



Stingless bees rearing and use as important pollinators

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Amazônia Oriental

**Ministério da Agricultura,
Pecuária e Abastecimento**

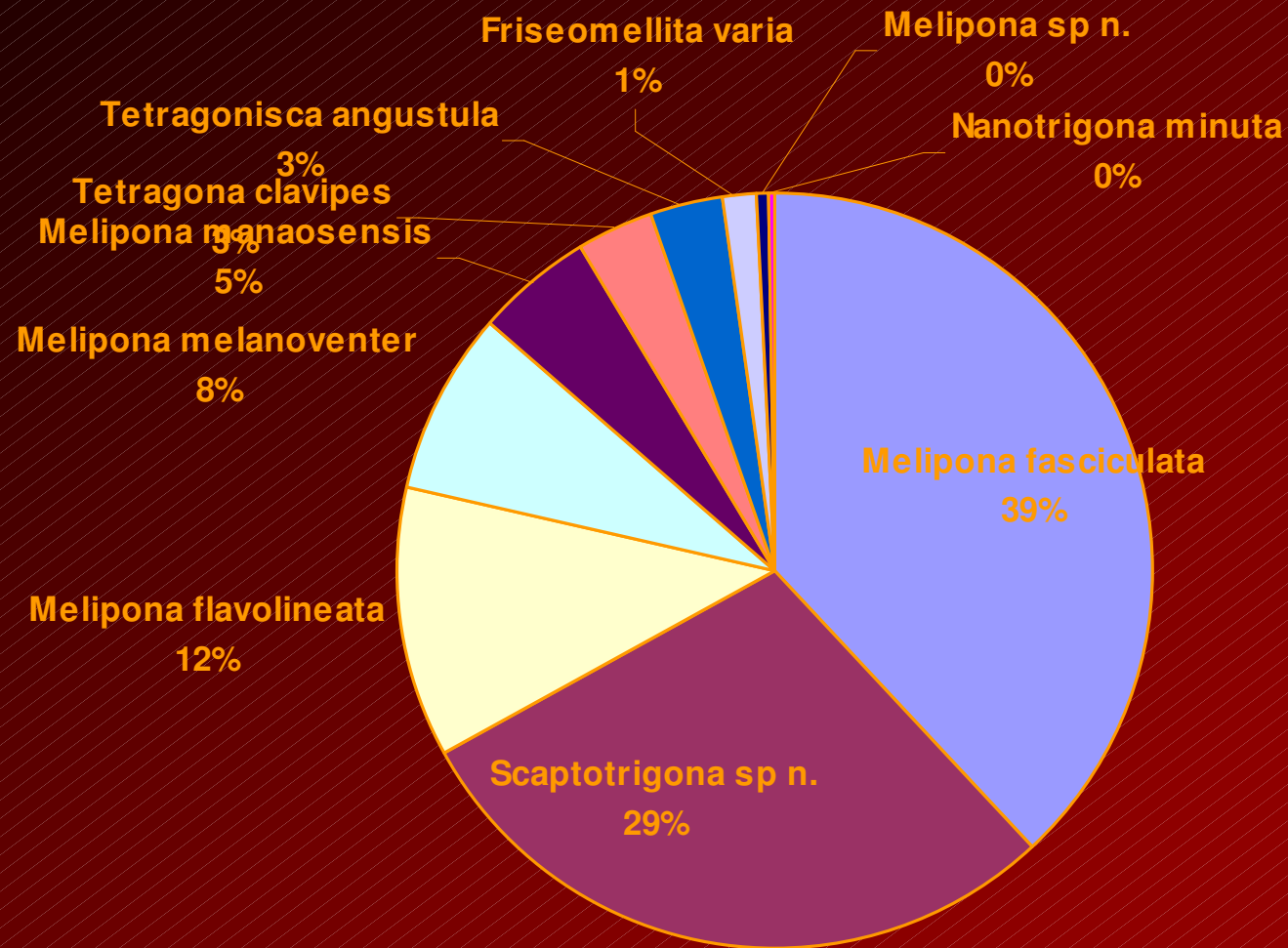
**São Paulo
2003**



advantages on rearing stingless bees compared to *Apis*

- **no sting**
- **honey with better price in the market**
- **more hives per area**
- **easy handling**
- **more easily accepted**
- **ecologically correct**
- **lower cost of production**

