

Testing homeopathic remedies to control pests

Núria Cuch

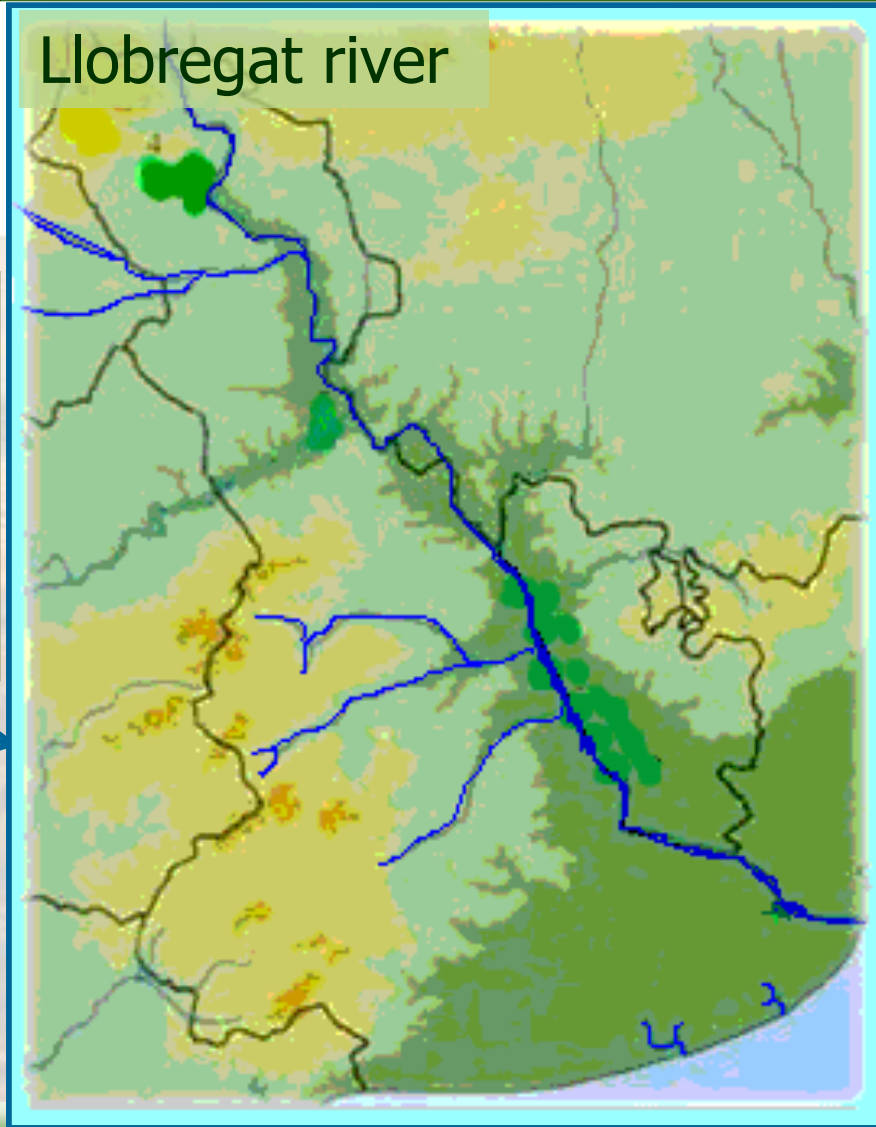


**Parc Agrari
del Baix Llobregat**



Agrupació Defensa Vegetal
Fruïters del Baix Llobregat

ADV de Fruïta del Baix Llobregat Fruit trees growers association



60 professional growers

20 organic agriculture

40 integrated control

Aphids in peach trees

Organic
peach trees orchard.

Torrelles de Llobregat

5550 m²

Rich may, Romea, Tirrenia



What is the problem? 2007

Aphid *Hyalopterus amygdali*



What is the problem? 2007

Aphid *Myzus varians*



What is the problem? 2007

Ants
protecting
aphids.



What is the problem? 2007

A lot of auxiliar fauna, but not enough.

Crysopepla sp.



What is the problem? 2007

A lot of auxiliar fauna, but not enough.

Ladybirds



What is the problem? 2007

A lot of auxiliar fauna, but not enough.

Sirphidae



What is the problem? 2007

A lot of auxiliar fauna, but not enough.

Ichneumonidae



It's the homeopathy a possible solution?

Summer 2007: we froze a sample of *Hyalopterus*.

March 2008: a chemist prepared a liter of 7CH isopathic remedie from the sample.

March & april 2008: we apply three times a preventive solution of 400 liters 9CH in a time period of 4 weeks, by aerial apply.

It's the homeopathy a possible solution?

2008

During the spring and the summer no aphid appeared. Only at the end of the summer, two trees had a *Myzus varians* colony.

This period was very favorable to grow aphids because the weather was soft until the end of the spring.

