

## COMMUNITY NURSERY PARTICIPATION FOR AVAILABILITY OF SEEDS IN CANDI REJO VILLAGE BIRU BIRU SUB-DISTRICT DELI SERDANG DISTRICT

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### Abstract

The community service activity was conducted in Candi Rejo Village, Biru-biru District, Deli Serdang Regency, North Sumatra Province. This activity aimed to ensure the availability of seeds at the farm level by providing assistance to community nurseries. The types of plants that were seeded such as: coconut, durian, avocado, mindi and cocoa. The five types of plants were needed by the local community. Agroforestry (combining cocoa and wood species such as mindi, coconut, avocado, durian and others) was a system used by the Candi Rejo Village community.

**Keywords:** Agroforestry, community, nursery, farmers.

### INTRODUCTION

Farmers in Candi Rejo Village has applied agroforestry system. They were combining cocoa with mindi, coconut, avocado, asam glugur, durian and others. This agroforestry system was planted in the same land as the garden space arrangement (Rauf, 2004; Rauf, 2017). Besides community participation is very necessary, as mentioned by rahmawaty *et al.* (2011). This agroforestry system can increase the level of community welfare as agree with Rahmawaty (2004) and Rauf (2008).

The availability of seeds will be a problem when farmers will plant in the garden or when replanting the old plants that are no longer productive. Therefore, the community nursery program in Candi Rejo Village needs to be done for the availability of stump seedlings for agroforestry farmers. Efforts to overcome this can be done through the technique of providing good seeds. In the technique of providing good seeds, it should

be noted about the source of the source of tree (*pohon induk*) which will be used as seeds and planting media used in nurseries. The problem for the farmers were the availability of seeds. therefore, this research is necessary. This activity aimed to ensure the availability of seeds at the farm level by providing assistance to community

### 2. METHOD OF ACTIVITY

#### *Preparation*

To determine the land for a good nursery location, then several things need to be considered, namely: (1) Land topography must be flat, (2) Fertile and loose soil, (3) location close to water sources and free with attacks of root disease.

#### *Selection of trees sources (induk pohon) and seed sources*

Seed collection was carried out in the farmer's garden by downloading physiologically ripe fruit. The collected fruit was then extracted, then

the selection process was carried out. Selection was done by selecting seeds that have a normal shape, and removing defective seeds. The next step was the seeds are classified based on the size of the weight, medium weight and light weight (Wulandari, 2015). The seeds in the storage network have carbohydrates, proteins, fats and minerals that are needed as raw materials and energy for the embryo at the time of germination, it was assumed that large and heavy seeds contain more food reserves than small-sized seeds so that growth is expected to be better (Ding, 2015).

#### *Media Planting Preparation*

Mixed materials for planting media can be used from any material provided that it can be used as a foothold for plants, able to bind water and nutrients, have good drainage and airase, can retain moisture around plant roots, not be a source of diseases for plants and are easily available (Ding, 2015).

#### *Seedling planting*

Planting was done by choosing good and quality seedlings. Planting the seedlings was done in the afternoon or the morning. Then regular watering needs to be done so that the seeds do not wither.

#### *Measurement of Percent Grows*

Calculation of plant life percent was done using the following formula:

$$Pi = \frac{ni}{n} \times 100 \%$$

n

where :

Pi = Percentage of seedling growth

ni = Number of seeds that live

n = The total number of seeds of a species

### 3. RESULT AND DISCUSSIONS

The assisted partners were the Pendawa Farmers group, where the farmer group has an agroforestry plantation business that integrates cocoa and timber crops such as mindi, durian, coconut and others. The type of coconut that was seeded was *puyuh coconut*. Coconut can grow well in alluvial, laterite, sandy, volcanic, and best alluvial deposits. With an optimum pH of 5.5 - 6.5 coconuts can grow well. Coconut is also good at growing on the plains with an optimal altitude of 450 masl. If it grows above it, make the oil content lower and bear fruit more slowly. Basically Puyuh coconut can bear fruit at the age of 3 years. Meanwhile, *Puyuh hybrid coconut* is currently popular with consumers in the market.