Stingless bees rearing in Pará State: 10 spp



Looking for a good species

For the Amazon: 129 sp described
For the Pará State: 70 sp described
(Silveira et al. 2002)

Stingless bees rearing in Pará State: 10 spp

Scientific name	Popular name	Occurrence
<i>Melipona flavolineata</i>	Uruçu-amarela	PA, MA
<i>Melipona fasciculata</i>	Uruçu-cinza (PA), Tiuba (MA)	PA and MA
<i>Melipona melanoventer</i>	Taquaruçu	PA
<i>Tetragonisca angustula</i>	Jataí, Mosquito (PA)	All Amazon
<i>Scaptotrigona</i> sp (new sp)	Canudo	Tapajós (west of Pará State)



study sites

Melipona flavolineata

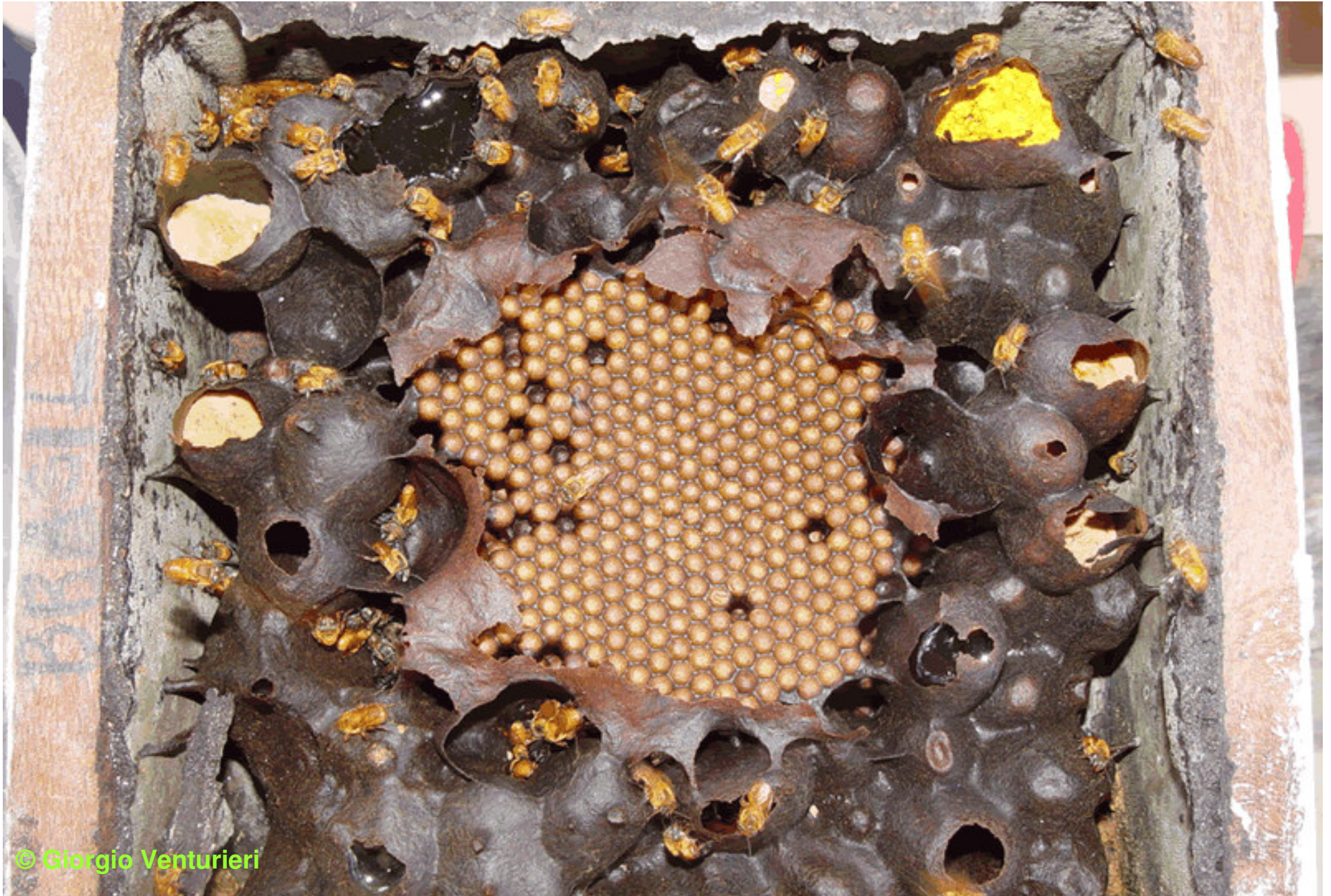


Melipona flavolineata: don't sting



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***Melipona flavolineata*: brood cells, involucrum and pots**



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***Melipona flavolineata*: honey pots**

Melipona fasciculata



Melipona melanoventer

taquaruçu from Tapajós - PA



Scaptotrigona sp

canudo do Tapajós – PA: probably the most productive species in Brazil, not described yet



Melipona fasciculata: traditional system

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Melipona fasciculata: changing to a new system



