History & Current strategies

in the management of Tuta absoluta

Shakir Al-Zaidi

Russell IPM Ltd – UK

Morocco / Algeria

Summer 2008

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Jalu – Libya

December 2009

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Jalu – Libya

December 2009

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Mafraq – Jordan

2010

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Crete –Greece

2009

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Distribution

2010

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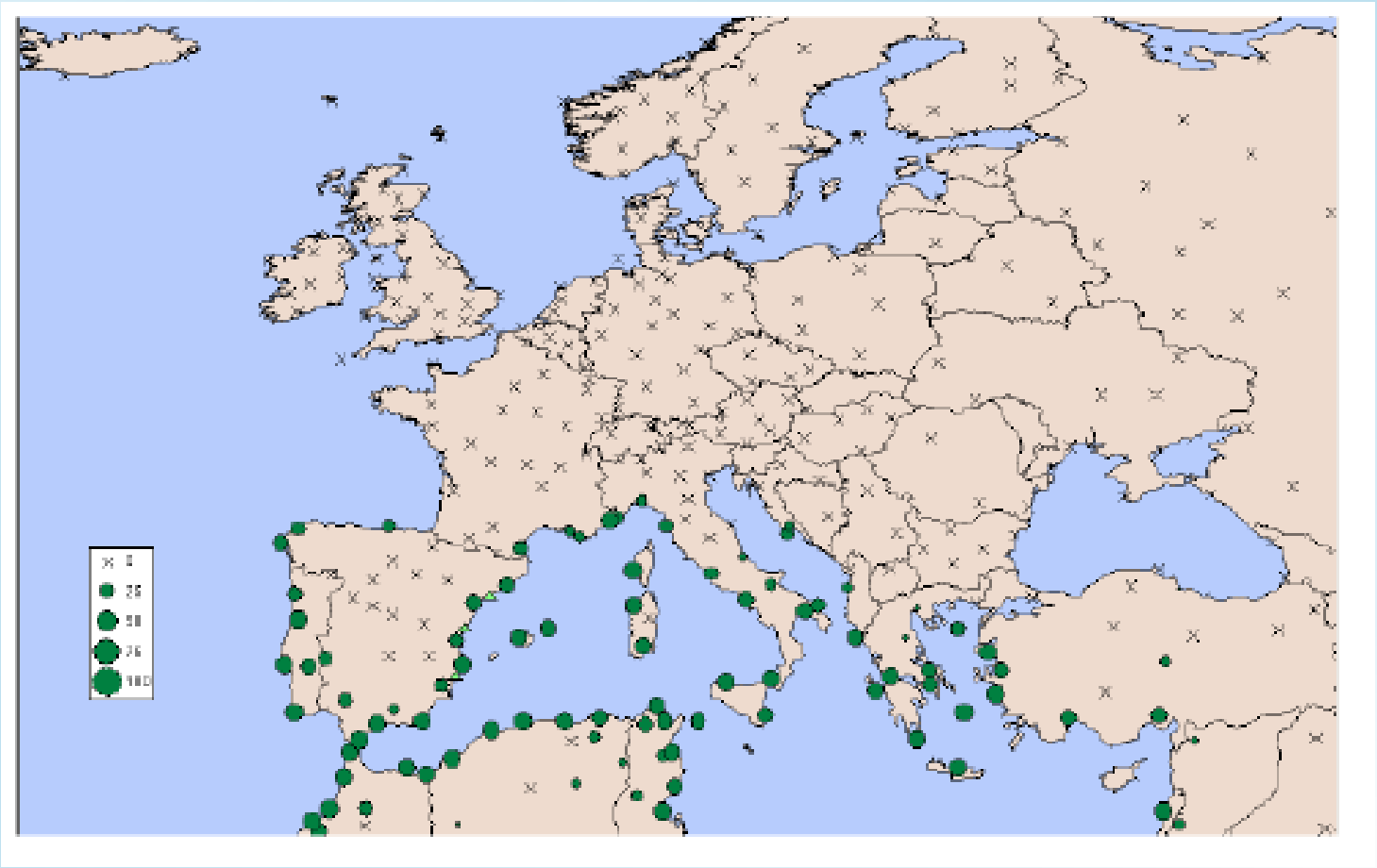
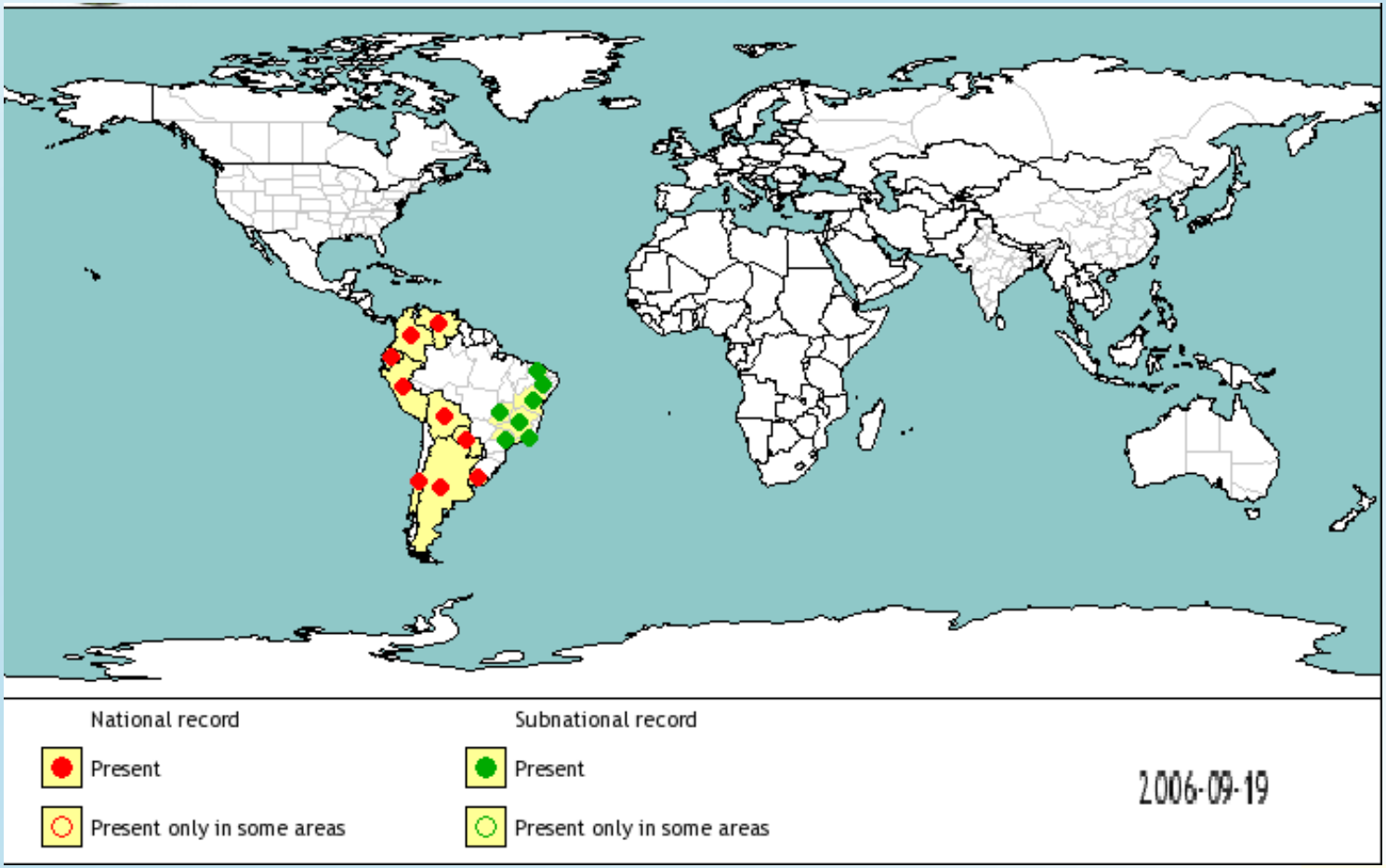
Suitability of EU Climate in field for establishment of Tuta absoluta



The origin



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The movement of Tuta absoluta

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Why so fast?

