

Softpest Multitrap

Management of strawberry blossom weevil
and European tarnished plant bug in
organic strawberry and raspberry
using semiochemical traps

Partners:



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Federal Department
of Economic Affairs FDEA
**Agroscope Changins-Wädenswil
Research Station ACW**

Strawberry blossom weevil
(*Anthonomus rubi*)



European tarnished plant bug
(*Lygus rugulipennis*)

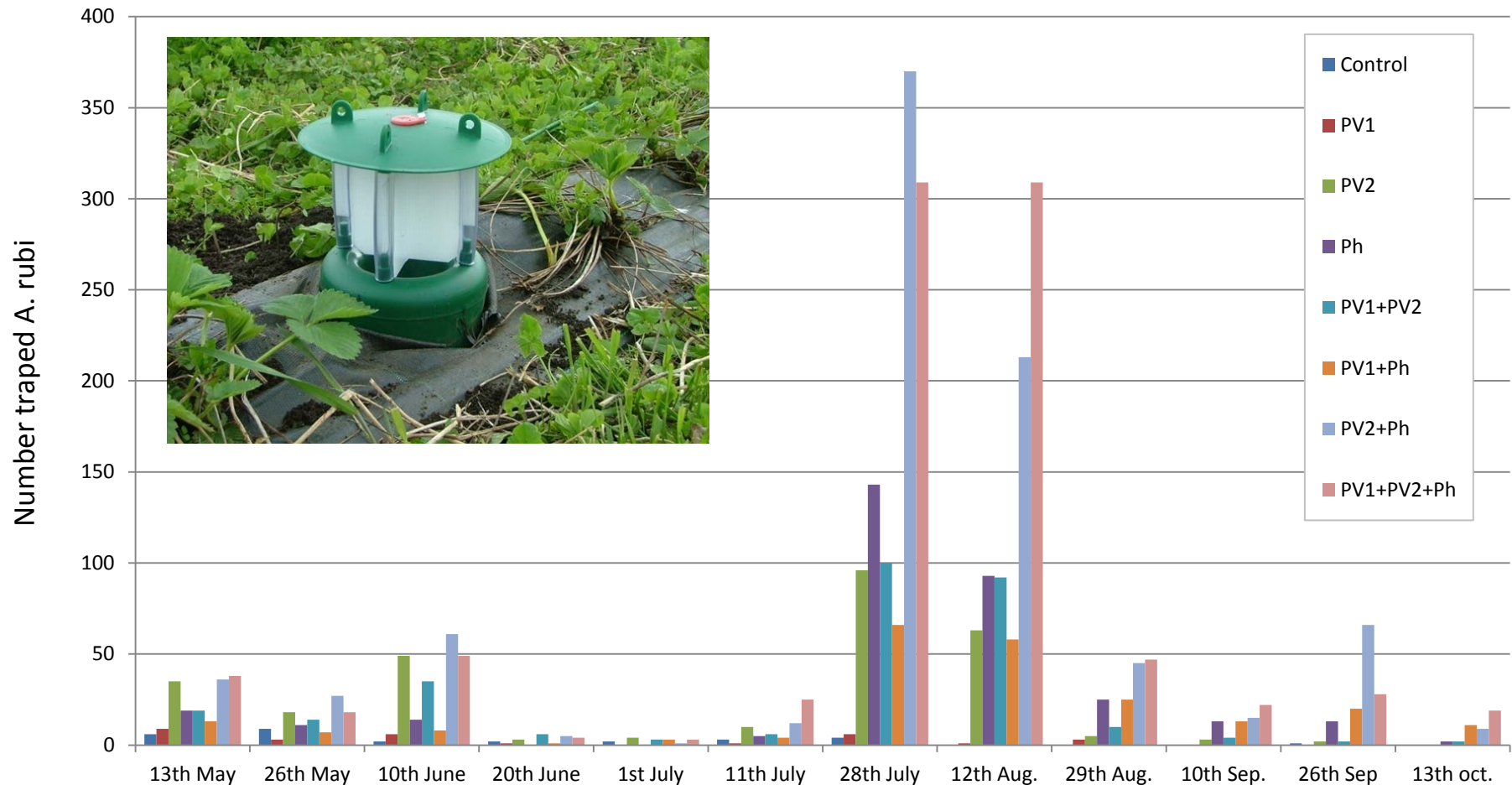


Raspberry beetle
(*Byturus tomentosus*)



The pest insects damage to be managed with traps are in *left*: *Anthonomus rubi*, a small weevil severing flower buds in strawberry and raspberry, *middle*: *Lygus rugulipennis*, a mirid bug causing misshapen strawberries, and *right*: *Byturus tomentosus*, a beetle with larvae feeding in raspberries. (Photos: N. Trandem)

Previous study, trapping strawberry blossom weevil:



The aim: To develop knowledge about how to manage populations of strawberry blossom weevil, European tarnished plant bug and the raspberry beetle in organic strawberry and raspberry so that these two soft fruit crops can be grown without significant economic losses by these pests.

