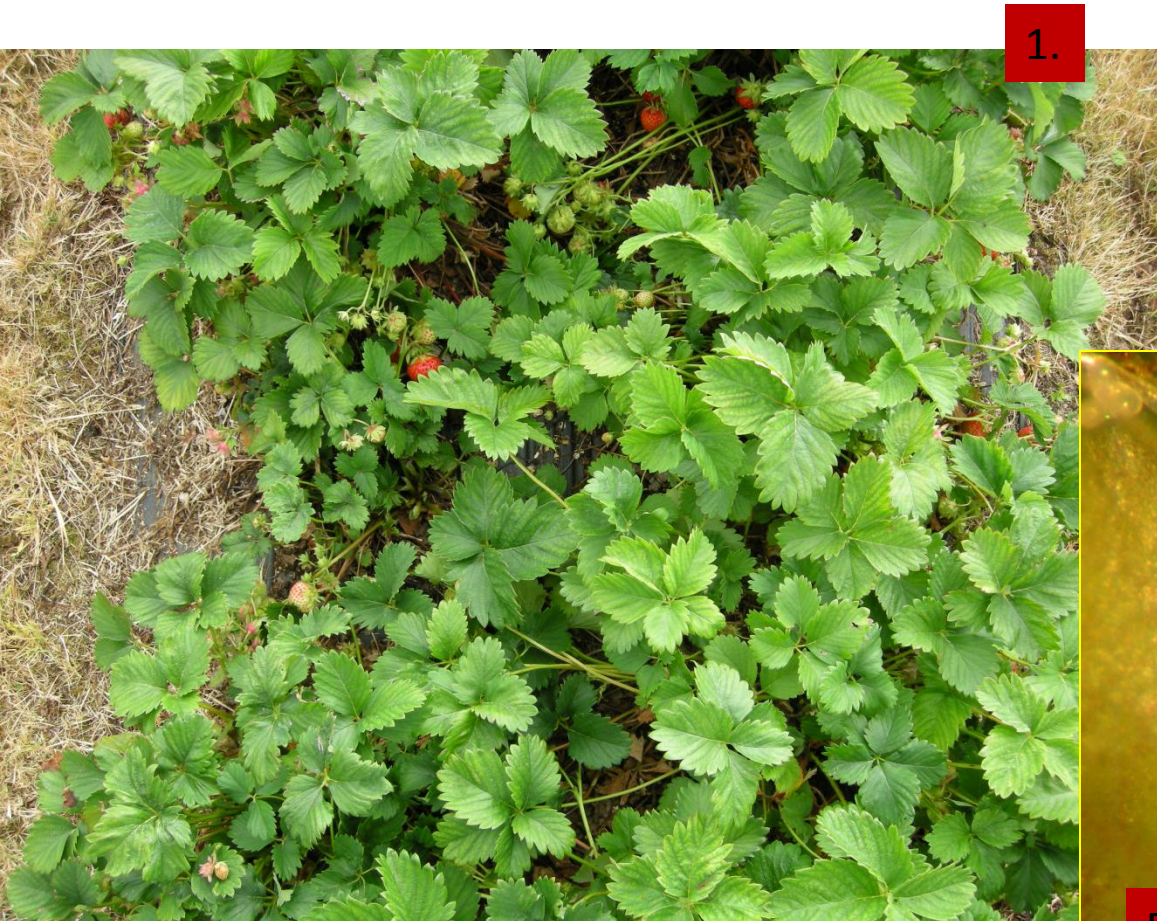


# Strawberrymite control in IPM growingsystem (*Phytonemus pallidus*)



Pict. 2 & 3 by Tuomo Tuovinen

- Miticides on the Finnish market:
  - Which effect against strawberry mite

	Vertimec	Envidor	Floramite	Mesurol
Treatments / season	2*	1	2**	2*
Distance to surface water	25 meters	25 meters	25 meters	25 meters
Groundwater area restrictions	No	No	No	No
Restriction to be used year after year	No	No	No	No
Toxic to bees	Yes	Yes	No***	Yes
Classification (T=Toxic)	Yes	No	No	Yes

Source: [www.tukes.fi](http://www.tukes.fi)

- \* Only one treatment before flowering
- \*\* Only one treatment during harvest period
- \*\*\* Persistans to bumblebees (*Bombus sp*) 48 hours

# Mesurool 500 SC



- is the standard product in Finland
- 0,3% or minimum 2,0 l/ha
- water 500 – 1000 l/ha
- always add Silwet Gold  
25 – 50 ml/100 l water
- 2011 last season!
- Not IPM compatible!