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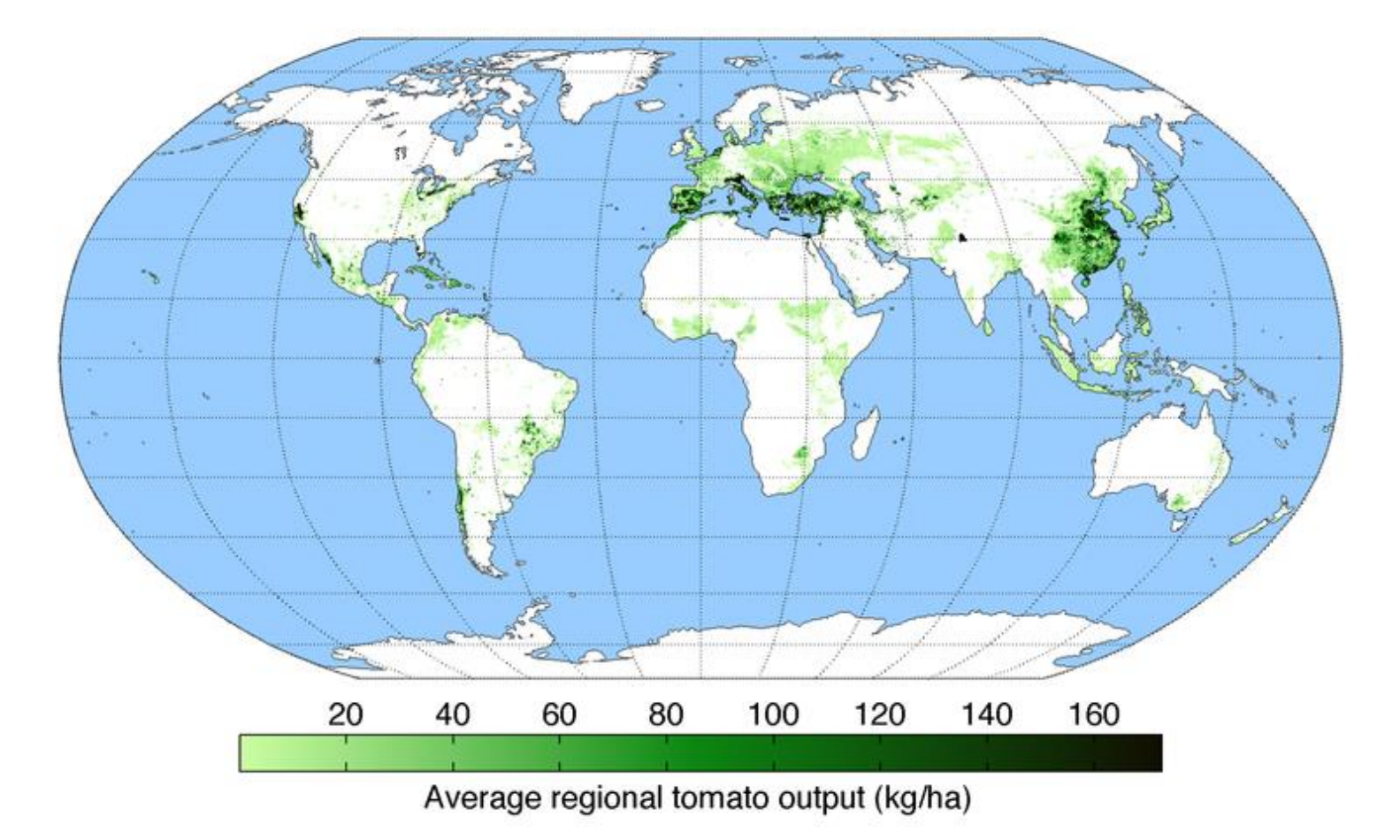
Nouvelles frontières

New frontiers



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Next stop

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Keiferia lycopersicella		**E4-13Ac**
Phthorimaea operculella		**E4Z7Z10-13Ac** **E4Z7-13Ac**
Tuta ***absoluta***		**E3Z8Z11-14Ac**

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Host plants

- Generally prefer Solanaceous species.
- Tomato is the most preferred host.
- Potato, Aubergine, Pepper, Beans.
- Tobacco (old report)

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What have we learnt

- Southern Europe
  - Extensive efforts to develop management strategies.
  - Opportunities to develop IPM / Bio solutions.
  - Progress led by commercial sector.

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MENA countries

- State led strategies.
- Late response to the outbreak due:
  - Lack of knowledge and update.
  - Restrictive regulations.
  - Lack of transparency
- State / commercial discord.
- Limited capacity to research the pest in local conditions.

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Here to stay!

- Tuta absoluta is not a passing event.
- It is here to stay.
- We have to learn how to live with it.
- To understand it under local conditions.
- To understand it impact on other hosts.
- To be considered in any IPM program may be developed for affected crops.

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New era

- Tuta is forcing the farmers to develop their own decision making capacity.
- It making farmers consider options which they were not willing to consider before.
- Not like other pests. It has a political dimension.

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Pest status 2011

- *Western Mediterranean*
  - Pressure is low to moderate
  - Damages low to moderate

- *Eastern Mediterranean*
  - Pressure is high
  - Damage is extensive

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Pest boundaries

- Asia : Iran (24 provinces out of 33 have Tuta absoluta).
  - High risk: Turkumenstant , Pakistan
- Africa: Senegal and Sudan.
  - High risk: Kenya
- Europe: No change.
  - High risk: USA

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Management directions

- Chemical approach
- Biological approach
- Bio-rational approach

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Bio-rational approach

- Utilise Bio pesticides components.
- Less demanding than Bio approach.
- Integrates production against different life stages.
-