Winter aphids in peach trees 2008



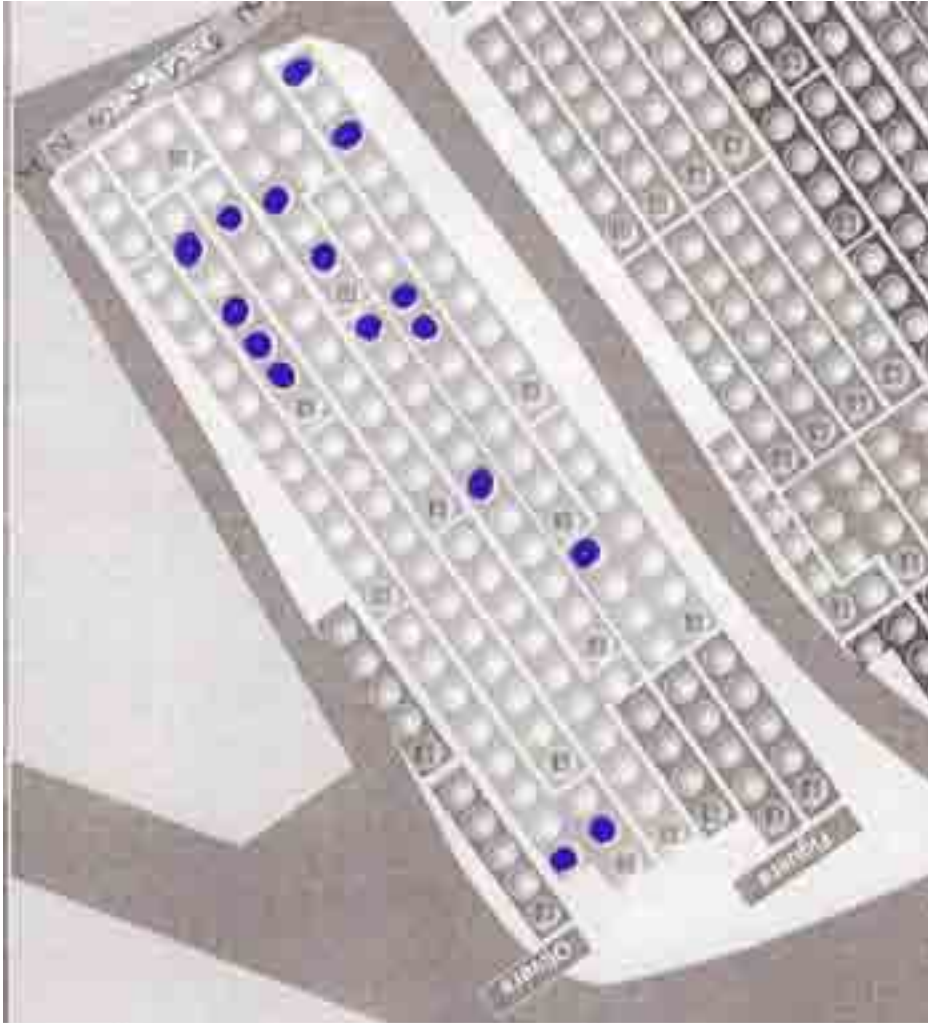
Organic
peach trees
orchard.

First attack of
Pterocloroides persicae,
a winter aphid living in
trunks and branches.