Melipona fasciculata: new and easy system



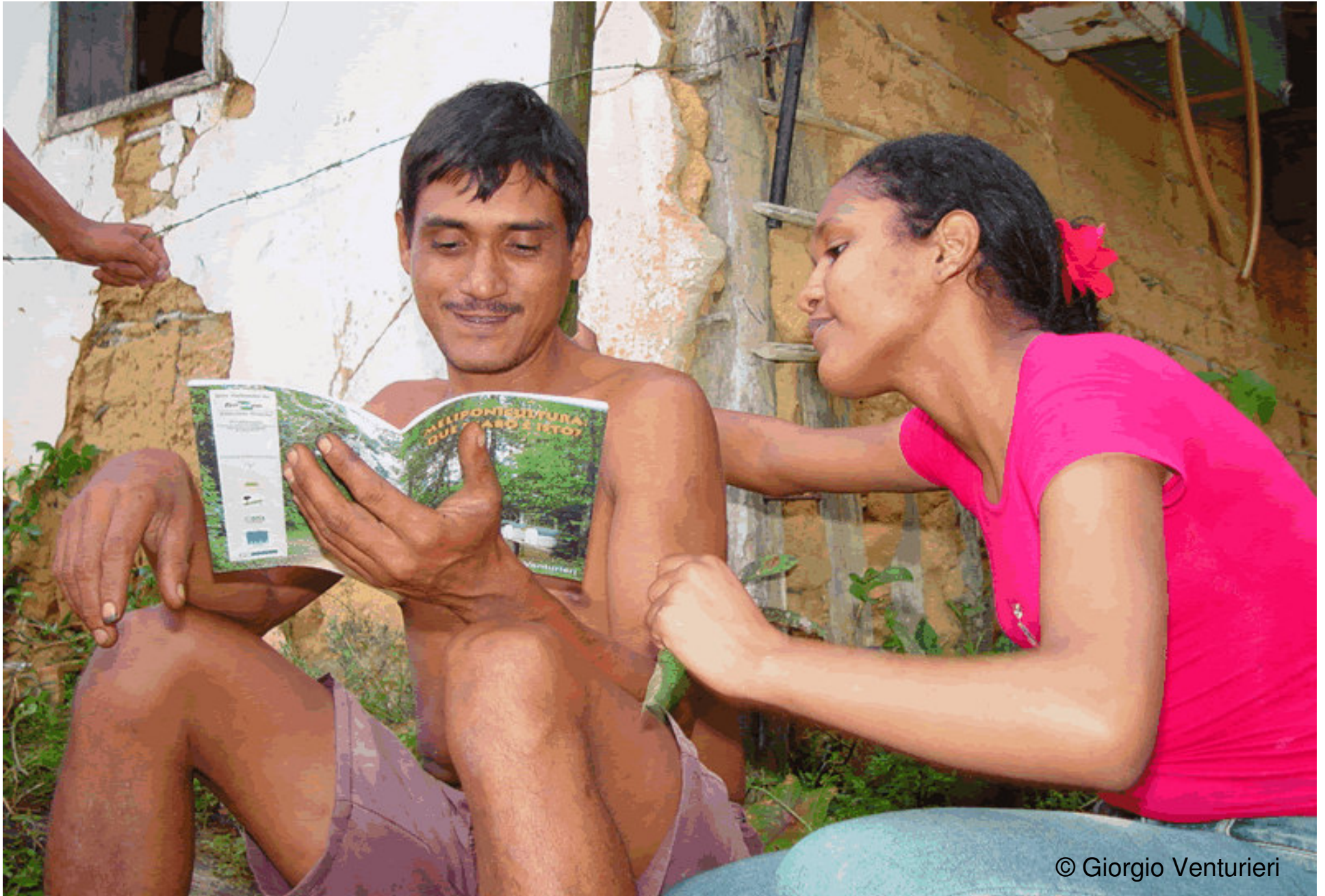
Melipona fasciculata: easily adopted

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courses for the community: didactic material

courses for the community: didactic material