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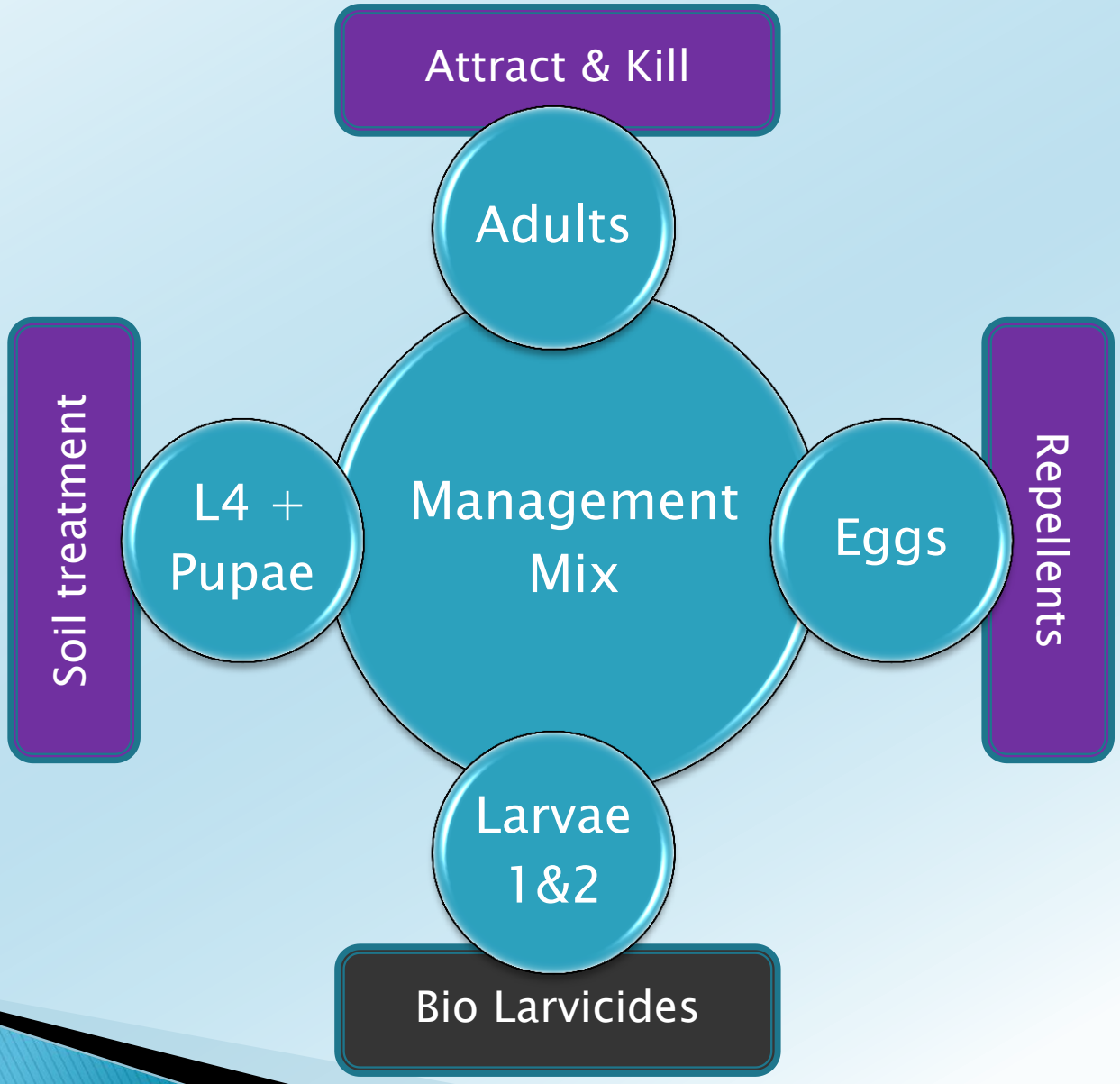

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Bio larvicides

- Azadiractine :
  - *Azadiractin SC / oil based formulations*
- BT :
  - playing key part in supporting bio control.

Abamactine / Emmamactine

- Alone and mixed with bio-stimulants

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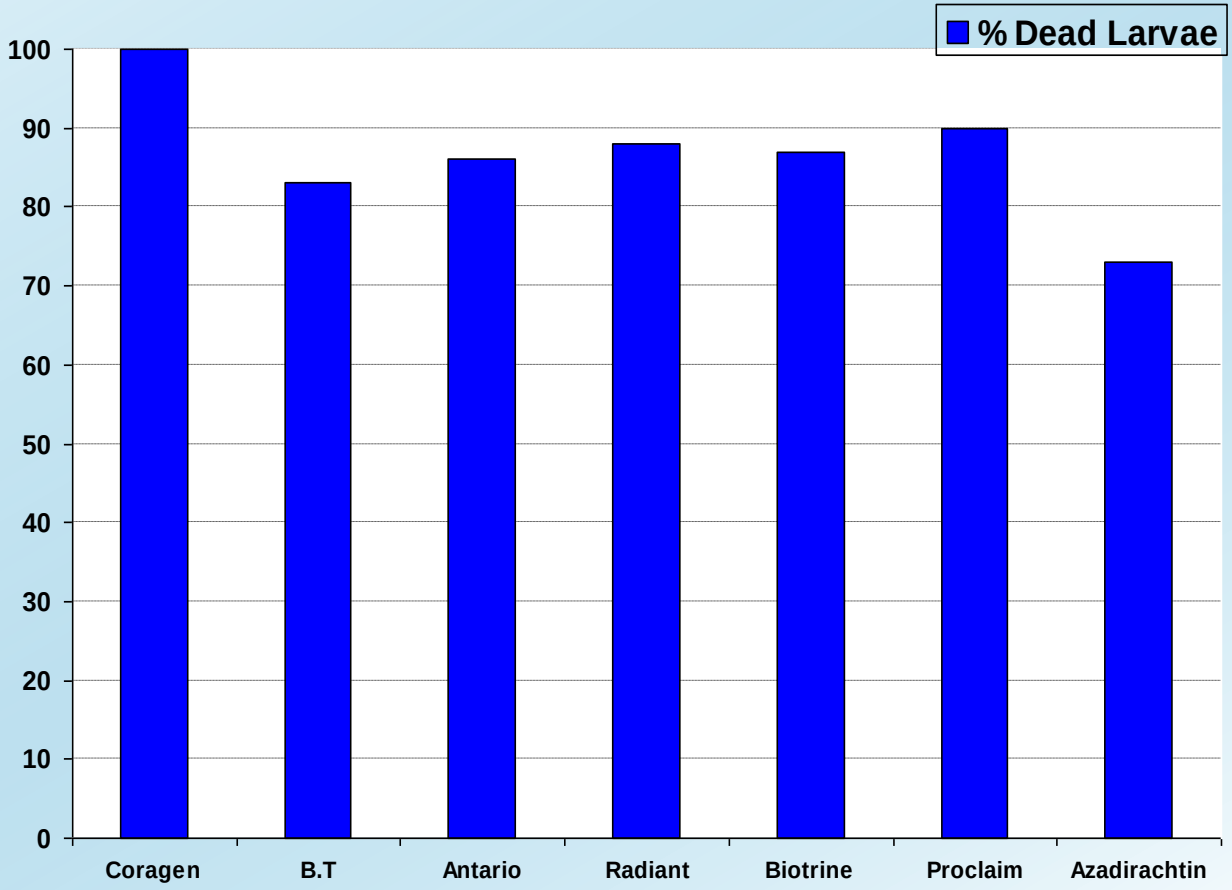
Percentage of dead larvae per 60 leaflets after five days of spraying



