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ICAO SEMINAR ON  
ALTERNATIVE FUELS 2017  
ICAO Headquarters, Montréal, 8-9 February 2017



# Brazilian Biojetfuel Platform Meeting the CORSIA Challenge



Plataforma Brasileira de Bioquerosene e Renováveis



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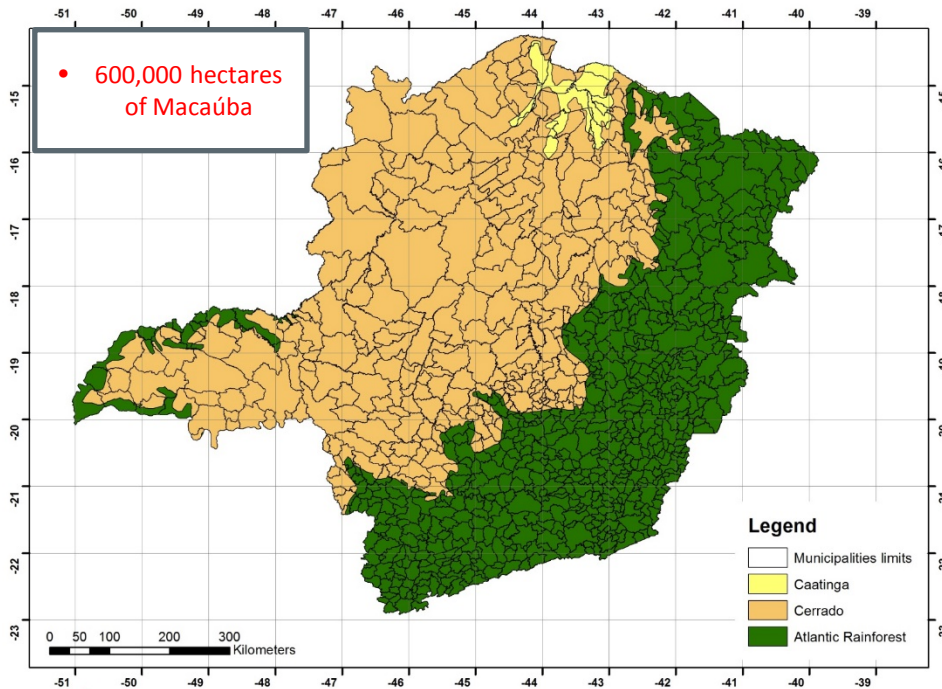
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## Meeting the CORSIA Challenge

- Reforestation with oil bearing species of Brazilian biodiversity;
- Regional highly integrated value chains;
- Food + Energy;
- Innovative technology low end feedstock;
- Information Technology.



INFORMATION SOURCE

Instituto Brasileiro de Geografia e Estatística (IBGE), 2011

## Plataforma Mineira de Bioquerosene e Renováveis

- **State of Minas Gerais**
  - 586.522,122 km<sup>2</sup>
  - 853 municipalities
  - Capital
    - » Belo horizonte
  - Three Biomes
    - Atlantic Rainforest
      - 241.704,766 km<sup>2</sup>
    - Cerrado (Neotropical Savanna)
      - 333.728,055 km<sup>2</sup>
    - Caatinga (Semiarid)
      - 11.093,429 km<sup>2</sup>



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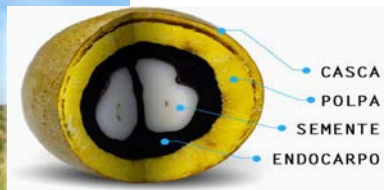
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# Feedstock





