of Porang expensive. The farmers that have not asset and land area maybe were not interesting in this program.

The second objective of this research was conducted to analyze the internal factor and external factor influencing farmer for the participation close by Multiple regression Analysis—Tabel 3 shown about this condition.

Tabel 3.The factor Influencing The Farmer Participation To Improve The Porang

Variable	Notation	Coef. Regresion	Probability
Constanta	C	20,5523	0,1256
Age	X 1	0,0904	0,1123ns
Educational Background	X 2	2,3456	0,0032**
Farmer experience	X 3	3,2678	0,0010***
Farmer Community Group	X 4	1,4365	0,0022**
Activites of extension	X 5	6,8543	0,0021**
Information Acces	X 6	8,2356	0,0001***
Land area	X 7	0,1432	0,5671 ns
Number of Household	X 8	-0,4678	0,6235 ns
F Hitung = 18,24			
R2 = 0,715			
R2 Adjusted = 0, 698			
Dw = 2,213			

Source : Primary Data Analysis, 2020

Note : *significant (10%)

** Significant (5%)

***Significant (1%)

ns = Non significant

Base on the analysis of Multiple Regression in Table 3 showed that the factors internal that influence the farmers to hold and participated in this program were the educational background and farmer experience. On the other hand, the external factors that influencing this program are farmers' Communities Group, Activities of extension, and Information Acces.

IV. CONCLUSION

The activities improving Porang (Amorphophallus Mueller) in Semanu District Gunung Kidul Regency had been conducted and supported by the P3N and research team of community service of Agriculture Faculty, Universitas Pembangunan Nasional Veteran Yogyakarta in mid of 2020. The program is followed by farmers communities Group around the Forest to cultivate the porang and to process it's to derivatives Product. of Porang. The result of the research showed that this program had received and had adopted by farmer communities at a medium level, and the factors internal that influence the farmers to participate in this program are educational background and farmer experience. On the other hand, the external factors that influencing this program are farmers Communities, Activities of extension, and Information access.

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