Courtesy Dr Marwan Abed el-Wali – Jordan

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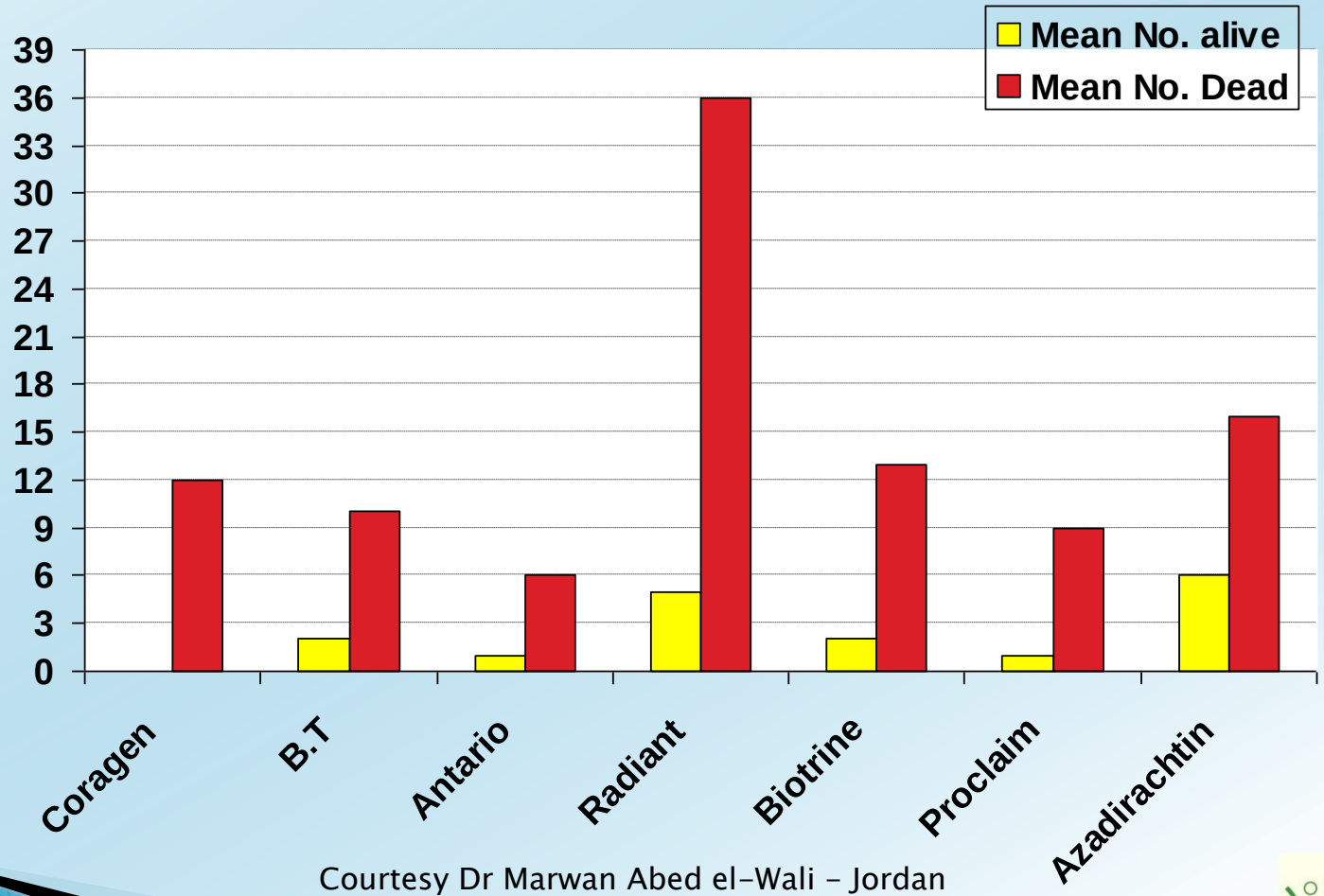
Total number of alive and dead larvae per 60 leaflets after five days of spraying



Courtesy Dr Marwan Abed el-Wali – Jordan

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Pheromones

- Surveillance / Monitoring :
  - *Played crucial role at the early stages of pest expansion (Alert – educate).*
  - *Improved formulations in different conditions*
  - *Special formulation for very high temperature as the pest moved to more desert conditions.*

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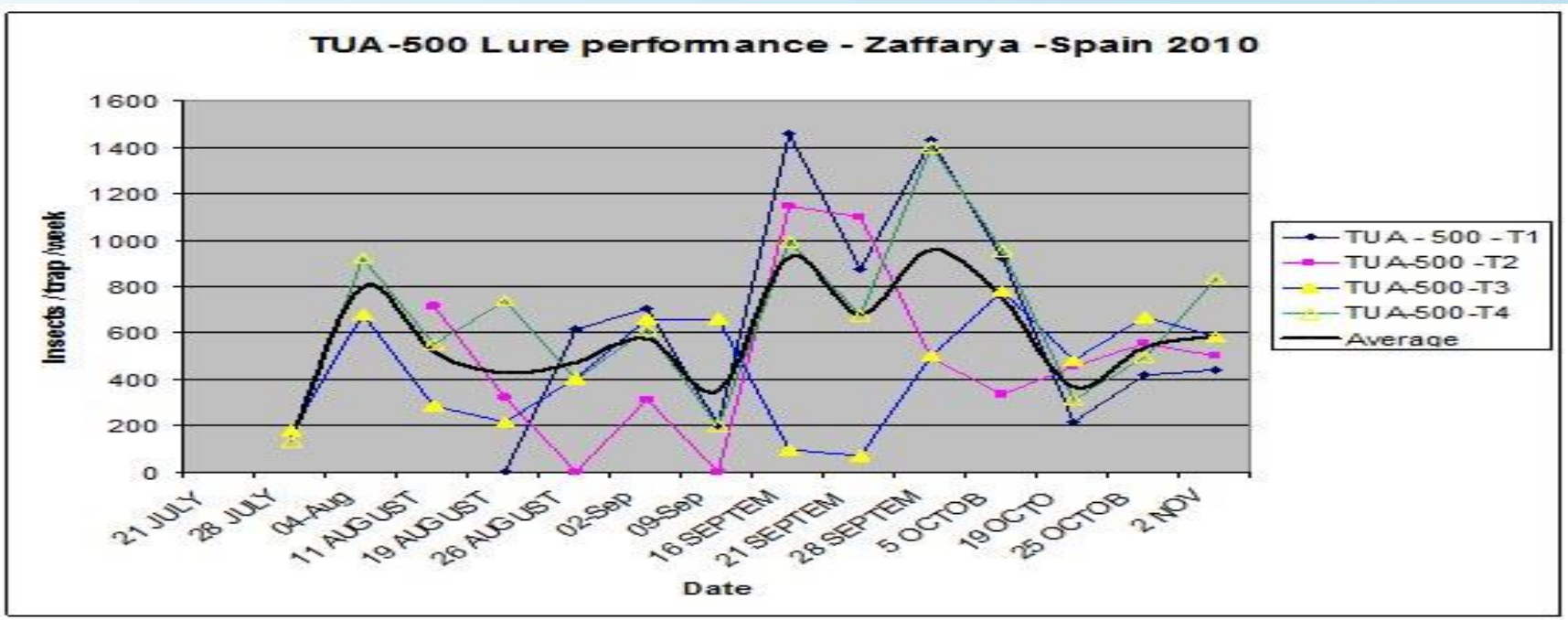