courses for the community: bee boxes workshop

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courses for the community: bee boxes workshop



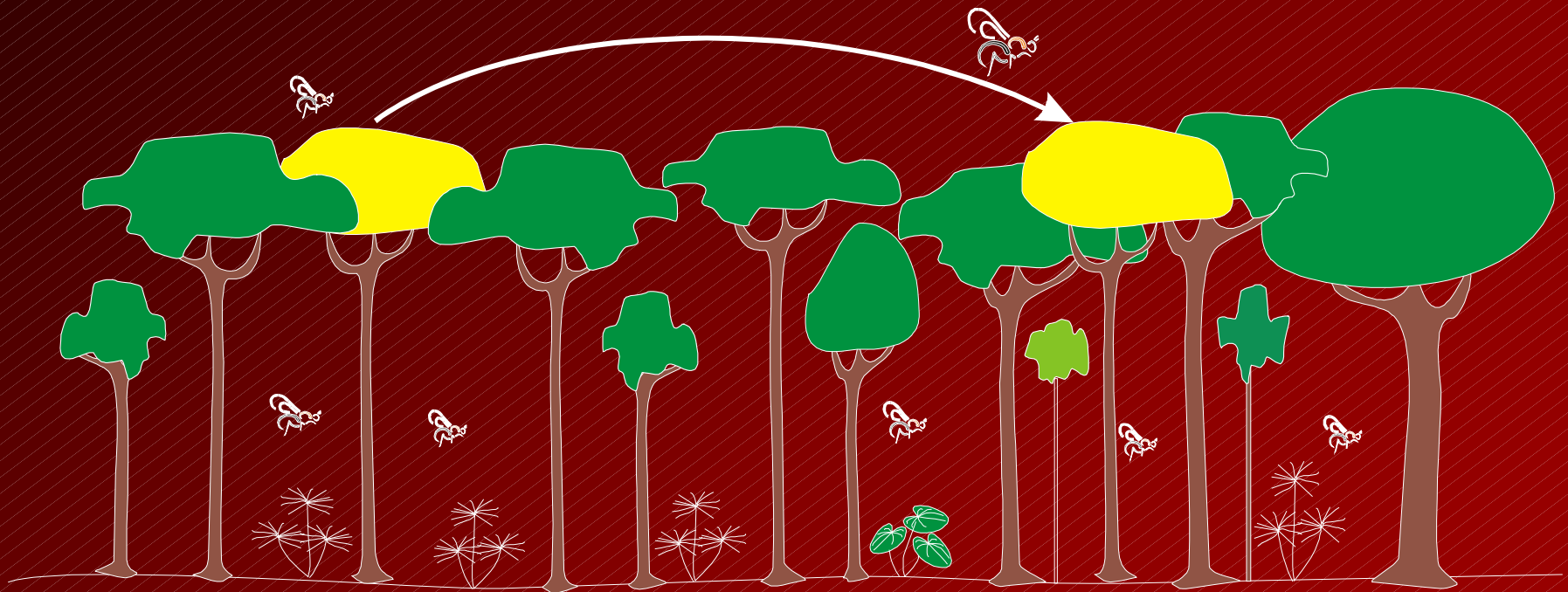
When produced and stocked correctly, the honey from stingless bees is a product with high economic and nutritional value!

