



PROPAGATION OF TUNERA PLANTS

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Abstract

The propagation of Tunera Plants with the aim and Community Service Program implemented is to synergize the potential and knowledge possessed by the Academic Community with the realities currently being faced by society, especially our community which is related to the competence of the field of knowledge of the Plantation Cultivation Study Program and Plantation Product Processing Technology Study Program. Benefits The benefit of the Community Service Program implemented is the creation of multiplication of tunera subulate plants among community farmers. It is hoped that this will be beneficial for farmers in controlling pests naturally without using pesticides which can reduce the fertility of the soil itself. Community service was carried out in Buntu Turunan Village, Hatonduhan District, Simalungun Regency, North Sumatra Province, carried out for 3 days, starting from 28 - 29 August 2023. With the results of community service activities, it can provide education and innovation for the community that the tunera plant is very important. useful for oil palm plants in controlling pests including fireworms.

Keywords: *Turnera subulata, Fire Caterpillar, Palm Oil*

INTRODUCTION

Detecting pests and diseases at an earlier time absolutely must be implemented to facilitate prevention and control measures. The advantage of early detection also aims to prevent and control pests that often attack plants on oil palm, including fireworms and bagworms, rats, termites, Adoretu and Apogonia, and wild boars (Iyung Pahan) 2013. This pest can be overcome using various methods, one of which is biological control using the *Turnera sabulata* plant. The use of the *Turnera sabulata* plant is as an alternative control effort without using chemicals. The use of these plants as habitat providers, food for natural enemies. *Turnera sabulata* plants are widely planted, including around oil palm plantations. These plants act as natural enemy hosts for fireworm pests on oil palm plants. The diversity of plants on a land will influence the composition of beneficial insects (natural enemies) and harmful insects on plants (pests). Therefore, this research was conducted to determine the diversity of insects on *Turnera sabulata* plants which do not differ in oil palm planting locations.

Turnera subulata, also known as the eight o'clock flower, is a beneficial plant from the Passifloraceae family originating from Mexico and the West Indies. The eight o'clock flower is a herb with a height of 60 - 90 cm and has roots 30 - 80 cm long, green leaves with a length of 2 - 7 cm and a width of 1 - 4 cm. The eight o'clock flower only blooms for a few hours, namely from 08.00 to 12.00. The flower color is white while the other species is yellow, namely *Turnera ulmifolia*. *Turnera subulata* can grow and flower at high light intensity and can grow at an altitude of 10 - 250 m above sea level. In oil palm plantations, *Turnera subulata* is used as a habitat for the

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insect *Sycanus dichotomus* which is the natural enemy of fire caterpillars. *Sycanus dichotomus* will look for nectar in eight o'clock flowers that are blooming. According to Hidayat et al, 2018, *Turnera subulata* and *Turnera ulmifolia* plants planted around oil palm plantations have different effects in attracting phytophagous and entomophagous insects. *Turnera subulata* can attract twice as many insects as *Turnera ulmifolia*. Therefore, the more *Turnera subulata* flowers that bloom, the more insects there will be so that they can control fire caterpillars.

Objective

The aim and implementation of the Community Service Program is to synergize the potential and knowledge possessed by the Academic Community with the realities currently being faced by society, especially our community which is related to competency in the field of knowledge of the Plantation Cultivation Study Program and Plantation Product Processing Technology Study Program.

Benefit

The benefit of the Community Service Program implemented is the creation of multiplication of tunera subulate plants among community farmers. It is hoped that this will be beneficial for farmers in controlling pests naturally without using pesticides which can reduce the fertility of the soil itself.

Target

Providing benefits to the community in using the tunera subulate plant as natural pest control without spending a lot of money

METHOD

Place and Time

Community service was carried out in Buntu Turunan Village, Hatonduhan District, Simalungun Regency, North Sumatra Province, for 3 days, starting from 28 – 29 August 2023.