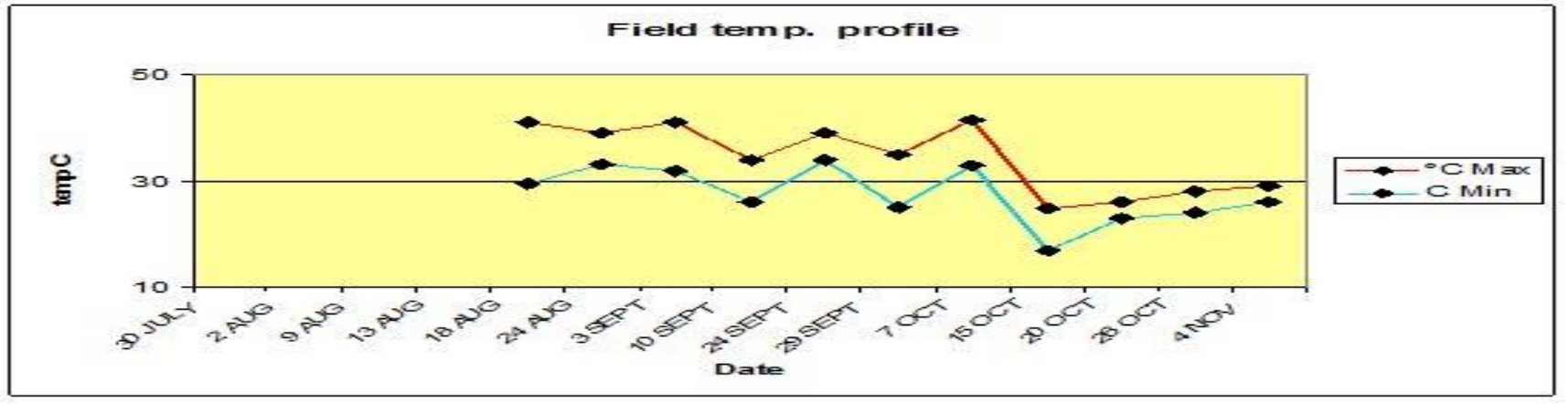

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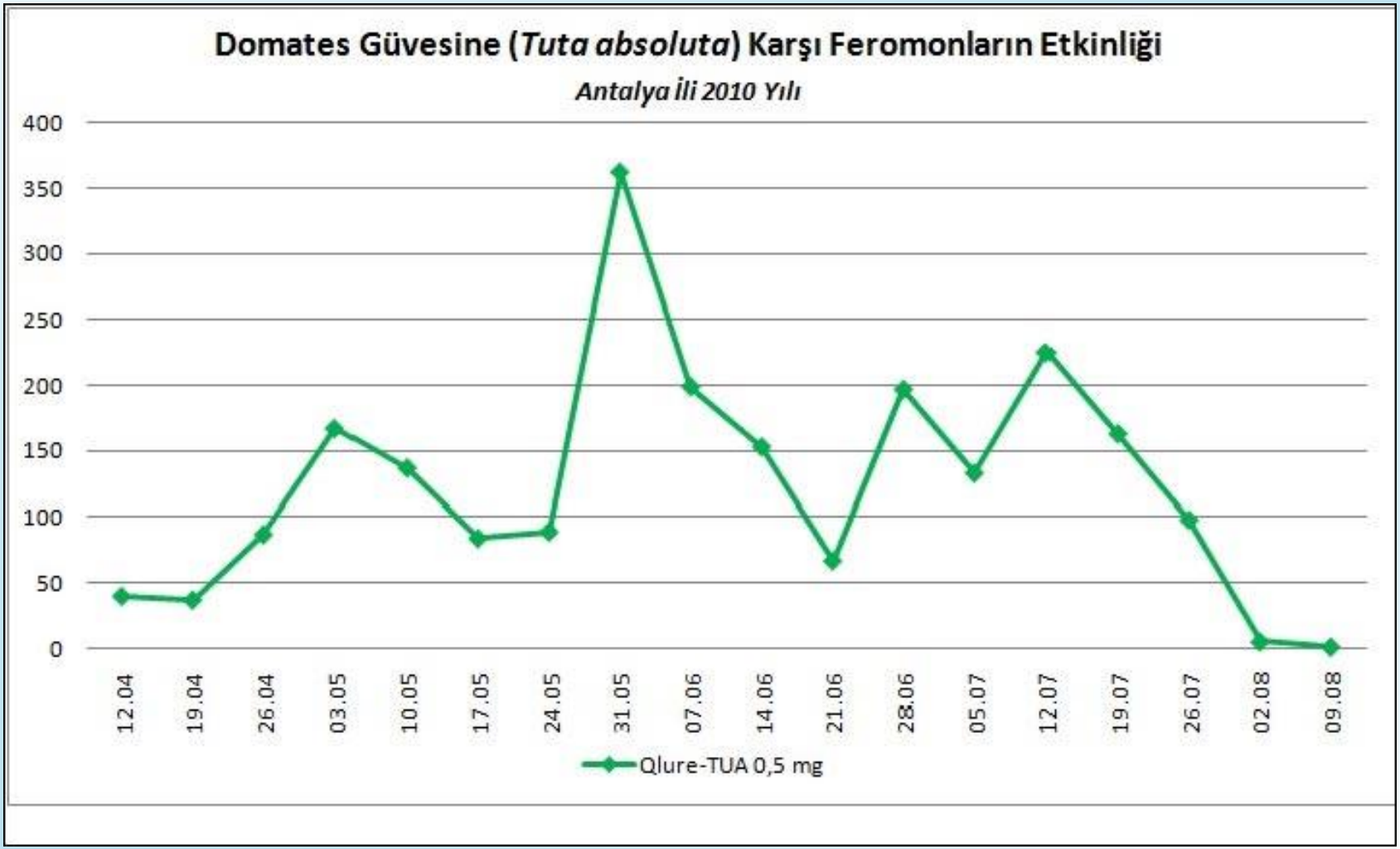

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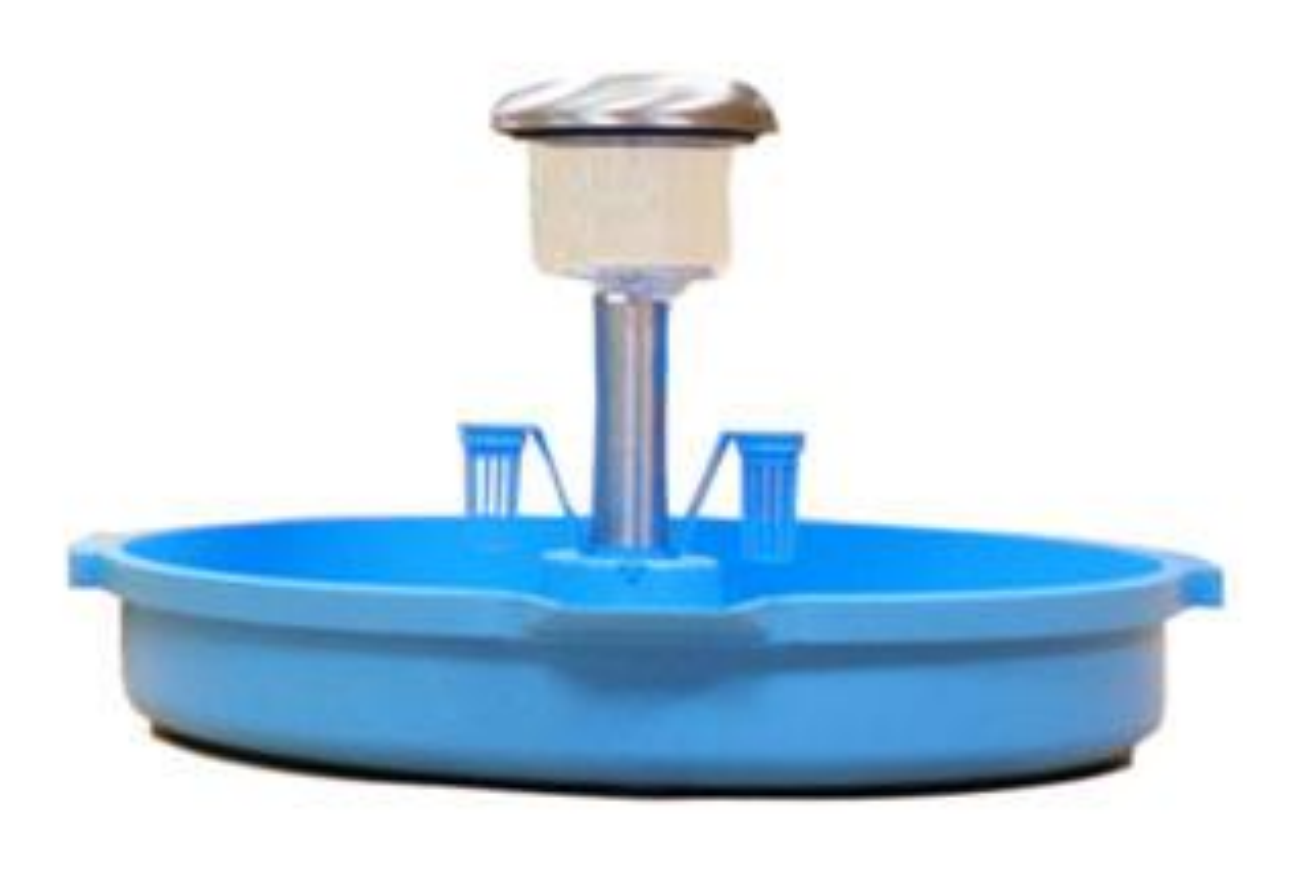
Mass trapping



