



## Focus Group IPM for brassica

Mini-Paper 3

### Monitoring and forecasting systems used in Europe

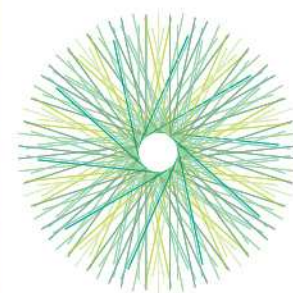
Focus Group Authors: Bart Fraaije<sup>1</sup>, Rosemary Collier<sup>2</sup>, Martin Hommes<sup>3</sup>

<sup>1</sup> Rothamsted Research, West Common, Harpenden, Hertfordshire, AL5 2JQ

<sup>2</sup> Warwick Crop Centre, School of Life Sciences, The University of Warwick, UK

<sup>3</sup> Julius Kühn-Institut, Messeweg 11/12, D-38104 Braunschweig, Germany

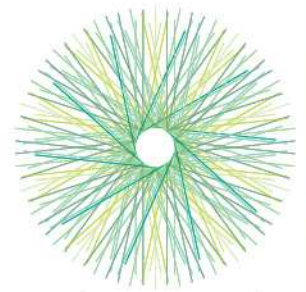
Cabbage root fly ( <i>Delia radicum</i> )	
Flanders	The flights of <i>Delia radicum</i> are monitored three times in 2 weeks on 10 cauliflower and 10 Brussels sprout fields in Flanders. The flies are caught on sticky plates in a trap. Based on the number of flies caught, advice is sent to the growers.
Germany Switzerland	A simulation model for the cabbage root fly (SWAT) can be downloaded from the internet ( <a href="http://www.jki.bund.de/no_cache/de/startseite/institute/pflanzenschutz-gartenbau-und-forst/swat.html">http://www.jki.bund.de/no_cache/de/startseite/institute/pflanzenschutz-gartenbau-und-forst/swat.html</a> ) and is used by the German Plant Protection Service and ZEPP (Central Institution for Decision Support Systems in Crop Protection <a href="http://www.zepp.info">/www.zepp.info</a> ) to inform growers about the population dynamics of three major root fly species. Hommes, M., Gebelein, D. (1996): Simulation models for the cabbage root fly and the carrot fly. IOBC/WPRS Bulletin 1996, 19(11), 60-65. SWAT is also used in Switzerland by Agroscope for the warning and forecasting service provided to vegetable growers.
UK	A forecast of the timing of cabbage root fly generations at a number of locations throughout the UK is available on the Syngenta UK web site as part of the HDC Pest Bulletin <a href="http://www3.syngenta.com/country/uk/en/AgronomyTools/HDCPestBulletin/Pages/HDCPestBulletin.aspx">http://www3.syngenta.com/country/uk/en/AgronomyTools/HDCPestBulletin/Pages/HDCPestBulletin.aspx</a> which is run by the University of Warwick. Information on fly and egg numbers in monitoring plots at Wellesbourne is available on a blog <a href="http://blogs.warwick.ac.uk/rosemarycollier/">http://blogs.warwick.ac.uk/rosemarycollier/</a>
Pegohylemyia fugax	
Flanders	<i>Pegohylemyia fugax</i> is monitored based on 3 water traps in 5 cauliflower fields. The flies are determined under a microscope in the vegetable research centers. When the threshold of 10 flies is exceeded, an advice is sent to the growers to threat.
Pollen beetles	
UK	A forecast of the timing of the movement of pollen beetle adults into cauliflower and broccoli crops at a number of locations throughout the UK is available on the Syngenta UK web site as part of the HDC Pest Bulletin <a href="http://www3.syngenta.com/country/uk/en/AgronomyTools/HDCPestBulletin/Pages/HDCPestBulletin.aspx">http://www3.syngenta.com/country/uk/en/AgronomyTools/HDCPestBulletin/Pages/HDCPestBulletin.aspx</a> which is run by the University of Warwick. Information on adult beetle numbers captured in water traps in monitoring plots at Wellesbourne is available on a blog <a href="http://blogs.warwick.ac.uk/rosemarycollier/">http://blogs.warwick.ac.uk/rosemarycollier/</a>
Germany	Information is given by the German Plant Protection Service when the main invasion period into <i>Brassica</i> crops has started.
Aphids	
Flanders	Aphids are monitored three times in 2 weeks on 20 plants in 10 cauliflower and 10 Brussels sprouts fields in Flanders. The number of aphids is counted on the plants. A