Pterocloroides persicae oct. 2008



Homeopathic test oct. 2008

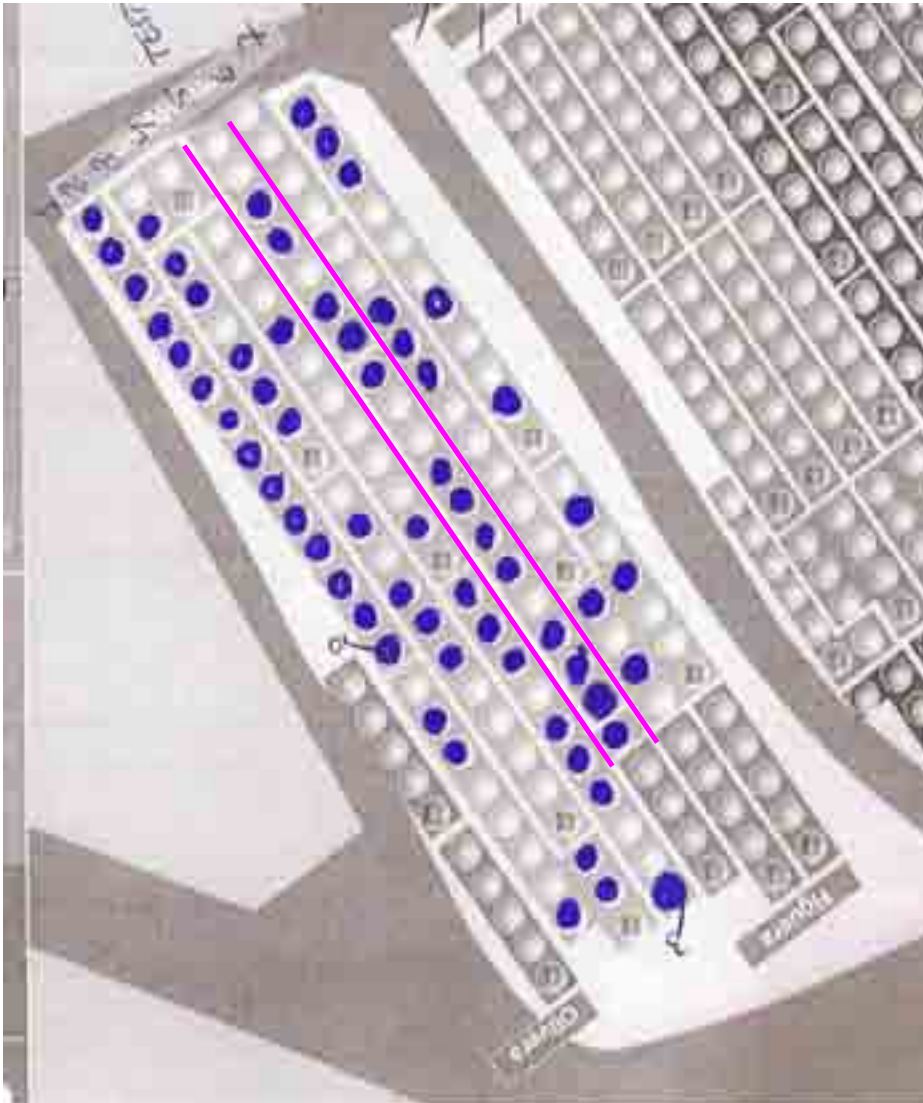


October 9th 2008

Trees with *Hyalopterus*.

We took a sample
to the chemist.

Homeopathic test oct. 2008



October 27th 2008

In figure: attacked trees before first apply.

Same day we applied the isopathic remedie.

Control: one raw wasn't treated (with pink line).

Homeopathic test 2008

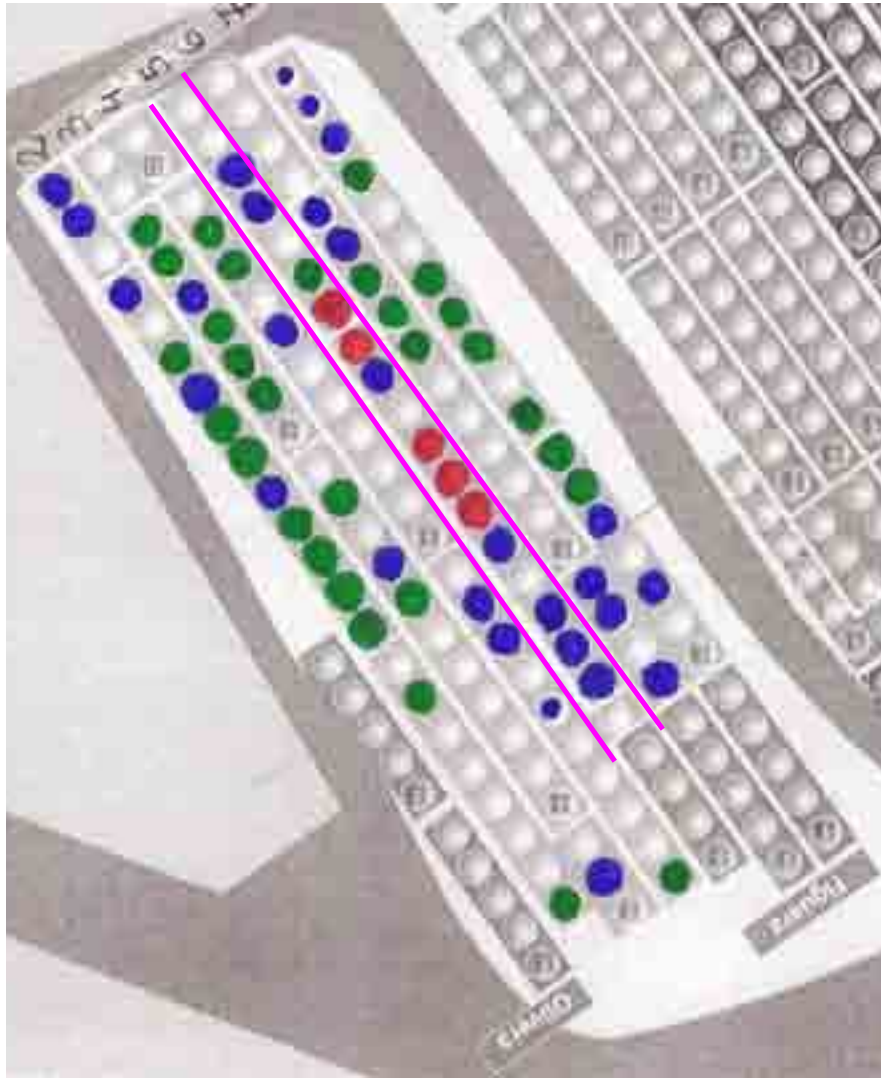
We did three applies following same method as in the summer.

