UNIVERSITI TEKNOLOGI MARA

FACULTY OF PLANTATION AND AGROTECHNOLOGY

DIPLOMA IN PLANTING INDUSTRY MANAGEMENT

PLANT PROPAGATION (AGR 232)

PRACTICAL REPORT:

REPORT 1: SEED SOWING
REPORT 2: LEAF AND STEM CUTTINGS
REPORT 3: GRAFTING
REPORT 4: BUDDING

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REPORT 1: SEED SOWING (*Artocarpus heterophyllus*)

DATE OF PROJECT: 27 OCTOBER 2017

INTRODUCTION:

Jackfruit (*Artocarpus heterophyllus*) is originally a native of India and belongs to family Moraceae. Jackfruit can be found in all states in Peninsular Malaysia. The jackfruit is commonly propagated through seed sowing. The categorization of seeds into 'orthodox' and 'recalcitrant' (Roberts, 1973) was based principally on the post-harvest behavior such as desiccation tolerance / sensitivity, storability and germination. Recalcitrant seeds are sensitive to desiccation and lose viability by a short period of storage. Jackfruit seeds have been included under recalcitrant category based on their storage behavior. According to Chin *et al.*, (1984), *Artocarpus heterophyllus* seeds were killed on drying even to a still high level of 43% moisture content, a decrease of 10% from their original 53% moisture content. The seeds can be stored up to a month in cool, humid conditions but it will germinate more slowly than fresh seeds. Jackfruit seeds must be planted immediately for best germination and seedling vigor. Germination for seed sown within a few days of harvesting is usually high, around 90%. Jackfruit grown from seed usually produces acceptable fruit. The first generation of seedlings appears to retain about 90 percent of the characteristics of the parent. Jackfruit seeds that going to be propagated was collected from trees that have regular, high yields and also have good horticultural characters, such as insect, disease and nematode resistance, proper fruit size and excellent pulp quality. Seeds are light brown to brown, rounded, 2-3 cm in length by 1-1.5 cm in diameter, and enclosed in a thin, whitish membrane.

OBJECTIVES:

- To maintains genetic variation
- To produce plants that easily adapt to environmental pressures
- To produce plants that have strong root system

TOOLS AND MATERIALS:

Hand spade, watering can, *Artocarpus heterophyllus* (Jackfruit) seeds, poly bags, soil, water

PROCEDURES:

1. Jackfruit seeds were given to each group and each group has at least 8 seeds.
2. The polythene bags were filled up by the soil.
3. About 2 inches depth hole was made at the center of the soil.
4. The seed was placed in the hole and covered by the soil. Each poly bag has one seed.
5. Eight poly bags were removed to the nursery and then, being watered daily.
6. The germination was checked weekly and the height of seedlings was recorded.

Figure 1 & 2: Seed was placed into the hole that been made and then, being covered by the soil

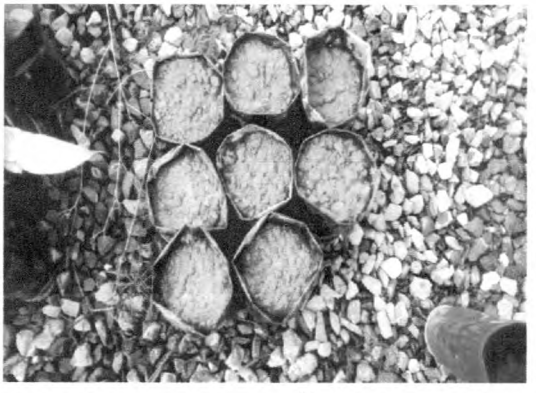

Figure 3: The seeds in the nursery were watered daily

PROCEDURES:

1. The soil mixture that contained top soil, sand and compost with ratio 2:1:1 was prepared by mixing it together with a spade.
2. Then, the soil mixture was filled into poly bags.
3. For leaf cuttings, a vigorous *Sansevieria* plants with many leaves was selected. *Sansevieria* leaves were cleanly cut at the base using a sharp knife. The leaves must handle with care to prevent it from broken.
4. The leaves then been sliced to equal sections which were 3 cm each on a straight surface.
5. As for stem cuttings, the *Dracaena reflexa* was being used. The tip stem of *Dracaena reflexa* about 7-15 cm was cut 45° below the node using secateur.
6. The leaves were removed to reduce water loss and 2 leaves left behind on each stem. The bottom part of the stem was scratched using a sharp knife.
7. Rooting hormone was applied to the bottom part of leaf and stem cuttings before both of them being planted into poly bags.
8. Leaf cutting was two sections per poly bag, while stem cutting was one stem for each poly bag. After that, all of the cuttings were watered.

Figure 1: Soil mixture contained top soil, sand and compost with ratio 2:1:1

DISCUSSION:

For leaf cuttings, all of them were successful. This was because the leaf cuttings got enough sunlight and water as it been placed below the sun and watered daily. However, for stem cuttings, only half of the planted stems succeeded. The other half was found dead. The possible reason it failed was infected by contamination. It must be the causes of the improper techniques during stem cuttings process. The lack of water was also one of the reasons. The stem cuttings were watered improperly so the cuttings growth was being stopped and eventually, it will die. The stem cuttings were unable to grow because of low distribution of water. When the stem cuttings were watered, the amount of water was too little.

CONCLUSION:

Leaf and stem cuttings has high success rate. However, the proper techniques must be applied during the cuttings propagation processes. These types of cuttings were so simple and easy to be done. It does not required special skills like budding. People only need to cut parts of plant like leaf, stem or roots and then, propagate it in suitable potting mix. Besides, it only needs low cost.