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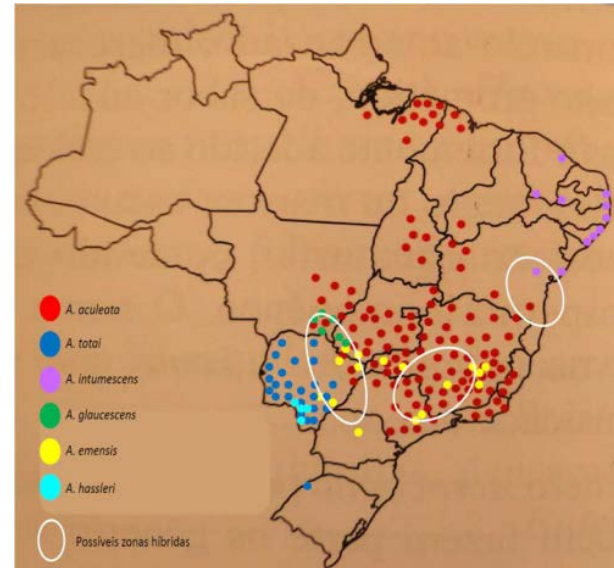
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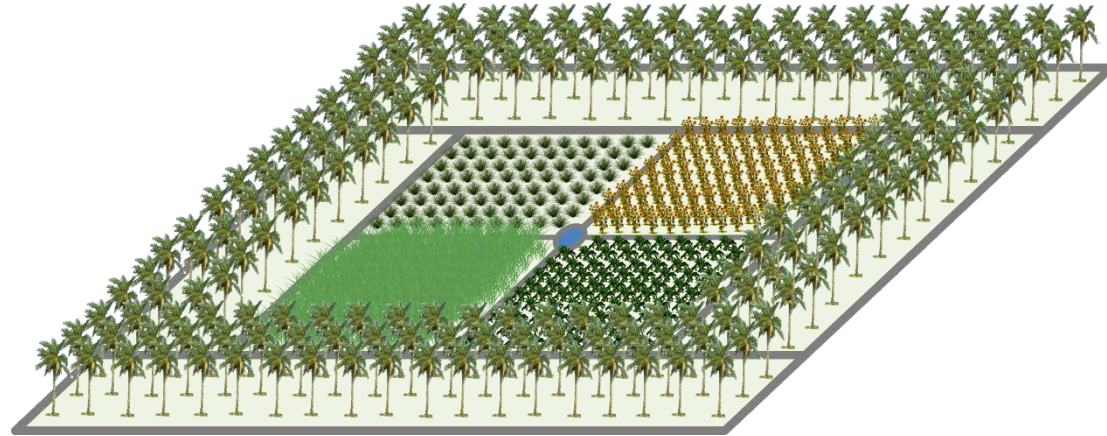
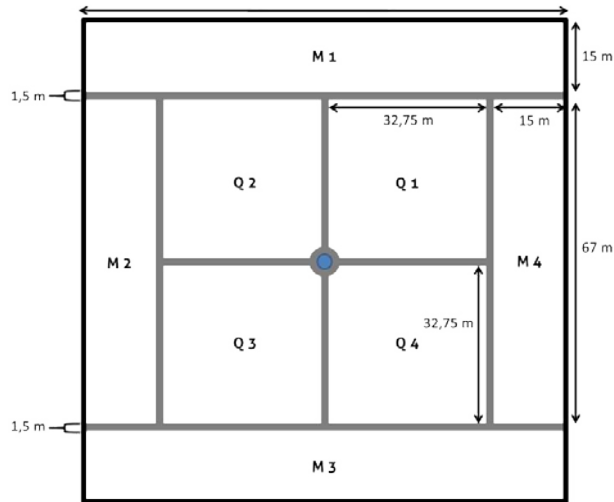
# MACAÚBA (*Acrocomia aculeata*)

Palmeira nativa ocorrente no Cerrado e Florestas Abertas da América Tropical, distribuída desde a América central até o sul da América do Sul





