

Bio.Bulletin

NEW!
Bio.Bulletin digital!

This is probably the last Bio.Bulletin you'll hold in your hands... As of the next edition the Biobest newsletter will be sent via e-mail. The change will allow us to respond faster to news items and at the same time to better diversify towards different countries and sectors. More news and more relevant news for you!

Would you like to receive the Bio.Bulletin in your mailbox? Please subscribe on our website or send an e-mail to biobulletin@biobest.be.



Bio-Bulletin is published by
Biobest Biological Systems
Ilse Velden 18 - B - 2260 Westerlo
tel.: + 32 14 25.79.80
fax: +32 14 25.79.82
info@biobest.be
www.biobest.be

UK pollination goes native



Responding to demands from UK outdoor soft fruit growers and conservation bodies, Biobest is the first to offer native British bumblebees, *Bombus terrestris audax* for outdoor pollination.

What's the buzz?

Bumblebees are especially effective pollinators. They fly early in the season and on days when it is far too cold and dark for honey bees and other pollinators. They 'buzz' or shake the flower to collect pollen, further enhancing pollination in different crops.

Foreign cousin

Commercially reared bumblebee hives are of a European *Bombus terrestris* subspecies, a mainland 'cousin' of the British subspecies *Bombus terrestris audax*. As the commercially sold bumblebees are not native to the UK their use has been restricted to glasshouse cultures and tunnels.

In field crops, like strawberries, raspberries and currants, UK growers have been unable to deploy these great pollinators. This puts them at a disadvantage relative to their foreign competitors.

Coming to a farm near you...

Biobest is the first company that has been successful in rearing the native British *Bombus terrestris audax*. The native bumblebee is available through Biobest's

UK distributor Agralan. So when you are enjoying your British berries this summer, chances are that they might just be that little bit more British.



Bombus terrestris queen

Bombus terrestris audax queen

Fonny Theunis returns



David Vanderbruggen has left Biobest and Fonny Theunis has taken over his



position. Many of you probably still know Fonny; he was the Biobest area manager for Scandinavia. Fonny is now area manager for the Netherlands but he will also be responsible

for East and South-East Europe. We are happy to have a dear colleague back in our midst and wish him success. ■

Together with your advisor, a specific strategy is made for each company and production stage.

Control of aphid in organic sweet pepper production: new results!



Dark duo

Myzus persicae and *Aulacorthum solani*; two culprits responsible for major losses in sweet pepper organic production. Of all aphids they are the most harmful ones. In integrated production, aphids are sometimes controlled with pesticides. But organic growers rely completely on beneficials. And that is not obvious. There's a multitude of natural enemies available. Yet it remains difficult to limit the damages caused by aphids.

Attack...

The biological control of aphids is no sinecure. There are many beneficials available, each with their specific characteristics:

- Ervi-M-System: The parasitic wasp *Aphidius ervi* is used especially against *A. solani* and other 'bigger' aphids. Thanks to its excellent searching ability it is a good choice for beginning or scattered damage.
- Aphidius-System: *Aphidius colemani* parasitizes many different aphid species and is crucial in every control program, also because of the high amount of eggs per female.

- Aphidoletes-System: the larvae of the gall midge *Aphidoletes aphidimyza* feed on aphids. *Aphidoletes* is suitable in case of increasing population pressure and can sometimes be used in preventive programs.
- Adalia-System: This indigenous ladybird (to Northwest Europe) is the swift intervention force, in particular for serious and/ or local damage.
- Chrysopa-System: These are the larvae of the lacewing, convenient to clean-up local 'hotspots'.

Killjoys

Because of the 'explosive' reproduction of aphids it is not easy to have a working population of beneficials ready in time. Moreover there are several interactions with other generalists. The problem of "Intra-Guild Predation" often 'crops-up'. For instance, the predation of *A. swirskii* on *Aphidoletes* eggs.

Research Gerben Messelink

The research of Gerben Messelink at Wageningen UR Glastuinbouw wants to check how the interactions affect the control of aphids in sweet pepper, specifically the release of *Aphidius colemani* and *Aphidoletes aphidimyza* in combination with *Amblyseius cucumeris* or *Orius* species.

In the past Messelink has proven that *A. swirskii* as a generalist also feeds on *Aphidoletes* eggs and that this slowed down the population build-up of this important player. The predatory bug *Orius* is also a well-known generalist with different kinds of food on its menu like thrips, moth eggs, aphids but it also feeds on *Aphidoletes* eggs. It is obvious that a closer look should be taken at the synergy of *Orius* with *Aphidol-*





etes. It was chosen to further experiment with *Orius majusculus* since it is a more discriminating predator than *laevigatus*.

In a long-lasting greenhouse trial on aphids with *O. majusculus* it appeared that the predatory bug had an unexpected but strong positive effect ... Particularly the effect on the fruit quality was very strong. Only 6% of the fruits became "sticky" versus 66% in the control greenhouse and 69% when introducing *A. cucumeris*.

Orius majusculus, for the control of aphids?

Orius is, in combination with *Amblyseius cucumeris* and *A. degenerans*, first choice for thrips control in organic sweet pepper production. Being a real generalist, *Orius* also feeds on other insects and, if necessary, on pollen and plant juice.

Therefore, the predatory bug can also be introduced preventively against aphids, which is part of the positive effect. Because *O. majusculus* predate aphids at the beginning of their population build-up, specialist beneficials get more time to build their population.

