FAPESP WEEK GERMANY

March 25-26th, 2025

Precision Biological Control Using Drones

bioHUB

Preciso por Natureza

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Timeline

2005

Ideas?

2006

Project Incubated

Technological-Based Company

SENav
Automação do Processo de Pulverização para Aeronaves Agrícolas

20% menos produtos químicos
Automação de GPS

2011

Service Provider for Space Projects

PIPE Phase 2
$100k

2012

Graduated

PIPE Phase 3
$100k

RHAE
$60k

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Timeline

2013

Agricultural Aircrafts

TO:
Automation
First Products

Motorcycles

Biological Control Challenges?

FROM:
Labor Intensive
Pieces of Paper

CNPq
Conselho Nacional de Desenvolvimento Científico e Tecnológico

RHAE
$60k

2015

PIVOT
Chemical Market

FOCUS
Biological Control MArket

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Timeline

2016

FAPESP

PIPE Phase 1
$50k

bioBOT

Biological Control with Drones

2017

Exporter
Central America
Colombia

Popoyán

Scientia
Sustainable Innovation

2018

Exporter
France

KOPPERT
BIOLOGICAL SYSTEMS

2019

FAPESP

PIPE Phase 2
$160k

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bioMAPS
Planejador de Missões
Preciso

CNPq
Conselho Nacional de Desenvolvimento Científico e Tecnológico

RHAE
$60k

2022

Finep
INOVAÇÃO E PESQUISA

PIPE Phase 2
$240k

Drone Swarm

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Timeline

2022

bioCAPS
bioPUPA
bioMITE
bioFUNGUS

Popoyán
Private Investment

UAV-IQ
PAGRISA
DRONE DESCHAMPS
IAS

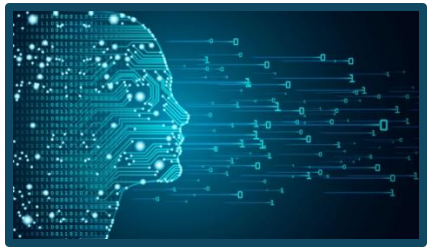
Exporter
Canada
United States
South Africa

2024

FAPESP

PIPE Invest
$240k

2025

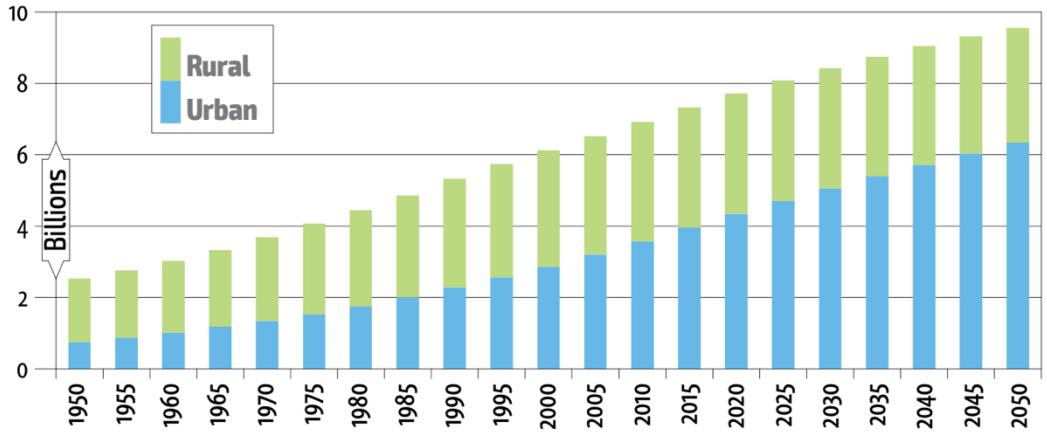


Artificial
Inteligence

ITA

Traction
Internationalization

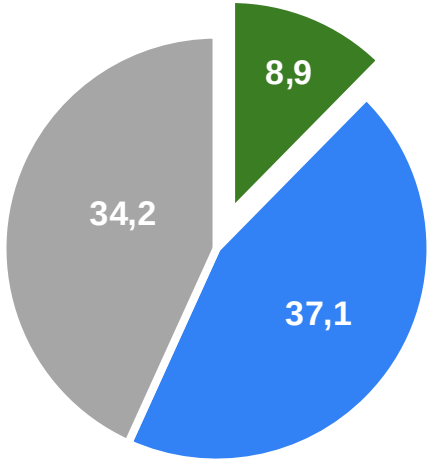
Insights



Source: FAO. 2024

Area (Mha)

