

SESSION 6:

FOOD INDUSTRY WORK IN AGRICULTURE AND WHAT BIOCONTROL CAN CONTRIBUTE



GUSTAVO RANZANI HERRMANN
COMMERCIAL DIRECTOR KOPPERT BRAZIL



At a glance

Global market leader

In biological crop control and pollination



Family company

Founded in 1967



300 million

Turn over 2021



30

Subsidiaries



2750

Employees worldwide



12

Production sites



100

Countries using our solutions



>400

Advisors



120

Natural solutions



Big impact starts small

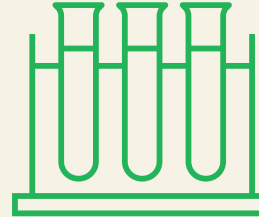
We partner with nature to find ways of growing that are both safe and healthy.

We use natural enemies to combat pests, bumblebees for pollination, microbials, and biostimulants that support, protect and strengthen crops.

Growers and farmers worldwide use our products and knowledge to restore the natural balance in their crops.

Reducing chemicals

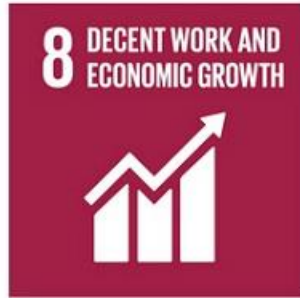
Our aim is to provide the world with biological pest control which leads to:



**less use of polluting
chemical pesticides**



**rebuilding ecosystems
and protecting biodiversity
globally by offering live
and natural solutions.**



ORANGE JUICE MARKET



EVERY 5 CUPS OF ORANGE JUICE, 3 ARE PRODUCED IN BRAZIL.



**35% OF WORLD ORANGE PRODUCTION
75% OF THE INTERNATIONAL TRADE.**

CITRUS MARKET



- **HARVEST 22/23** (*July to September 22*).
- **VOLUME 276.212 (ton).**
- **INCREASE 3,24%**



- **EXPORTATION US\$ 520 MILLIONS**
- **INCREASE 23,11%**

CITRUS MARKET



MARKETS

EUROPE	180.953 TONS	65,03%
EUA	63.971 TONS	23,23%
CHINA		5,56%
JAPAN		2,90%
AUSTRALIA		1,22%
OTHERS		2,06%

**700 THOUSAND HECTARS OF PRODUCTIVE
AREA IN BRAZIL**

**459 THOUSAND HECTARES ARE IN THE CITRUS
BELT OF SÃO PAULO AND MINAS GERAIS, WITH
387.073 THOUSAND HECTARES DEDICATED TO
THE CULTIVATION OF THE MAIN ORANGE
VARIETIES.**





