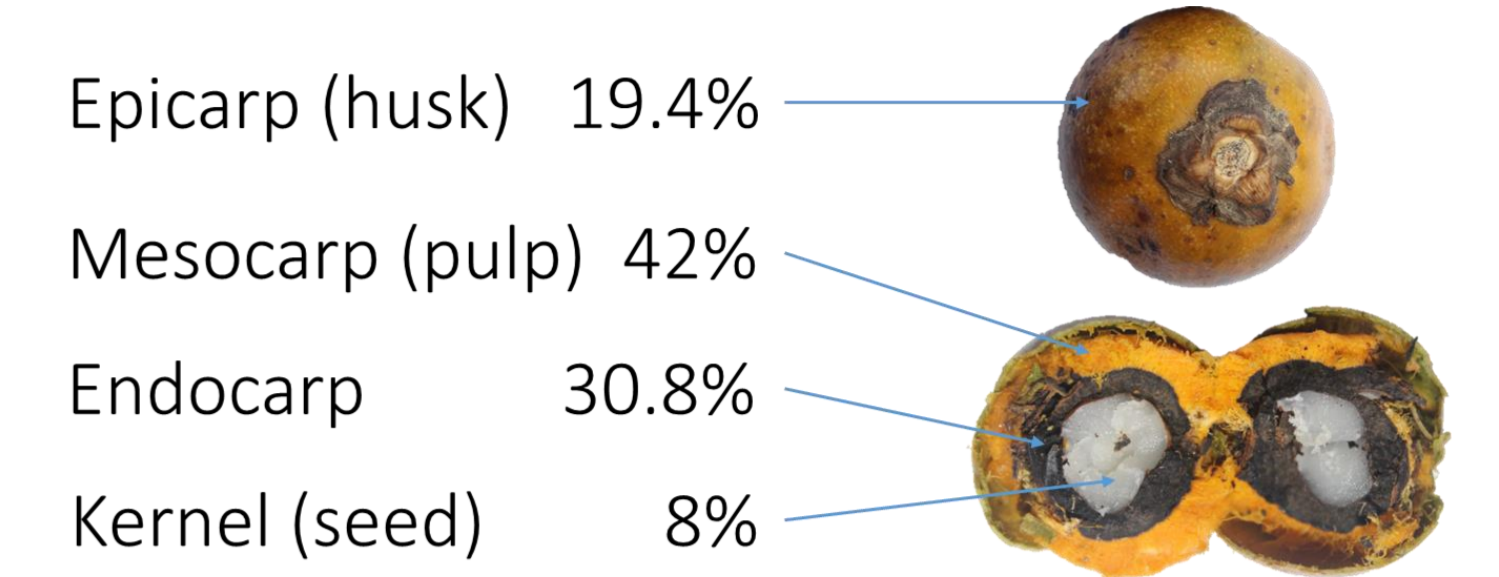


The Potential of Acrocomia Value Webs for Rural Development and Bioeconomy in Paraguay

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Acrocomia spp., is a **native palm** in the tropics and subtropics in **Latin America**. *Acrocomia* fruits have a **high oil content** in pulp and kernel (40% and 60% in dry basis). Scholars consider this crop as a **promising** vegetable oil source. Industrial processing generates multiple **by-products**, which makes *Acrocomia* an important crop in **bioeconomy**. It is estimated that in a plantation of 400 palms per hectare, 2.5 tons of oil can be obtained. This palm grows **wildly** in **Paraguay**, where is industrially processed since the 1940s. There, family farming represents around 90% of the farm systems.