October 27th

November 5th

November 13th

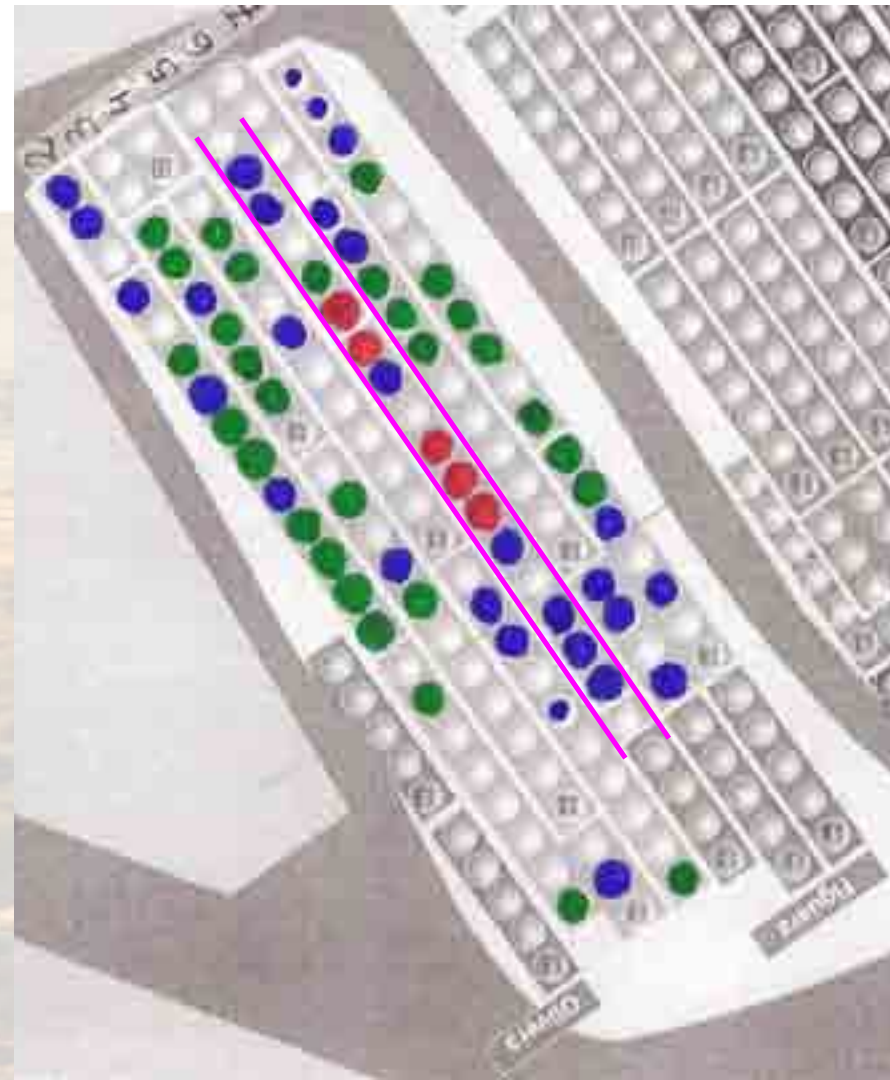
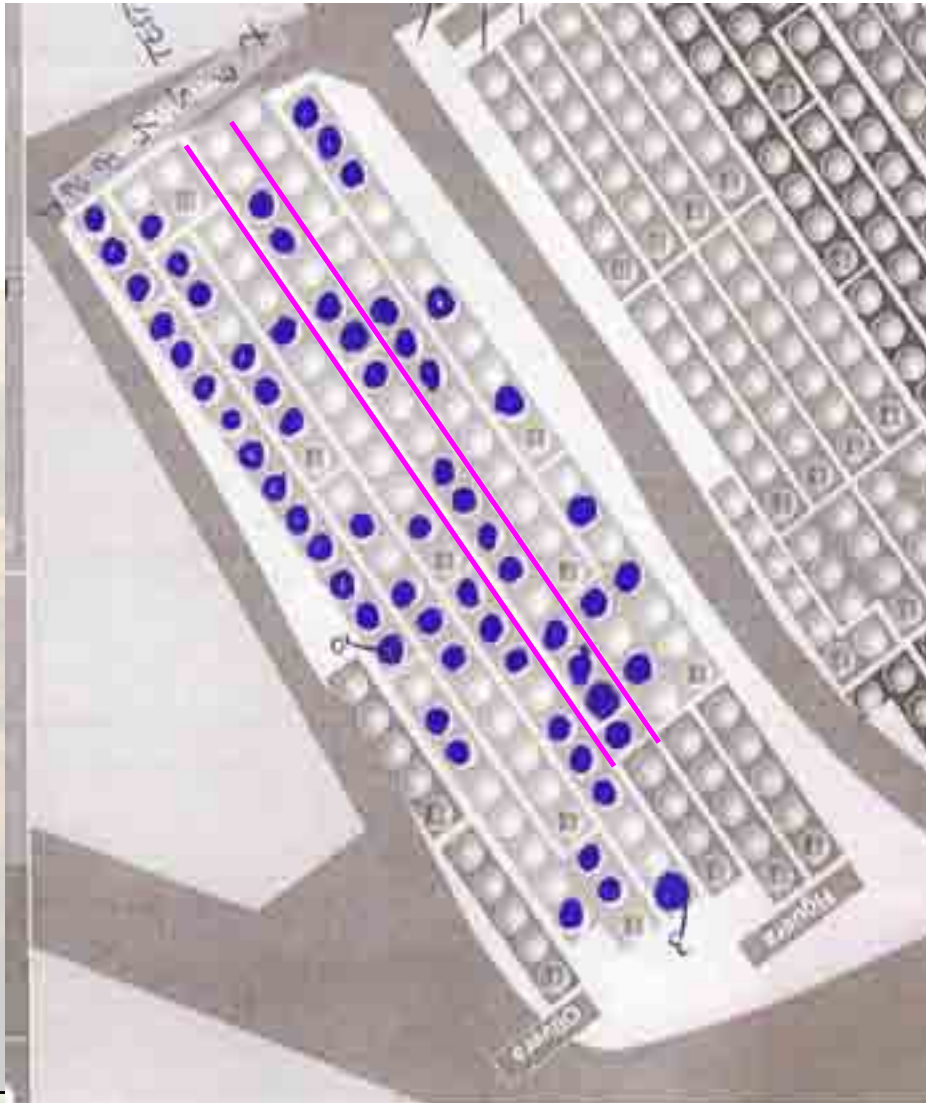
Homeopathic test nov. 2008



November 18th 2008
Trees affected after
3th apply.