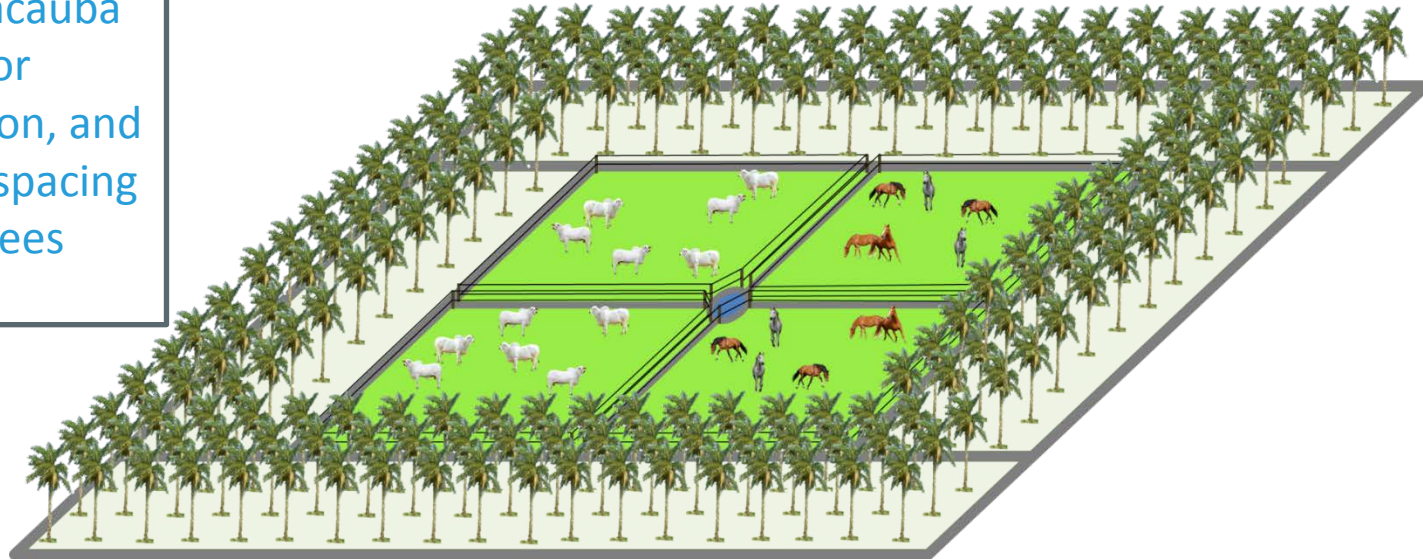
## Food + Energy: Intercropping Macaúba with cash-crops





## Technical Demonstration Unit – template for the recuperation of degraded pastureland

- Intercropping Macaúba with cattle for pastureland rotation, and beans in the interspacing of Macaúba trees

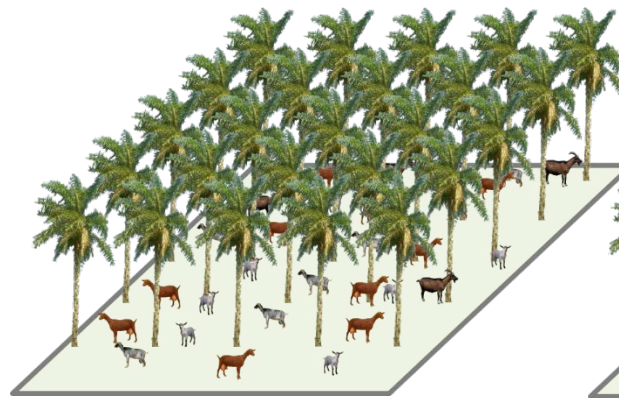
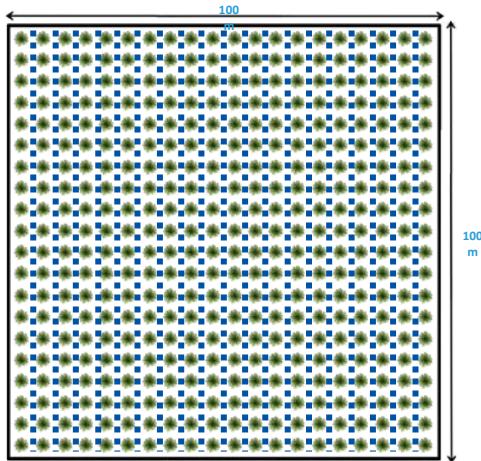




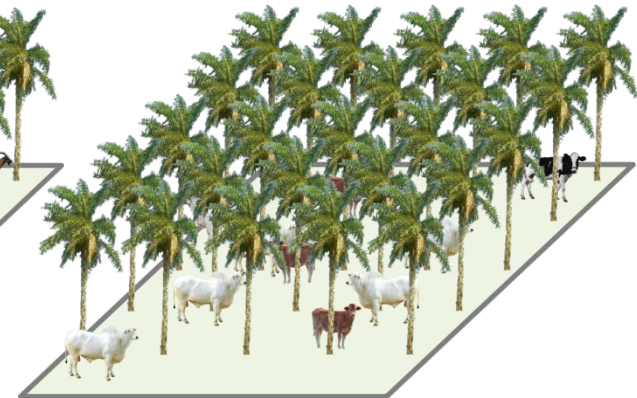
## Technical Demonstration Unit – TDU (UTD)

