High expectations of efficient Natutec Drone

The technique is efficient and works, but the challenge is in organizing the drones while they disperse beneficials. This has become clear since Koppert developed the Natutec Drone in less than two years. Nevertheless, the technology will be launched commercially in the United States this year.

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'It began in 2017, when we wondered if you could use drones to disperse beneficials. Drones can do anything, so why couldn't they do this too?' says Tom Vroegop, Koppert product manager for Natutec – the portfolio for monitoring and application techniques.

Three substantial requirements were set for the technique. First, it had to be possible from a technical perspective: while you can attach anything to a drone and then have the drone drop it, the beneficials must survive the fall. 'In other words, the mortality rate had to be very low, similar to our blowers. While the technique should distribute the beneficials evenly, regardless of the carrier material, it also had to be efficient: the costs of dispersal via drones had to be lower than the costs of manual dispersal.'

The right ratio

Initially, Koppert didn't want to invent the wheel. Instead, it wanted to capitalize on existing technology. However, the technology that was available on the market did not meet the requirements. That is why Koppert set its own Development & Construction department (responsible for the Airobugs, among other things) to work.

In Koppert's workshop, the technique was proven to work. This was then tested in a hangar owned by Dronecentrum Valkenburg. The main concern there was finding out whether the beneficials would be properly distributed. 'We put hundreds of empty food trays on the ground, to see if the beneficials were well distributed across the surface.' The test flights in the hangar in Valkenburg also gave good outcomes.

Effective and efficient

The Natutec Drone was then tested in the field on large plots for growing strawberries in California. Given the state's labour shortage and rising labour costs, there was already a demand for a drone that could disperse beneficials. Together with the Californian company UAV-IQ, Koppert dispersed beneficials during the growing season three times using the most suitable drone available on the private market – one made by DJI. 'The crop was monitored on a weekly basis during a ten-week period.

The results from that monitoring made it possible to draw conclusions about effectiveness and efficiency. In the end, it turned out that we could use this drone in the open air to achieve a distribution that matched manual dispersal, even when flying at right angles to the rows. The beneficials that landed between the rows on the bare ground were able to find the plants very quickly. In many cases, the outcomes following drone use were better than manual dispersal.'

The technique is both effective and efficient, because the Natutec Drone can cover a much larger number of hectares than is possible with manual dispersal. The trials showed that the Natutec Drone was more effective by a factor of twenty.

These Koppert products for the control of spider mite and thrips can now be dispersed using Natutec Drone (proved with Field Trials)

- Spidex – Phytoseiulus persimilis

These Koppert products for the control of spider mite and thrips can be dispersed using Natutec Drone (proved and based on Lab Trials)

- Spical - Neoseiulus californicus
- Swirski - Amblyseius swirskii
- Thripex - Neoseiulus cucumeris
- Limonica - Amblydromalus limonicus
- Cryptobug-L – Cryptolaemus montrouzieri
- Chrysopa - Chrysoperla carnea

A matter of organization

This surely means a slam dunk for Koppert and growers who want to use the technology, right? Well, not quite, because the pilot who has to operate the drone (with a license and all required permits) needs to know what to do. 'They absolutely must have an understanding of beneficials. This means people cannot leave product packages in full sun for half an hour, for example, or fly the drone just before a downpour. Drone pilots must know these things and take them into account for their work. We will ensure that the pilot arrives at the right place at the right time with the right amount of material. We will do this together with UAV-IQ, which will act as the local service provider. This is our way of making life easier for our customers. It is all down to organization.'

Market-ready by the end of the year

All in all, Koppert has developed a completely new and ready-for-market technology in less than two years.
In January 2020, the Natutec Drone will be officially launched in California, where strawberry growers will be able to use Koppert's drones. 'We have high hopes for it,' says Tom. 'To make sure we get everything right, we are now developing instruction materials, information videos, and a checklist. We are also considering creating an app that keeps track of the work and the results, so we can digitize as much as we can. All this would be to ensure that growers can achieve the very best results. Additionally, we will carry out research in various other crops such as banana, blueberry, and citrus in 2020.'

Would you like more information?
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