The coconut palm is known as the ‘tree of life’ because of its diversified products and by-products that support human life. Aside from the main product, i.e. copra/oil which supports 1/3 of the country’s population, the coconut tree provides many other useful food and non-food by-products. One new food item is the edible coconut vegetative pith or ‘ubod’. This food item commands a considerable price in the market today because of its many uses in the preparation of food.

With the need for R & D on sustainable coconut farming, a system or strategy of underplanting young coconuts on adult stand of palms was developed to provide an alternative source of coconut pith or ‘ubod’ thus, preventing the indiscriminate cutting of existing productive coconut palms for such food purpose.

MATERIALS

a) Tall or dwarf coconut seednuts
b) Tall bearing coco trees (at least 20 yrs old)
c) Inorganic fertilizers (Ammosul, NaCl)
d) Weeding scythe
e) Bolo, shovel, grub hoe
f) Harvesting pole
g) Weighing scale

PROCEDURE

1) Set coconut seednuts in raised bed (15-20 cm above ground level) to prevent them from being washed away during heavy rains.
2) Set seednuts in horizontal position and cover 2/3 of the seednuts with soil.
3) Water seednuts 2-3 times each week especially during dry season.
4) After 2-3 months from germination, set germinated seednuts in ordinary nursery by arranging them preferably in a triangular pattern measuring 60cm x 60 cm. Lay-out the rows of seednuts in N-S orientation.
5) Prepare holes in the interspaces of full bearing coconut in a 3m x 3m triangular pattern in two rows for planting of young coconuts about two meters away from the row of coconut bearing palms.
6) From the ordinary seedling nursery, plant young coconut in prepared holes in either two ways:
   * One palm per hill (742 plants/ha)
   * Two palms/hill at 2 ft apart (1,484 palms/ha)
7) Apply proper cultural management to both young and old palms (ring weeding, fertilization, etc.)
8) Harvest nut produced from bearing palms every 45 days.
9) Harvest ‘ubod;’ at three years from field planting using the following steps:
   a) Trim & cut with bolo few older leaves of young coconuts
   b) Cut bole of harvestable palms at 6-10 inches below ‘ubod’ base and about 10-18 inches above ‘ubod’ end. Longer cut beyond the ‘ubod’ end ensures protection from early spoilage after harvest.
   c) Remove outer covering of ‘ubod’ by striping the base of petiole until ‘ubod’ (soft portion) is extracted.
   d) Determine weight of ‘ubod’ using a weighing scale.
10) Dispose properly the farm waste left after extracting the “ubod’; leaves be allowed to dry and mulch.
11) For coconut stem left, cover with soil plus sand as applicable; in 2-3 months it is likely decomposed and mixed with the soil.

RESULTS

Table 1. Ave. fresh weight, girth & length of ubod per palm at 3 years old.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Weight (kg)</th>
<th>Girth (cm)</th>
<th>Length (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large</td>
<td>9.9</td>
<td>96.0</td>
<td>28.1</td>
</tr>
<tr>
<td>Medium</td>
<td>5.7</td>
<td>88.2</td>
<td>25.1</td>
</tr>
<tr>
<td>Small</td>
<td>2.1</td>
<td>84.4</td>
<td>22.3</td>
</tr>
</tbody>
</table>

ADVANTAGES OF THE TECHNOLOGY

Planting of young coconuts (1 or 2 plants/hill) in a 3 x 3 triangular planting distance is:
1) a feasible & profitable production technology that could increase coconut farm productivity;
2) offers an alternative source of coconut pith or ‘ubod’ for food purpose without cutting indiscriminately our existing productive palms;
3) contributes to the conservation of natural resources such as coconut tree, thereby maintaining the natural balance of our ecosystem; and
4) can be used in replanting old existing palms with some remaining young palms arranged in a 9 x 9 m triangular planting distance.

LIMITATIONS:

1) This technology cannot be applied to full bearing palms with close planting distance (<8 m triangular or square).
2) It is limited only under tall bearing palms and not preferably on dwarf varieties with close planting distance.

3) This technology is not recommended in typhoon belt areas as fallen trees due to typhoon may damage young underplants.

4) It can pose a problem on rhino beetle infestation if waste materials from ‘ubod’ harvesting are not properly disposed.

**ECONOMIC ANALYSIS:**

<table>
<thead>
<tr>
<th>Year</th>
<th>Yield/ha/yr (kg)</th>
<th>Gross Income (PhP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ubod</td>
<td>Copra</td>
</tr>
<tr>
<td>A. Single planting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>3,775.2</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>3,231.8</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>5,045.6</td>
<td>3,939.5</td>
</tr>
<tr>
<td>Tot.</td>
<td>5,045.6</td>
<td>10,939.5</td>
</tr>
<tr>
<td>Ave.</td>
<td>1,681.9</td>
<td>3,646.5</td>
</tr>
<tr>
<td>B. Double planting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>3,775.2</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>3,231.8</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>8,755.6</td>
<td>3,989.7</td>
</tr>
<tr>
<td>Tot.</td>
<td>8,755.6</td>
<td>3,989.7</td>
</tr>
<tr>
<td>Ave.</td>
<td>2,918.5</td>
<td>3,665.6</td>
</tr>
</tbody>
</table>

**FOR ADDITIONAL INFORMATION:**

**REFER TO:**


**Basic Assumptions on economic analysis:**

- a) Copra price/kg P8.00 – 1st year
  
  P10.00 – 2nd year
  
  P11.00 – 3rd year

- b) Ubod price/kg - P20.00

- c) Labor (ringweeding, fertilization) – P90/day

- c) Prices of fertilizers – P3.90/kg Ammosul; P3.75/kg NaCl

**CALL, WRITE OR VISIT:**

1) **Agronomy & Soils Division**

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2) **Agricultural Research Mgt. Dept.**

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**Underplanting of Young Coconuts on Bearing Palms for the Production of Edible Vegetative Pith or “Ubod”**

Department of Agriculture

Philippine Coconut Authority

Research, Development & Extension Branch

Davao Research Center