- There aren't aphids
- There are alive and dead aphids
- Aphids are alive
- Aphids are alive and infest the tree

Homeopathic test 2008



Homeopathic test oct. 2008



Control trees

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Homeopathic test oct. 2008



Test trees

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Organic walnut trees orchard



Organic walnut trees orchard



There are some problems:

1. *Cydia pomonella* (lepidoptera)
2. *Xanthomonas campestris p.v. juglandis* (bacteria)
3. *Gnomonia leptostyla* (fungus - ascomyceta)
4. Slime flux or wet wood (bacterial disease)
5. *Xanthomonas syringae* (bacteria)
6. *Phomopsis* (fungus – deuteromyceta)
7. Wild boards (mammal)

Cydia pomonella



Cydia pomonella



How do we control *C. pomonella*?:

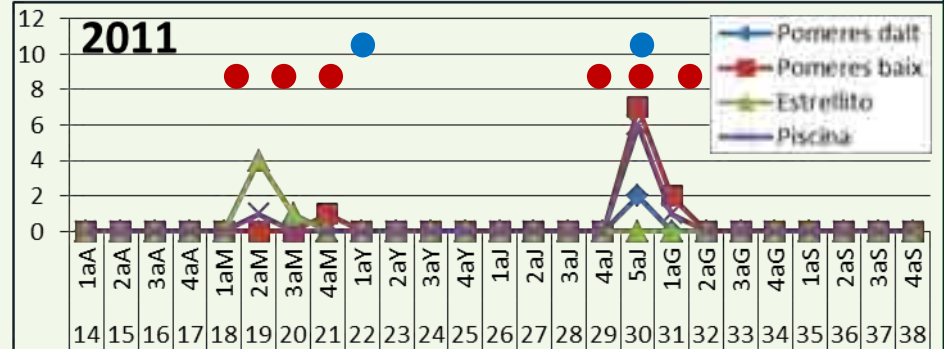
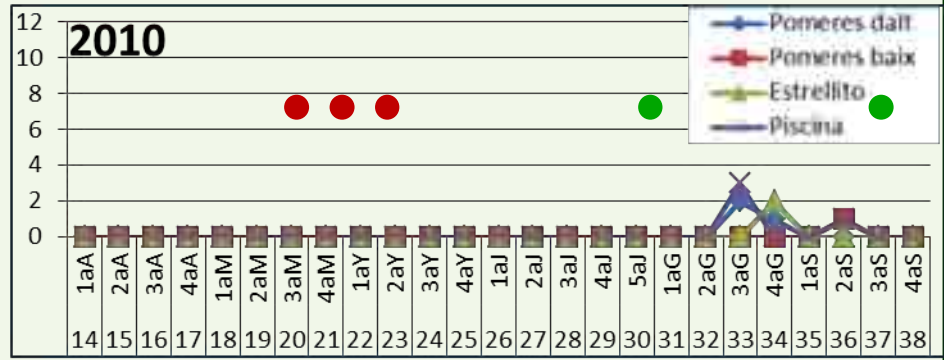
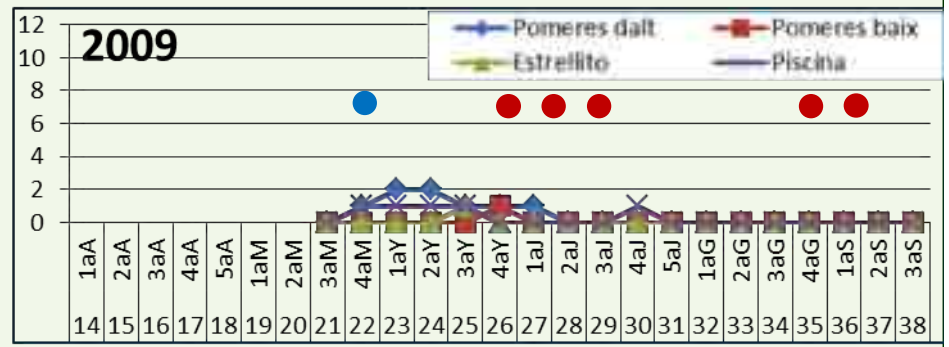
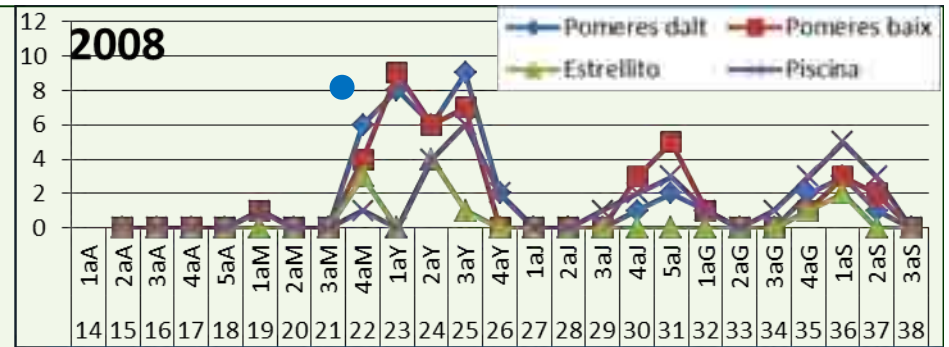
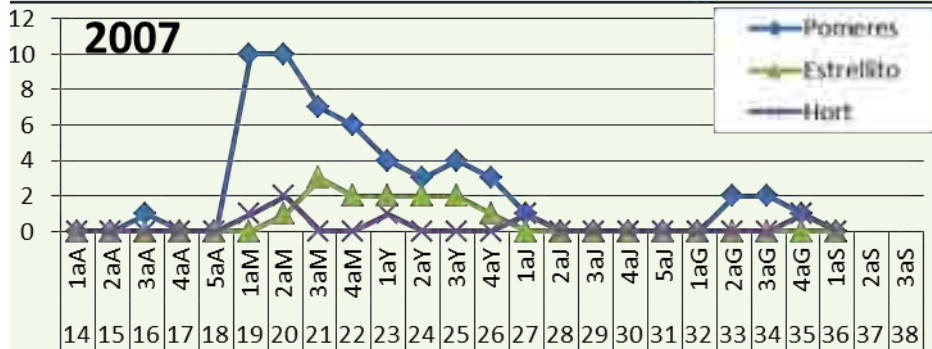
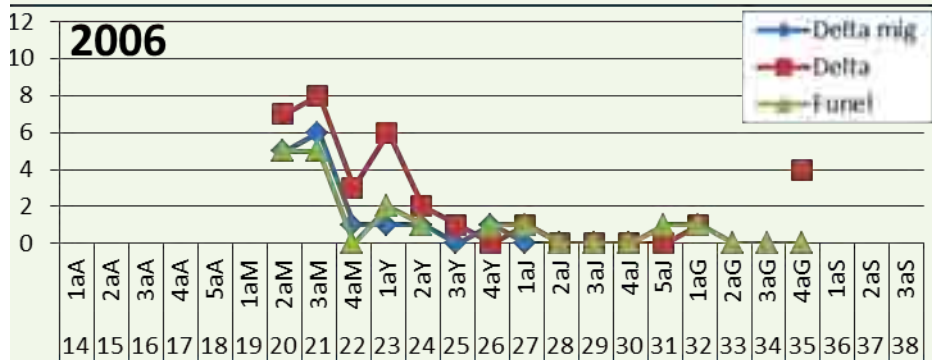
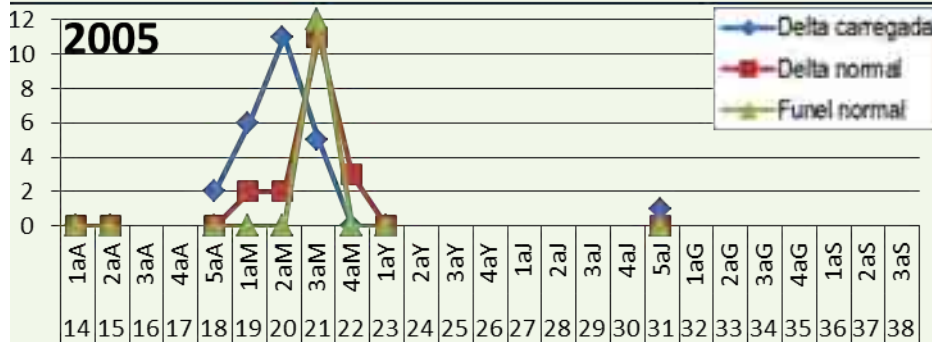
1. Mating disruption
2. Applying Spinosad
3. Testing isopathic remedie





