BEES FOR COFFEE

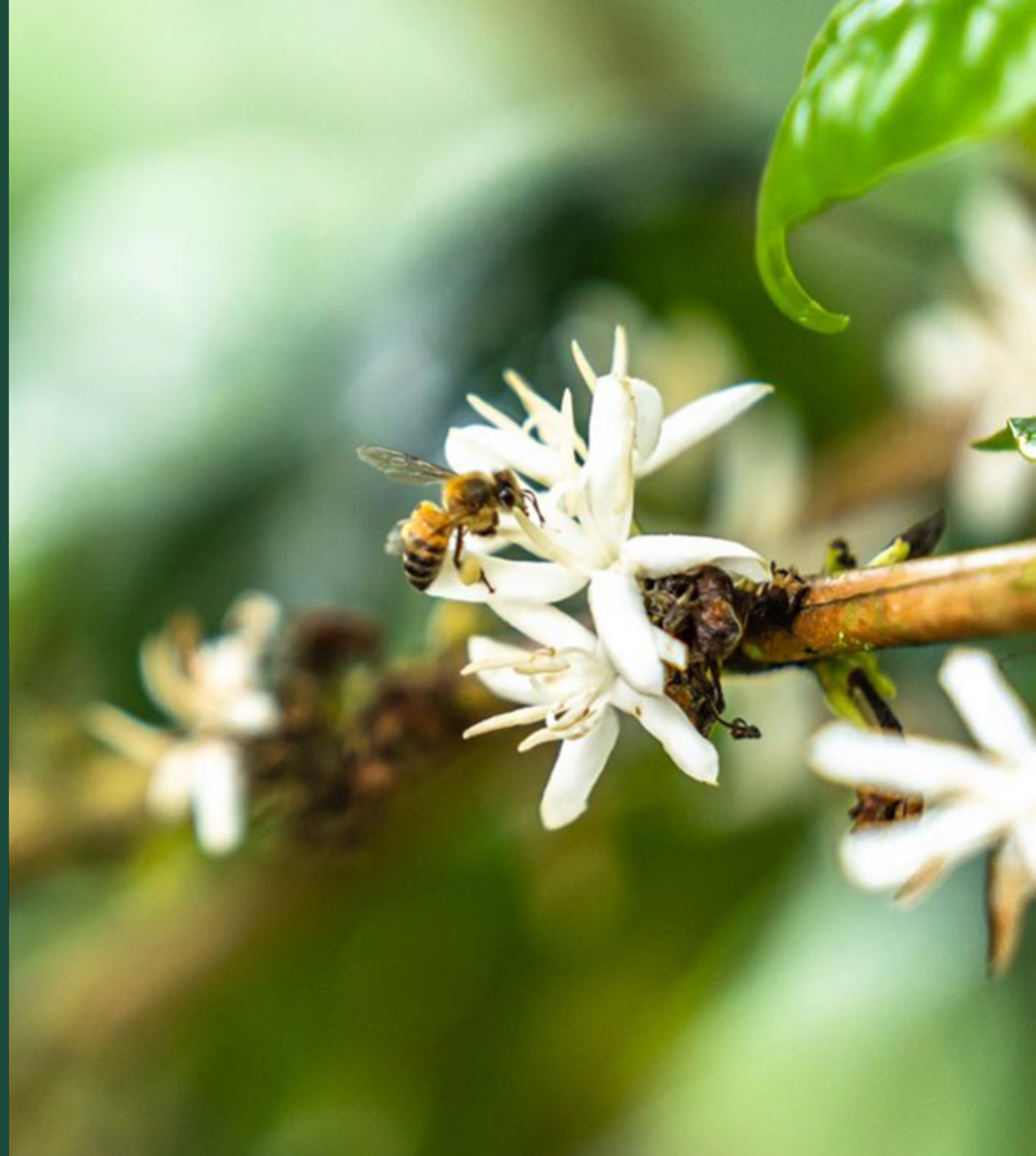
Project Update - *03 May 21*

WHY BEES FOR COFFEE ?

