

## DEVELOPMENT OF GRAPE CULTIVATION AS AN EFFORT TO INCREASE COMMUNITY INCOME IN GEULUMPANG VILLAGE, SULU TIMU

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### ABSTRACT

The aim of this research is to carry out counseling, training and assistance on grape cultivation techniques to the people of Geulumpang Sulu Timu so that they have expertise in plant cultivation and improve skills that are able to move young people around to become entrepreneurs in the production and marketing of wine. The methods used in this research are community empowerment methods, program implementation methods and activity roadmaps. In the end, the activities in the form of counseling and training as well as assistance in grape cultivation became a solution to improve the welfare of the people of Geulumpang, Sulu Timu. The training provided is up to a commercial level so that the resulting products can be marketed in traditional markets and supermarkets.

*Keywords: Development, Cultivation, Income Increase*

### 1. INTRODUCTION

#### Background of the problem

North Aceh Regency is one of the regencies in the eastern part of Aceh which consists of several sub-districts. Dewantara District is one of the sub-districts consisting of several villages and settlements. Geulumpang Village, East Sulu, about 2 KM from the center of the Reuleut campus is one of them. This village is classified as a village with a large population. The livelihoods of the residents are also diverse, ranging from farmers, fishermen, entrepreneurs, employees, craftsmen and other professions. The condition of the area and its strategic location as well as its fertile soil conditions are very supportive of the development of agro-ecotourism programs in the area.

Geulumpang Village, Sulu Timu already has adequate infrastructure facilities with transportation access that already supports the achievement of the program. However, behind these conditions, the economy of the community is not yet fully prosperous, so there is a need for activities that encourage the improvement of community welfare in addition to creating jobs for residents who are still unemployed. In addition, the low level of education also affects the economy of the people in the village.

Geulumpang village, Sulu Timu, has a high population of 450 households (KK). Of these, around 2013 almost all of the population live below the poverty line (Figure 1). This is shown by the high number of recipients of social assistance from the government to the people of Geulempang Village, East Sulu. On this basis, many agendas of activities that can improve the welfare of the village community are needed. The grape cultivation business is carried out because it is considered one of the agricultural products that is quite in demand and has a high selling value. One kilo of the fruit can reach a price range of Rp. 35,000 to 40,000, so it is quite prospective if it is developed. In the future, the plan for this grape cultivation farming activity will be managed by BUMG Geulumpang Sulu Timu so that it can increase village treasury income.

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**Figure 1** Poor Residents Receive Social Assistance

### **Formulation of the problem**

Seeing the background above, the problems that will be discussed in this program are:

1. How to improve the skills / skills of the partner community?
2. How to increase the income of partner communities?
3. How to increase the nutrition of the fruit produced?

### **Destination**

The general objective of this activity is to improve the family's economy and encourage a decrease in the unemployment rate in partner villages. Specific objectives include:

1. Carry out counseling, training and assistance on grape cultivation techniques to the people of Geulumpang Sulu Timu so that they have expertise in cultivating these plants.
2. With the skills possessed, they are able to mobilize the local youth to become entrepreneurs in the production and marketing of wine.

### **Program Success Indicators**

The indicators for the success of the Program are as follows:

1. The community enthusiastically followed the directions and training provided for the development of grape cultivation.
2. Community care in cultivating grapes so that it becomes a product that has high quality.
3. There is additional knowledge and an increase in community income through grape cultivation.
4. The involvement of fellow students and lecturers with the community and Gampong officials in the success of the grape cultivation program.