For example, the market demand for Puyuh hybrid coconut in Bali was still very high. There are several types of durian in Sikecip that feature large oval green fruit, round copper durian with yellowish fruit color. The flesh of the fruit is thick and has a copper-colored sweet taste and a little bitter taste. This species was also cultivated by farmer groups to be planted on their land. Avocado

plants were woody plants where the fruit was harvested. Avocados Were also in demand by the community because it tastes good and has a high economic value. Mindi wood was a fast-growing wood planted as cocoa shade in Candi Rejo Village. Mindi wood can be harvested at the age of 6 years. Mindi wood demand was quite high for the Biru-Biru District. Although mindi wood was classified as fast-growing wood, mindi wood can be used as a raw material for making furniture or woodworking. Some people was used mindi wood as raw material in making houses.

Good and uniform seedlings were very dependent on germination speed and the percentage of germination of seeds used, as well as influenced by physiological conditions of seeds, age of seed in storage (Sadjad, 1993).

#### a. Percent grows

Percent growth of each plant can be seen in Table 1.

Table 1. Percent growth of each type of plant

No.	Species	Number of planted	Number of grow	% grow
1	Durian	1000	692	70
2	Avocado	1000	655	65
3	Cocoa	3000	2450	81
4	Mindi	1000	600	60
5	Coconat	750	738	98,4

Based on Table 1, there were not all seeds sown can grow. Percent growth of each plant was durian (70%), avocado (65%), cocoa (81%), mindi (60%) and Puyuh coconut (98.4%).

The percentage of growth in mindi sprouts in this study ranged from 60%. This was consistent with Bramasto's research that the germination of mindi seeds from the Sumedang location in West Java ranges from

60%. But in contrast to Suita and Megawati (2009) the germination of mindi seeds without treatment (control) had a germination of 70.33% and large seeds (73.00%) were better and significantly different compared to medium size (55.00%) and small (32, 67%), thus the larger the size of the seed, the higher the germination power.

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Table 2. Average plant height

No.	Species	Age begins to germinate (day)	Average plant Height (age 3 months)	Number of leaves (sheet)
1	Durian	10	±30 cm	14
2	Alpukat	19	±20 cm	11
3	Kakao	2	±32 cm	15
4	Mindi	9	±25 cm	12
5	Kelapa	60	±15 cm	3

Based on Table 2, it can be seen that the average plant height was 3 months old, in durian plants  $\pm 30$  cm, avocado  $\pm 25$  cm, cocoa  $\pm 32$  cm, mindi  $\pm 25$  cm and coconut  $\pm 15$  cm.

In avocados the average height was  $\pm 20$  cm with 11 leaves. This was in accordance with the research of Kuswara (2016) that the average avocado plant with the highest avocado age of 3 months was 17.94 cm. At this observation, the age of the Puyuh coconut starts to germinate  $\pm 60$  days on average. At first a white embryo appeared. Coconut does not have a dormancy period. The base of the embryo grows into an absorbing organ namely *Kentos (haustorium)* which slowly fills the entire cavity in the coconut and begins to digest endosperm or fruit flesh (Simpson and Ogorzaly, 2001).

In accordance with Sui's research (2018), coconut buds have increased weight and size during germination. The buds began to appear on the 15th day of germination which was equal to 1,587 g with a length of 1,733 cm. The shoot continues to grow until day 60

with a weight of 10.303 g and a length of 5.133 cm.

#### 4. CONCLUSION

The types of plants that were seeded are the types of local plants that were needed by farmers who were members of the Pendawa Farmers Group. Farmers in this village was used agroforestry system. Percent growth of each plant were: durian (70%), avocado (65%), cocoa (81%), mindi (60%) and Puyuh coconut (98.4%). the average plant height was 3 months old, in durian  $\pm 30$  cm, avocado  $\pm 25$  cm, cocoa  $\pm 32$  cm, mindi  $\pm 25$  cm and coconut  $\pm 15$  cm.

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