- POLLINATORS SITUATION WORLDWIDE & IN COLOMBIA
- REPOPULATING COFFEE AREAS WITH POLLINATORS
- COFFEE FARMERS REVENUE : INCREASE & DIVERSIFICATION

BUSINESS CASE

- PROJECT SIZE
- PROJECT EXPECTATIONS – KPI
- FARMERS PROFILES & REVENUES



POLLINATORS SITUATION

WORLDWIDE CONTEXT - Emergency for pollinators and their ecosystemic services

US :

"39% of large areas already at risk"

Source: University Of Vermont

Brazil :

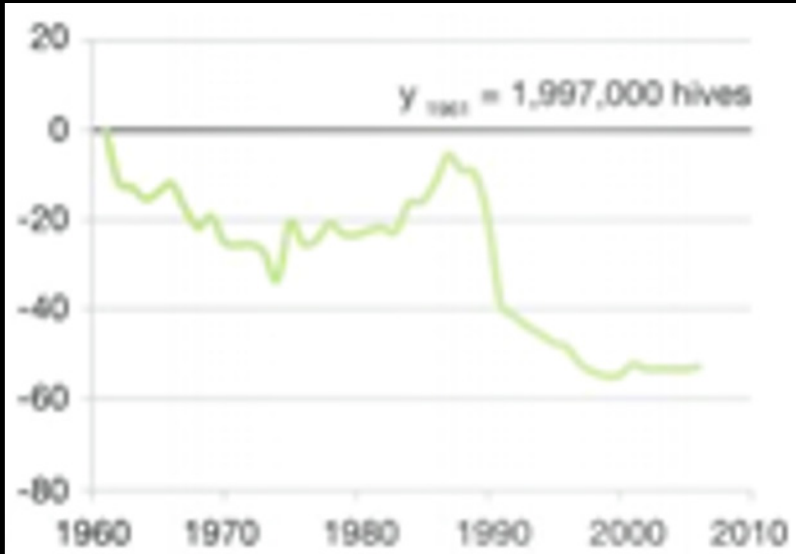
"68% of Brazilian agriculture at risk - wake up call 2019"

Source: Plos Journal

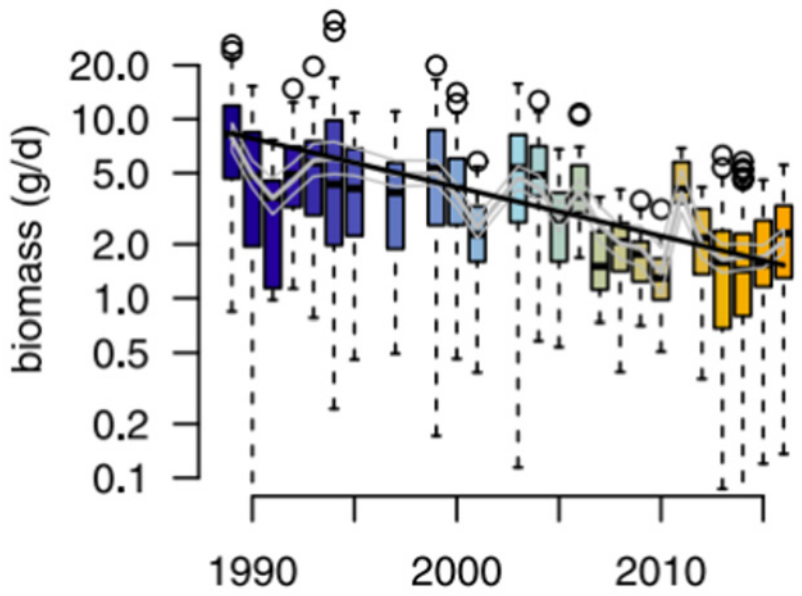
Germany :

"75% of flying insects have disappeared in the last 27 years"

