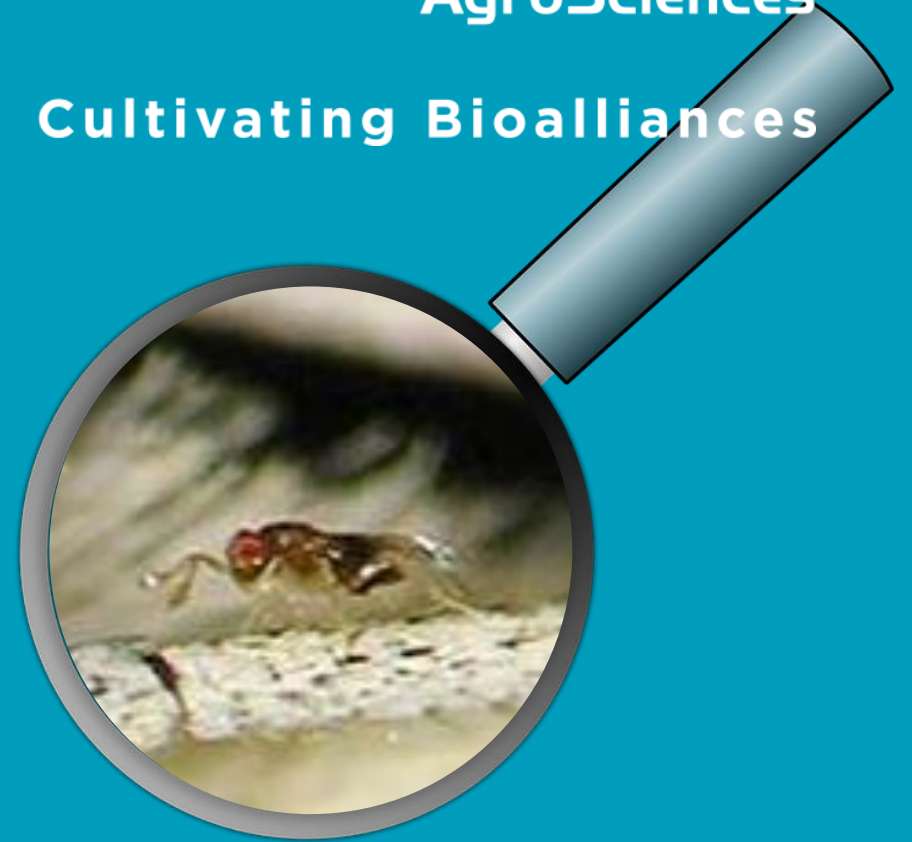


# TUTA: A problem in UK Tomatoes

Dr Caroline Reid  
TGA Conference 2019



Cultivating Bioalliances



PEST CONTROL



POLLINATORS



TRAPS



PHEROMONES



MONITORING



PERFORMANCE  
ACCELERATORS



Cultivating **Bio**alliances

# *Tuta absoluta* on Tomatoes

- Serious damage occurs throughout the entire growing period (protected and open-field crops)
  - Without intervention can cause 80-90% crop loss!
- Very challenging pest to keep under control → effectiveness of chemical control is limited due to nature of damage
- It is known to rapidly develop resistant strains against insecticides – in Spain total resistance to Chlorantraniliprole
- Tuta prefers tomato, but also aubergine, beans, tobacco and potato
- Pheromone use has been beneficial but is now less effective (Parthogenicity)

Damage to the leaves



Damage to the fruit





 **Tricholine TA**

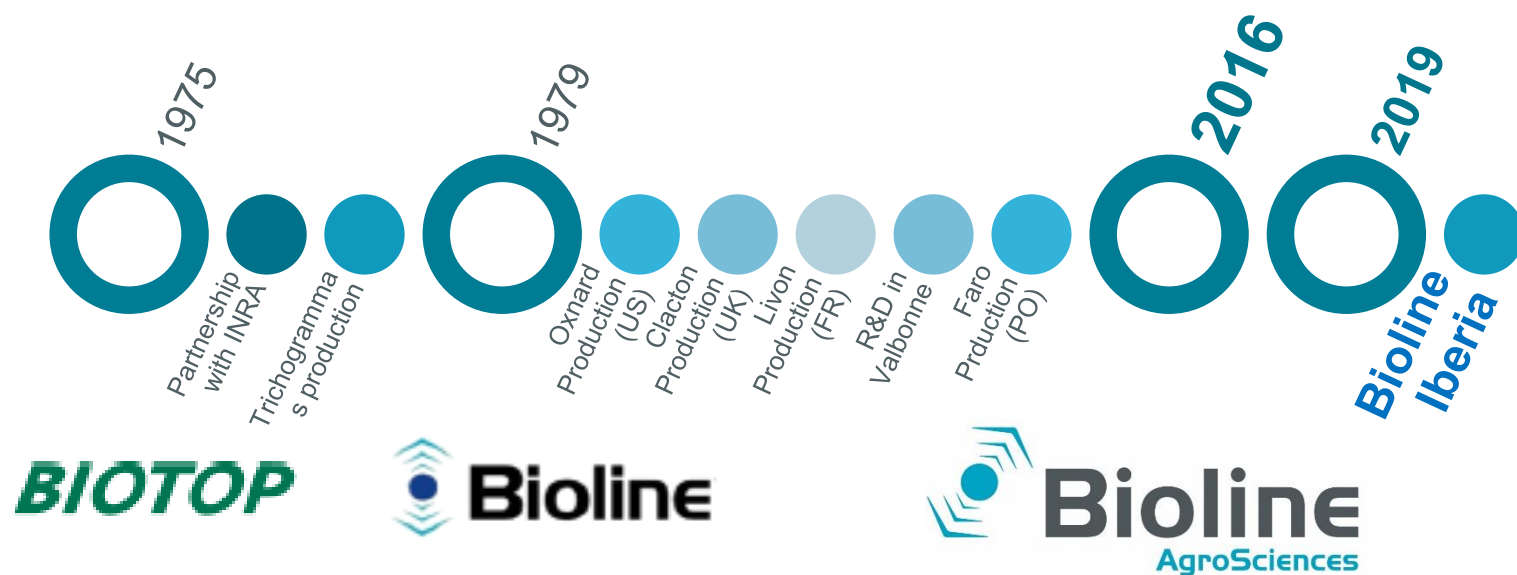
Effective control for *Tuta absoluta*  
in tomato crops