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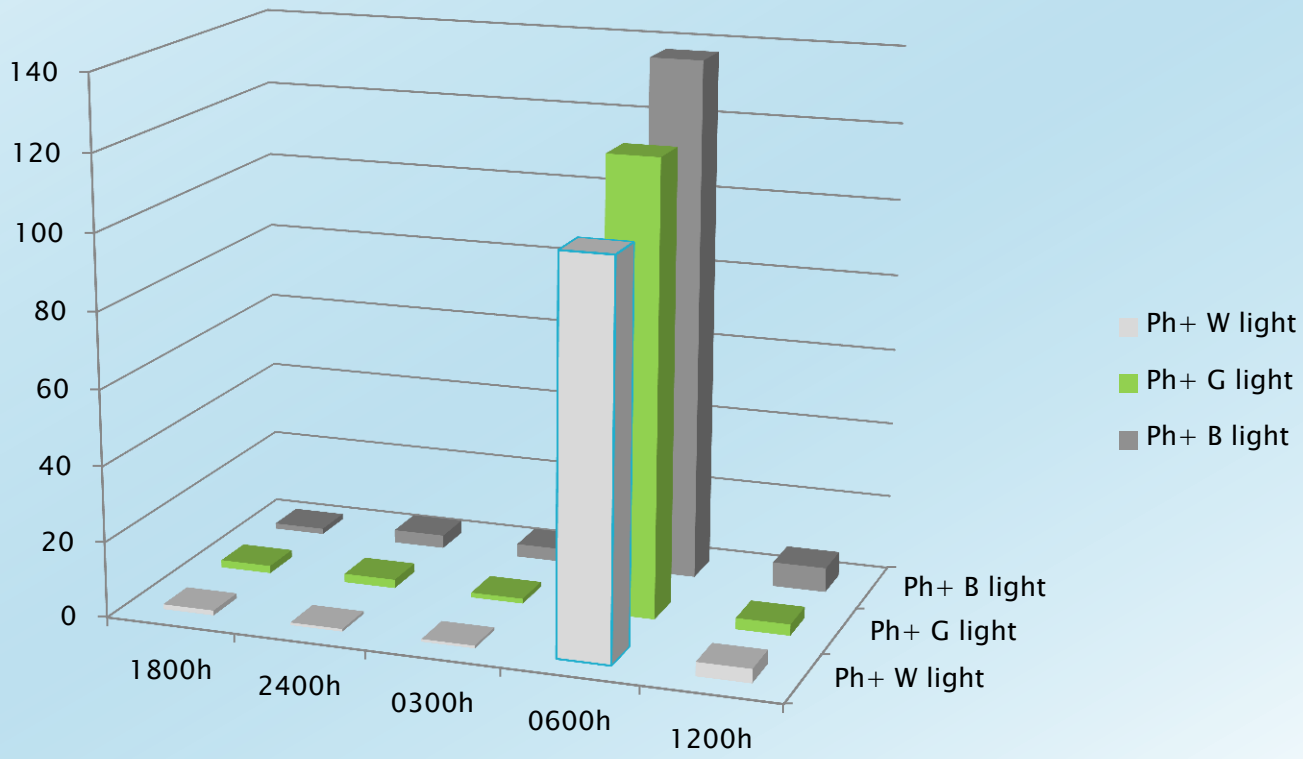
Role of light colour



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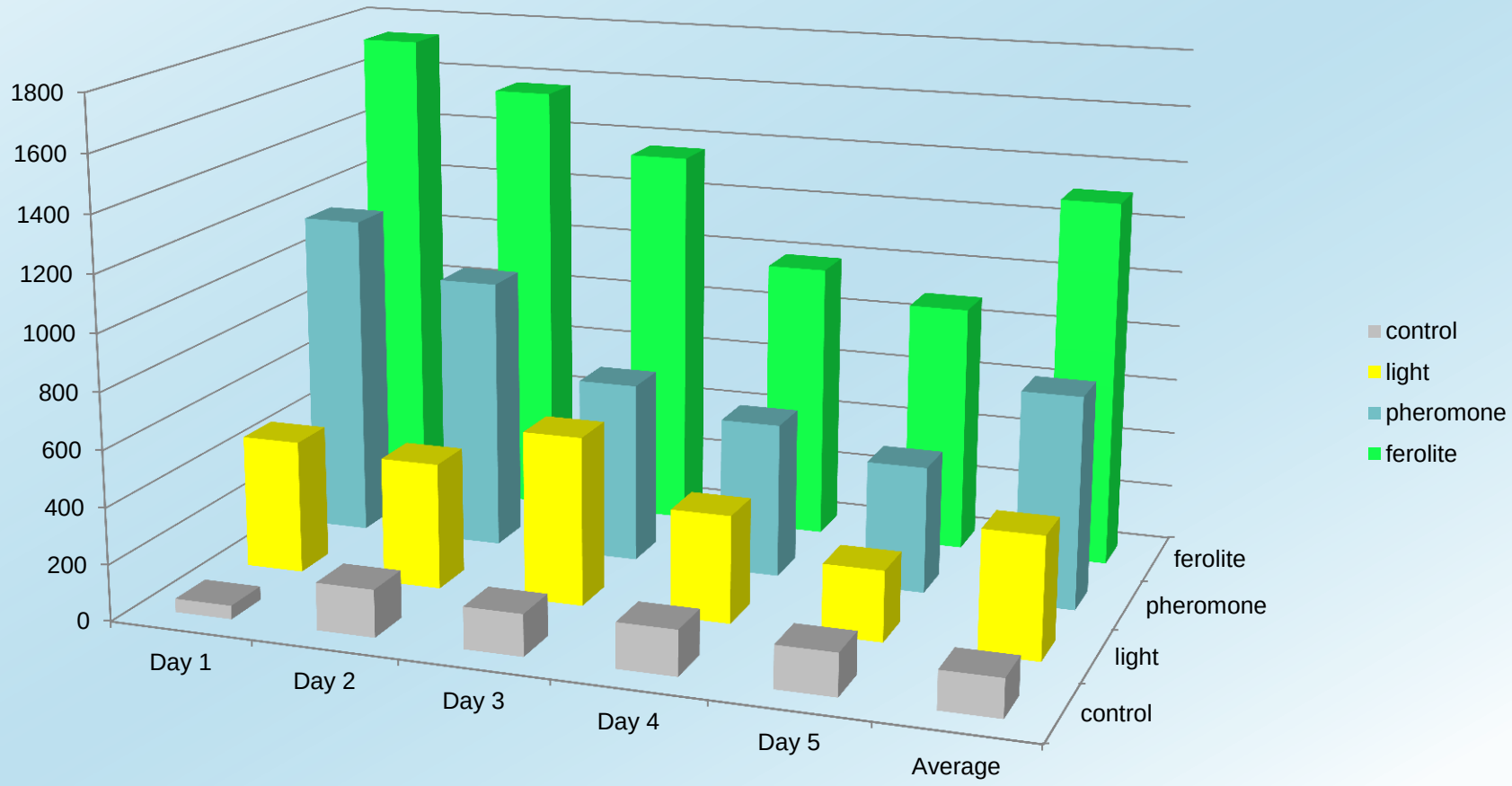
Qlure–TUA ferolite