Cane
Soy
Others



Source: IBGE, BR. 2024

1% Infestation

LOSSES !!!
+$1B per year

240 Tons of Sugar Production

Solution

Biological Control

GROWING ↑

20% per year in Brazil

+$10B Global MArket

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Patented Technology
Brazil, India, South Africa, United States
Europe, Canada, China, Colombia, Guatemala, Australia

Registered Trademarks
Registered Software
Autoral Rights

bioHUB
Precise by Nature

+

bioMAPS
Precise Mission Planner

+

bioBOT

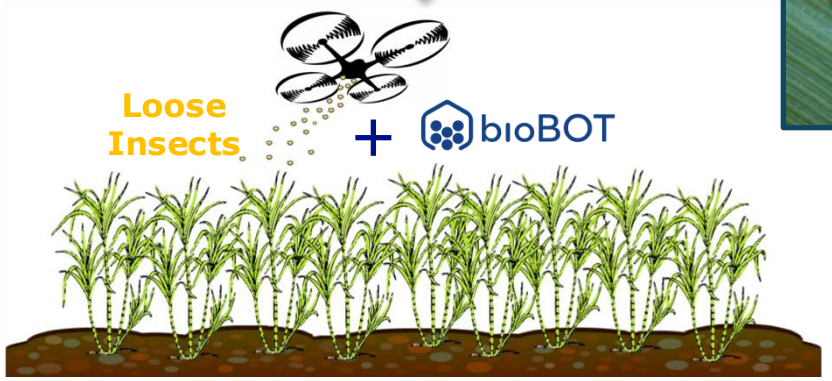
2) Mission Planning

Sync

3) Releasing via drone

Biological Agent Tracking

Charge



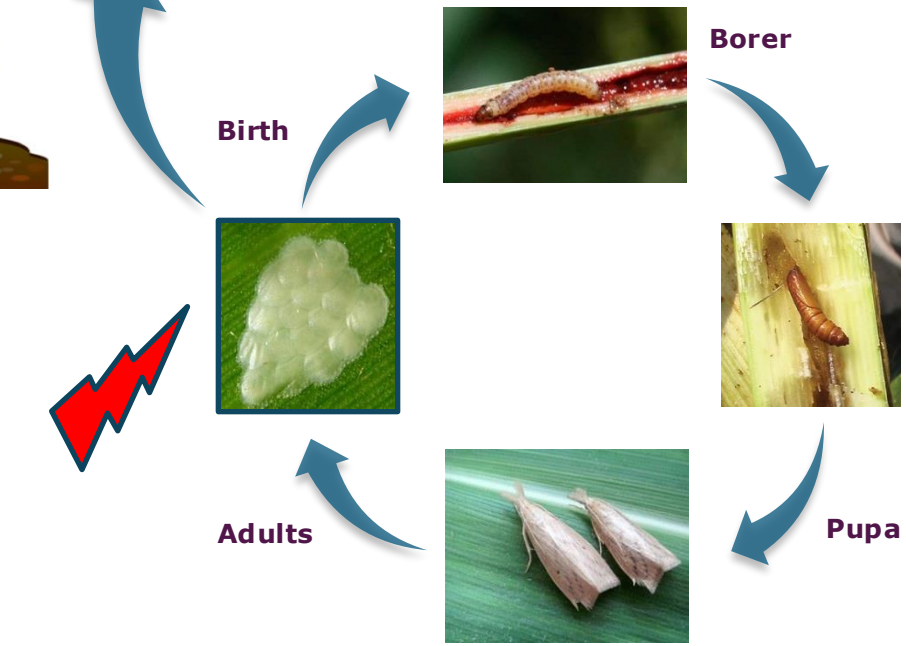
4)

- Digital Reports
- Map Infestation
- Analytics
- Tracking
- Billing
- Full compliance