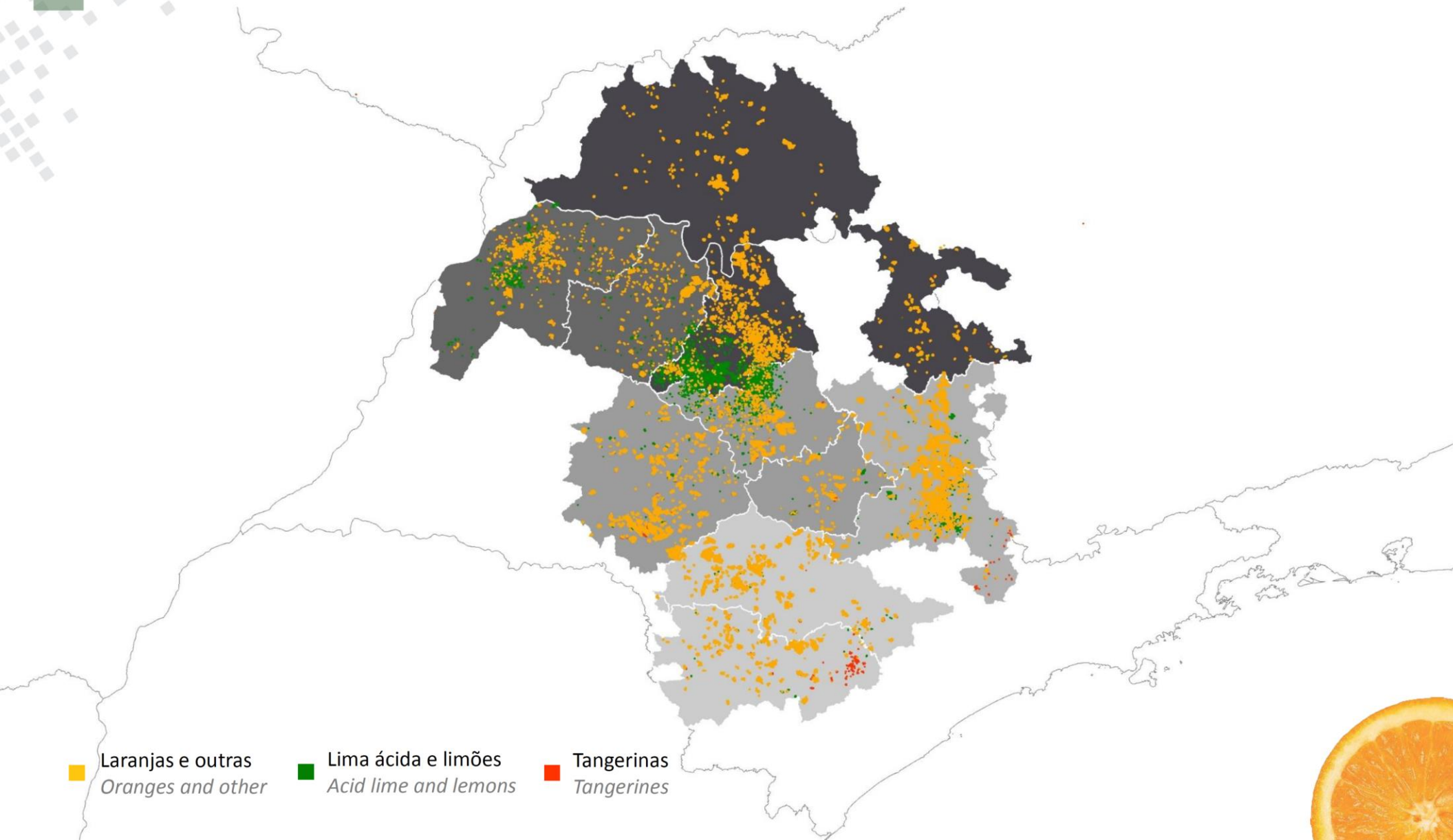
**RAISING NEARLY \$190 MILLION
IN TAXES FOR MORE THAN 350 MUNICIPALITIES
IN SÃO PAULO AND MINAS GERAIS.**