## **2. METHOD OF IMPLEMENTATION**

### **Implementation Method**

#### **1. Community Empowerment Method**

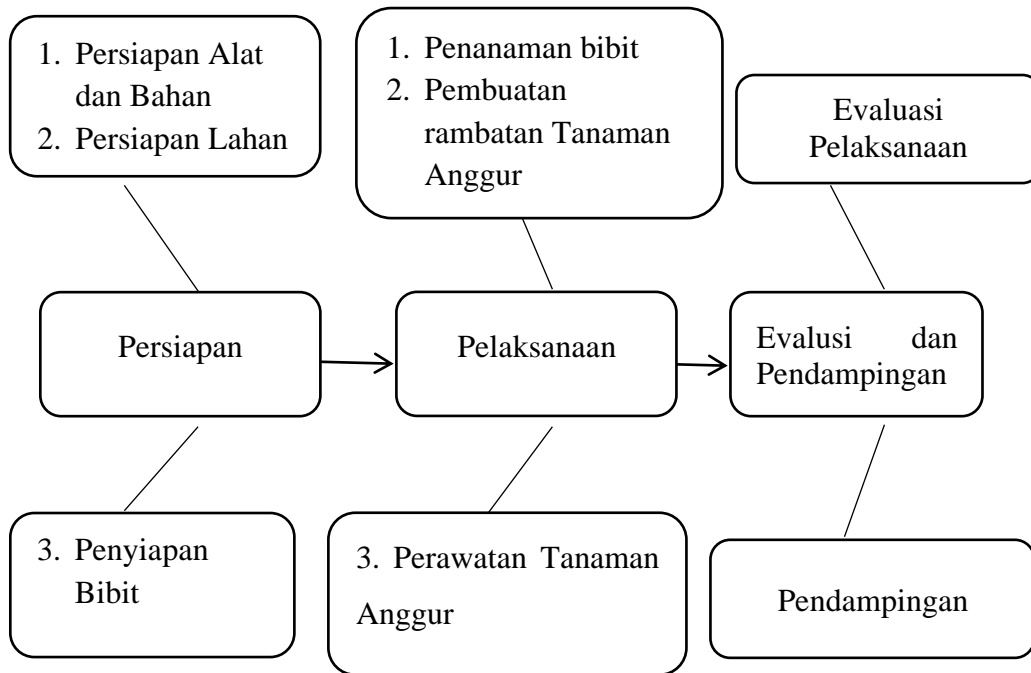
The community empowerment method is carried out fully in the field (offline). Where counseling activities and training on grape cultivation were carried out in Geulumpang Village, Sulu Timu, Dewantara District, North Aceh Regency. Extension, training and mentoring activities will be carried out from March to August 2022.

#### **2. Program Implementation Method**

During the implementation of this activity, the target partner communities are expected to actively participate, so that after this activity is carried out, they have an understanding and skill in grape cultivation techniques using natural growth regulators. There are three main forms of activities that will be carried out in this activity, namely: (a) counseling about the benefits of grapes, and (b) demonstration and training on grape cultivation practices using cuttings (c) Implementation of training and mentoring.

### 3. Activity Roadmap

The description of the Activity Roadmap is as follows:



**Figure 2**Activity Road Map

#### a. Preparation phase

##### a) Preparation of tools and materials

The tools to be used include PVC pipes, bolts, saws, water buckets, ropes, pliers, hoes, machetes, meters, scales and so on. The materials to be used include grape seeds, water, polybags, manure, bamboo shoots, shallots, and so forth.

##### b) Land Preparation

The land is cleaned using a hoe until the soil becomes loose. Then a planting hole is made with a spacing of 60x60x50 or 75x75x70 cm. The planting hole is left for 15-20 days. Then the topsoil is mixed with sand and manure in a ratio of 1: 1: 2.

##### c) Seed preparation

When buying seeds, choose seeds that are ready for planting. Seedlings are ready for planting at the age of 1.5 – 2 months, the roots are 5-10 cm, grow healthy, sprout in two. A month before planting, grape seeds are adapted around the land.

#### b. Implementation stage

##### a) Seed Planting

Seedlings are planted in the planting hole, after which it is covered with soil and pressed (compacted). After that, the stakes were installed.

##### b) Making vines of vines

Propagation can be made with 2 models, namely the parapara model and the fence model (kniffen).