Source : Radboud University



German Hives number evolution since 1960



Overall biomass estimation in EU

POLLINATORS SITUATION
PROJECT CONTEXT - COLOMBIA

SOUTH AMERICA STATUS

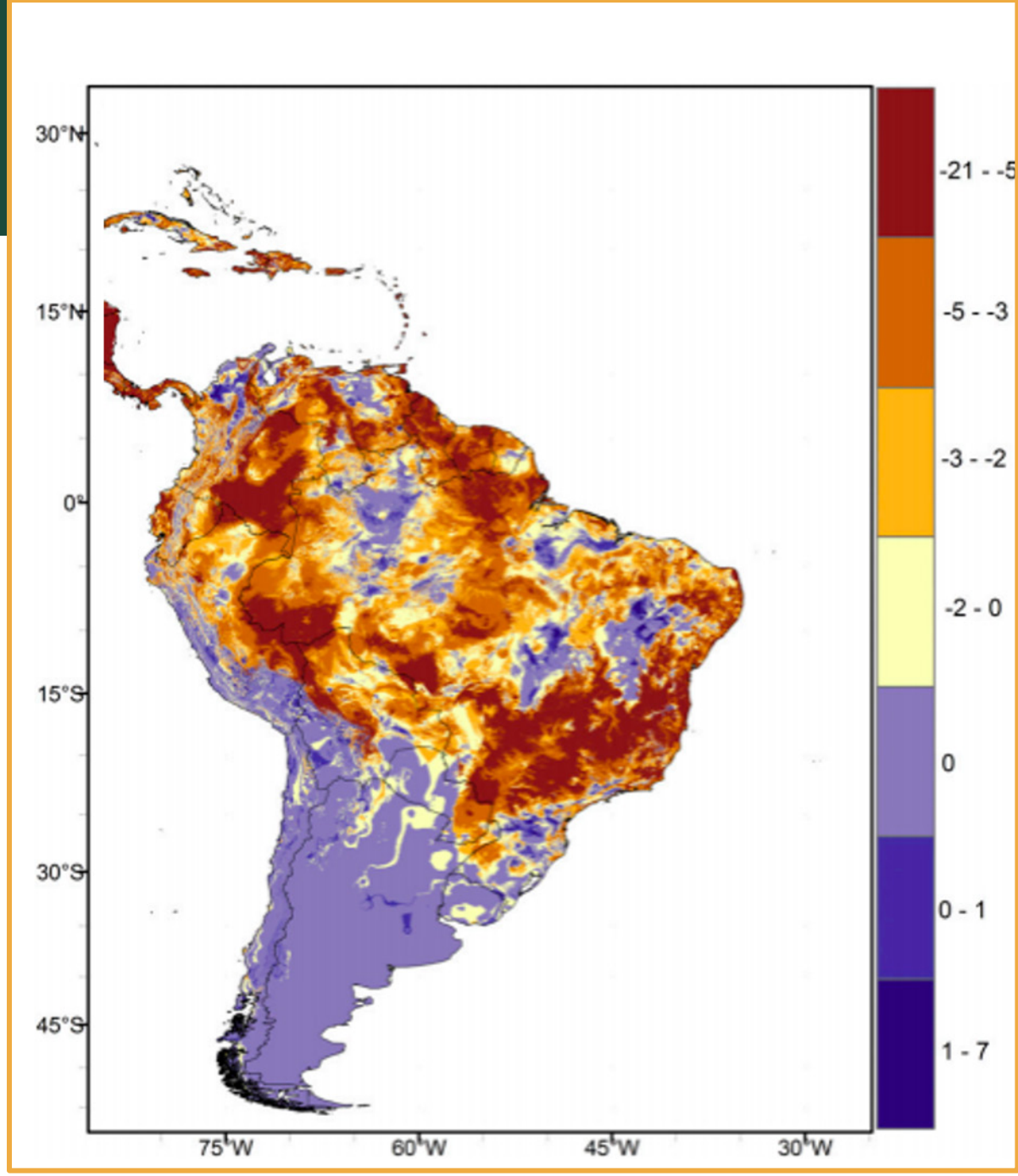
"The average bee richness will decline 8–18% within future coffee-suitable areas" (1) and 34-50% will have a negative bee and climate change impact".