**TURNOVER OF US\$ 14 BILLION PER YEAR
THAT ADD (GDP) R\$2 BILLION TO THE
BRAZILIAN ECONOMY.**

CINTURÃO CITRÍCOLA

CITRUS BELT



2022/2023

316,95

milhões de caixas de

40,8 KG

*million boxes
of 40.8 kg (90 lb)*

COMPARAÇÃO
COMPARISON

Safra anterior
previous season

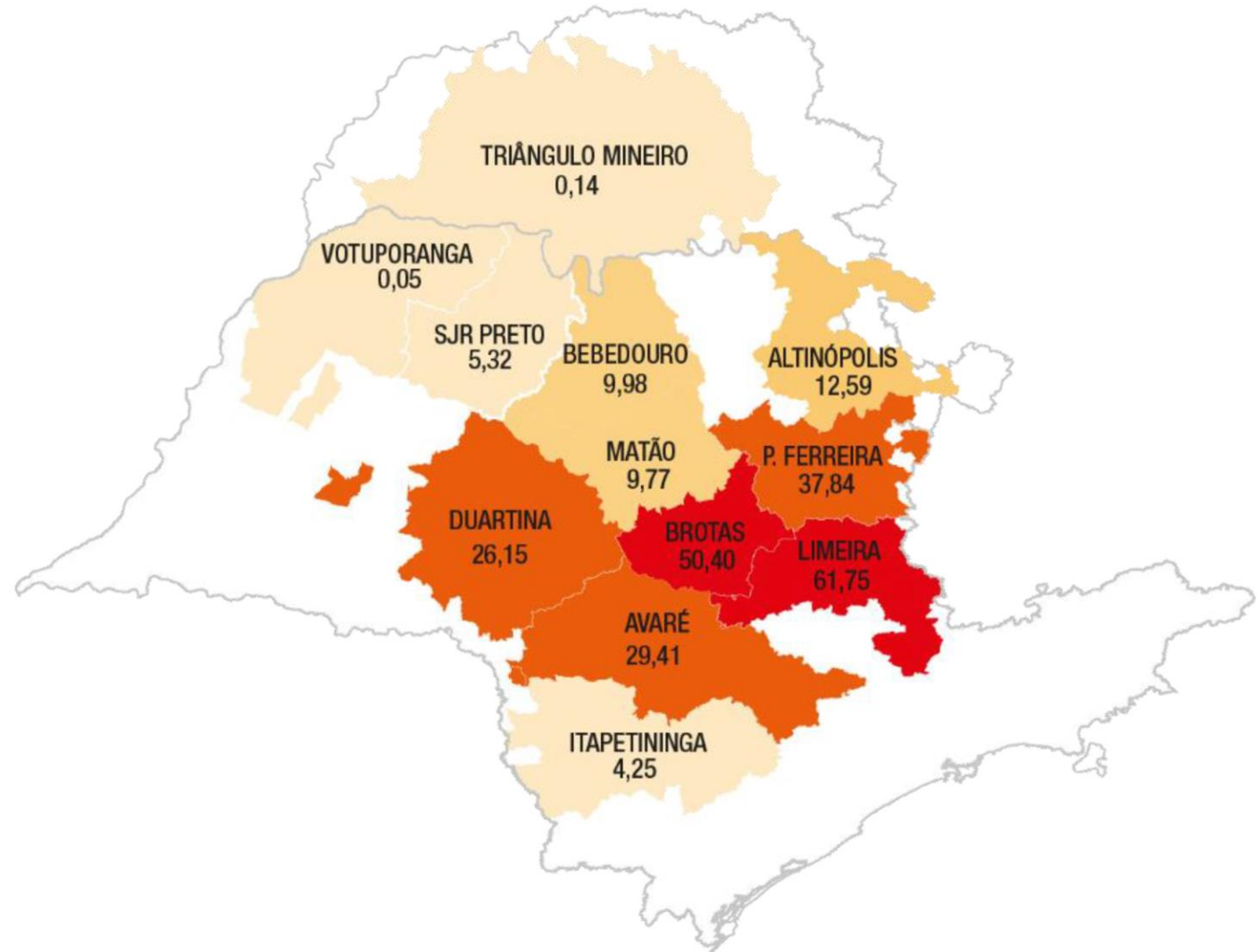
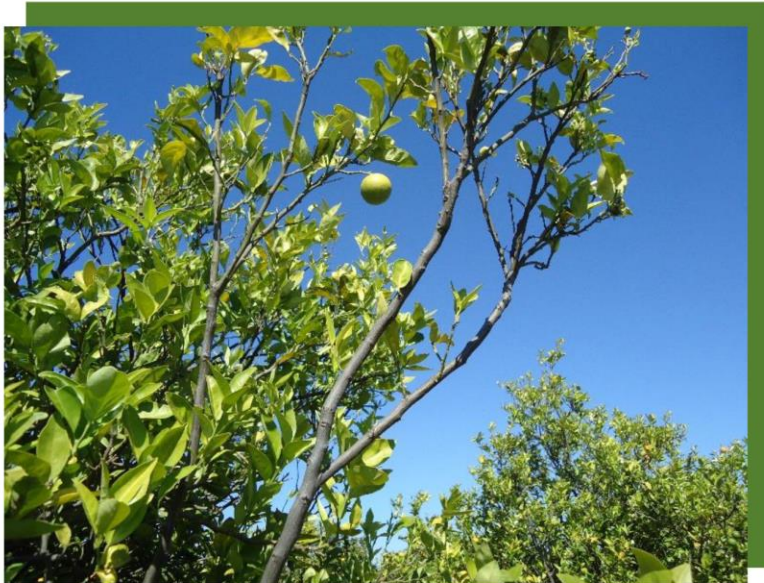
Dez últimas safras
last ten seasons

+20,53%

+1,11%

INCIDÊNCIA DE GREENING X ERRADICAÇÃO DE POMAR

GREENING INCIDENCE X GROVES ERADICATION





My name is Antonio Carlos Simonetti

Koppert Integrated System Citrus



Microbiologicals

Challenger

Isaria fumosorosea 1296

Trichodermil

Trichoderma harzianum 1306

Boveril Evo

Beauveria bassiana PL63

Diplomata

Nucleopolyhedrovirus (HearNPV)