1) Monitoring

Manual Count

0-5	Keep monitoring
6-9	Warning
>10	Control



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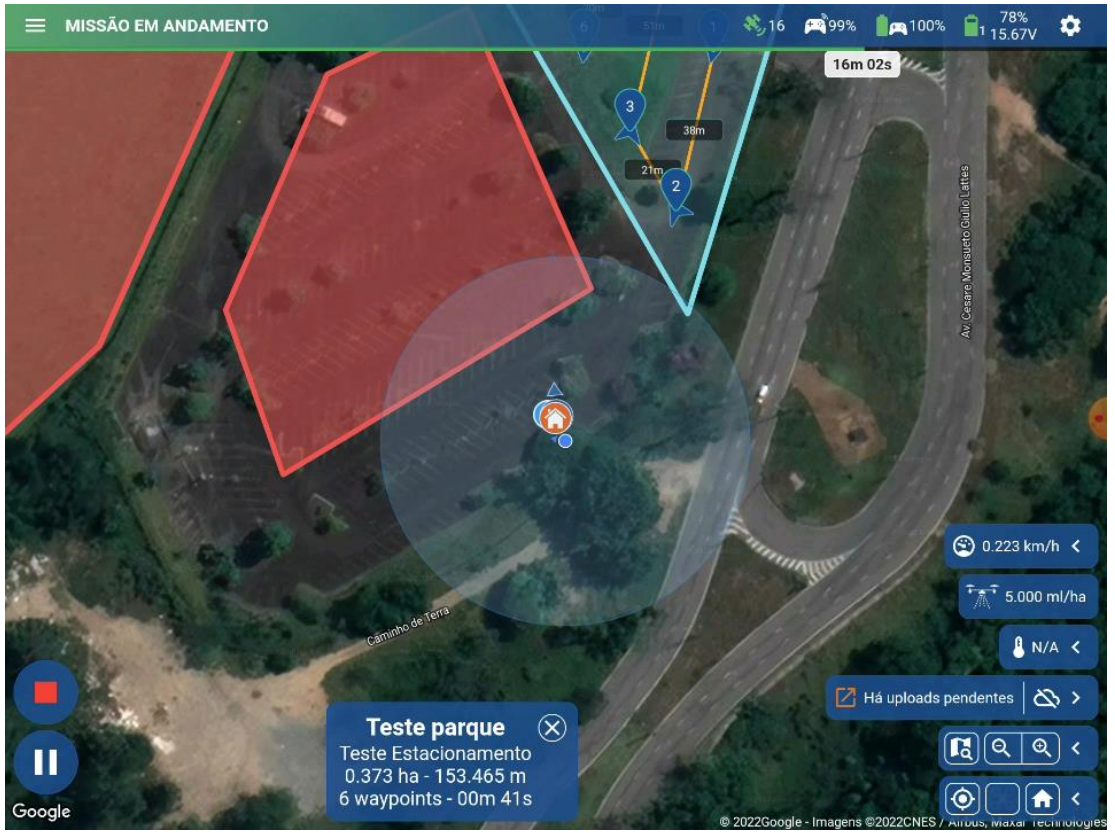
Solution

Solution

WAYPOINT
22
90%
F-WP
93%
4.07v
X4S A ISO 100 1/200s f/5.6 EV +0.0 Bloqueo de AE
AFC
00:00:00
Objetivo: 2 | Estado: Moviendo
A: 14.9m D: 812.8m S: 39km/h 0km/h Coord: 02.495341S 080.379019W
Google