It's crucial to create a controlled & monitored pollination system for durable coffee production and support local biodiversity.

PROJECT OBJECTIVES

➔ **Sustainable pollinator re-establishment in coffee production areas**

➔ **Farmers incomes increase and diversification**



Change in richness of coffee pollinators (bees) under mid warming climate scenarios (2050, RCP4.5).

Source : Coupling of pollination services and coffee suitability under climate change (Imbach 2016)

REPOPULATING COFFEE AREAS WITH POLLINATORS

(see more on slides 6-9)

KNOWLEDGE

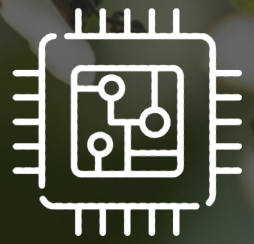
Stakeholders' training & awareness

PEOPLE

Building local teams with complementary skills for mutual empowerment

CHEMICALS

Assess the chemical exposure risk in coffee areas



TECH

Technological tools for easy hive monitoring

COFFEE FARMERS REVENUE INCREASE & DIVERSIFICATION

POLLINATION

Increase coffee yields & quality through bee pollination

BEEKEEPING

New income source through honey production and beekeeping activities

STAKEHOLDER TRAINING & AWARENESS

KNOWLEDGE
Stakeholder training & sensibilisation

KNOWLEDGE

In La Divisa farm, farmers gather for beekeeping training.

Led by Ubees beekeeper, Chrystian, farmers participate each quarter in a learning program – from bee safety basics to becoming real independent beekeepers.

UBEES TECHNOLOGY

TECH

Technologic tools
for easy hive monitoring

TECHNOLOGY

Ubees tech tools allow beekeepers to monitor their hives without having to travel to open them. Hives are equipped with IoT sensors that measure bees vitals & activities.

With a dedicated app, the beekeeper reads:

Farms information

- # of hives monitored
- # of orchards monitored
- Pollination achievements

Hives information

- Average hive strength for all hives (Frame of Bees)
- Updated daily
- Flying hours of bees
- % of the orchard visited by bees