# After Mesurol?

- Which products are efficient enough?
  - Due to Floramite labeltext the product has side-effect against strawberry mite
  - Is side-effect enough for the grower?
  - Amblyseius cucumeris predatory mite is efficient enough
- No official trials done in Finland since Vertimec was brought to the market
  - Let's see on some research done in other countries

Leaves cut before  
spraying  
(Nej = No; Ja = Yes)

# Strawberrymite (Phytonemus pallidus)

efficiency% , result in average (=gennemsnit) from 2-4 trials, 2004 and 2005 / Denmark

	04729-1	04729-2	05703	05709-1	05709-2	Gennemsnit
Afhugning før sprøjtning	Nej	Ja	Nej	Nej	Ja	
Danitron	66,6	40,4		42,7	61,9	52,9 (4 fs.)
Danitron + Designer	+ 14,6	+ 28,3		+ 8,4	+ 15,5	+ 16,7 (4 fs.)
Danitron + Silwet Gold				+ 11,1	+ 3,0	+ 7,1 (2 fs.)
Envidor	82,9	42,1		65,8	60,5	62,8 (4 fs.)
Envidor + Designer	+ 6,3	+ 7,8		+ 2,1	+ 18,8	+ 8,8 (4 fs.)
Vertimec	91,3	60,0	42,3	57,1	45,4	59,2 (5 fs.)
Vertimec + Designer	÷ 13,8	+ 0,3				÷ 6,8 (2 fs.)
Vertimec + LI-700			+ 19,1	+ 13,9	+ 16,0	+ 16,3 (3 fs.)

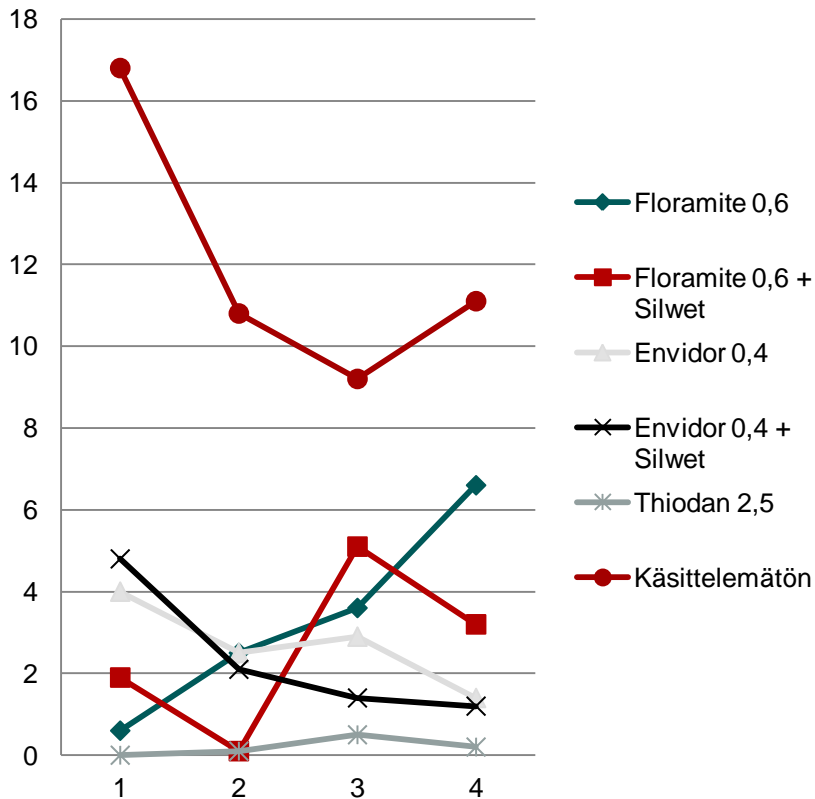
By cutting the leaves approximately 90% of the population is removed. With for example 70% efficacy it is important whether you start at 10 or 100 mites per shoot.

