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Insecticide resistance in the Strawberry blossom weevil in Finland.

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Insecticide resistance in the Strawberry blossom weevil in Finland.

- Strawberry blossom weevil (*Anthonomus rubi*) has been a severe problem almost every year during the last five years in the estern part of country
- Spesialized strawberry farms have been concentrated in the same area in the frame of crop rotation
- In North Savo cultivated area of strawberry was 813 ha in 2014. In Suonenjoki for instance strawberry area of 56 farms was 290 ha (5.18 ha/farm)
- Pyrethroids were for many years the only insecticides allowed in Finlad for control of strawberry weevil until Calypso was accepted for use against *A. rubi* in 2015

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About the life cycle of *A. rubi*

- Egglaying of A. rubi begins when the strawberry flower buds emerge (BBCH 57)
- Normally it is in the beginning of June, but may continue until end of July especially in cool weather
- Larvae of *A. rubi* live and pupate in the severed buds
- Emerging adults of *A. rubi* are feeding on strawberry leaves and petals wihout harming the plants.
- After some weeks adults of the new generation migrate to the hibernation sites in or near to the field
- Next spring the overwintering weevils feed on leaves before egglaying starts.

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- From the Suonenjoki area we received worried messages that strawberry fields suffered severe damages inspite of chemical control of *A. rubi*
- How to confirm or not suspicions of resistance against most pyrethroids in the growing area?
- The applied dose rate for e.g. Karate 2.5 WG (lambda-cyhalothrin 25g ai/kg) is 0.4-0.8 kg/ha
- In order to test the sensitivity of strawberry weevils the concentrations of 200 % (20 g ai/ha), 100 % (10 g ai/ha), 20 % (2 g ai/ha) and 0 % were planned to be checked in 2015
- Co-operator laboratory in making test vials was the Institute of Agriculture, LRCAF/ Dr. Smatas

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- In 2015 the spring was late and the weather was cool with rainshowers when the strawberry blossom weevils were collected for the vial tests
- After scouting the strawberry farms the number of collected weevils was less than planned
- 6 max 10 weevils were placed per each vial for 24 hours
- The vials with the highest concentration was left out from the test because of inadequate number of caught weevils
- It was concluded, that in some fields a decreased susceptibility was found
- Fields of susceptible strawberry weevils were assessed, as well.
- Additionally strawberry blossom weevil tests are planned to be carried out in 2016 related to the Project (BerryGrow)

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FIN	Suonen-joki 2015	Application rate	Affected	Alive	% Affected replic. 1	Affected	Alive	% Affected replic. 2	R1 and R2 % affected	code
					1.0			2.0		
1	Polka	100	4	2	66.7	6	0	100.0	83.3	
		20	6	0	100.0	6	0	100.0	100.0	
		utr	6	0	100.0	4	2	66.7	83.3	
1	Honey									
		100	5	0	100.0	4	1	80.0	90.0	
		20	3	2	60.0	6	0	100.0	80.0	
		utr	1	4	20.0	3	2	60.0	40.0	
2	Honey									
		100	5	0	100.0	6	0	100.0	100.0	
		20	6	0	100.0	6	0	100.0	100.0	
		utr	2	4	33.3	5	1	83.3	58.3	
3	Polka									
		100	5	0	100.0	5	0	100.0	100.0	
		20	5	0	100.0	4	1	80.0	90.0	
		utr	3	2	60.0	1	4	20.0	40.0	
4	Honey									
		100	4	0	100.0	4	0	100.0	100.0	
		20							0.0	
		utr	2	2	50.0	1	3	25.0	37.5	
4	Polka									
		100	8	2	80.0	10	0	100.0	90.0	
		20	10	0	100.0	7	3	70.0	85.0	
		utr	5	5	50.0	4	5	44.4	47.2	

1)Susceptible: Mortality at 20% rate =100%
2)Decreased susceptibility: Mortality at 20% rate between 90 and 100%
3)Resistance suscepted: Mortality at 20% rate <90%

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What else?

The final report of Neomehi Project. The project finished in the end of 2015 and the www-link (under) for the report has been open since the end of December 2015. The report is available to be uploaded via the weblink.

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- **http://urn.fi/URN:ISBN:978-952-326-142-6**
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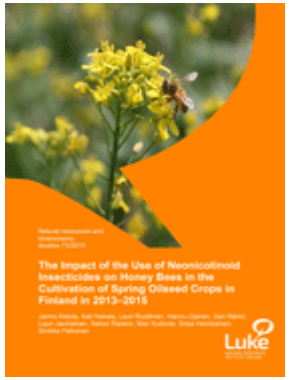

Thank you!

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