TEAMS MEET ON THE FARMS FOR BEEKEEPING TRAINING

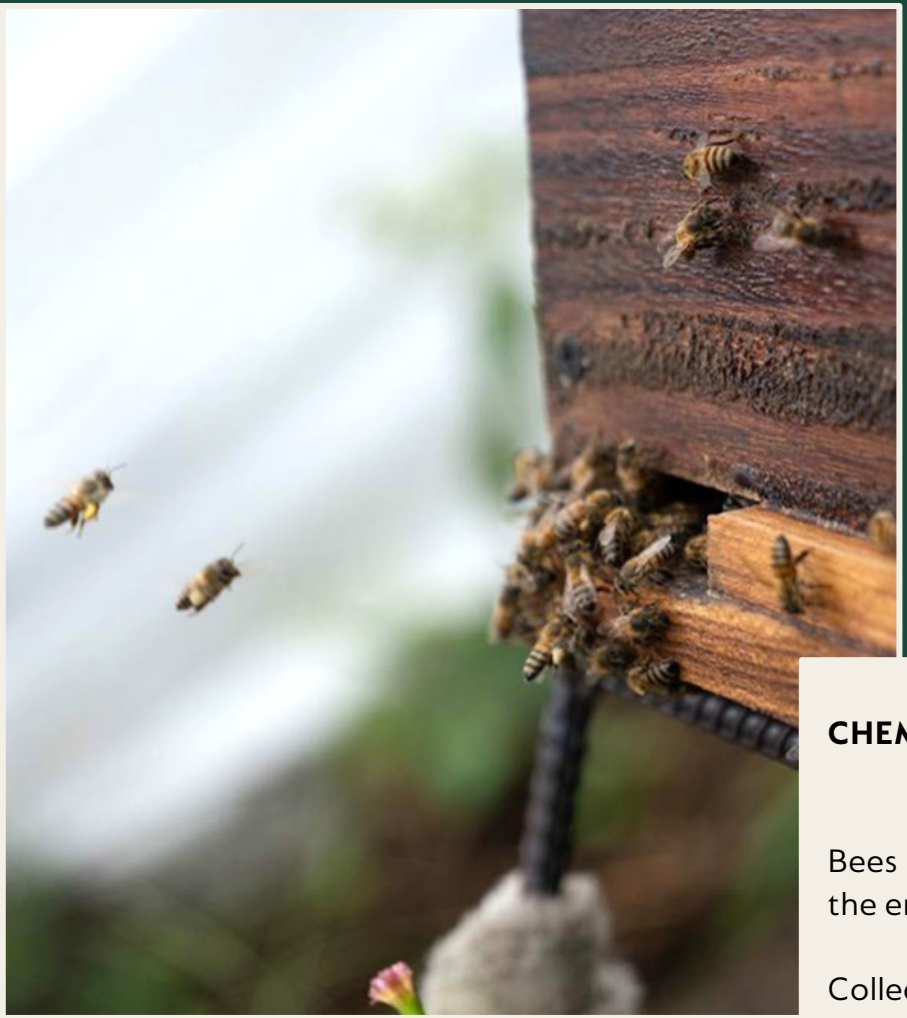
PEOPLE

Building local teams with complementary skills for mutual empowerment

PEOPLE

Bees For Coffee team on the field: coffee smallholders families, CafExport team, Nespresso's agronomists, Ubees beekeepers and agronomists during November 2020 beekeeping training.

POLLEN ANALYSIS FOR CHEMICALS AND FLORAL DIVERSITY



CHEMICALS

Assess the chemical exposure risk in coffee areas

CHEMICALS

Bees bring and store inside the hive, samples from the environment: pollen, nectar & water.

Collecting & analysing these samples from the hives, we aim to assess the chemical exposure & pollen diversity of the environment of the bees.

BUSINESS CASE

PROJECT SIZE

14
Farms involved

72
Hives – Apis M

3
Villages

26
Hives – Natives Angelitas

BUSINESS CASE

PROJECT PROJECTIONS – BEEKEEPING & POLLINATION KPI

2.5
Ha coffee / farm

25
Hives / farm

3 400 Kg
Productivity without pollination
Kg / farm / year

Field hypothesis taken to establish project projections (*):
(*) based on field experience in Caldas & bibliography

KPI	PRODUCTIVITY	/ HA	/ FARM
Coffee yield increase	+5%	**225$**	**565 $**

KPI	PRODUCTIVITY	/ HIVE	/ FARM
Apis M bees *honey production*	48.4lbs / hive $1.95 / lbs	95$	2,357$ *
Apis M.bees *other products (propolis, pollen...)*	22 $ / 30mL 8mL / hive	5$ / hive	125$ *
Natives (Angelitas) *honey production*	0.23 lbs / hive commercialised 330$ / lbs	75 $	375$ *
TOTAL – maximized for "Ecologist" profile *NB :* See next slides for other profiles definition			**3,438$**

** 25 Apis M. hives/farm – 5 natives hives/farm*

BUSINESS CASE

FUTURE FARMERS PROFILES & REVENUES INCREASE PROJECTIONS

In addition to coffee pollination revenue increase, different coffee farmers profiles can be developed according to farmer's interests and availability.