##### c) Irrigation

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Watering young plants 1-2 times a day and adults every 3 days. Three weeks before pruning, watering is stopped and 2-3 days after pruning water is given back. Watering after fertilization and stopped before fruit picking.

d) Weeding

The land is kept clean from weeds and loosening of the soil is done once a month to keep the fields clean and loose.

e) Fertilization

Fertilization aims to meet the nutrients needed by grape plants. The proper way of fertilizing is to spread and mix evenly in the soil in a circle as far as 25 cm from the stem and then cover it again with soil and drain. Fertilization based on the age of the plant, namely: a. young plants up to 6 months old (per tree): 10 days – 3 months old using 7.5 g of urea or 10 g of ZA for each time fertilization with an interval of 10 days and the age of plants 3 – 6 months using 15 g of urea fertilizer or ZA 20 g for each time fertilization with an interval of 15 days. b. Plants aged 6 months to 1 year: 6 months old using urea 22.5 g or ZA 45 g and plants aged 12 months using urea 50 g or ZA 60 g.

f) Pruning and Tree Shaping

The right pruning time is 1 year. Every tree should have a main trunk, primary, secondary and tertiary branches. The stem of the plant is cut as high as the para-para, so that new shoots (primary branches) grow. Two weeks the branches that grow lengthwise about 1 meter are immediately pruned at the ends to grow new shoots (secondary branches). The secondary branch which is 1 meter long is trimmed off its growing point in order to grow new shoots (tertiary branch). It is this tertiary branch that produces fruit. The characteristics of the branches are ready to be pruned, the tips of the shoots are easily broken, and when pruned they drip water, the branches are brown. 8. Pay attention to the visual characteristics of pruned shoots, vegetative shoots are pointed and generative are blunt. The way of pruning grapes is (1) Cut short, leaving 1-2 eyes, (2). Medium trim, leaving 3-6 eyes, (3) Trim long, leaving 7 or more eyes.

g) Flower and Fruit Management

Pruning fertilization is carried out in 2 stages a year and is carried out on tertiary branches that are 1 year old. Branches that thrive are pruned and leave 4-10 buds, while less fertile branches leave 1-3 buds. The remaining pruning branches/twigs are spread and arranged evenly over the entire surface of the para-para, then tied to the right and left with rope. Spray with HORMONIK dose of 1-2 caps per tank after pruning once every 7 -10 days. It can also be done by providing bamboo shoot extract as a source of GA.

This method of making natural GA adopts the method used by Da Silva et al. (2013), namely the fermentation of natural solids (ie pulp or porridge) which is fermented with EM4 using the method carried out by Kebun Musangking (2014). The method is as follows. Bamboo shoots (200 g) were chopped and then blended until they were crushed. The bamboo shoots are then put in a jar. Then mixed with 1 liter of water, 200 g of sugar, and 50 ml of EM4 then stirred evenly.

The mixture is covered with plastic and tied with rubber so that the anaerobic fermentation process can take place properly, then it is left for 15 days in the shade. Spraying is done once when the flowers bloom (flower payas) which is carried out thoroughly on the flower bunches.

Harvesting is done at the age of 105 days after pruning by picking. Keep 3 flower panicles per bud and cut the new shoots that grow above the flowers until they form fruit ovules. Rare the fruit on the dompolan 50% - 60%, which is when the fruit size is the size of an tamarind seed by taking the fruit grains that are located close together, long-stemmed, abnormal, damaged with small sterile scissors. If it's rainy season, put a white plastic roof on the parachute and wrap the fruit in a plastic bag or cement paper.

### c. Evaluation and Mentoring Stage

The final part of the solution to the problem is the evaluation of the implementation and sustainability of the program. Evaluation is carried out by the service team to assess and monitor implementation for the sustainability of the program. Assistance is carried out by the service team to ensure the success of the implementation programs so that people can increase their knowledge, skills and additional income.

