FIELD PLANTING AND FARM MAINTENANCE

Field and Farm Maintenance

When the proper site for coconut plantation establishment has been identified, the amount of work in land preparation will depend on the nature of the land to be opened.

Recommended land preparation practices should be carried out to allow optimum planting and subsequent application of treatments in the field.

Land Preparation

- Like other crops, coconut cannot be established in thick vegetation.
- Clearing of debris from thick vegetation is primarily necessary to eliminate possible breeding sites for the destructive rhinoceros beetle.
- Hence, the area should be cleared of felled trees/shrubs, stumps, weeds and other obstruction and then plowed and harrowed to improve soil tilth.

Staking of Field Layout

Staking is done following the triangular system. Planting density per hectare for each type of material is shown below:

<table>
<thead>
<tr>
<th>Density (Palms/Ha)</th>
<th>Tall, T x T</th>
<th>Dwarf, D x D</th>
</tr>
</thead>
<tbody>
<tr>
<td>143</td>
<td>160</td>
<td>180</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Distance bet. Palms</th>
<th>9 m</th>
<th>8.5 m</th>
<th>8 m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance bet. Rows</td>
<td>7.8 m</td>
<td>7.35 m</td>
<td>6.9 m</td>
</tr>
</tbody>
</table>

Access Roads and Surface Drainage

- Access roads are needed in delivering seedlings and supplies, and later, in hauling the produce to and from the farm.
- These facilitate inspection, data gathering and evaluation of palms.
- Surface drainage is essential to avoid water logging.

Hole Preparation

- Prior to digging, planting guides are put in place by using 2 pegs placed at equal distances from the stake.
- This indicates the center of the hole where the sprout of the seedling to be planted later on will have to be aligned.
- It must be noted that by using a stick marked at the center, and using the planting guides at planting time, the relocation of the stake in the hole can easily be done.
- Holes should be dug at 50 x 50 cm size. This operation commences as early as 2 months before planting to allow for weathering of the soil on the sides and bottom of the holes.
- Weathering is encouraged to promote early root contact.

Seedling Selection

Selection is an indispensable process in any crop improvement work. In coconut plantations, seedling selection aims to produce high quality planting materials which when properly done could easily increase uniformity and production by 10% or higher.

However, for hybrid trials where materials should possess representative ‘genetic image’ of the chosen material, pest- and diseases-free seedlings showing good germination, vegetative development and vigour should be selected.

Unless the number of ‘abnormal-looking’ seedlings significantly exceeds the average number of ‘normal looking’ seedlings per population, the selection should be towards the ‘normal looking’ seedlings.

Unless found to be significant, e.g., number is sizeable, trait is distinct and uniform, the following types of seedlings are culled right away: multiple shoots, thin or leggy and etiolated, and albinos or seedlings which are devoid or chlorophyll.

Records and Layout of Palms

After laying out the field, a planting plan or map should be prepared. In this map, the photos are identified to show the spots where specific palms are to be planted. This facilitates palm and pedigree identification.

Planting

The best time to transplant seedlings is at the onset of the rainy season. Hence, timing of the nursery should be practiced in accordance with the seasonal changes. Palms should be 8-10 months but 6-month old seedlings can be planted if and when the timing of planting warrants it, i.e., if the seedlings will be 8 months by the start of the dry season.

Eight-month old transplants give a better idea of their general growth and development. However, differences in vigour are best seen when the seedlings are still too young to be moved, with the majority of their leaves still very succulent.

Field nursery seedlings should be planted immediately or at least 3 days after removal from the nursery to reduce mortality. Before transplanting, each hole should be applied with fertilizers mixed with soil.
Alternatively or in addition, a small amount of organic matter, e.g., seaweed, husk or other compost materials, can be placed at the bottom of the hole and covered with soil leaving about one-third free for the coconut seedlings to ‘sit’. For polybagged seedlings, remove the polybag first then transplant the seedlings. The hole should be covered with loose topsoil, slightly firmed at the base of the crown. The top of the nuts should be about 5-8 cm below the ground level. Deep planting might suffocate the bud while shallow planting might cause the material to bend, sway or lean during heavy rains and windy days. A slight depression must be provided to trap rainwater towards the base of the crown.

