The oil palm, a crop for the future

Elaeis guineensis

Palm oil is primarily produced from the fruit of the oil palm, which is a large, flowering palm tree native to West Africa. The oil palm is the world's leading source of vegetable oil, providing about 30% of the world's oilseeds demand. It is grown on millions of hectares across Asia, Africa, and South America.

**Palm oil**

- **Production dominated by Asia**
  - Wild palms are still harvested in Africa.
  - The first plantations date back to the 20th century, and the sector has grown since then.
  - Production is now concentrated in Asia, with Indonesia and Malaysia being the largest producers.

- **Varieties**
  - Tenera variety: Has a thin shell, is rich in oil and easy to process.
  - Bunch variety: Has a thick shell, is rich in oil but harder to process.

- **Process**
  - Harvesting: Bunches are harvested from the palm tree.
  - Processing: The oil is extracted from the fruit kernel.

- **Uses**
  - Food: Used in cooking, baking, and in the production of margarine, butter, and other food products.
  - Non-food: Used in the production of biofuels, plastics, and other industrial products.

- **Research**
  - CIRAD has been working with partners in various countries to develop sustainable palm oil production.

**Research for sustainable oil production**

- **Issues**
  - Satisfying growing global demand for vegetable oils.
  - Promoting high quality oil.
  - Expanding oil palm plantings without threatening biodiversity.

- **Strategies**
  - Expanding oil palm plantings in countries where it is suitable.
  - Promoting high quality oil.
  - Protecting and promoting biodiversity.

- **Partners**
  - UNCTAD (United Nations Conference on Trade and Development).
  - FAO (Food and Agriculture Organization).

**Production of palm oil**

- **Fruits**
  - The fruits develop in clusters, some male, some female (which spiral in the axil of each frond, except in the event of early abortion).
  - The fruits are rich in oil, and the oil is extracted from the fruit kernel.

- **Habitat**
  - The flowers develop on inflorescences, some male, some female (which become bunches once fertilized), in the all of each frond, except in the event of early abortion.

- **Harvesting**
  - In Southeast Asia, oil palm vascular wilt is a major problem.

- **Harvesting**
  - In Latin America, oil palm bud rot is having an increasing impact in replantings.

- **Processing**
  - The main types of palm oil differ in terms of the thickness of the fruit shell.

- **Uses**
  - Oil palm is the world's leading source of vegetable oil.

- **Issues**
  - Satisfying growing global demand for vegetable oils.
  - Promoting high quality oil.
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- **Strategies**
  - Expanding oil palm plantings in countries where it is suitable.
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**References**

- Denis Delebecque/Méridiennes 03/2008

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**Palm oil**

- **Production**
  - The chosen zone has to have sufficient agricultural potential.
  - Issues related to pests and diseases.

- **Issues**
  - The main types of palm oil differ in terms of the thickness of the fruit shell.

- **Strategies**
  - Expanding oil palm plantings without threatening biodiversity.

- **Partners**
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Coconut, the tree of life

Coconut palms are tropical plants that bear fruit all year round. They are found on all sorts of soils, even very poor ones (coastal sands, peat, etc) that are unsuitable for other crops. They are Tall, Dwarf and hybrid coconut varieties. They begin to bear after four to ten years, grow up to 12 m tall in the case of Dwarf varieties and 30 m for Talls, and live for up to a hundred years.

Is coconut the tree of life? Some 96% of coconut palms are grown by ten million smallholders, mostly in Asia and the Pacific. They play a vital role in the economy of countries, and for smallholders, who often have to cope with numerous difficulties: low copra prices, ageing plantations, the risks of lethal diseases and the difficulty of switching to other crops. However, this diversity is under threat as a result of agricultural uniformization. CIRAD has helped to inventory the different varieties and develop resistant varieties.

The astonishing genetic diversity of coconut

Over the centuries, numerous varieties have been created for local, medicinal or ritual purposes. However, this diversity is now under threat as a result of agricultural and cultural uniformization. CIRAD has helped to inventory the different varieties and develop new hybrids. One of the main objectives is to withstand lethal diseases.

Global oil production

Asia is the main production zone, with 84% of global output and relatively stable yields (5 tonnes of nuts/ha). Global copra oil production totalled about 1 million tonnes a year in Africa, the Caribbean and Oceania, crop is a vital source of income and trade for smallholders. The main copra oil producing countries are the Philippines, Indonesia and India. The main consumers are the United States and China, who are vital for smallholders. Exports account for less than half of the total output (0.5 million tonnes a year). The European Union is the leading importer, followed by the United States.

Pests and diseases

Coconut palms are affected by numerous pests and diseases:

• Bacterial leaf blight, leaves, roots, stems and inflorescences of plants,
• Fungal diseases such as Phytophthora palmivora and Cercospora beticola, which cause rotting of immature nuts and the terminal bud, leaves, stems, roots, inflorescences and fruits.
• Parasitic fungi such as Phytophthora katsurae and Phytophthora nicotianae, which cause rosetting of immature nuts and the terminal bud.

Some 96% of coconut palms are grown

Issues

• Controlling lethal yellowing.
• Making coconut plantings more productive.
• Diversifying the range of coconut products.
• Promoting those products on local and export markets.

Research on coconut is primarily conducted by national research systems in producing countries, working together in networks supported by CIRAD. The countries, or regions, are united continuously from a single terminal bud (the ‘heart’). Coconut palms have a total crown comprising around thirty green fronds. Each frond is 1 to 2 m long and has around 200 leaves.

The non-edible components comprise proteins binding to the woman's milk.

The fruits, produced after fertilization of the female flowers, are known as commonly known as ‘coconuts.’

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