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Honey from *Apis* = US\$ 2.00-4.00
honey from stingless bees = US\$ 4.00-9.00

Pollination by stingless bees: diversity of forms, preferences/behavior, habitats



Hive of *Apis mellifera* inside a green house of *Brassica* in Japan

Kátia S. Malagodi-Braga



50.000 to 70.000 individuals



1.000-1.500 individuals



With *T. angustula*



Without pollinators

Division of labor and a new colony development of *Melipona fasciculata*

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Researcher

Embrapa Amazônia Oriental

Leonardo Baquero

Student

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Objetives

- **Look for a method that could maximize bee hive multiplication**
- **Make small colonies for pollination purposes (green houses)**
- **Investigate the internal development of the family (virgin queen x workers and physogastric queen relationships, division of labor, etc.)**

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Method

1st day

Sealed small box

50 workers

Comb with approximately 300 cells

Syrup (66%)

3-4th day

Appearance of dominant virgin queen

Liberate the entrance

Mass pollen provisioning

Lots of observation

Starting situation



**Closed situation: no need to go outside and
protection against enemies (ants & Phoridae flies)**



6 days



7 days







Poor destiny



dump area



Dominant new queen





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**Liberation after the new queen became dominant
and the internal hive fixing has finished**



1. 03. 09. 03

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1. 03. 09. 03

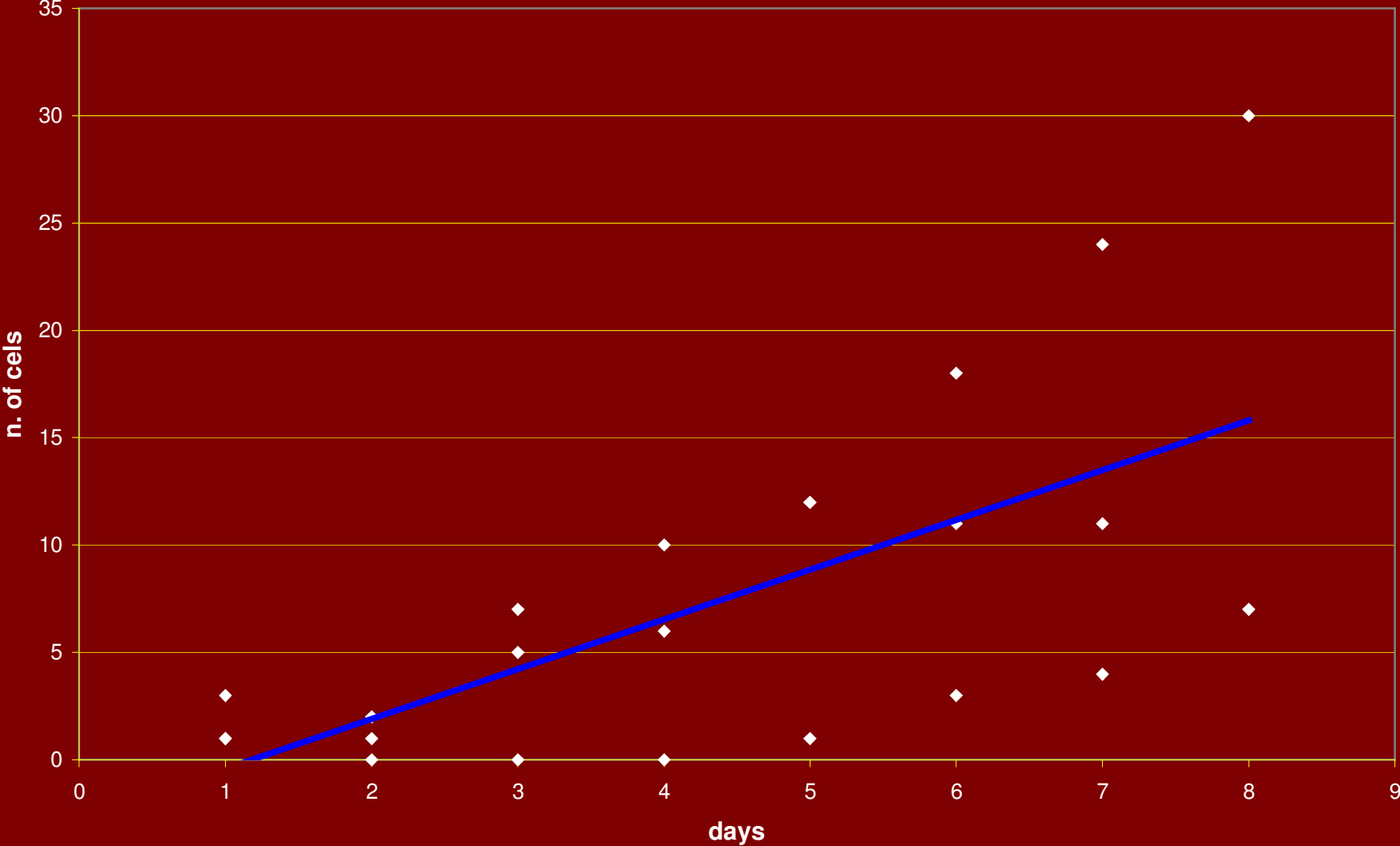
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Results

