

## **Assistance in Moringa Plant Cultivation Techniques with Stem Cuttings Method in Several Combinations of Planting Media in Kuta Blang Village, Samadua District, South Aceh**

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### **ABSTRACT**

Kuta Blang is one of the villages in the Sedar Settlement, Samadua District, South Aceh Regency. Based on observations, the yard of the house in Kuta Blang Village has not been used properly. In addition, in the village of Kuta Blang found a lot of organic waste that can be used for planting media. One of the plants that have the potential to be used in the yard of the household is the Moringa plant. The purpose of this service activity is to increase the understanding and skills of the people of Kuta Blang Village regarding the technique of cultivating Moringa plants with the stem cutting method on several combinations of planting media in an effort to utilize waste and household yards. The people of Kuta Blang Village were very enthusiastic about participating in the activity which began with outreach activities and practical activities for growing Moringa plants using the stem cuttings method in several combinations of planting media.

**Keywords:** Moringa cuttings, Planting Media, Kuta village blang

### **PRELIMINARY**

Kuta Blang Village is one of the villages located in Samadua District, South Aceh Regency, Aceh Province, Indonesia with the Ministry of Home Affairs area code for this village is 11.01.06.2011. The geographical location of Kuta Blang Village is directly adjacent to the Indian Ocean and Bukit Barisan. The area of Kuta Blang is 800.13 hectares.

Based on observations, the yard of the house in Kuta Blang Village has not been used properly, the yard of the residents' house is just left alone or only used as a parking area without being processed or planted with plants that can help fulfill food. Meanwhile, according to (Varina & Erwandri, 2020) there are several benefits in utilizing the yard, namely as a place to provide food and nutritional needs by planting various types of plants in an effort to increase family food diversity, apart from producing food, the yard is also a source of family income. One of the plants that have the potential to be used in the yard of the household is the Moringa plant.

Moringa is a plant that contains high nutritional value. Moringa leaves are equal to three times the potassium of bananas, if in powder form the potassium content of Moringa is equivalent to 15 times the potassium of bananas. While dry moringa is equal to nine times the protein of yogurt. Vitamin A in fresh Moringa leaves is four times that of carrots, and 10 times of carrots in dried Moringa. In addition to vitamin A, Moringa also contains vitamin C, vitamin B, calcium, iron and protein, in high amounts and is easily digested and assimilated by the human body (Krisnadi, 2015) .

Moringa plants can be propagated by stem cuttings (Krisnadi, 2015) . The success of Moringa cuttings growth can be influenced by temperature, humidity, and light. In addition to being affected by temperature, humidity and the growth light of Moringa cuttings is also influenced by the media, this medium serves as a place for root formation and provides moisture to the cuttings.

In Kuta Blang Village, there is a lot of organic waste that can be used for planting media in order to optimize the growth of Moringa cuttings. The organic wastes include sawdust, husk charcoal and manure. The results of the study (Gustia, 2013) stated that the planting medium with the provision of soil and husk 1:1 gave a better effect than other treatments, on the parameters of plant height, number of leaves, leaf length, leaf width , wet weight and

consumption weight on mustard plants. . The results of other studies showed that the levels of P in the soil + sawdust media and soil + husk charcoal media were very high (Sawaludin et al., 2018) .

Based on the explanation above, it is necessary to provide assistance / counseling aimed at increasing the understanding and skills of the people of Kuta Blang Village regarding the technique of cultivating Moringa plants using the stem cutting method in several combinations of planting media in an effort to utilize waste and household yards.

### IMPLEMENTATION METHOD

This activity was carried out in the village of Kuta Blang, Samadua District, South Aceh Regency. This activity is carried out in October-December 2021. The method used in this service activity is mentoring / counseling and direct practice to the community. There are several stages in this activity which are as follows:

1. Stages survey

The survey was conducted to determine the location of service and identify sources of raw materials for mentoring activities and the practice of moringa plant cultivation.

2. Training and mentoring activities

This stage includes the following implementation matters:

a. Counseling

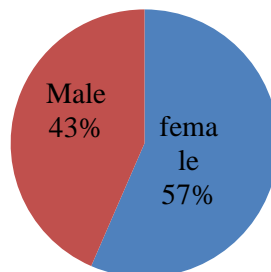
The community of Kuta Blang Village and farmer cadres were given counseling regarding the method of vegetative propagation of Moringa plants

b. Practice

After getting material related to cultivation techniques, the community and the cadres followed the practice of vegetative cultivation of Moringa plants. The propagation method used was stem cuttings with several types of media.

### DISCUSSION RESULT

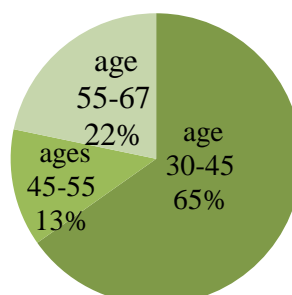
This service activity was attended by the people of Kuta Blang Village, the Village Head, and the Village Apparatus. Details of service participants by gender are presented in Figure 1 .