Cydia pomonella's males captured each week

- Isopathic remedie
- Mating disruption
- Spinosad



Little history about this orchard

1988 – 1991 trees were planted.

Until 1999 all was well. No diseases.

In July 1999 a big hail storm ripped off leaves, fruits and branches.

In 2000 diseases problems started, mainly *Xanthomonas campestris*, until now.

On July 30th, 2011, another hail storm affected the orchard, but not as important as in 1999.



1999 big hail storm

Xanthomonas campestris p.v. *juglandis*



Ill walnut



Health walnut

Xanthomonas campestris p.v. juglandis



Ill walnuts

Gnomonia leptostyla (Antracnose)



Ill walnut



Ill leaves

Slime flux – bacterial disease



Twisted growth of new branches caused by
Xanthomonas syringae and *Phomopsis*



2011 hail storm injuries

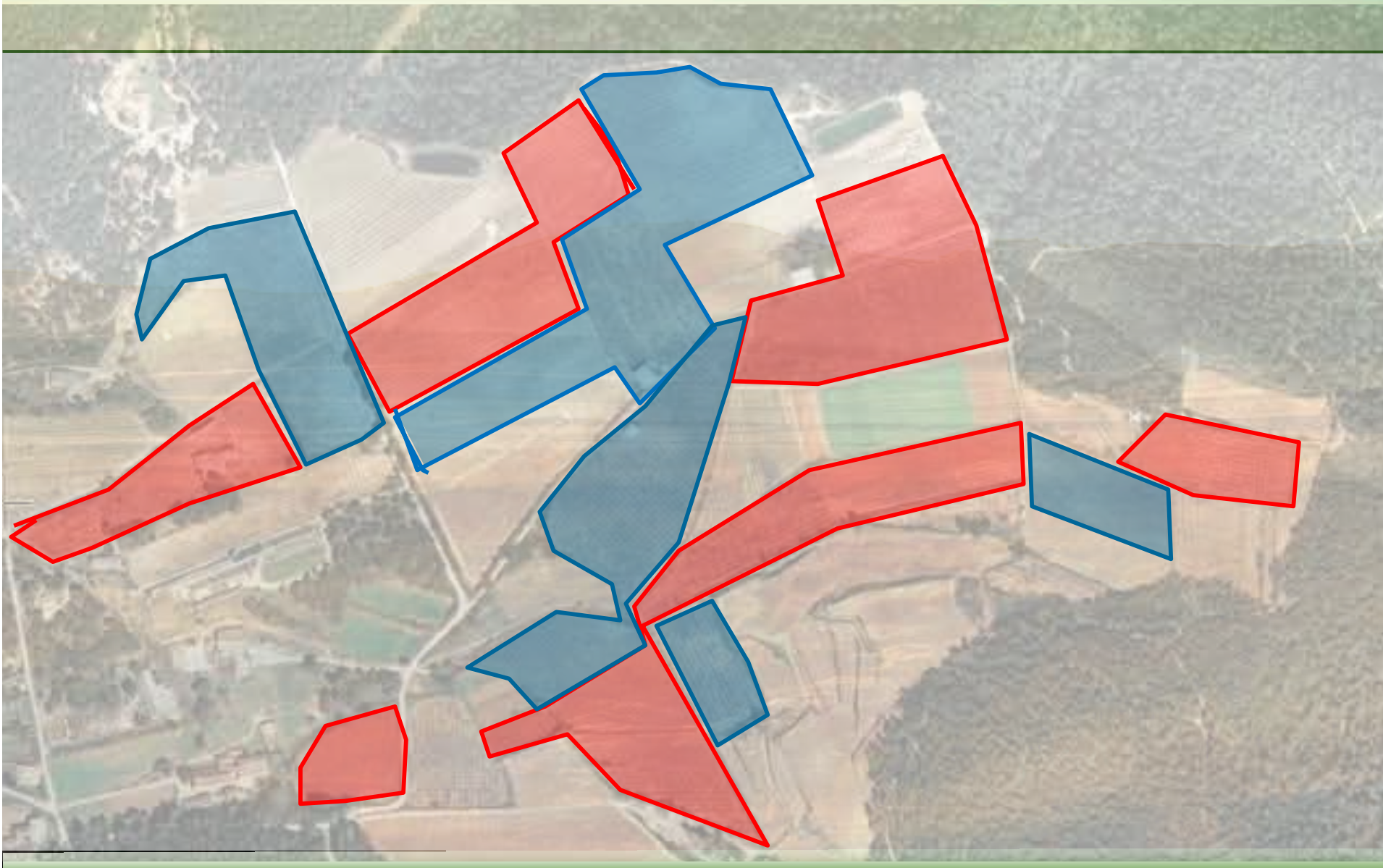


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Hypericum perforatum



Black aphid *Mizus cerasi* in cherry trees



Black aphid *Mizus cerasi* in cherry trees



2009

Black aphid *Mizus cerasi* in cherry trees

What did they apply in organic fields in 2009?

- Calcium polysulfide** (80l/ha) in winter.
 - Summer oil** (20l/ha) in petals fall.
 - Natural pyrethrins:** several local and global applies, sometimes combinated with **potassium soap**. It caused auxiliar fauna to die.
 - Then the pest wasn't controled and, hopeless, growers apply several products permitted in organic agriculture to kill aphids.
- They didn't control aphids at all and harvest was affected and not commercial.

Black aphid *Mizus cerasi* in cherry trees

Which remedies did we test in organic fields in 2010?

- Winter apply of **calcium polysulfide** (80l/ha) with and without **summer oil** (20l/ha).
- The **isopathic *M. cerasi* remedie** (8CH 10l/ha).
- Valeriana officinalis* & *Artemisia absintum*** extract (10l/ha).
- Potassium soap** (4l/Hl)(local apply).

To control *Monilia sp.* we did prefloral apply of **copper hydroxide** (2,5kg/ha) and summer applies of **calcium polysulfide** (15l/ha). This one has a little effect on aphids.

Black aphid *Mizus cerasi* in cherry trees

Where did we apply remedies in 2010?

FIELDS ⇒	C1	C2	T1	T2 (a lot)
TESTS ↓				
CALCIUM PS	X	X	X	X
SUMMER OIL	1/2	1/2	1/2	1/2
ISOPATHIC REMEDIE	0	0	X	X
VAL. ABS. EXTRACT	X	0	X	0
POTASSIUM SOAP	X	X	X	X

Black aphid *Mizus cerasi* in cherry trees

When did we apply remedies in 2010?