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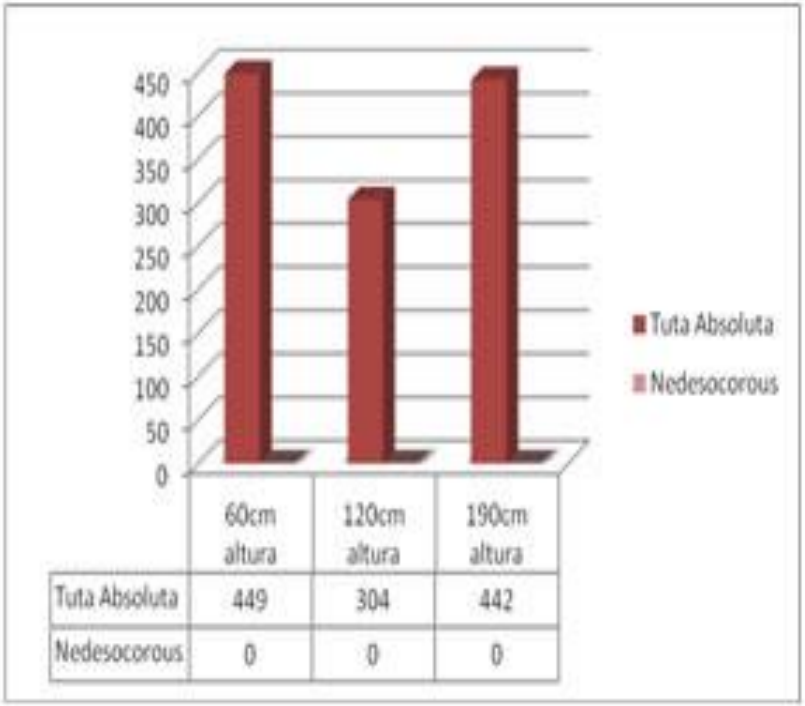
Tuta Roll



	60cm altura	120cm altura	190cm altura
Tuta Absoluta	449	304	442
Nedesocorous	0	0	0

Fig 2. Effect of positioning Tutaroll close to the tomato plant. (2m strips at different heights after 24hrs)

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TAC-37

Attract & Kill

Tuta absoluta

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TAK – 37

- *Pheromone and pesticide formulation.*
- *Targeted application, compatible with bio agents.*
-
- *Reduces the possibility of pesticide resistance.*
- *Reduces the possibility of pesticide over application.*

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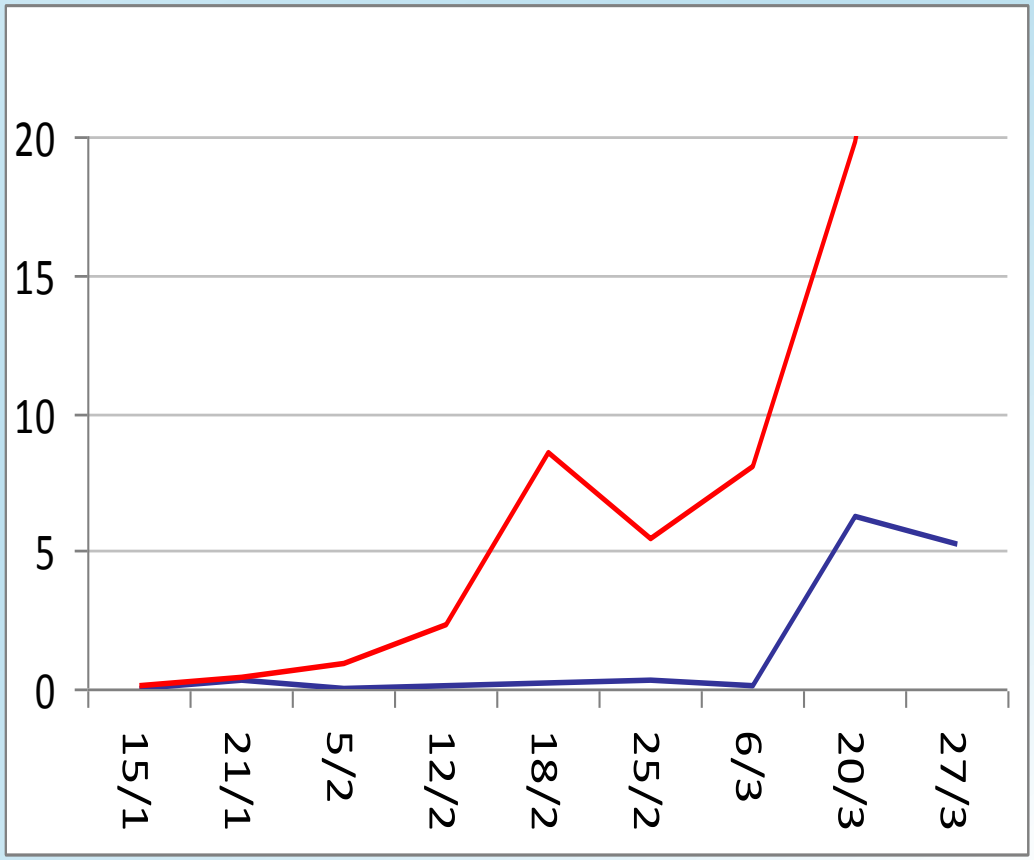
TAK-37

- Application of TAC-37 in open field tomato manage to keep the insect count under five insects per trap / day for over 50 days
- Application of conventional insecticide failed to keep the insect count under control.

Centre Brazil, 2009



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TAK – 37

- Emulsified wax
- Sex pheromone
- Cypermethrin

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TAK – 37

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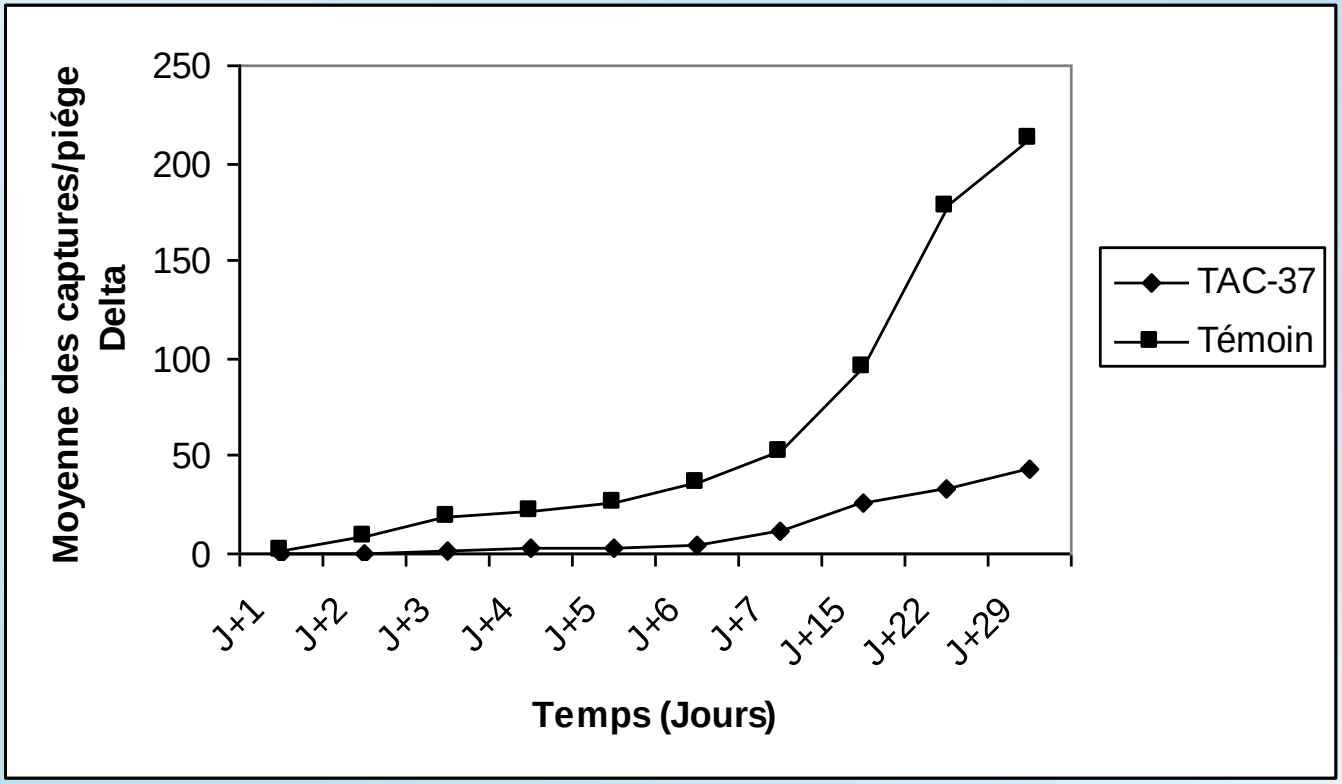
TAK – 37



Evolution of the catches of Tuta absoluta in Delta traps in the house treated with TAC-37 and the control house.