Honey focused

Honey & propolis

Ecologist

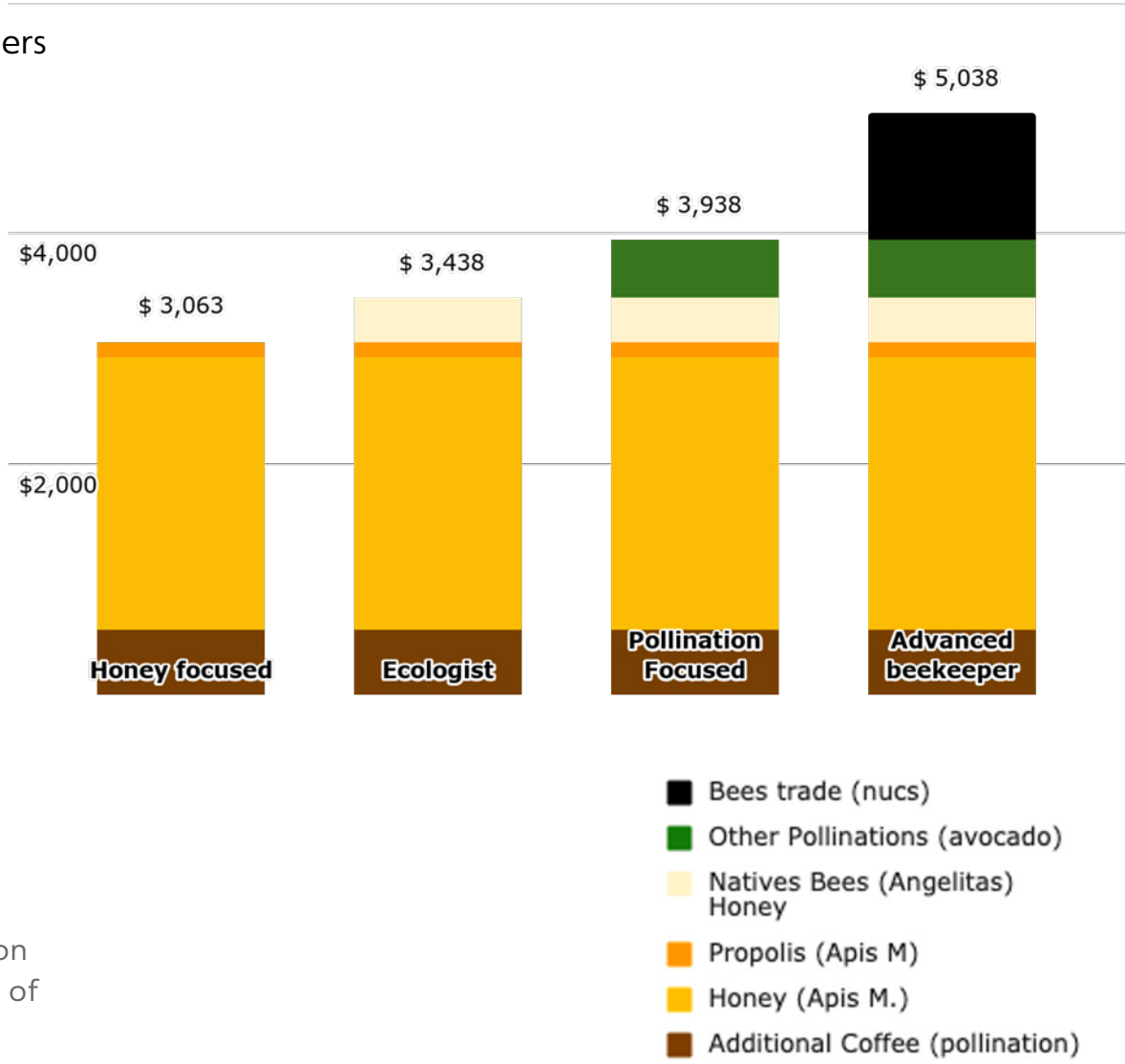
Honey & Propolis
+ Natives bees (Angelitas) conservation

Pollinator focused

Honey & Propolis
+ Natives bees (Angelitas) conservation
+ Other pollination different moment of the year (avocado)

Advanced beekeeper

Honey & Propolis
+ Natives bees (Angelitas) conservation
+ Other pollination different moment of the year (avocado)
+ Bee trade (young nucs)



Thank You!

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