Chevelle

Bacillus amyloliquefaciens



Macrobiologicals

Pretiobug

Trichogramma pretiosum

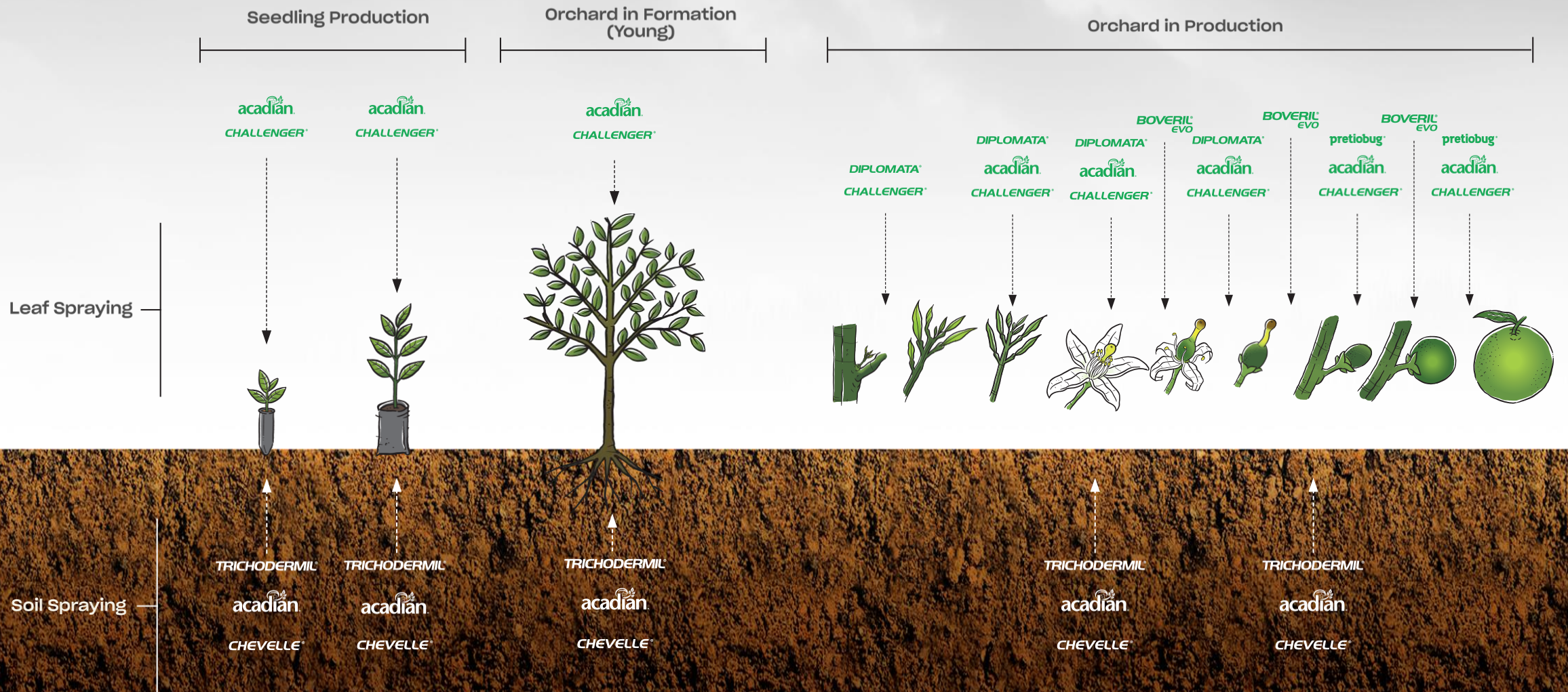


Inoculants & Bioactivators

Acadian

Ascophyllum nodosum





CASE CHALLENGER (*Isaria fumosorosea*)

