



Fresa-Mix:

**A new biological solution against
strawberries aphids**

Viridaxis

- Company based in Belgium
- Specialized in the production of aphids parasitoids
- Cooperative link with the UCL Ecology and Biogeography Laboratory
- Unique method of production based on new technologies
- Generalized use of artificial breeding media
- Rapidly growing product range

Viridaxis

- 1998-2004: UCL: Research program
- 2004: Company creation
- 2005: Installation in Gilly. Production and commercialization of *A. colemani*
- 2006: Small scale production of *A. matricariae*, *A. ervi* and *E. cerasicola*
- 2007: Small scale production of *P. volucre*.
- 2008: Commercialization of *A. ervi*. Development of Fresa-Mix.
- 2009: Small scale production of *A. abdominalis*.
- 2010: Commercialization of Fresa-Mix

Fresa-Mix: Project phases

- 1.A: Harvest of the parasitoids (2007)
- 1.B: Rearing of the parasitoids (2007)
- 2: Selection of parasitoids with interesting host range (2007)
- 3: Cages trials (2007-09)
- 4: Semi field trials (2007-09)
- 5: Field trials (2007-09)

Fresa-Mix: Parasitoids used

- *Aphidius ervi*
- *Aphidius colemani*
- *Aphidius matricariae*
- *Ephedrus cerasicola*
- *Praon volucre*
- *Aphelinus abdominalis*



Fresa-Mix: Aphids-parasitoids relations

Aphid/parasitoid	<i>A. ervi</i>	<i>A. matricariae</i>	<i>E. cerasicola</i>	<i>P. volucre</i>	<i>A. colemani</i>	<i>A. abdominalis</i>
<i>Acyrtosiphon malvae</i>	(x)			x		
<i>Aphis craccivora</i>		x		x	x	
<i>Aphis fabae</i>		x		x	(x)	
<i>Aphis forbesi</i>		(x)				
<i>Aphis gossypii</i>		x	(x)	x	x	
<i>Aphis nasturtii</i>		x				
<i>Aphis ruborum</i>		x			x	
<i>Aulacorthum solani</i>	x	(x)	x	x		x
<i>Chaetosiphon fragaefolii</i>			(x)	(x)		
<i>Macrosiphum euphorbiae</i>	x			x		x
<i>Macrosiphum rosae</i>	x			x		x
<i>Myzus ascalonicus</i>		(x)	(x)	(x)		
<i>Myzus persicae</i>	x	x	x	x	x	x
<i>Rhodobium porosum</i>	(x)		(x)	(x)		x

Fresa-Mix: Geographical situation of the trials



Fresa-Mix: Strawberries varieties

- Darselect
- El Santa
- Lambada
- Candiss
- Ciflorette
- Charlotte
- Darselect Bright
- Manille

Fresa-Mix: Culture types

- Tunnels:

- 2 lines
- 3 lines
- 4 lines
- 5 lines

- With or without floating row cover

- Hydroponic



Fresa-Mix: Strategies used

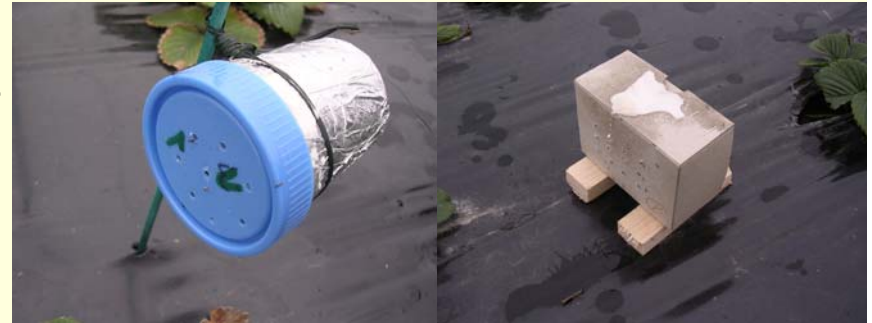
- Precocity
- Nutrition
- Doses / rates
- Releasing points
- Following
- Confidence

Fresa-Mix: Releasing points

- Different prototypes tried out

- Ventilated plastic tubes

- Cardboard box on feet



- Ventilated cardboard tube on stake

- Cardboard tube on stake

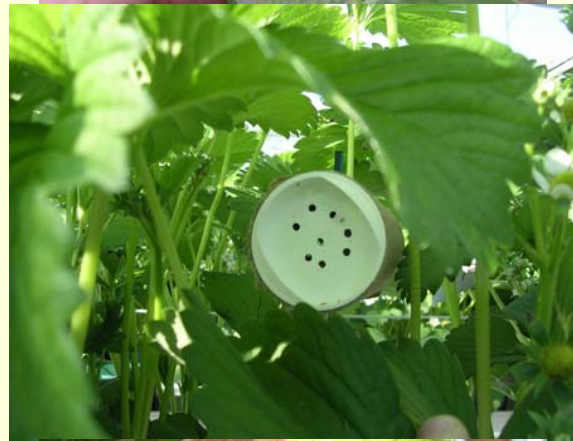
- Integrated honey point



Fresa-Mix: Results I

- Parasitoids life length
- Spread out emergence
- Aphids localized in more than 75% of the greenhouses
- Control in every case
- High interest of the growers

Fresa-Mix: Results II



Fresa-Mix: Results III

- Installation of the parasitoids populations
- Mummies but few aphids spotted
- Traces of cleaned hot spots
- *M. euphorbiae* and *A. malvae rogersii* => reservoir of population
- Installation of other beneficials
- Parasitoids installation in adjacent greenhouses



Fresa-Mix: Conclusions

- Advantages < > chemical response
 - Equal easiness
 - Efficiency
 - No resistance
- BUT
 - "Slow"
 - Adequate use
 - Preventive use
 - Has to be used with other products



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Thank you for your attention

More info: www.viridaxis.com

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