MISSÃO EM ANDAMENTO
16
99%
100%
78%
15.67V
16m 02s
38m
21m
Av. Cesare Monsueto Giulio Lattes
Caminho de Terra
0.223 km/h
5.000 ml/ha
N/A
Há uploads pendentes
Teste parque
Teste Estacionamento
0.373 ha - 153.465 m
6 waypoints - 00m 41s
Google
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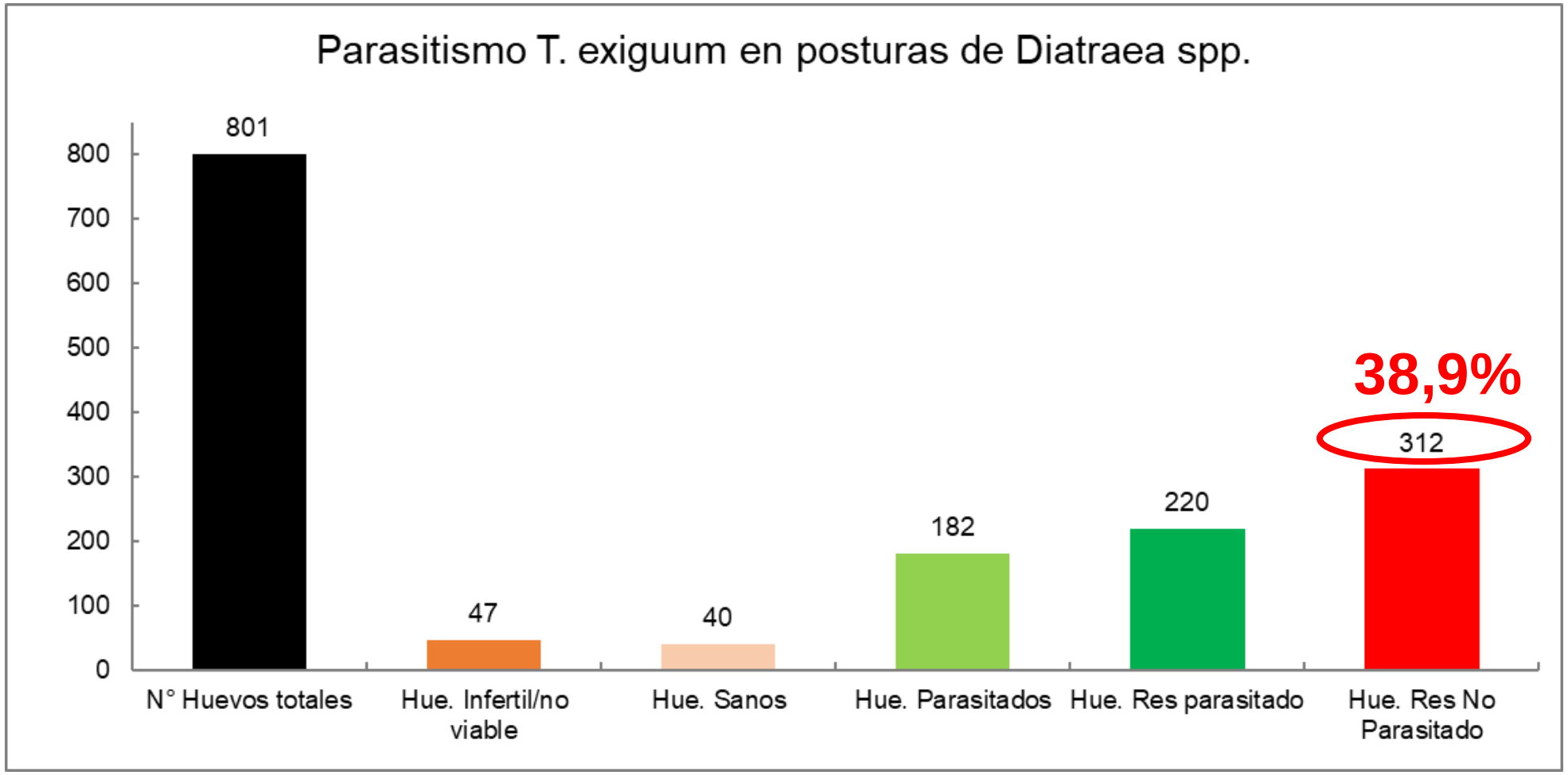
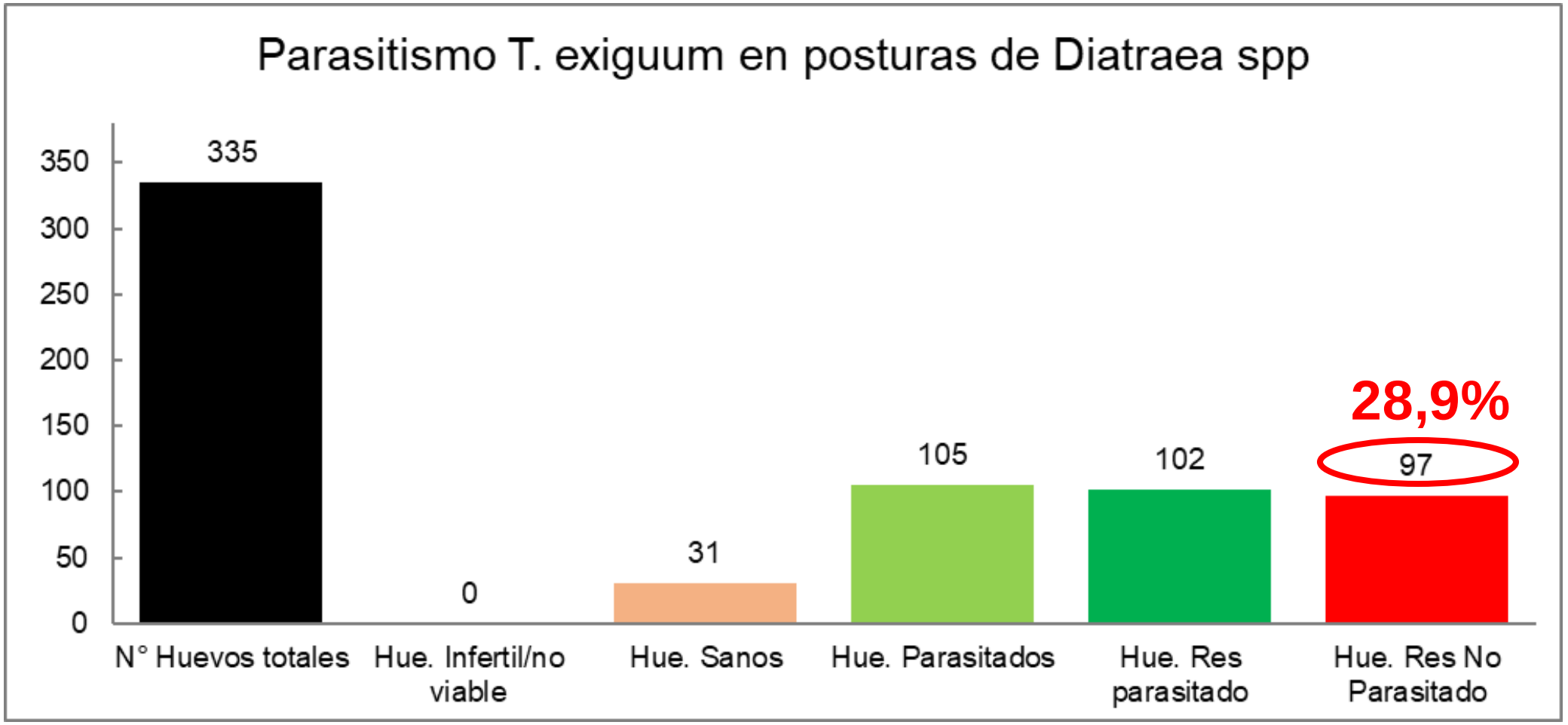
Results – Manual