**Figure 1.** Details of service participants by gender.

Figure 1 shows that those who take part in this service activity are dominated by the community with 57% female gender, compared to only 43% male gender. This is due to the fact that there are more women in Kuta Blang than men (Profile of Kuta Blang Village).

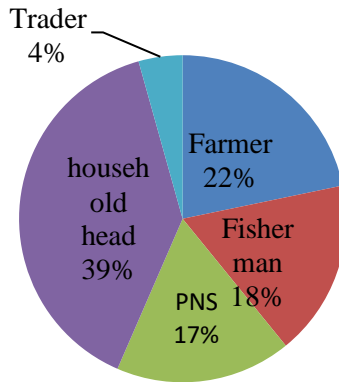
This service is also attended by people with different age ranges. Details of service participants based on age range are presented in Figure 2.



**Picture 2.** Details by age of participants

Based on Figure 2 shows that the percentage of the age range between 30-45 years is as much as 65%, the age range of 45-55 years is 13% and the age range is 55-76 years is 22%. In this case the age range of service affects in receiving the information provided. Based on the opinion (Hepilita & Saleman, 2019) , stated that the age factor is one of the important factors that can affect the level of knowledge or absorption of service participants, where the lower the age range, the better the absorption capacity in receiving information.

This service activity was also attended by participants from different professions. Details of service participants by profession are presented in Figure 3.



**Figure 3.** Based on the participant's profession

Based on their profession, the people of Kuta Blang can be seen in Figure 3, namely 4% of traders, 22% of farmers, 18% of fishermen, 17% of civil servants and 39% of housewives.

The schedule for the implementation of this extension/service activity is presented in Table 1.

**Table 1.** Stages of implementation of service activities

Date and time	Hour	Activity
Wednesday, 27 August 2021	09:00-12:00	Survey stages
Wednesday, 27 October 2021	09:00-18:00	Training and Extension, Media making practice, and Moringa cuttings practice

a. Survey stages

At this stage, it is carried out a week before the service activities are carried out. Survey activities were carried out to determine the location of service activities and to collect sources of raw materials for media and also raw materials for Moringa cuttings.

Based on a survey of service activities carried out in the gardens of Kuta Blang Village in the hamlet of Want Jaya with a land area of about 16 meters with a length of 26 meters, this counseling activity was carried out at the Sedar Health Center. In this case, the servant coordinates with the head of the Puskesmas, and the head of Kuta Blang Village and other devices.



**Figure 4.** KutaBlang desa village garden

b. Training and counseling activities

This activity is the core activity of community service. In this case, the material presented is in the form of yard use, vegetative propagation techniques. The media used at the time of the counseling was focused media and the community was also given a questionnaire to evaluate the initial knowledge and initial conditions of the household yard.

The practice of vegetative moringa cultivation techniques and techniques for combining planting media are carried out after the community participates in extension activities.



**Figure 5.** Socialization and Implementation of Practical Activities

During the implementation of practical activities, the sources of raw materials for planting media and moringa cuttings were obtained from Kuta Blang Village and Ujung Karang Village as well as neighboring villages but still located in the Samadua area. After the raw materials are obtained, then the practice of combining planting media is carried out, namely soil media, soil media + manure in a ratio of 1:1, and soil + manure + sawdust in a ratio of 1:1:1.

The use of this media greatly stimulates increased growth, which will be better than the use of single media, because each media can support each other and correct the shortcomings of each material property, including: weathering speed, weathering rate, availability of nutrients and environmental conditions . moisture in the growing media (Suhaila et al., 2013) .



**Figure 6.** Practice of planting media combination

The practice of moringa cultivation begins with preparing moringa cuttings. Moringa plants used for cuttings are healthy Moringa plants and are more than 6 months old, Moringa stems that will be used as cuttings are cut to a length of 35 cm, the ends of Moringa stems are cut diagonally in order to expand the area of root growth so that plant growth grows quickly . Then a hole was made in the planting medium as deep as 10-15 cm and the Moringa plants were planted in polybags with each prepared media.

The length of the cuttings has an effect on growth (Taqwim, 2018) , stating that the larger the diameter, the further the development of the network and vice versa, because the diameter of stem cuttings reflects the level of tissue aging.



**Figure 7.** Implementation stem cuttings

In carrying out this service activity, there are several obstacles, including the difficulty of obtaining moringa plants that meet the requirements to be used as cuttings. However, this service activity continues to run well because the community is quite enthusiastic about the material presented and the practical activities carried out.

### **CONCLUSIONS AND SUGGESTIONS**

The implementation of community service / counseling that has been carried out is the assistance of Moringa plant cultivation techniques with the stem cutting method on several combinations of planting media in Kuta Blang Village running well and smoothly. The community is very enthusiastic in participating in this activity, the growth of Moringa cuttings with various types of media that utilizes organic waste that is around is quite good, because it can correct the shortcomings of each planting medium. The suggestion from this service is that the community can take advantage of the yard with various types of plants that can be cultivated in order to fulfill food nutrition and utilize waste as a media source.



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