### Schedule of activities

The schedule of service activities can be seen in the following table:

**Table 1** Schedule of activities

No	Name of activity	Month					
		3	4	5	6	7	8
1	Counseling and Training						
2	Preparation of Materials and Tools						
3	Making markers						
	Preparation of planting media						
4	Planting						
	Giving ZPT to seeds						
	Maintenance						
	Giving ZPT to interest						
5	Harvest						
6	Accompaniment						
7	Progress Report						
8	Result report						
9	Online publication						
10	Scientific articles						

### Cost Plan

The costs needed during service can be seen in the following table:

**Table 2** Activity Cost Plan

<b>1. Honorium</b>				
Description	Unit	Volume	Unit Price (Rp)	Amount (Rp)
Field officer 1	Month	5	150,000	75,000
Field officer 2	Month	5	150,000	75,000
Field officer 3	Month	5	150,000	75,000
Administration officer	Month	5	150,000	75,000
Data analysis officer and online service	Month	5	150,000	75,000
Sub-Total				375,000
<b>2. Purchase of consumables</b>				
Description	Unit	Volume	Unit Price (Rp)	Amount (Rp)
Grape seeds	polybag	100	25,000	2,500,000
Manure	Kg	150	10,000	1,500,000
Red onion	Kg	3	40,000	120,000



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Bamboo shoots	Kg	5	10,000	50,000
Hoe	Fruit	5	75,000	375,000
machete	Fruit	2	65,000	130,000
PVC pipe	Fruit	100	45,000	4,500,000
Water bucket	Fruit	2	10,000	20,000
cheers	Fruit	4	25,000	100,000
Paranet	meters	20	60,000	1,200,000
Well making	Package	1	1,750,000	1,750,000
Meter	Fruit	1	25,000	25,000
ATK	Package	1	150,000	150,000
Cultivation fee	Package	1	300,000	300,000
Photocopy	Package	1	300,000	300,000
Report generation	Package	8	50,000	400,000
Journal publication	Package	2	500,000	1,000,000
HVS Kertas paper	Rim	1	50,000	50,000
Printer ink	Box	1	130,000	130,000
Cartridge	Fruit	1	250,000	250,000
Credit and internet	Package	2	100,000	200,000
Sub-Total				15,050,000
<b>3. Travel</b>				
Description	Unit	Volume	Unit Price (Rp)	Amount (Rp)
Transport	Package	20	130,000	2,600,000
Consumption	Package	20	55,000	1,100,000
Sub-Total				3,700,000
<b>4. Rent</b>				
Description	Unit	Volume	Unit Price (Rp)	Amount (Rp)
Land lease	Package	1	2,000,000	2,000,000
Sub-Total				2,000,000
<b>Total Required Budget</b>				<b>24,500,000</b>

**3. CLOSING**

The problem that is considered the main problem in the Geulumpang Sulu Timu community is the lack of community welfare. For this reason, activities in the form of counseling and training as well as assistance in grape cultivation are a solution to improve the welfare of the people in the area. The training provided is up to a commercial level so that the resulting products can be marketed in traditional markets and supermarkets. This is supported because the resulting product has a better quality. It is known that several growth regulators, both natural and synthetic, can increase the quantity and quality of grapes.

Diana (2014) stated that the administration of red onion juice extract had a significant effect on the variables of shoot initiation time, number of shoots, and root length. While the other variables have no significant effect. A concentration of 60% accelerates the formation of shoots on cuttings. At a concentration of 80% produced the number of leaves, the number of shoots was

more, and the roots were longer, and the number of roots was more. At a concentration of 40% it produced a higher wet weight of roots and a concentration of 20% produced the highest dry weight of roots. The concentration of shallot juice extraction 60% - 80% is the concentration range that can increase the growth of grape cuttings.

Fruit quality can also be improved through the provision of gibberellins derived from bamboo shoots extract. Isnaini et al. (2018) stated that spraying bamboo shoots extract at the blooming stage could improve the quality of Bal grapes which, as evidenced by fruit of 8.35 g which increased by 24.8% compared to control, fruit sweetness of 8.79°Brix increased by 22.8 % compared to the control and the number of seeds in the fruit 1.36 decreased by 54% compared to the control. The concentration of 100% bamboo shoot extract is able to provide the best results and quality in improving the quality of Balinese grapes.

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