Coconut
*Cocos nucifera*, Arecaceae
The word coco derives from the word monkey because the nut resembles a monkey's face.
Coconut is the most important of cultivated palms.
Origin in southeast Asia with secondary center in India.
Tropical Horticulture: Lecture 25

**Morphology**

An unbranched monoecious palm, 40 to 100 ft tall, 18–24 inches in diameter. Flowers in the 6th year. Matures 16–18 months after pollination.

**Fruits weigh 2–3 pounds each, are 24% water**

Uses

- Trunk: Source of timber
- Leaves: Thatch
- Flowering stalk: tapped for sugar source of alcoholic beverage [palm wine (toddy); spirit (arrack)]
- Nuts (many products)
  - Whole coconuts
  - Copra (dried kernel): 5500 nuts yield 1 tonne
  - Coconut oil: 8960 nuts yield 1 tonne
  - Coconut oil cake
  - Fiber (coir)
  - Desiccated shredded coconut
  - Coconut milk and coconut protein
  - Shell for charcoal
### Coconut Production (2001)

<table>
<thead>
<tr>
<th>Continent</th>
<th>1000 tonnes</th>
<th>Chief countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>World</td>
<td>50,886</td>
<td></td>
</tr>
<tr>
<td>Africa</td>
<td>1,750</td>
<td>Tanzania (350), Ghana (315), Mozambique (300)</td>
</tr>
<tr>
<td>North America</td>
<td>1,933</td>
<td>Mexico (1,163), Dominican Rep. (331), Jamaica (115)</td>
</tr>
<tr>
<td>South America</td>
<td>2,339</td>
<td>Brazil (1,999), Venezuela (111), Colombia (91)</td>
</tr>
<tr>
<td>Asia</td>
<td>42,559</td>
<td>Indonesia (14,300), Philippines (13,214), India (9,000)</td>
</tr>
<tr>
<td>Oceania</td>
<td>2,305</td>
<td>Papua New Guinea (1,032), Solomon (330), Vanuatu (248)</td>
</tr>
</tbody>
</table>

### Propagation

- Plant is seed propagated.
- Embryo is dormant up to 6 weeks after harvest.
- Coconut is usually 2/3 covered with soil.
- Seedlings are transplanted at 5–6 mo.
- A desirable type is called macapuno with jelly-like endosperm and acts as a genetic recessive.
- However, recessive types are sterile because nuts do not germinate.
- Selfing the heterozygote produces 25% macapuno nuts.
- Could be overcome by embryo culture.
- Need for tissue culture propagation.

### Harvest

- Nuts per hectare of mature trees
  - Tall: 4,000–6,000
  - Dwarf: 8,000–10,000
  - Tall × Dwarf: 4,000–6,000

- Future of the crop is for use in intercropping systems.
- This is a low input crop mostly produced by small holders.
- Coconut oil is widely used to manufacture detergents.
Phoenix dactylifera, Arecaceae
Cultivated in arid parts of the Near East since 4000 BCE.
A dioecious plant with staminate and pistillate trees.
Must be pollinated to get good fruit set.

Ancient drawing of dates in Mesopotamia
Palm culture in ancient Egypt

Date Production (2001)

<table>
<thead>
<tr>
<th>Continent</th>
<th>1000 tonnes</th>
<th>Chief countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>World</td>
<td>5,353</td>
<td></td>
</tr>
<tr>
<td>Africa</td>
<td>1,981</td>
<td>Egypt (1,102), Algeria (370), Sudan (177)</td>
</tr>
<tr>
<td>North America</td>
<td>18</td>
<td>US (15), Mexico (3)</td>
</tr>
<tr>
<td>Asia</td>
<td>3,346</td>
<td>Iran (900), Saudi Arabia (712), Pakistan (550)</td>
</tr>
<tr>
<td>Europe</td>
<td>7</td>
<td>Spain (7)</td>
</tr>
</tbody>
</table>

Rich source of nutrients when dried, 70% carbohydrates, 2% protein, 2.4% fat. Dates can be fermented into arrack, a potent spirit. Fronds used for basketry and thatch. Propagated by suckers but is very slow. A plant of a good cultivar may be worth $200–500 each. At the present time tissue culture using somatic embryos is being used. A single tree can produce 100 pounds of dates. Must be irrigated to obtain high yields. Baud disease, a fusarium, is causing losses in North Africa. Fruit cluster is protected by wrapping in plastic.
Tropical Horticulture: Lecture 25

Dates

Date palm inflorescence

Dwarfed Dates
Tropical Horticulture: Lecture 25

Oasis, Sinai

Dates, Sinai peninsula

Oasis in Sinai
Date Palm
Negev, Israel

Horses (weed control) and dates,
Negev, Israel

Camels and dates, weed control, Negev, Israel
Dates

Date Varieties

Date trials, Puerto Rico
Date Palms, California

Dates, California