

# Innovative and eco-efficient capsules to revolutionise pest control in potato crops

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The new method of pest control specifically uses special capsules called ATRACAP. They contain a strain of an entomopathogenic fungus that attacks specific pest insects and can reduce chemical pesticide use on European farms.

The company BIOCARE, in Lower Saxony, Germany, has just established production of these capsules and in 2016 an area of about 300 hectares will be covered. 'We are overwhelmed by inquiries from farmers willing to use the product on their fields, therefore the upscaling of production will continue,' Prof. Dr. Stefan Vidal, INBIOSOIL Project Coordinator, said. 'We expect ATRACAP to become a standard control strategy for both organic and conventional farmers,' he added.

## Targeting wireworms

The capsules aim to control wireworms – currently regarded as the most pressing problem in potato production in both conventional and organic systems. 'They contain compounds which are non-synthetic products and therefore their use is possible in both organic and conventional [cropping systems](#). The Attract & Kill strategy, based on these capsules, will substitute the use of synthetic chemical insecticides,' Vidal explained.

The launch of these capsules is even timelier since, from this year onwards, virtually no specific synthetic compounds targeting wireworms are available. The compound used in conventional fields in the past was Fipronil, known commercially as Goldor® Bait, a product produced by BASF.

However, the European Commission introduced a moratorium on products suspected of playing a role in the bee disease Colony Collapse Disorder. Whilst national registration agencies say that emergency case approval of this product would be possible, BASF has not applied for it.

## Economic costs of wireworm infiltration and meeting EU environmental standards

Conventional potato farmers are currently experiencing economic problems due to the poor quality of potatoes that have been damaged by wireworms. Meanwhile, organic farmers are also suffering severe income losses due the same pest. 'Although reliable data calculating the economic impact of wireworms on crop yields is not available, farmer organisations in different European countries are willing to adopt this new pest control strategy simply because it works,' Vidal outlined.

Moreover, the cost per hectare of ATRACAP capsules is comparable to

the cost of Goldor® Bait, so even conventional farmers are content to apply it on their fields, Vidal emphasised.

The killing agent contained in the capsules is an isolate of an entomopathogenic fungus, occurring naturally in arable soils worldwide. Given the 100 % biological background of this strategy, EU environmental protection goals are met. Moreover, the spores of the fungus are applied to the soil, restricting their unintended passive dispersal. This limits interactions with above-ground organisms such as honey bees. Furthermore, earthworms are not attracted to the capsules.

## Next steps for the project

According to Vidal, the INBIOSOIL project ran even more smoothly than originally expected. However, the project's idea in the beginning was to additionally target other soil dwelling pests such as western corn rootworm (WCR) larvae using the same attract-and-kill approach.

'Laboratory and field experimental data did not provide sufficient control results, thus we are currently modifying the composition of the capsules to better control other pest species. Another pest, cabbage maggots (*Delia radicum*) is a new target for the ATRACAP [capsules](#),' Vidal said.

In the future, the basic technology developed by INBIOSOIL will be used to develop more environmentally-friendly [pest control](#) products. 'Several proposals have been submitted to collect funding for these innovative developments,' Vidal concluded.

**More information:** INBIOSOIL project website: [inbiosoil.uni-goettingen.de/index.php](http://inbiosoil.uni-goettingen.de/index.php)

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