# Wloclawek 2002, Poland, Research Institute of Pomology and Floriculture

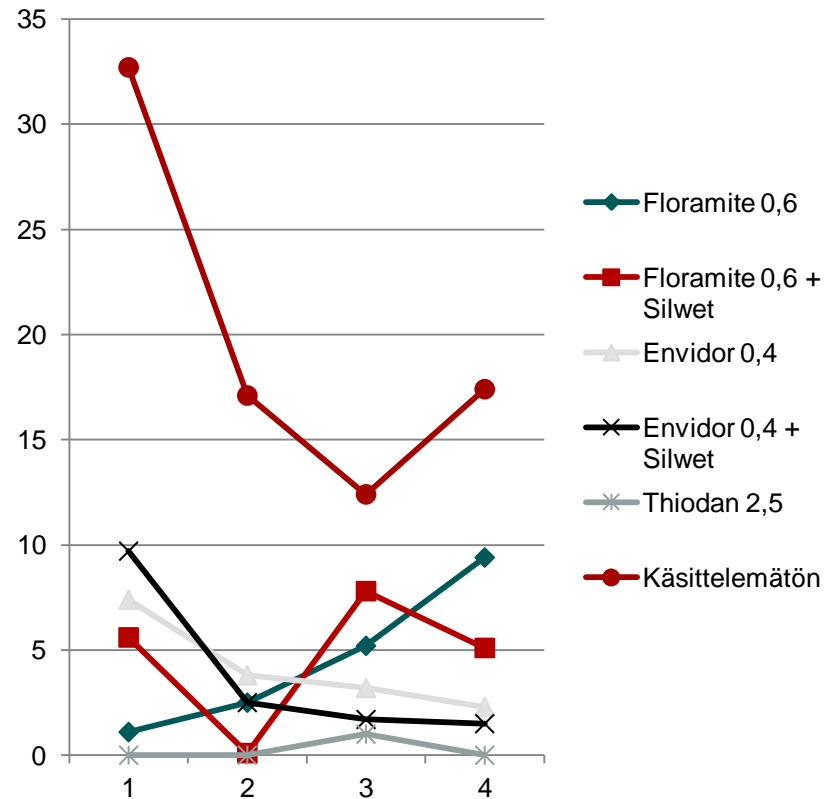
- Variety: Senga Sengana, plants 2-3 years old
- Spraying data: After harvest 27th of June and 4th of July
- Spraying with a fogsprayer
- Water 750 l/ha
- Leaf samples weekly (4 times), first sample one week after the last spraying
- Examination of the leaves in a microscope