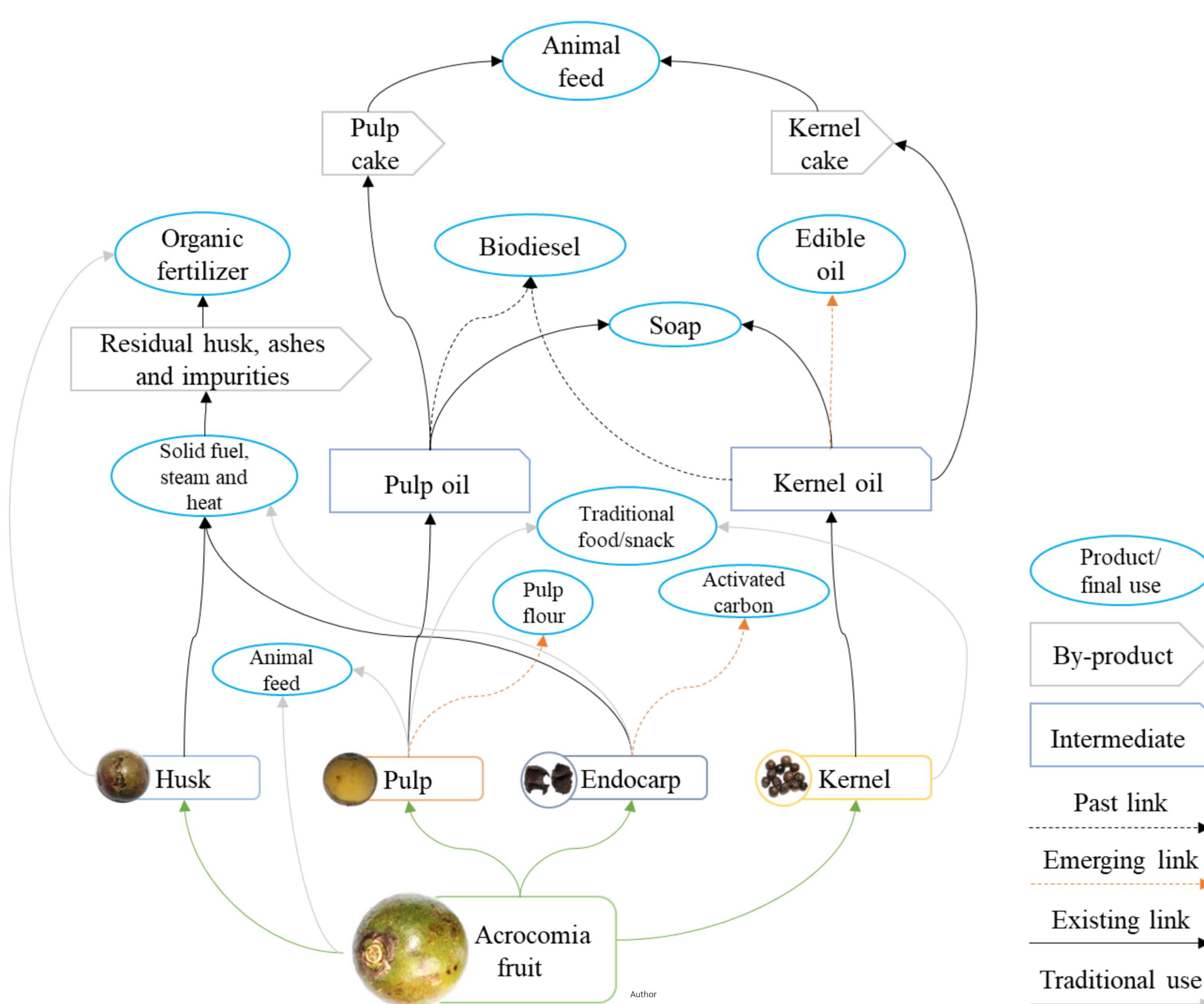


Photos: Author
Sources: Markley (1956), Silva and Andrade (2011), Cicchini et al (2013), Hauptenthal et al (2011), Evaristo et al (2016), Lescano et al (2015)

Objective and methods

- **Objective:** Analyse the existing *Acrocomia* value webs in Paraguay and identify pro-poor upgrading strategies
- **Methods:** Value chain and biomass-based value web analysis (qualitative and quantitative)
- In-depth interviews with key experts (10), questionnaires with farmers and collectors (23), contact to public servers
Visits to the industry and participatory value chain mapping (10)
- **Study site:** San Pedro del Paraná (Dept. Itapua), Quiindy (Dept. Paraguari), Processors in the Dept. Paraguari