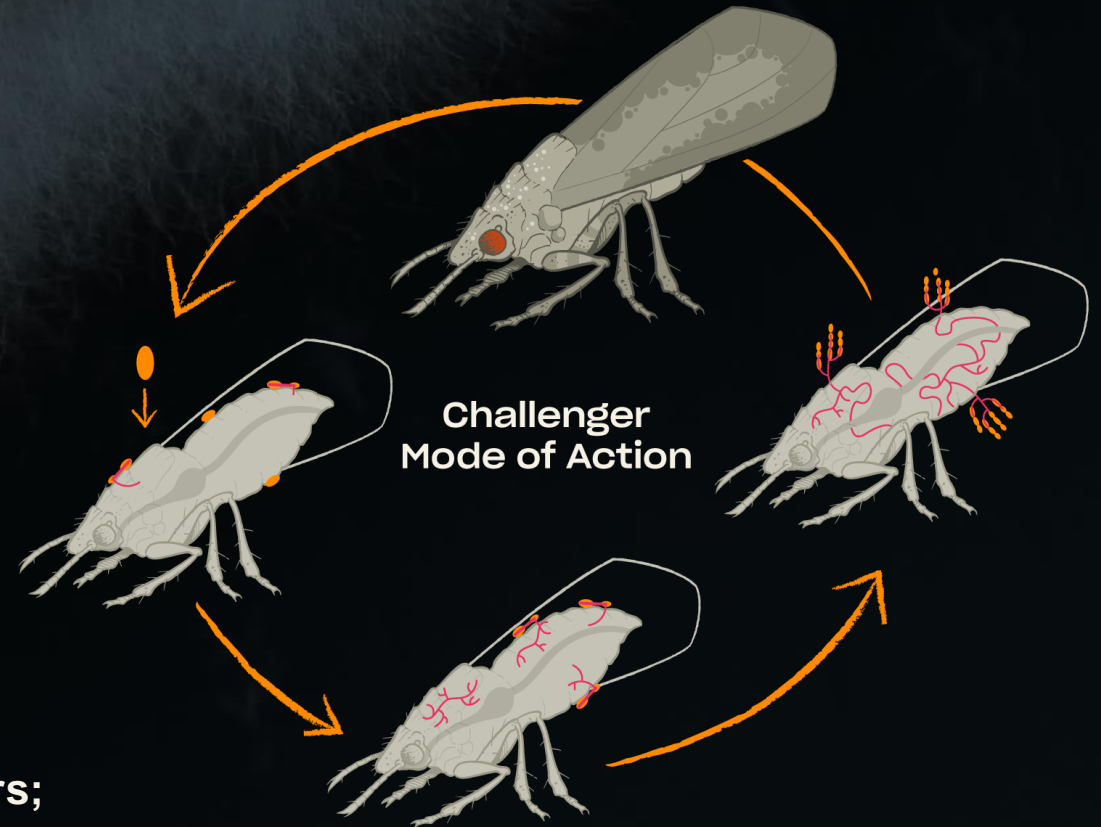
RESEARCH: 2013 FUNDECITRUS / ESALQ / USP / KOPPERT
LAUNCH: 2018



Class: Microbiological insecticide
Mode of Action: Contact
Active ingredient: *Isaria fumosorosea*
Lineage: ESALQ 1296
Formulation: Concentrated Suspension (SC)
MAPA registration: 28617

BENEFITS

- Psyllid (*Diaphorina citri*) control;
- Resistance Management;
- Additional leprosis mite control;
- Reduction of residues in the fruits;
- Absence of grace period;
- Preserves natural enemies and agentes pollinators;
- Compatibility with PIC list products;
- Sustainability combined with profitability.

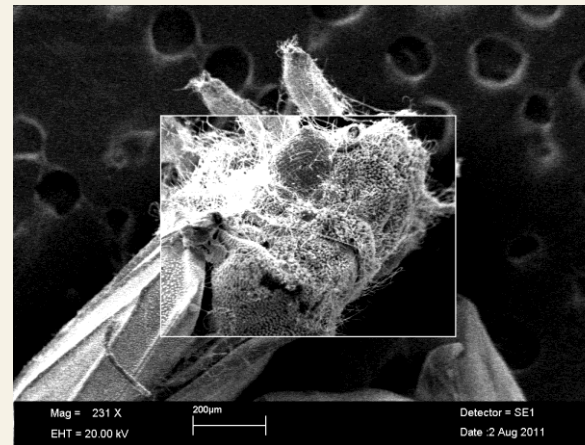
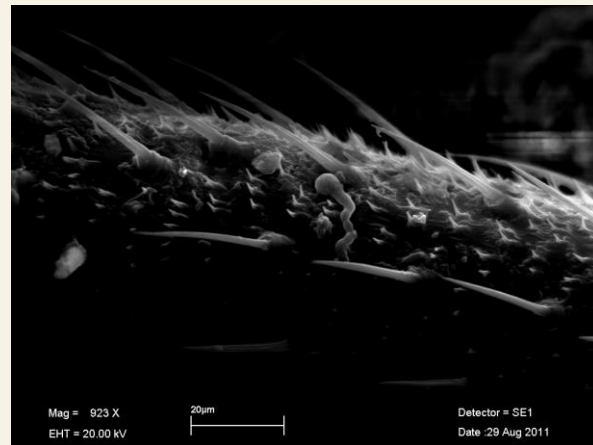


INFECTION CYCLE *(Isaria fumosorosea)*

Commonly found in soils and infecting mites, Diptera, Hemiptera and Hymenoptera.
Few products in the world, mainly used for the control of hemipterans, such as whitefly and aphids.