Tools and materials

The tools used in this research are:

- Hoe
- Scissors
- Cutter

The materials used in this research are:

- Tunera Plant

Implementation Procedures

- Prepare a small polybag filled with soil
- Cutting tunera plants that are neither old nor young
- Plug it into a polybag and leave it in a cool place

Draft Cost Budget

Table 3.1 Draft cost budget

	Tool	Material	The amount of goods	Unit price	Amount (RP)
				(RP)	
1.	Machete		1	65,000	65,000
2.	Cutter		4	2,500	10,000
3.		Tunera	10	10,000	100,000
	TOTAL				175,000

RESULTS AND DISCUSSION

Turnera subulata plant propagation techniques

Independent nursery of *Turnera subulata* plants, which is usually carried out on management housing land, the nursery is carried out based on instructions or requests from the leadership of the company and the nursery is usually carried out by daily employees who are supervised by the R&D department in charge of the Beneficial Plant section, but this nursery activity is not carried out independently. Routinely only carried out if there are instructions from the head of the company.

Then the researchers observed the breeding techniques carried out at the company. *Turnera subulata* propagation was carried out by preparing the tools and materials needed such as *Turnera subulata* stems, soil, polybags (plastic rice cakes), buckets, machetes, scissors and sacks. The company carries out independent seeding using cuttings or vegetative stems taken from *Tunera subulata* stems that have grown to a diameter of 10-15 cm at the top.

Seedling care is done by watering them twice a day, namely in the morning and evening, like other flower plants, then the seeds can be applied to the field when they are 2 months old. After application in the field, the *Turnera subulata* plant still needs to be cared for, namely by giving it fertilizer, cleaning it from weeds that often grow around the *Turnera subulata* plant, always pruning it so that it looks neat and can have new branches so that more flowers are produced. Meanwhile, for fertilizer, the company uses empty baskets placed around *Turnera subulata* plant plots as a substitute for chemical fertilizer and to save more money on fertilizer expenditure.

Choosing Tunera Subulata Plants

Look for plants that are ready to be planted in the field.



Figure 4.1 Looking for Tunera Plants

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Planting Tuneraa Plants

- Make a hole with a depth that adjusts the height of the polybag and plants on the side of the road.



Figure 4.2 Making planting holes

- Planting tunera plants



Figure 4.3 Cutting the Sponge

DISCUSSION

Turnera subulata plant propagation techniques

Based on research results, *Turnera subulata* plant propagation techniques can be done in two ways, namely generative and vegetative. generative propagation using seeds and vegetative propagation using cuttings. Generative propagation using seeds is rarely done because the *turnera subulata* plant finds it difficult to produce seeds.

According to Koesniringroem and Harjadi, (1973) vegetative propagation using cuttings is easier to do and the advantage of vegetative propagation is that the characteristics of the offspring match the parent and propagation in large quantities is much faster.

Turnera subulata plant nurseries independently, which is usually carried out on management housing land, but this nursery activity is not carried out routinely. Seeding is carried out based on instructions or requests from the leadership at the company. Propagation of *Turnera subulata* propagates vegetatively by using cuttings, taking parts of the *turnera subulata* shoots as seeds to be propagated, then the propagated seeds will be planted in existing blocks.



Turnera subulata propagation can also be done by sticking Turnera subulata stems directly into the ground or a plot in the block, however, the percentage of growth using this method is very small and less effective. However, seeing the importance of the presence of Turnera subulata plants in oil palm plantations, several plantations have modified or reproduced Turnera subulata by using auxin as a growth regulator. Auxin is a substance or plant hormone whose function is to enlarge and elongate cells which can trigger roots to emerge more quickly. According to Sasmitamiharja (1996), to accelerate and maximize growth, growth regulators are needed in the form of auxin which stimulates root development. One of the places that propagates using auxin is the Yogyakarta Agricultural Institute's Education and Research Garden (KP2). The use of auxiliary in propagation is carried out on the shoots, middle segments and base of Turnera subulata stems.

CLOSING

Based on the results of the research conducted, the author draws the following conclusions

1. With community service activities, we can provide education and innovation to the community that tunera plants are very useful for oil palm plants in controlling pests including fireworms.

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