eip-agri  
AGRICULTURE & INNOVATION

## Focus Group IPM for brassica

	difference is made between <i>Brevicoryne brassicae</i> , <i>Myzus persicae</i> and other aphids. Once the curds of the cauliflower start to form, no aphids are allowed anymore. At a younger stage, some aphids can be tolerated and most of the time natural parasitism control the aphids. In Brussels sprout no aphids can be tolerated on the lower sprouts because it is difficult to treat this crop when leaves becomes bigger.
UK	Aphids are monitored by the network of suction traps run by the Rothamsted Insect Survey <a href="http://www.rothamsted.ac.uk/insect-survey/">http://www.rothamsted.ac.uk/insect-survey/</a> . Information on the numbers captured is available on the Rothamsted Insect Survey website. The Agriculture and Horticulture Development Board produce a weekly bulletin on aphid abundance during the growing season. Forecasts for <i>Myzus persicae</i> , <i>Brevicoryne brassicae</i> and <i>Macrosiphum euphorbiae</i> are available in early March each year.
Germany	Information is given by the German Plant Protection Service when the main flight period has started and the first aphid colonies are found in <i>Brassica</i> crops.
<b>Lepidoptera</b>	
Flanders	The number of <i>Plutella xylostella</i> is monitored three times in 2 weeks on 10 cauliflower and 10 Brussels sprout fields in Flanders. The male cabbage moths are attracted by pheromones in a delta trap. They are caught on sticky plates in a trap. When the threshold is exceeded, advice is sent to the growers.
Flanders	Caterpillars are monitored three times in 2 weeks on 20 plants in 10 cauliflower and 10 Brussels sprout fields in Flanders. The number of caterpillars is counted on the plants. Once the curds of the cauliflower start to form, no caterpillars are allowed anymore.
UK	<i>Brassica</i> Alert provides warnings from sites which are monitored for Diamond Back Moth and Silver Y Moth. It is hosted on the Syngenta website <a href="http://www3.syngenta.com/country/uk/en/AgronomyTools/Pages/BrassicaAlert.aspx">http://www3.syngenta.com/country/uk/en/AgronomyTools/Pages/BrassicaAlert.aspx</a>
UK	Information on moth (pheromone traps) and butterfly (water traps) numbers in monitoring plots at Wellesbourne is available on a blog <a href="http://blogs.warwick.ac.uk/rosemarycollier/">http://blogs.warwick.ac.uk/rosemarycollier/</a>
Germany	Information is given by the German Plant Protection Service when the first eggs or caterpillars are found on cabbage plants.
<b>Cabbage whitefly</b>	
Flanders	Cabbage whitefly are monitored three times in 2 weeks on 20 plants in 10 cauliflower and 10 Brussels sprout fields in Flanders.
Germany	Information is given by the German Plant Protection Service when the main flight period has started and the first whiteflies are found on <i>Brassica</i> plants
<b>Slugs and snails</b>	
Flanders	Snails are monitored three times in 2 weeks on 10 Brussels sprout fields in Flanders. The snails are caught with lures (slug pellets) under a wet burlap sack. On every field, 2 traps are installed in the outer borders of the field near the ditch or grass borders. When snails are caught an advice is given to treat at least the borders of the field with slug pellets.
<b>Damage by birds and other wildlife</b>	
Flanders	When there is a lot of damage of the wildlife a warning will be send to the growers. The advice is to cover the crop with nets or to place products that scare the wildlife and keep the crops free of birds.
<b>Diseases</b>	
Flanders	Diseases are monitored. If the weather parameters are good to promote diseases a warning is send out to the growers to monitor their own fields and if necessary to treat their fields.



eip-agri  
AGRICULTURE & INNOVATION

## Focus Group IPM for brassica

UK

*Brassica* Alert provides warnings for ringspot, *Alternaria* and white blister based on: Weekly ringspot spore monitoring at 7 sites in Lincolnshire, in-field weather station information from the 7 sites, predictive disease models developed by University of Worcester with HDC funding, lateral flow devices supplied by the University of Worcester. It is hosted on the Syngenta UK website  
<http://www3.syngenta.com/country/uk/en/AgronomyTools/Pages/BrassicaAlert.aspx>.