### Cultural Management Practices
- Plant 6-10 months old seedlings
- Light tilling of soil with basal application of fertilizer during planting
- Distance of planting is 8.5 x 9 meters triangular

### Systems of Planting for Coconut
1. **Square system** – Palms are set at fixed equal distance at the corner of each square, the distance between palms in each row and the distance between adjacent rows being the same.
2. **Triangular system** – Palms are set at fixed distance at the corners of an equilateral triangle. About 15% more palms can be accommodated per unit area under this system.
3. **Rectangular system** – Rows are set at right angles to one another but the distance between the palms in the row is closer than those between the rows. This system provides for a slightly lower number of palms in a stand but allows for more room for growing intercrops.
4. **Quincunx system** – This system is used for replanting old coconut plantations where the old palms will be removed as soon as the new seedlings are established. Seedlings are planted in the center of each square of old palms.

### Nutrient Requirement of Coconut

<table>
<thead>
<tr>
<th>STAGE</th>
<th>N</th>
<th>K</th>
<th>Cl</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>File Planting (FP)</td>
<td>30</td>
<td>50</td>
<td>44</td>
<td>7.5</td>
</tr>
<tr>
<td>6 months after FP</td>
<td>40</td>
<td>75</td>
<td>66</td>
<td>10</td>
</tr>
<tr>
<td>1 year</td>
<td>100</td>
<td>250</td>
<td>220</td>
<td>25</td>
</tr>
<tr>
<td>2 years</td>
<td>150</td>
<td>375</td>
<td>330</td>
<td>37.5</td>
</tr>
<tr>
<td>3 years</td>
<td>250</td>
<td>500</td>
<td>440</td>
<td>50</td>
</tr>
<tr>
<td>4 years</td>
<td>300</td>
<td>625</td>
<td>550</td>
<td>75</td>
</tr>
<tr>
<td>5 years or more</td>
<td>400</td>
<td>750</td>
<td>660</td>
<td>100</td>
</tr>
</tbody>
</table>

### Fertilizer Recommendation (g/palm)

<table>
<thead>
<tr>
<th>AS</th>
<th>KCl</th>
<th>NaCl</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field planting</td>
<td>150</td>
<td>100</td>
</tr>
<tr>
<td>6 months</td>
<td>200</td>
<td>150</td>
</tr>
<tr>
<td>Year 1</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>Year 2</td>
<td>750</td>
<td>750</td>
</tr>
<tr>
<td>Year 3</td>
<td>1,000</td>
<td>1,000</td>
</tr>
<tr>
<td>Year 4</td>
<td>1,250</td>
<td>1,250</td>
</tr>
<tr>
<td>Year 5 &amp; up</td>
<td>1,500</td>
<td>1,500</td>
</tr>
</tbody>
</table>

### Nutrient Requirement of Coconut

Nutritionally deficient bearing palms need the following fertilizers:
- Organic fertilizer: 8.0 kg/palm per year
- KCl (0-0-60): 1.65 kg/palm per year
- NaCl (common salt): 1.5 kg/palm per year

When and how often fertilizers should be applied?
1. **At pre-bearing stage or vegetative stage (1-3 years)** – Split application of annual rate per palm, the first half at the start of the rainy season and the remaining half at 6 months after or about one month before the end of the rainy season.
2. **At bearing stage** – One application for areas with even rainfall distribution (1.5 – 3 dry months) or split application for areas with distinct dry and rainy season.

### Intercropping

- Intercrops are annual, biennial and perennial crops planted under and between coconut palms.
- They provide extra income for coconut farmers.
- Examples of crops suitable for intercropping are sweet potato, cassava, ginger, upland rice, mungbean, corn, taro (gabi), peanut, sweet pepper, ramie, hot pepper, sunflower, bush sitao (string beans), eggplant, arrowroot, banana, pineapple, coffee, cacao, black pepper, vanilla, lanzones, rambutan, durian, mangosteen, abaca and papaya.
- Planting distance from the coconut trunk should be at least 2 meters away.
- Selection of intercrops must be based on:
  - Tolerance to partially shaded conditions
  - Absence of pest and diseases
  - Presence of viable market
  - High value
  - Low perishability

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**PCA-ZRC BGD TECHNO**

**NOTES No. 002**