**Tricholine TA: Trichogramma  
for the control of *Tuta absoluta* in  
tomato**





# HISTORY



**2016 :**

Bioline Agrosciences becomes one of the major world player in BIOCONTROL with macro-organisms

**2019 :**

Birth of Bioline Iberia (SP)



## SPECIALISTS IN TRICHOGRAMMA



6 commercial products with Trichogramma:

- **Trichotop Max**, for control de *Ostrinia* in corn
- **Tricholine Vitis**, for control of caterpillars in vines
- **Tricholine TA**, vs. *Tuta absoluta*, *Duponchelia*
- **Trichotop Buxus**, vs. Box tree moth
- **Trichotop almacenes**, vs. Stored product moths
- **Tricholine Splendana** vs. *Cydia splendana*

Ongoing projects:

- Soya, Sugar Cane
- Crucífers...



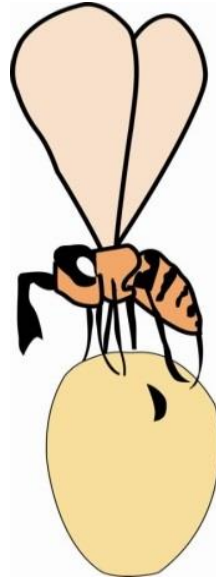
Cultivating **Bio**alliances



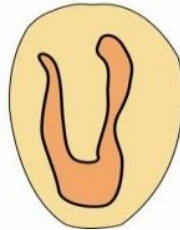
# How does it work in the field? It's biological cycle



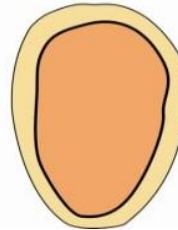
Trichogramma lays an egg in the egg of the pest.



Larva hatches and consumes the content of the pest egg.



The larva grows.



It produces a blackish cocoon, metamorphosing into a nymph.



An adult then emerges, which goes out to find other eggs.



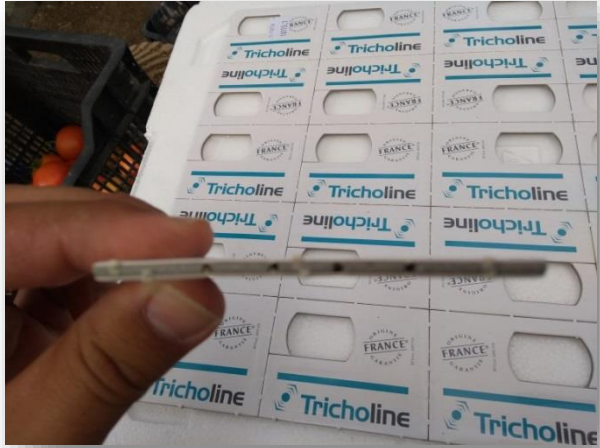
# Tricholine Tuta (*Trichogramma achaeae*).



- Egg Parasitoid.
- Parasitises >26 species of lepidoptera (Tuta included).
- Lays  $\pm$  60 eggs in 7 days.
- Also practices host feeding.
- Active between 15°C, and max. temp 32°C.
- Optimum Temperature 23-25°C.
- ♂:♀ = 1:1.



# Application systems





Use in combination with  
Macrolonbus



# Release Strategy

- Release Macrolophus at propagators (pre-transplant Strategy). Or early in crop.
- Use all the available tools combined with Tricho (mating disruption, mirids, Bt, defoliation of the basal leaves, avoid Sulphur )

Curatively	Prevetively
100 cards/week from start Of Tuta in crop	Release 100 cards/week biweekly
in combination with Bt	Alternate with Bt.





# *Trichogramma achaeae*:

## Why do we need your help



PEST CONTROL



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# *Trichogramma achaeae*

- Not currently registered for release in the UK
- To get DEFRA to register the product we need help from growers to stress the importance of the pest and getting a control for it.
- We are asking the TGA and tomato growers to lobby Defra to this end.







# Tricholine TA

Effective control for Tuta Absoluta  
in tomato crops



# THANKYOU FOR YOUR ATTENTION!