Acrocomia value web



Upgrading strategies

- **Direct linkage** between producers (farmers) and processors and **collective action** among farmers
- Engaging farmers in **(pre-) processing** activities
- Developing **higher** added-value products (emerging links above)
- Promoting **plantation** of *Acrocomia* at **small scale**
- Improving harvest and post-harvest processes and fruit quality
- Multi-stakeholder platforms to enhance the competitiveness
- A study case in **San Pedro del Paraná**: Promotion of small-scale cultivation and (pre-) processing of *Acrocomia* fruits (ex-ante analysis of local added value)

	Not processing	Pre-processing (dehulling, pulping)
Share of value	25%	50%

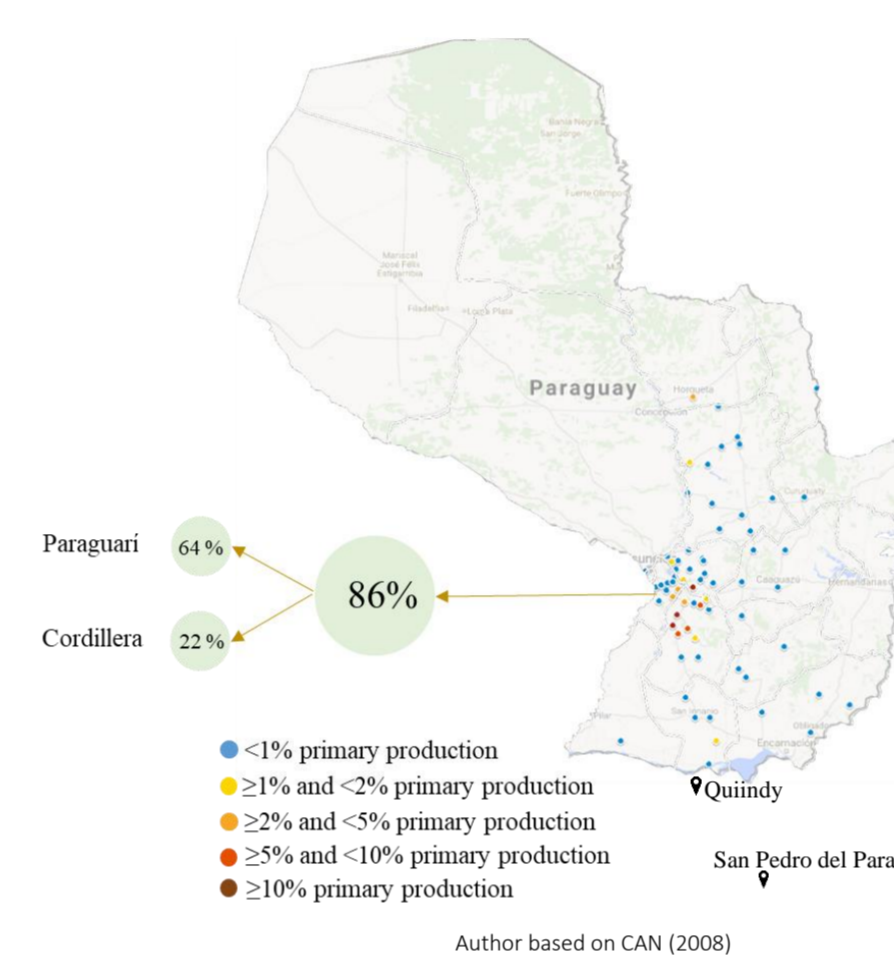
Findings

From the palm tree to the market



Peasants and smallholder family farmers gather fruits from wild *Acrocomia* palm trees in their own or neighbor farms (around 8000 farms) between November and May (peak: Dec-Feb) and sell them to local collectors or sub-collectors. These supply the raw fruits to primary processors who operate around four months per year.