# Wloclawek 2002, Poland, Research Institute of Pomology and Floriculture

## Motile strawberry mites / unfolded leaf



## Eggs of strawberry mite / unfolded leaf

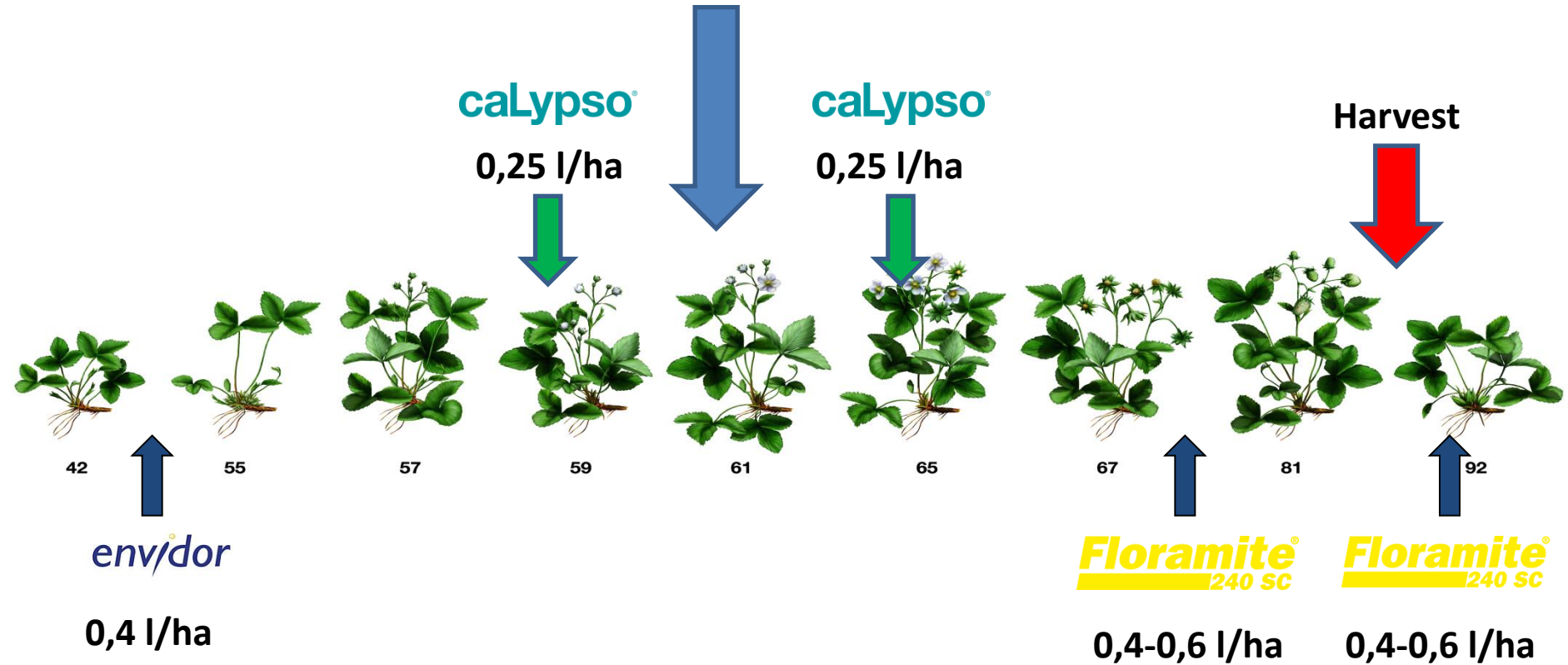


Source: [www.biollett.amu.edu.pl](http://www.biollett.amu.edu.pl)

Käsitlemätön = Untreated

# IPM growing system in Finland created by Berner Ltd

*Amblyseius cucumeris* 0,75 milion pcs/ha (spread after nightfrost period)



Calypso (thiacloprid) is used against bugs and other insects.

# Insecticide and miticide compability in practical IPM:

	Sumi Alpha and other pyretroids	Mavrik	Bioruiskute S (pyrethrine)	Calypso	Envidor	Nissorun	Floramite	MesuroI	Vertimec
<i>Bombus sp</i> Bumblebees	?	cover the hive	out for 1,5 days	out for 1 day	out for 7 days	cover the hive		per-sis-tens 30 days	out for 1,5 days
<i>Amblyseius cucumeris</i> Predatory mite	4/ 8-12	4/?	4/1	1/0		1/0	1/0	4/ 8-12	4/2

Source: [www.koppert.nl](http://www.koppert.nl) and [www.bayercropscience.nl](http://www.bayercropscience.nl)  
 Classification due to IOBC standards.

# Strawberrymite control in Finland 2011

Product	L / ha or pcs / ha	Euro / ha*	PHI in days
Envidor 240 SC	0,4 l	108,-	7
Floramite 240 SC	0,6 l	356,-	1
MesuroI 500 SC + Silwet Gold	2,25 l 0,25 l	156,-	**
Vertimec 018 EC (+Silwet Gold)	1,1 l (0,25 l)	189,- (18,-)	3
Amblyseius cucumeris predatorymite	750.000 pcs	211,-	Not needed

\* Source: Rural Advisory Bureau ProAgria, 2011. Prices do not include VAT.

\*\*Treatment before flowering or after harvest

# Trialplans at MTT for 2011

- 1. untreated (control)
- 2. Mesurol 2,25 l +SilwetGold 0,25 l (reference)
- 3. Envidor 0,4 l + SilwetGold 0,25 l
- 4. Floramite 0,6 l + SilwetGold 0,25 l
- 5. Envidor 0,4 l + SilwetGold 0,25 l  
+ Amblyseius cucumeris 0,75 milj
- 6. Floramite 0,6 l + SilwetGold 0,25 l  
+ Amblyseius cucumeris 0,75 milj
- 7. Amblyseius cucumeris 0,75 milj