FIELDS ⇒	C1	C2	T1	T2 (a lot)
CALCIUM PS	6/3/2010			
SUMMER OIL				
ISOPATHIC REMEDIE	0	0	19/3, 27/3, 5/4, 16/4, <u>17/5</u> , 22/5	
VAL. ABS. EXTRACT	25/3 14/4	0	14/4 22/5	0
POTASSIUM SOAP	24/5 General 29/5 Local			
CALCIUM PS LOW DOSE	21/4, <u>17/5</u> , 16/6		21/4, <u>17/5</u> , 16/6	21/4, <u>17/5</u> , 16/6

Black aphid *Mizus cerasi* in cherry trees



6/4/2010 C1

Black aphid *Mizus cerasi* in cherry trees



6/4/2010

C1 Sirphidae

Black aphid *Mizus cerasi* in cherry trees



Black aphid *Mizus cerasi* in cherry trees



T1

31/5/2010

Black aphid *Mizus cerasi* in cherry trees



T1

31/5/2010

Black aphid *Mizus cerasi* in cherry trees



C1 31/5/2010 control

C2

Black aphid *Mizus cerasi* in cherry trees

Results in 2010

We couldn't do statistical studies.

We only compared effects in different fields.

Between calcium polysulfide with summer oil and without it, we didn't see many differences.

The grower said that after applying Valeriana & absintum extract aphid colonies were drier.

Black aphid *Mizus cerasi* in cherry trees

Results in 2010

In preventive treatment with homeopathic remedie, aphids appeared later and more focused than in control.

In curative treatments, when aphids were present, they died or weakened.

After some days, aphid population started to grow again, always on the same trees that were weak because of several causes.

Black aphid *Mizus cerasi* in cherry trees

Results in 2010

The spreading of population from focus trees was slower than in control. It was a good moment for local potassium soap treatment, before winged generation appears.

We needed to arrive fine until hot weather, when aphids can't grow, in june or july, depending the year.

The harvest was good and the grower was happy.

Black aphid *Mizus cerasi* in cherry trees

Which remedies did we test in organic fields in 2011?

- Winter apply of **calcium polysulfide** (80l/ha).
- Prefloral apply of **summer oil** (20l/ha).
- Isopathic *M. cerasi* remedie** (8CH 10l/ha).
- Potassium soap** (4l/Hl)(local apply).
- We sown ***Phacelia tanacetifolia*** in the street between rows in one field.

To control *Monilia sp.* we did summer applies of **calcium polysulfide** (15l/ha), that has a little effect on aphids.

We apply winter and prefloral copper, too.

Black aphid *Mizus cerasi* in cherry trees

Where & when did we apply remedies in 2011?

	Grower 1	Grower 2
CALCIUM PS	End february	End february
SUMMER OIL	End march	End march
PHACELIA	End march	0
ISOPATHIC REMEDIE	23/3, 8/4, 14/4 27/4, 14/5, 28/5	23/3, 5/4, 16/4, 28/4, 12/5, 25/5, 1/6
POTASSIUM SOAP	13/5	0
CALCIUM PS LOW DOSE	20/4, 4/5, 7/6	20/4, 6/5, 10/5, 27/5, 17/6

Black aphid *Mizus cerasi* in cherry trees

February 22th 2011: first *Mizus cerasi* found



Black aphid *Mizus cerasi* in cherry trees



2008



2009
2010



2011

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Black aphid *Mizus cerasi* in cherry trees

April 16th, after 3th apply



Black aphid *Mizus cerasi* in cherry trees

May 18th, after 5th apply



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Black aphid *Mizus cerasi* in cherry trees

May 31th, after 6th apply. Grower 2



Black aphid *Mizus cerasi* in cherry trees

May 31th, after 6th apply.
Grower 1



Black aphid *Mizus cerasi* in cherry trees

Results in 2011

Aphid colonies were controlled very well all the spring. From June no more colonies grew. Harvest was well, except for the *Drosophila suzuki* new pest, that is a new challenge for us.

Problems to be solved or things to be done better:

- Apply system: aerial vs irrigation
- To solve health situation of aphid focus trees
- To solve other pathologies like Monilia
- To solve new fly pest *Drosophila suzuki*.

Grey aphid *Disaphis plantaginea*, woody aphid *Eriosoma lanirerum* and *Cydia pomonella* in apple trees



Grey aphid *Disaphis plantaginea*, woody aphid *Eriosoma lanirerum* and *Cydia pomonella* in apple trees

When did we apply remedies in 2011?

Grey aphid	Woody aphid	Cydia pomonella
8/4/2011		
14/4/2011		Mating disruption
27/4/2011		
28/5/2011		28/5/2011
3/6/2011		3/6/2011
	5/7/2011	
	9/7/2011	
	14/7/2011	

Grey aphid *Disaphis plantaginea*, woody aphid *Eriosoma lanirerum* and *Cydia pomonella* in apple trees



Grey aphid *Disaphis plantaginea*, woody aphid *Eriosoma lanirerum* and *Cydia pomonella* in apple trees

26/7/2011

28/6/2011

5/7/2011



A close-up photograph of a hand holding a pen, with the text "THANK YOU VERY MUCH" overlaid in blue. The background is a textured, light-colored surface, possibly a piece of paper or a wall. The hand is positioned in the center, with the pen held vertically. The text is centered horizontally and vertically across the lower half of the image.

THANK YOU VERY MUCH