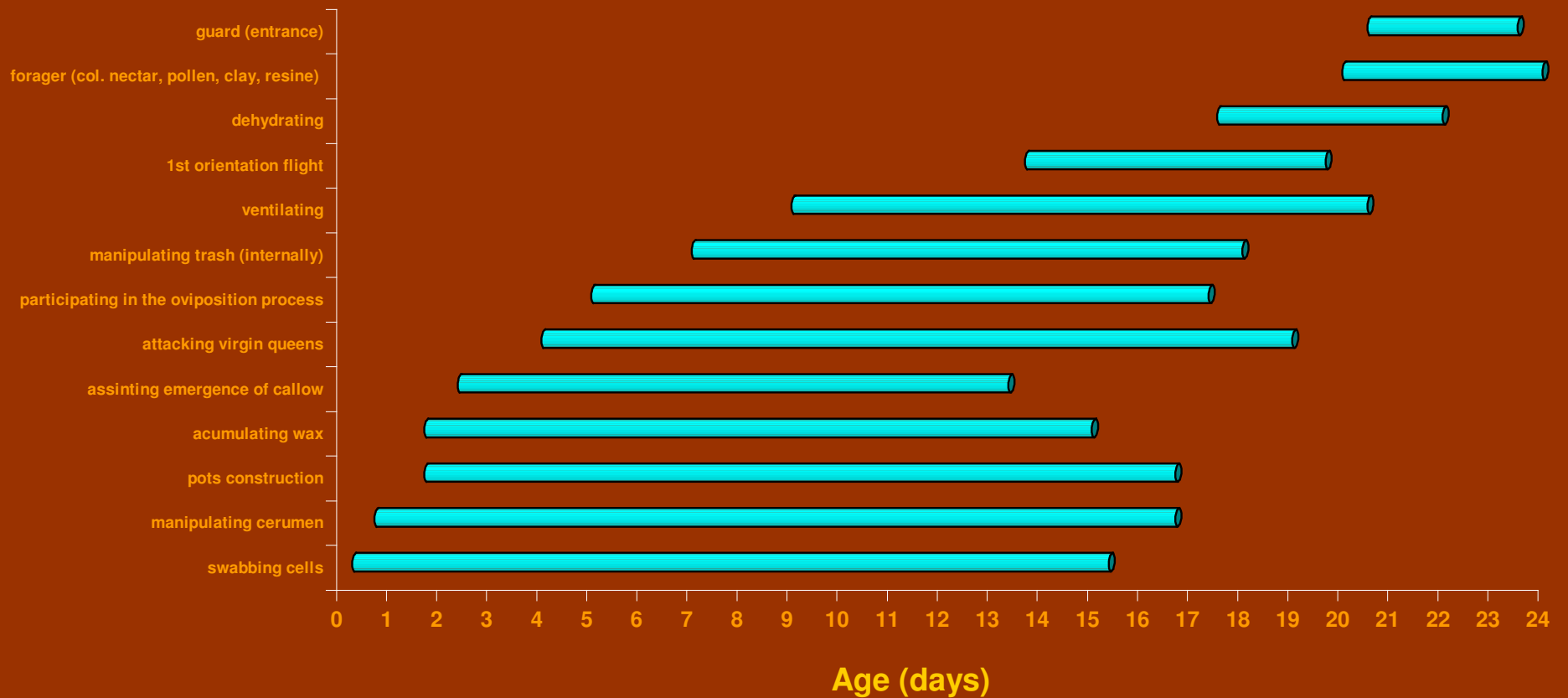
- Born daily 4-15 (average = 10.6 - nest 1)
- Percentage of queens born: 8.5 to 9.1
- Time between born and the beginning of new queen oviposition: 8, 16 and 17 days
- Oviposition rate on the 6 th day: 32 eggs (nest 1)