425,5ha evaluated

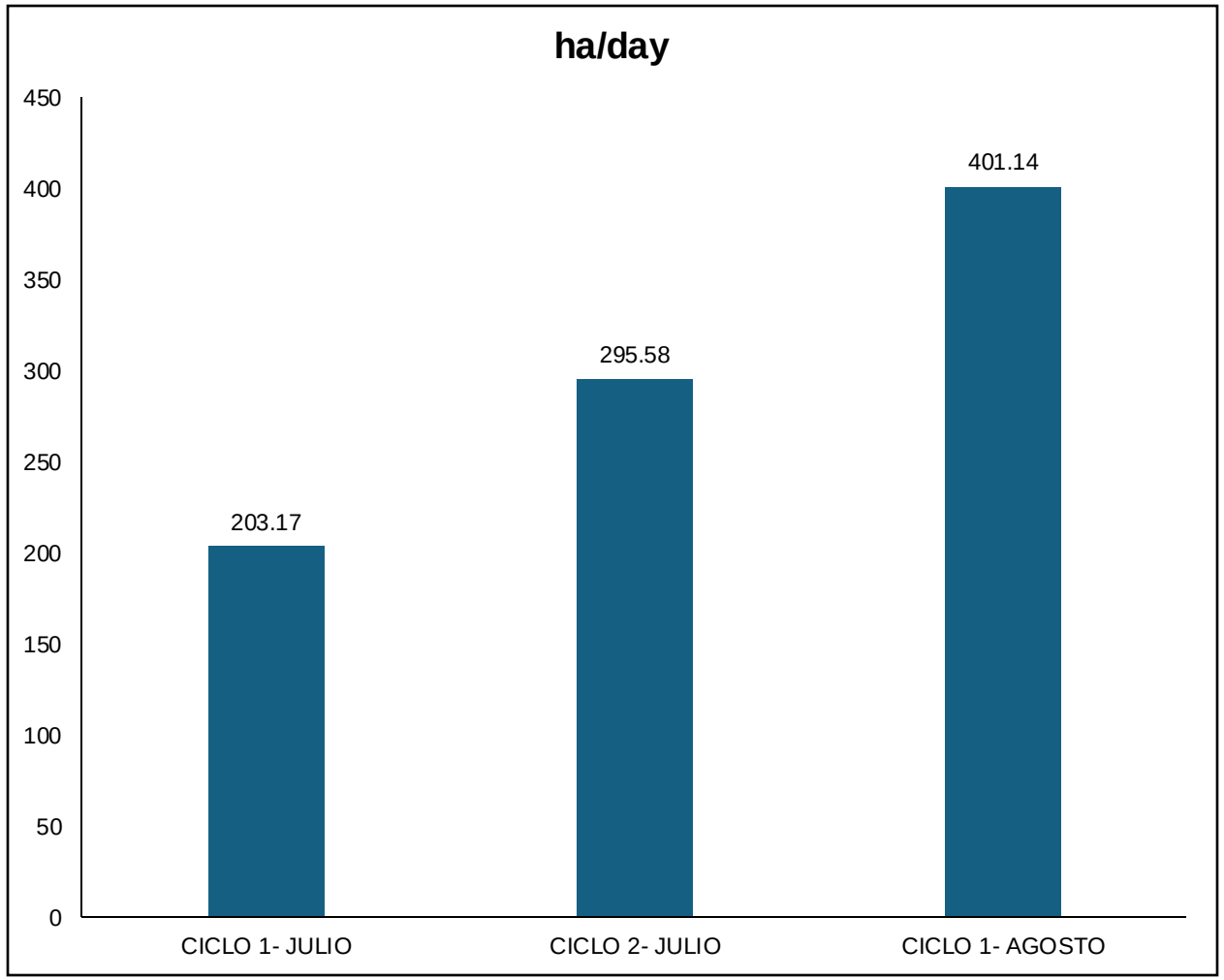
50,2% parasitism

Results – Drone

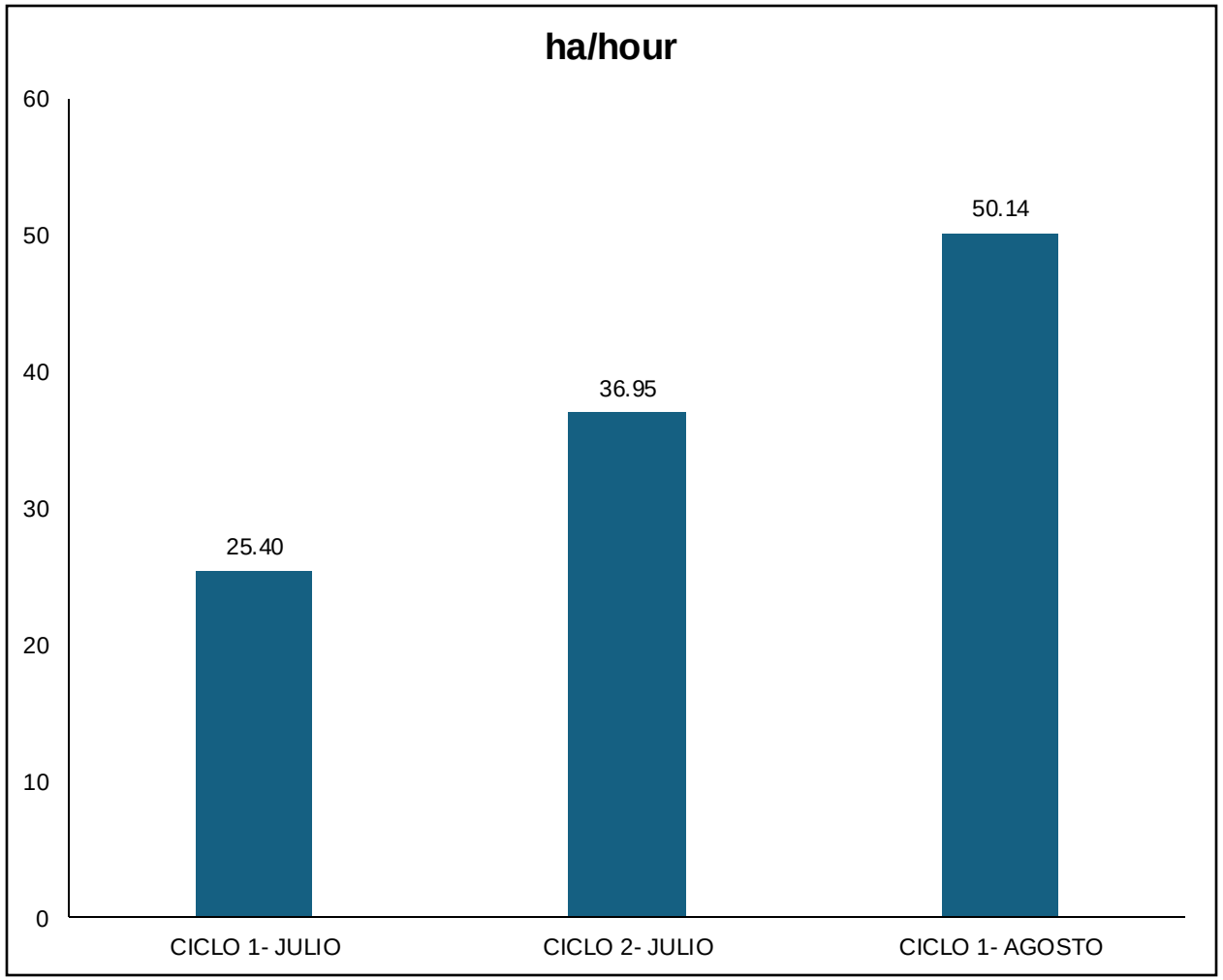


63,74ha evaluated

61,8% parasitism



Fast learning and implementation.



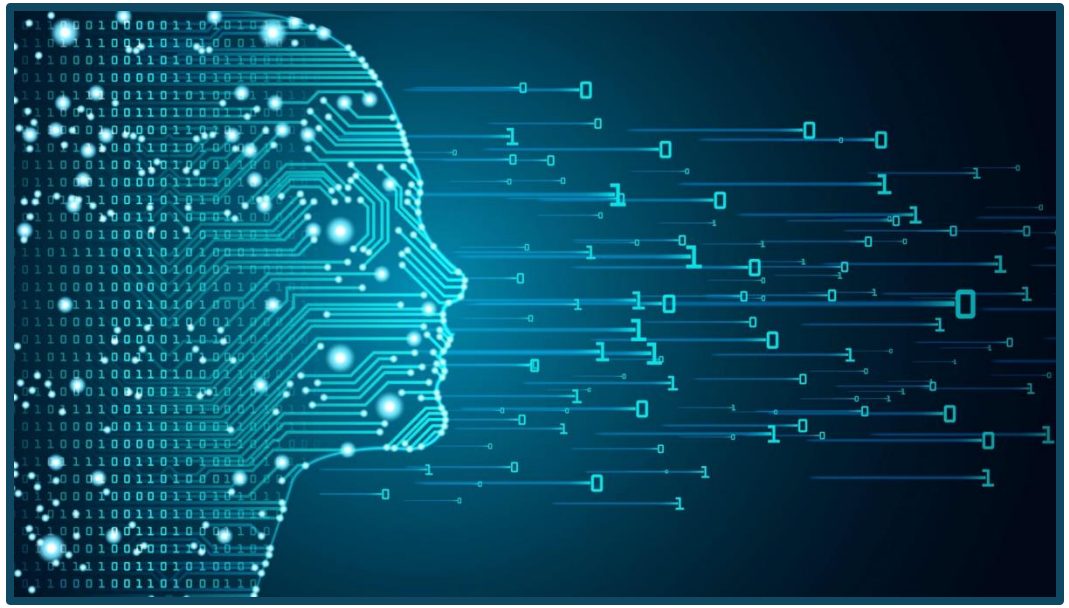
Scale very fast.

Future

Evolve quickly from **TRL3 – Critical Functions** to **TRL7 – System Demonstrated**.

High precision solutions and **reliability**.

Enter definitely in **Agriculture 5.0**.



Safe flight operations with support of **Artificial Inteligence**.

Thank You

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