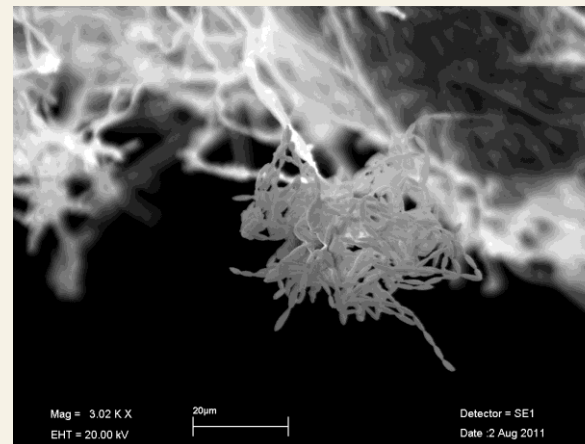


Adhesion,
Germination and
Penetration



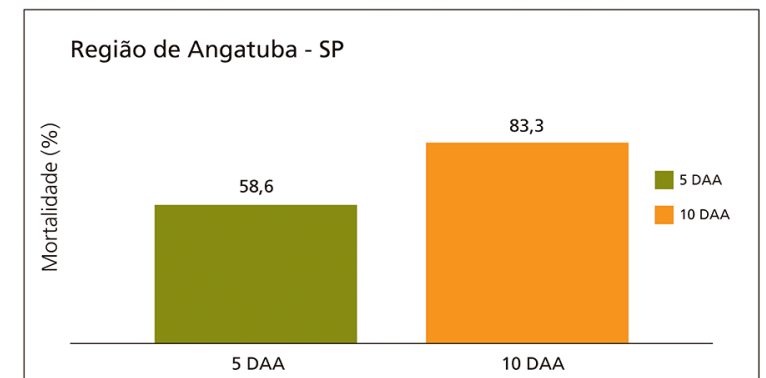
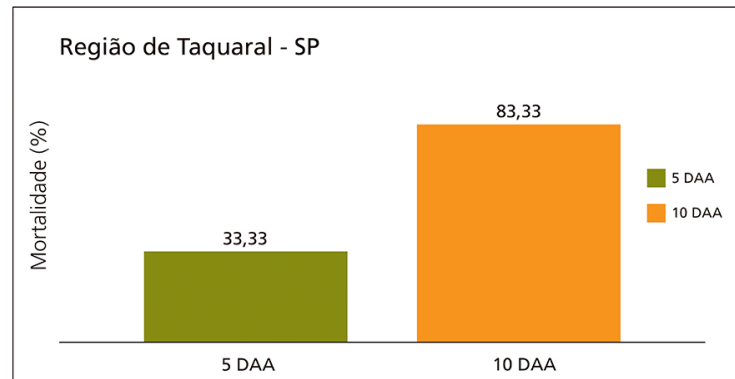
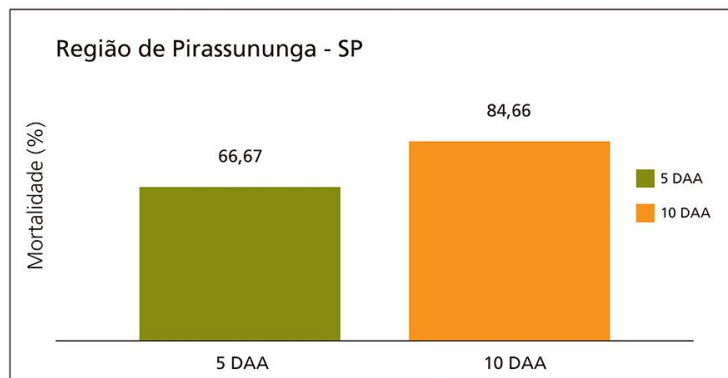
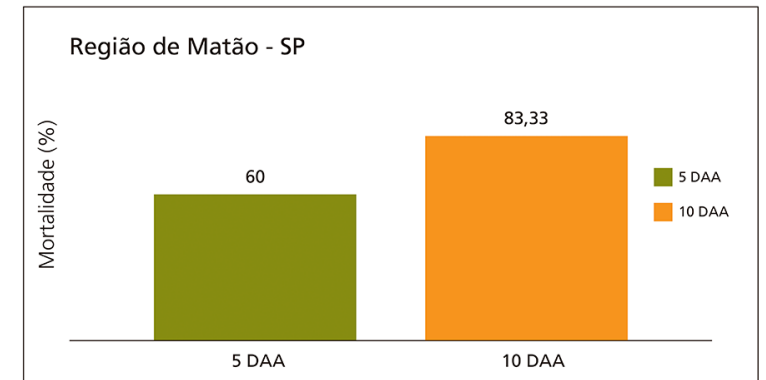
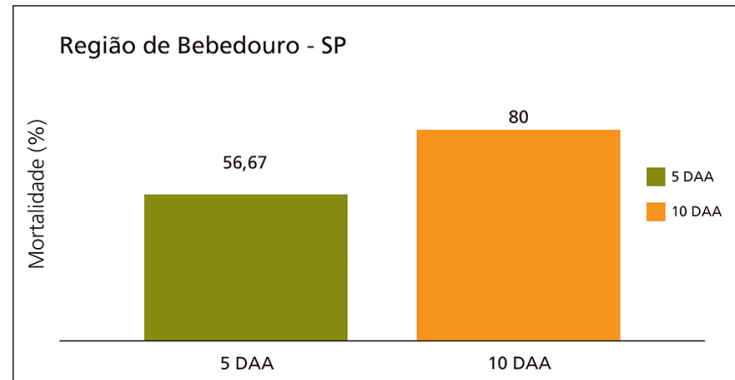
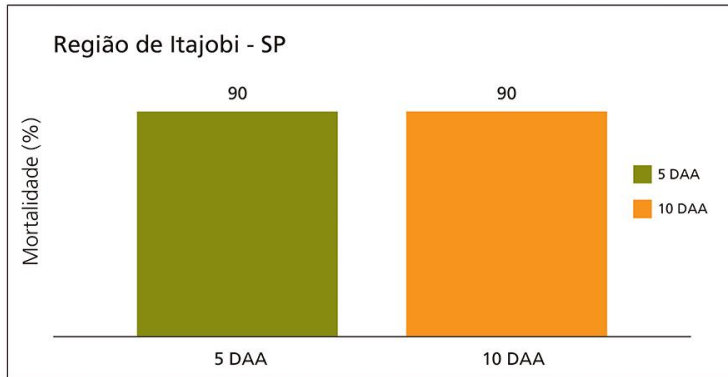
Colonization, insect
death and pathogen
outgrowth