Evolution on oviposition rate



Division of labor in *Melipona fasciculata*



Results: pollen importance



Conclusions



- **Raise the number of workers from 50 to 90-100**
- **1 or 2 combs with at least 300 cells (approximately 12 cm)**
- **The distance between hives must to be over 1m**
- **The pollen is crucial for adults and to start the oviposition process**
- **A good pollen substitute will help**

**Stingless bees on
crops in West Amazon**

FOREST (playwood, paper)

**Paricá - *Schizolobium amazonicum* Huber ex Ducke
(Leg.: Caesalpinioideae)**

Av. volume: 1,23 μ l
Sugar concentration: 31,33%

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Vera Imperatriz-Fonseca**



Mahogany: *Swietenia macrophylla* in Sothwest Amazon, Brazil

FOREST (hardwood, veener)

Giorgio Venturieri
James Grogan



FOREST (fuel and biomass)

TAXI-BRANCO - *Sclerolobium paniculatum* var. *paniculatum* Vogel
(Leg.: Caesalpinioideae)

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Vera Imperatriz-Fonseca



Apis mellifera



FOREST (fuel)

TAPIRIRICA - *Tapirira guianensis* Aubl. (Anacardiaceae)

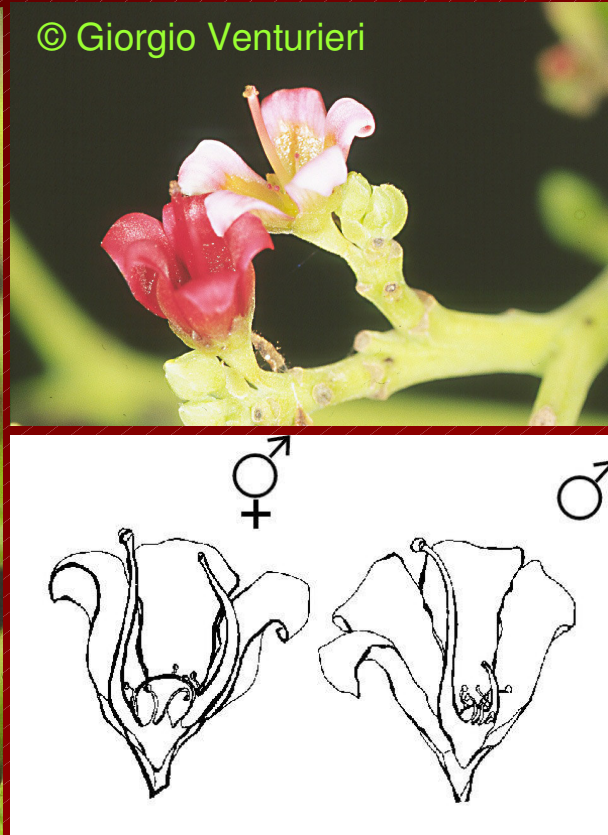


Nectar and pollen in abundance

FOREST (soft wood, fruits)

Caju-açu (*Anacardium giganteum* Hancock - ANACARDIACEAE), in West Amazon, Brazil

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Amber Read



Trigona sp, *Partamona* spp, and *M. flavolineata*

Fruit crop

AÇAÍ - *Euterpe olerace* Mart (Arecaceae)

Nectar and pollen on the raining season



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Trigona sp

Fruit crop

Taperebá (cajá) *Spontias Anacardiaceae*



URUCU - *Bixa orellana* L. (Bixaceae) in west Amazon, Brazil



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Bombus brevivilus



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Tetragona clavipes



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Melipona melanoventer

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***Apis mellifera* on Cowpea plantation West Amazon, Brazil**



Collecting pollen



Collecting nectar



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***Melipona fasciculata* on Cowpea West Amazon, Brazil**



Collecting nectar

thanks!



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