According to Messelink, another possible explanation is that the availability of many different food

sources has a positive effect on the work of a generalist like *Orius*. The thrips population grows faster than the aphid's one. That allows a polyphagous organism such as *Orius* to also seek other prey.

Divide and rule

The cluster formation of red aphids makes it difficult for the parasitic wasps. Because of the density of the colonies it is hard to parasitize. *Orius* generates a "scattering" of the clusters. Probably this makes the work of *Aphidius* easier and more effective. You can compare it to a school of fish or a flock of birds. In group they are well protected, but when a hunter scatters them, they become an easy prey for natural enemies.

Biobest skirts the diapause!

Most *Orius* species tend to go in diapause at reduced day length. For *O. majusculus* the limit of a photoperiod lies somewhere between L14:D10 and L16:D8. That means that 14 to 16 hour day length is a minimum to incite *O. majusculus* reproduction. Concretely this means that *Orius* can only be released as of mid-April

according to the climate zone. And that is already quite late to enable an early effect on the aphid's population.

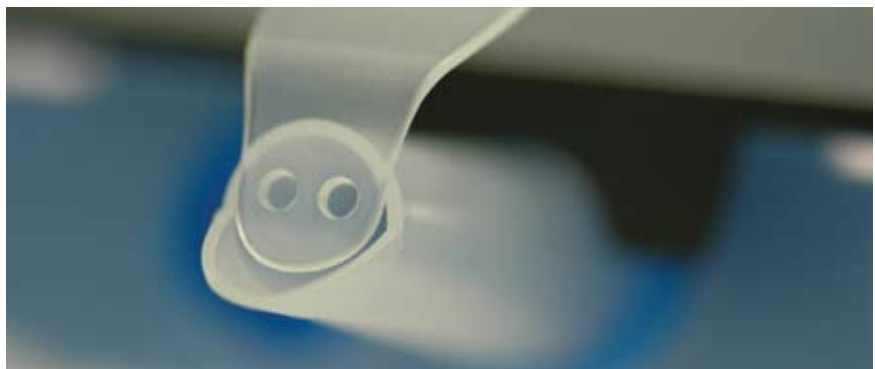
Biobest produces *Orius majusculus* under an artificial regime of long day length, exposing sensitive nymphs & adults to much light. That means that *O. majusculus* can be released effectively in mid-March and therefore can be at the forefront when aphid and thrips populations appear.

Conclusion...?

This study gives very interesting insights into the combined introduction of "classic" aphid predators with *Orius majusculus*. Especially in the case of early releases of *Orius* that is reared using a long day-length regime.

On the other hand it is very clear that in integrated and organic production there's much more feasible than classic ideas hold possible. Further research is necessary, for instance on the behaviour of generalists. And once more the experience and expertise of a good advisor proves to be indispensable. Knowledge is power! ■

Bee-lock: improved lock-in system



As of July 2010 all our standard bumblebee hives will be equipped with the improved Bee-lock system. The new Bee-lock makes it even easier to safely lock your bumblebee colony in the nest box. This can for example be necessary when performing chemical treatments that may have a negative effect on the pollinators.

You can easily adjust the Bee-lock into a one-way or two-way opening. The one-way opening allows the bumblebees to enter but not to leave. Thanks to the ingenious ventilation openings, the brood odour remains in the nest, which strongly attracts the bumblebees to the hives. ■

New International Technical Advisor: Julien Mourrut-Salesse



Since May, 3rd Julien Mourrut-Salesse joined our team of international technical advisors. Julien has a degree in agricultural engineering. Previously, he

worked as a technical advisor for the glasshouse crops of a Swiss vegetable cooperative, where he gained extensive experience with biological control in

vegetables.

"Apart from the hours spent observing ant colonies in my youth; my first introduction to the world of insects was the movie 'Microcosmos'. I came in contact with agriculture whilst graduating, though it was only at the end of my studies that I was able to combine my passion for plants and insects, by introducing biological control in a bonsai production in Paris. Hence my career went quite logically and with much luck and love for the field. I directed my post-academic studies towards applied research in agricultural entomology, first in Switzerland and afterwards in Australia. I gained most of my experience as a technical advisor to growers. I consider my position at Biobest as a kind of completion, a chance to unite my passion for biological control, agriculture and the discovery of the world."

Julien will give technical support to our international Biobest distributors. ■

Bug-Scan sticky ribbons and rolls



In several crops, sticky ribbons and rolls are increasingly used for trapping harmful insects. The Bug-Scan sticky ribbons and rolls give you a maximum result with a minimum of effort. They are fixed just above crops, with a minimum distance of circa 20 cm to trap the fewest number of beneficials possible. The

purpose-made glue does not dry out and the built-in UV-filter protects the plastic material against sunlight, so that the ribbons and rolls remain active for a long time.

The smaller Bug-Scan Ribbon® is very convenient for crops where the amount of light reaching the crop is

very important. Bug-Scan Ribbon® is 5 cm large and is available as rolls of 100 m.

The wider Bug-Scan Roll® is very effective to trap huge numbers of whiteflies, leafminers and other pests. There is also a blue-coloured version which is used successfully against thrips. The Bug-Scan rolls are available in 100 m length and in widths of 10, 15 and 30 cm. ■

Colofon



Bio.Bulletin is published by Biobest N.V. The publisher and authors declare that they have compiled this document carefully and to the best of their knowledge. However, no warranty or representation is made to the accuracy or completeness of the information contained in this document. The publisher and authors assume no liability whatsoever for any damage resulting from the use of this document or its contents.

Person responsible for Bio.Bulletin
Kris Fivez