Work packages :

WP 0 Project management

WP 1 Chemical analysis of plant volatiles

WP 2 Pest insects in strawberry

WP 3 Pest insects in raspberry

WP 4 Trap design and lure development

WP 1 - Chemical analysis of plant volatiles

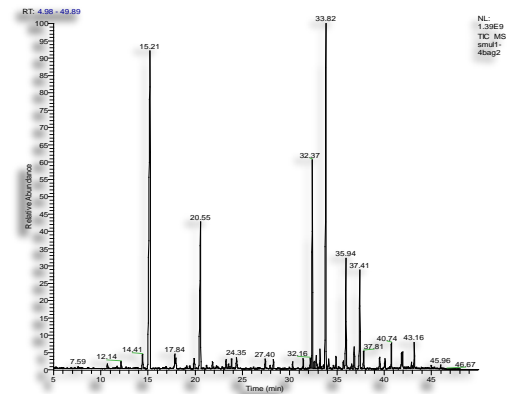
WP leader: Anna-Karin Borg-Karlson, KTH, Sweden

Task 1.1 Investigate and compare flower and host leaf volatiles from raspberry and strawberry

Task 1.2 Identify flower and host volatiles tailored to the European tarnished plant bug

Task 1.3 Identify host volatiles from unhealthy/dying strawberry plants (e.g. fungi infested) that might act as repellents

Task 1.4 Develop and produce lures based on plant volatiles for field testing.



WP 2- Pest insects in strawberry



WP leader: Nina Trandem, Bioforsk, Norway

Task 2.1 Investigate overwintering sites and seasonal distribution of European tarnished plant bug and strawberry blossom weevil in strawberry fields

Task 2.2 Determine whether selected host plant volatile(s) are active as synergists for the sex pheromone in attracting these insect species in strawberry fields

Task 2.3 Determine whether the characteristic host volatiles from unhealthy/dying plants are active in repelling strawberry blossom weevil

Task 2.4 Conduct large-scale field experiments to explore the density and pattern of trap deployment for pest insect population suppression

WP 3- Pest insects in raspberry

WP leader: Catherine A. Baroffio, Agroscope, Switzerland

Task 3.1 Investigate overwintering sites and seasonal distribution of the strawberry blossom weevil and raspberry beetle in raspberry crops

Task 3.2 Field evaluation of synergism of host plant volatile and aggregation pheromone for the strawberry blossom weevil

Task 3.3 Conduct large-scale field experiments to explore the density and pattern of trap deployment for strawberry blossom weevil



WP 4- Trap design and lure development

WP leader: Jerry Cross, East Malling Research, UK

Task 4.1 Optimise trap designs and method of deployment for strawberry blossom weevil mass trapping in strawberry and raspberry fields

Task 4.2 Optimise trap designs and method of deployment for European tarnished plant bug mass trapping in strawberry fields

Task 4.3 In strawberry fields, conduct experiments to determine whether the same trap can be used for both strawberry blossom weevil and the European tarnished plant bug without interference

Task 4.4 In raspberry fields, conduct experiments to determine whether the same trap can be used for strawberry blossom weevil and raspberry beetle without interference



WP0 Project management <i>Coordinator:</i> <i>Atle Wibe, Bioforsk, Nor</i>	Task	Project year																
		1				2				3								
		Project months				Project months				Project months								
		02	04	06	08	10	12	14	16	18	20	22	24	26	28	30	32	34
WP1 Chemical analysis plant volatiles <i>Leader:</i> <i>Anna-Karin Borg-Karlson, KTH, Swe</i>	1.1	■	■	■	■	■	■	■	■	■	■	■						
	1.2	■	■	■	■	■	■	■	■	■	■	■						
	1.3		■	■	■	■	■		■	■	■	■						
	1.4		■	■					■	■				■	■			
WP2 Pest insect in strawberry <i>Leader:</i> <i>Nina Trandem, Bioforsk, Nor</i>	2.1	■	■	■	■	■	■											
	2.2							■	■	■	■							
	2.3							■	■	■	■							
	2.4		■	■	■				■	■	■			■	■	■		
WP3 Pest insects in raspberry <i>Leader:</i> <i>Catherine Baroffio, Agroscope, Ch</i>	3.1	■	■	■	■	■	■	■	■	■	■							
	3.2							■	■	■	■							
	3.3		■	■	■				■	■	■			■	■	■		
WP4 Trap design and multitrap development <i>Leader:</i> <i>Jerry Cross, East Malling Research, UK</i>	4.1		■	■	■				■	■	■							
	4.2		■	■	■													
	4.3								■	■	■			■	■	■		
	4.4													■	■	■		

Total budget 2012-2014:

Country	Partner	EUR
Norway	Bioforsk Organic	146 000
	Bioforsk Plant health	155 500
UK	East Malling Research	91 066
	Natural Resources Institute	24 694
Sweden	Royal Institute of Technology	140 000
Switzerland	Agroscope	76 800
Denmark	University of Copenhagen	189 440
Latvia	Latvian Plant Protection Research Centre	20 000
	<i>Total</i>	843 500

Expected results:

- ✓ Effective, pest-specific mass trapping in strawberry and raspberry will be developed
- ✓ These trapping systems will be combined into single multitrap for the target crops
- ✓ The work will target organic soft fruit growers in all countries in Europe where these pests are damaging

Dissemination plan:

- ✓ Project reports for funders
- ✓ 4 articles in peer-reviewed journals
- ✓ Proceedings in connection to national and international conferences
- ✓ Articles in professional magazines and journals in all partners languages