### Macaúba with pastureland

- Module: Macaúba (*Acrocomia aculeata* (Jacq.) Lodd. ex Mart.)
  - 1 hectare = 400 Macaúba trees
  - Interlines: Pasture and Livestock



TDU consorting with goat farming



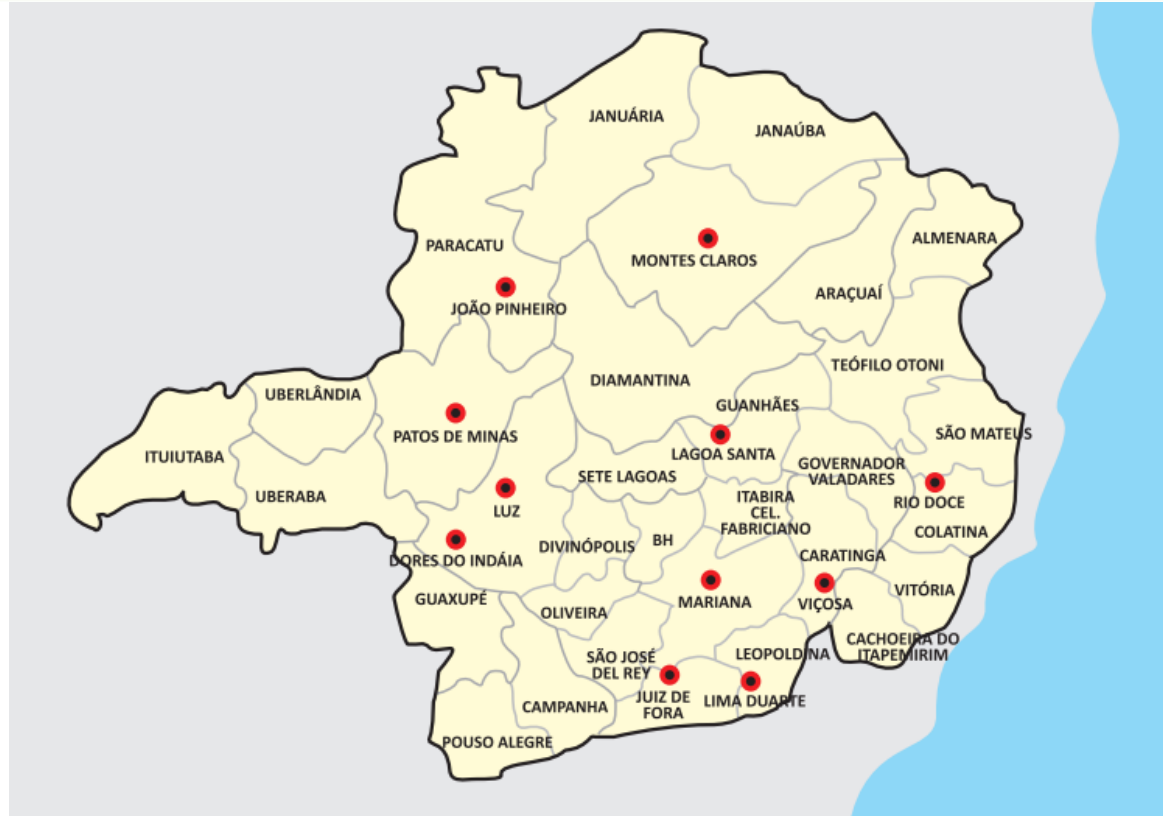
TDU consorting with bovine farming

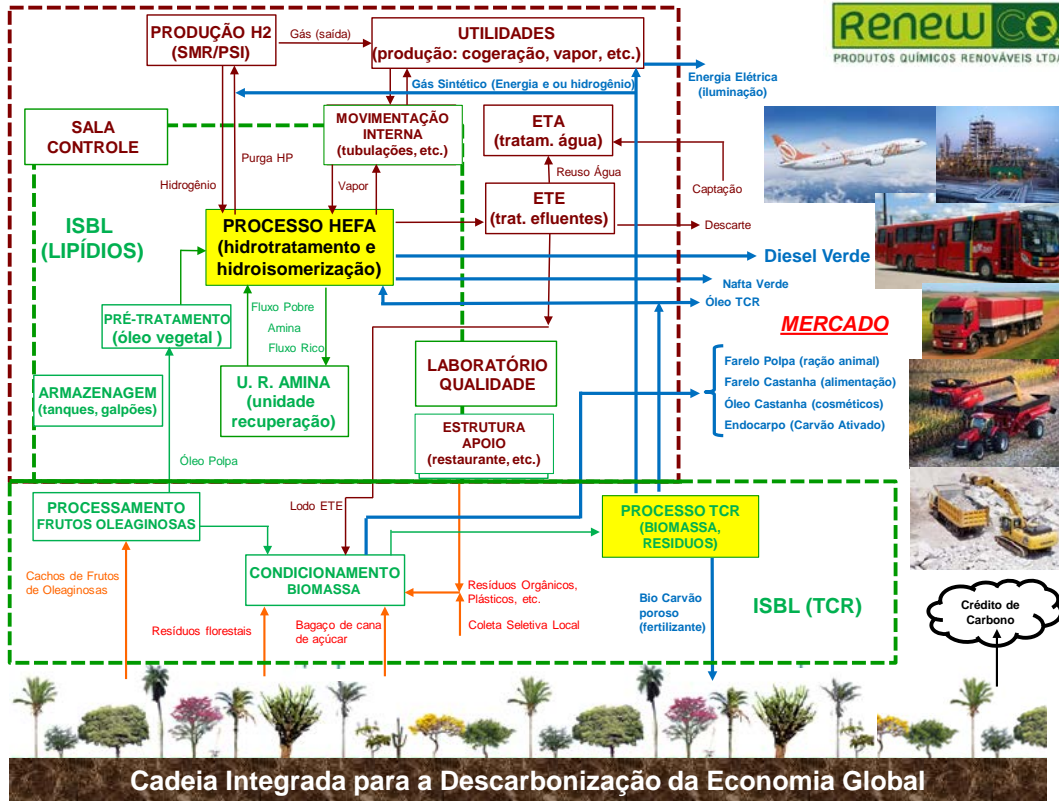




## Macaúba Initiatives in Minas Gerais:

- » Montes Claros
- » Luz
- » Dolores do Indaia
- » Lagoa Santa
- » Rio Doce
- » Mariana
- » Juiz de Fora
- » Viçosa
- » Patos de Minas
- » Lima Duarte
- » João Pinheiro





“From research to fly”  
regional integrated chains  
Multifeedstock:

Macaúba  
Jatropha

Low end: UCO, urban  
waste, agricultural  
residues, sludge

Multiprocess:

HEFA  
SPK  
ATJ  
TCR



# TCR - a flexible, integrated waste-to-energy, biofuels solution ...



Agricultural residue



Municipal biowaste



Industrial biowaste

+

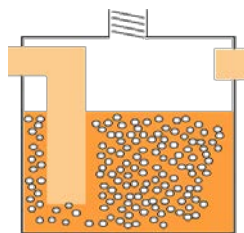


Plastics waste

... or animal grease, glycerol, other fats, oils and waxes



Thermo-Catalytic Reforming (TCR®)



Bio-Activated Cracking (BAC)



Syngas



Oil



Biochar



Power



Heat



Fuels



Fertilizer



Hydrogen



Chemical precursors



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# Three Wishes

- Creation of a CORSIA Fund based on the contribution of 1% of the annual marketing budget of Airlines flying international to support integrated “green” airport projects
- IATA/ICAO to actively support country biojetfuel initiatives by bringing together Government, private sector, and airports in HLMs to establish a CORSIA NDC per Airline/Airport/Country
- CORSIA Fund to support regional “from research to fly” airport-oriented value chains of individual Airlines’ interest – pairing. Generated carbon credits to be allocated through a book & claim system proportionally to participating Airlines.



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## Consortium MacaúbaBR

– promoting Sustainable Development based on Reforestation and Biofuels –



Linhas aéreas inteligentes



OBJETIVOS DE DESENVOLVIMENTO SUSTENTÁVEL



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Mike Lu

[mlu@cdieselbr.com.br](mailto:mlu@cdieselbr.com.br)

Mobile: +55 11 98438-3743

THANK YOU