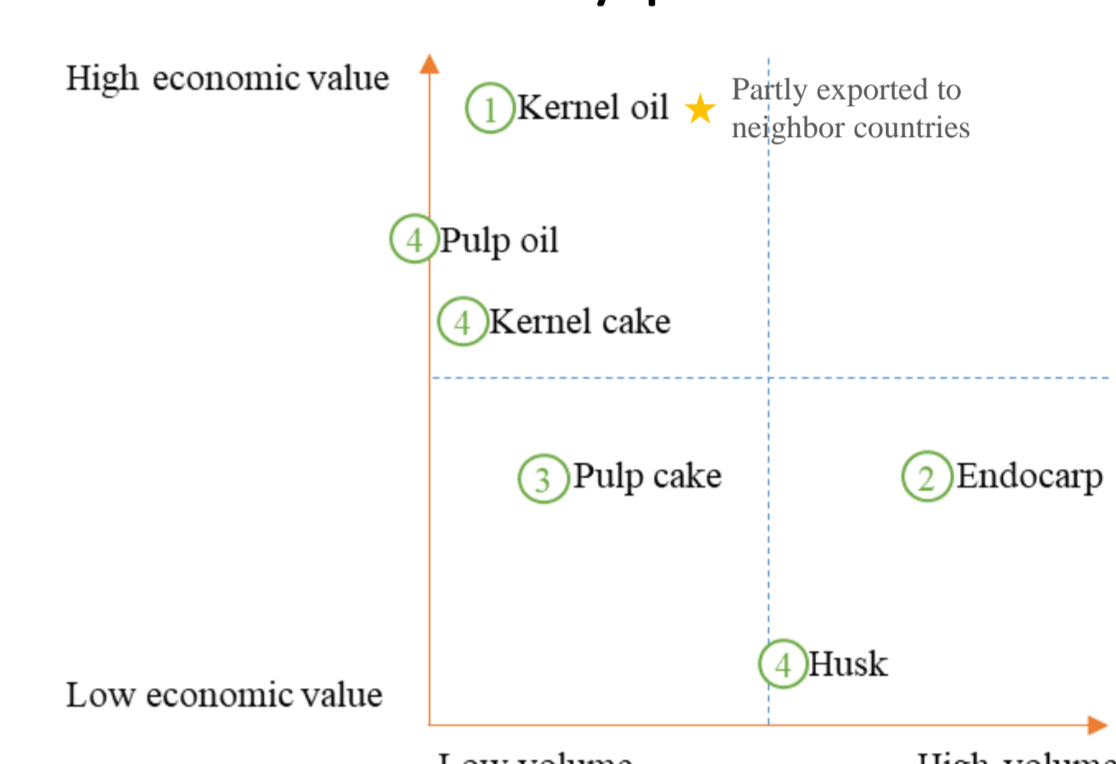
Producer regions



Output per farm

Crates	Tons	Percentage of productive regions
≤ 30	≤ 1.8	29%
30 – 65	1.8 – 3.6	21%
65 – 130	3.6 – 7.2	26%
130 – 265	7.2 – 14.5	14%
265 – 530	14.5 – 29	6%
> 530	> 29	4%

Economic importance of products and by-products



Challenges

- **Supply** of fruits (ca. 50000 tons in 2016) is lower than demand (total productive capacity ca. 280000 tons). Processors (5) operate under productive capacity and less than six months.
- Various projects have failed in the past due to lack of **technical knowledge** to cultivate *Acrocomia*, **long period** until the palm tree is productive (ca. 5 years) and **governance** failures
- Dependence of international market and price of palm kernel oil affects the purchasing **price** of raw material (0.04 USD/kg)
- **Quality** problems due to the early harvest of unripe fruits, inappropriate storage and lead times affect the industrial **yields** and quality of products, mainly in pulp oil
- Processors incentivize more quantity than quality due to the shortage of raw material
- Lack of **horizontal** and **vertical** linkages among actors and weak enabling environment
- Processors add around 60% of the total value
- Purchasing price does not **incentivize** farmers to collect fruits, which they consider as a time consuming task
- Almost 100% of the fruits come from **wildly** growing palm trees. High **Variability** of yields and fruit characteristics.

Conclusions

- *Acrocomia* represents an **alternative** income source for peasants and smallholder family farmers in Paraguay.
- Besides the economic importance of *Acrocomia*, this crop remains **neglected**, and the sector is still informal
- The sector is a **unique** and outstanding case of **bioeconomy** that relies on **wild** palm trees. Domestication and plantation is needed in **future** scenarios.
- **Stronger linkages** between farmers and a closer relation with industry can increase their benefits and expand their role