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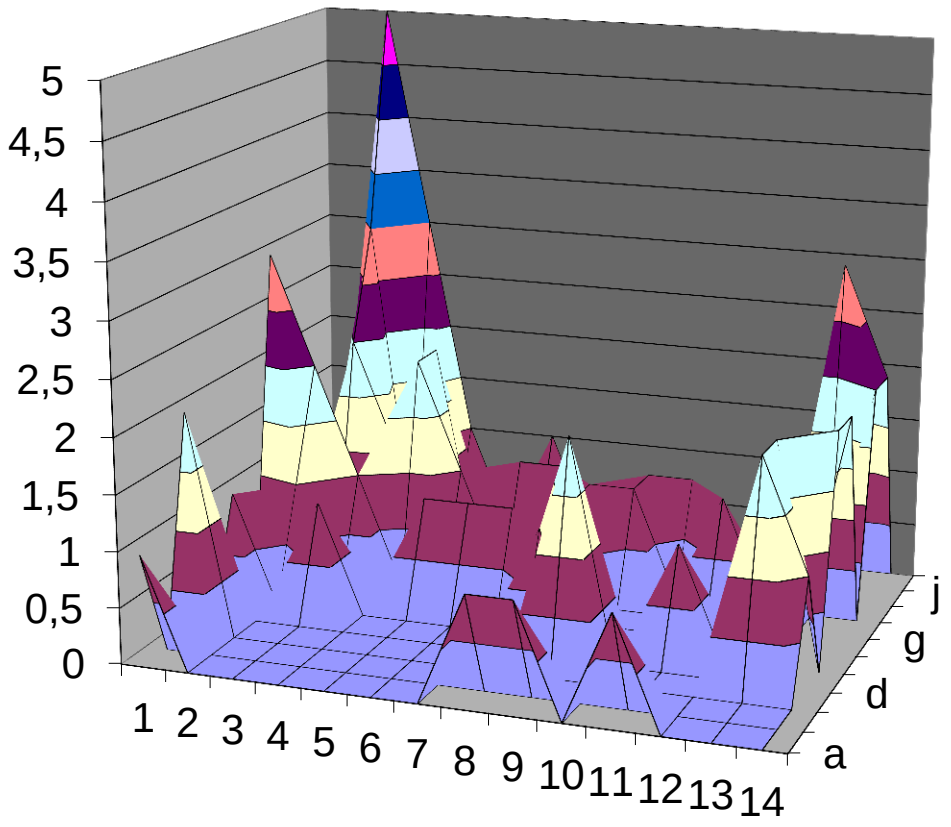
TAK – 37



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Damage

- 100 plants were sampled for leaf damage in each house
- 20 plants per zone
- 4 zones in the corners and 1 at centre
- Average number of perforated leaves / plant we counted.

Greenhouse	Side	average number of leaves perforated
Test	1	0
	2	0
	3	0
	4	0
	5	0
Control	1	0.4
	2	0.2
	3	0.1
	4	0
	5	0

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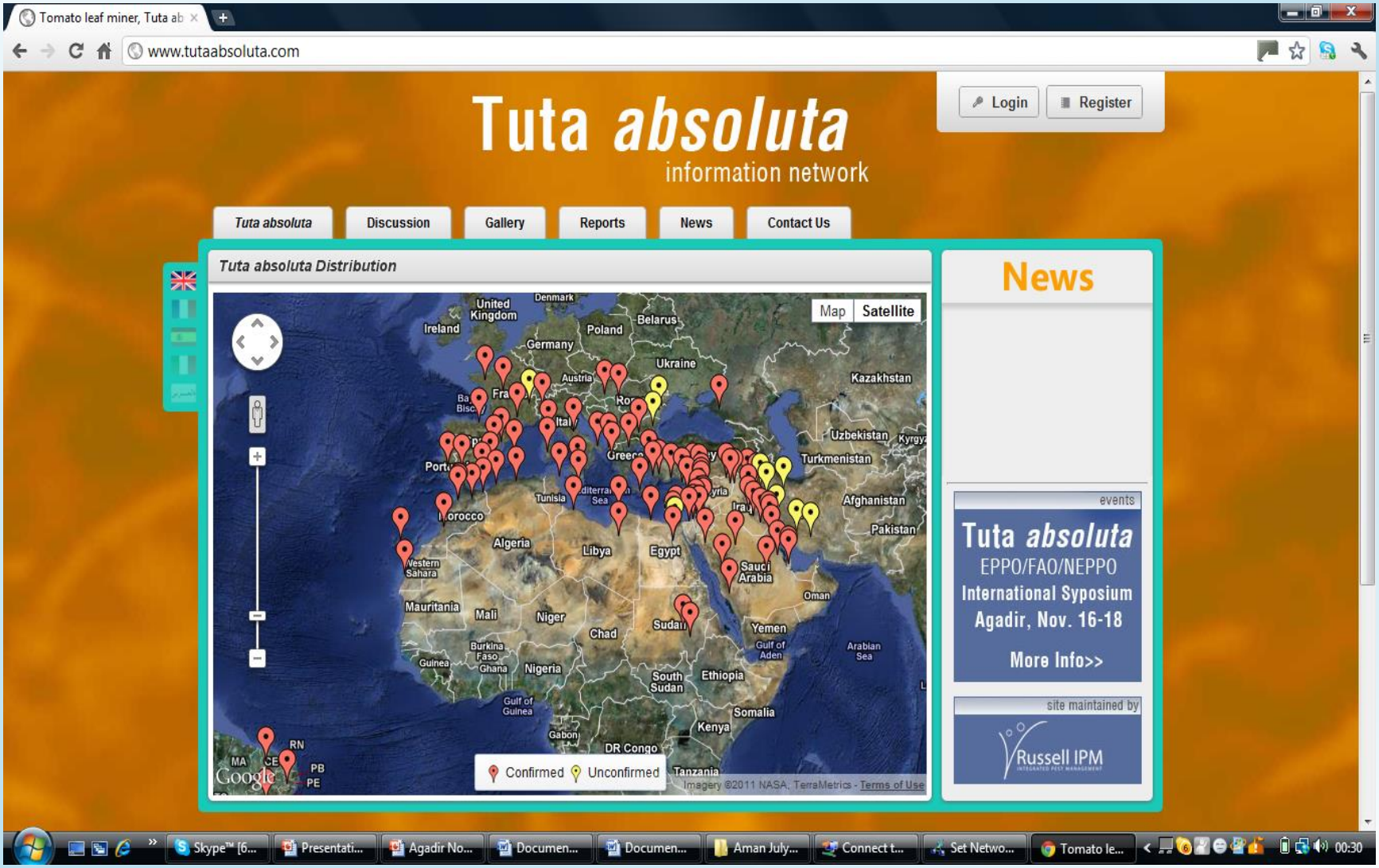

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Thank you