Coconut at a crossroad: is the copra route sustainable?

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www.cirad.fr

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CIRAD - French Agricultural Research and International Cooperation Organization working for the sustainable development of tropical and Mediterranean regions

Head office in Paris
A scientific hub in Montpellier

12 regional offices in the French overseas regions and abroad
350 staff members assigned abroad in our partner countries
A basic working principle: research in partnership

- Working together to establish and implement priorities
- Working in the South, where our partners are, in their laboratories or in their fields

Training the talents of the future

800 researchers and technicians received and trained each year
300 PhD students (60% from developing and emerging countries)
CIRAD and the coconut sector

- More than 70 years of experience on coconut fruit production and processing

- A pool of 14 researchers
  - Breeding, genomic, bioinformatic (4)
  - Agronomy and GIS (4)
  - Phytopathology and entomology (2)
  - Coconut fruit processing and products quality (4)
« Coco mania »

Industry - Copra oil (RBD CNO)

Retail market – coconut milk & desiccated coconut (DCN)

Retail market - Virgin Coconut oil (VCO)
Coconut harvested area in 2017
12.3 million hectares
95% smallholders (less than 1 ha)

- **Asia**: 81%
- **Africa**: 9%
- **America + Caribbeans**: 5%
- **Oceania**: 5%
- **Dwarf**: 5% (95% area)

- **Tall and hybrids**: 95% area
- **Indonesia, Philippines and India**: 81%

(FAOStats, 2019)
Evolution of the world production, yield, prices of copra, and coconut oil (1980 = ref. 100)

- 60.7 million tons of coconut fruits in 2017
- 4 million tons of copra oil in 2017 (1.3% of total oil exports)

(Sources FAOStats for production and yield, and Oil World monthly for prices) Prades et al., 2016.
New markets for coconut oil

Philippines export of VCO, virgin coconut oil

(Source: Salum, APCC Conference, Bali, 2016)
Copra oil at a crossroad

Market demand

Sustainable ?

Production

Inspired by: Oropeza, APCC conference, Bali, 2016
Coconut farmers today

Poor Market access & knowledge
- Low level of organization (community, cooperative..)
- Many middle men
- Poor market knowledge
- Low to none usage of value added by products
- No access to information to improve practices (agronomy and post-harvest processing/handling of copra)
Threats on sustainability (biotic)

- Senile coconut trees
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- Coconut plantation devastated by LYTS in Mozambique
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Combined with poor agricultural practices

- Low productivity
- Insufficient and inefficient replanting efforts
- No or bad quality of intercrop
Threats (abiotic)

Drying copra

with direct fire (direct smoke dryer)
(burning coconut shells to produce energy)

Or sun drying
(with growing molds, producing mycotoxins)

Sanitary issues
Issue raised at EFSA in 2016
(European Food Safety Authority)

Biphenyl (BP), anthraquinone (AQ), 2-phenylphenol

- Identification of 3 substances in crude coconut oil and coconut fatty acid distillates at quantifiable levels, with potential MRL exceedance, taking into account concentration in crude oil

- Refining process ensuring removal for refined vegetable oils/fats: no issue for refined oils

- Uncertainties on source of substances
  ⇒ More investigations needed!
Forces and Opportunities

An international network for safeguarding biodiversity: COGENT linked to TIRPAA/FAO

www.cogentnetwork.org

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Forces and Opportunities

Technical solutions are available but need training and incentives

Copa hot air dryer (indirect fire) designed by CIRAD

«Participatory Guarantee Systems (PGS) are locally focused quality assurance systems. They certify producers based on active participation of stakeholders and are built on a foundation of trust, social networks and knowledge exchange» (IFOAM; 2008)

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Diversification

Fibers from husks

Coconut wood

Charcoal from shells

Coconut water and vinegar

Kopyor coconut
First sustainable coconut and coconut oil roundtable organized on 7th March 2019 in Kuala Lumpur, Malaysia by Barry Callebaut and USAID
Sustainability of coconut sector in the future

- **Replant** and replace old trees with proper planting material
- Preserve the **biodiversity** in the genebanks (to address new market trends and climate change)
- Increase **productivity** in the field (fertilizers, inter-cropping…) and in the first post-harvest operations (dryers)
- Improve the **quality** of the copra (monitor conditions and duration of storage) – (sanitary issue)
- Encourage **diversification** strategy and participatory certification systems in order to process all parts of the fruits in the same area. This will increase farmers’ revenues and create jobs in rural areas
Thank you for your attention