Evolution of
sporulation



Sporulation and
dissemination in
the environment

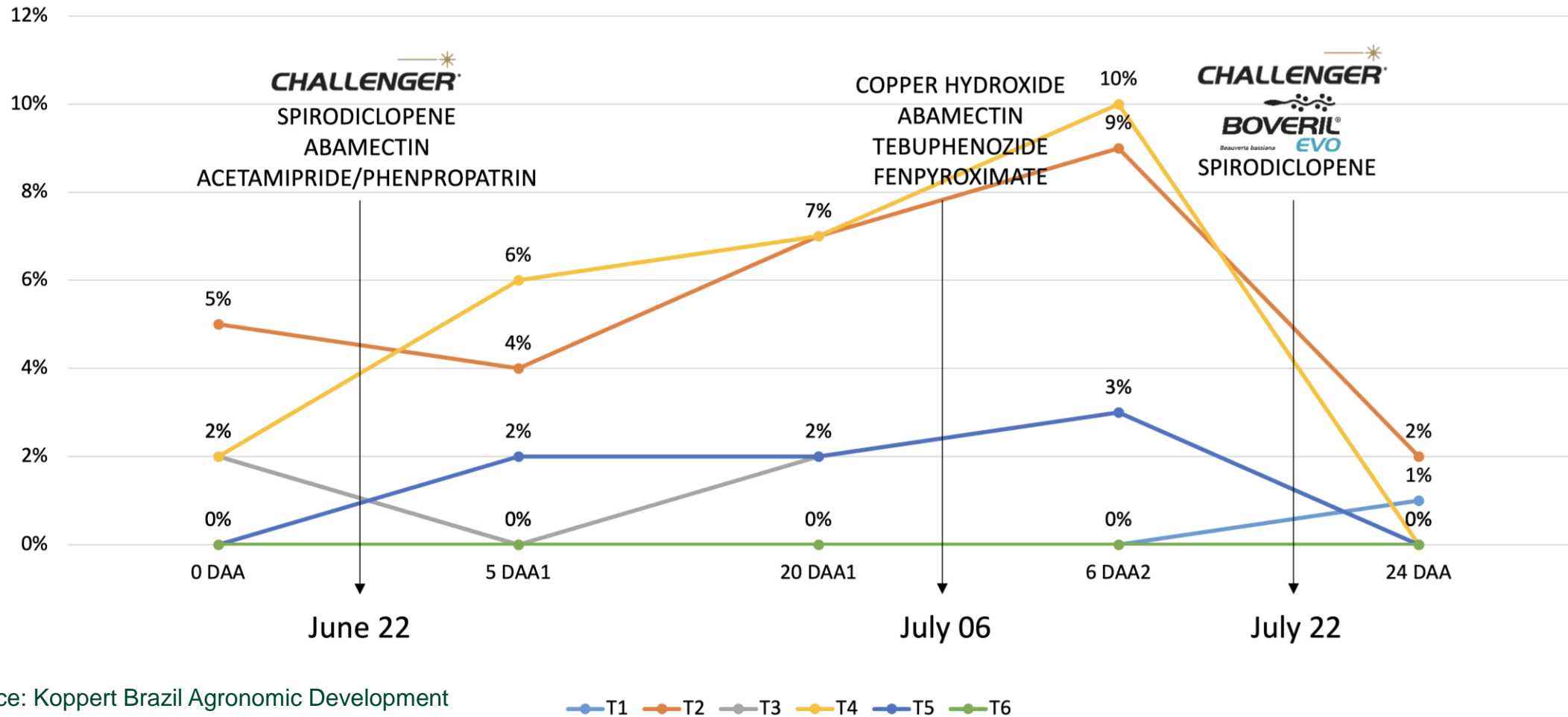
CHALLENGER FIELD RESULTS



Standard farm results + Koppert



Population fluctuation Leprosis Mite - % Infestation by treated stand

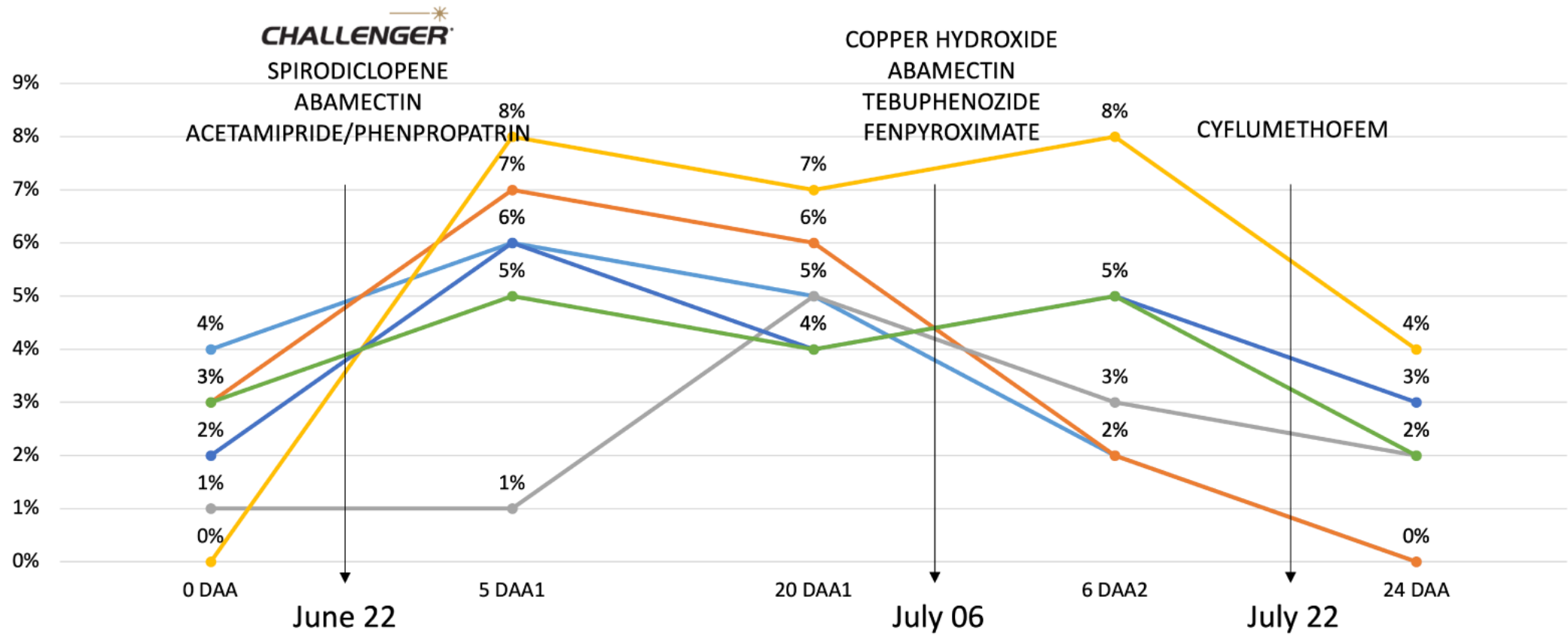


Data source: Koppert Brazil Agronomic Development

Standard farm results



Population fluctuation Leprosis Mite - % Infestation by treated stand



Data source: Koppert Brazil Agronomic Development

—●— T7 —●— T8 —●— T9 —●— T10 —●— T11 —●— T12



Hello! My name is Diogo Davoglio, I'm a citrus grower

THANK YOU

**GUSTAVO RANZANI HERRMANN
COMMERCIAL DIRECTOR KOPPERT BRAZIL**

