Injection technique creates opportunities for more effective crop protection

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Injecting crop protection products into the root zone of the plant creates possibilities for effectively dealing with difficult to control pest insects. This was shown in an exploratory practical test by Wageningen UR against thrips in cabbage and leeks.

Pulstec

The scientists used a technique designed for liquid fertiliser injection. The Pulstec, as it is called, injects fluids into the soil at high pressure and small intervals. A measured amount of fluid was injected into the root zone at a depth of 10 to 15 centimetres with a pressure of 180 bar. In this zone, the crop can immediately absorb the product, and control pest insects from within. The treatment also prevents the product from being blown away and drifting into the local area.

Protection against thrips even after the first months

Problems with thrips (Thrips tabaci) in cabbage and leeks are mainly caused by the larvae, which can easily hide in the shaft of the leeks and in the heads of cabbages. Spray mist has difficulty reaching these spots. At the start of cultivation this can be resolved by seed treatment by adding a small amount of insecticide to the seed. This protection helps the crops through the first months, but stops working once the plants have grown bigger. The Pulstec technique also works through the roots and thus builds on this approach.

Positive first results with Pulstec

Wageningen UR compared the effect of one or two insecticide doses in the root zone, applied via Pulstec or a planting hole treatment, with a practical control strategy. The scientists also looked into the effect of lower and more in time dispersed dosages. Multiple Pulstec treatments were shown to offer good or even better protection than the standard treatment. "It is impossible to make definitive statements based on a one-year test," says the scientist responsible, Hilfred Huiting. "The question we wanted to answer was: is it possible? And the answer is that yes, it is possible."

Elegant way of preventing intensive spraying

Follow-up issues involve dosage, timing and product registration. Being a new technology no actual product is legally accepted. After the first year, in which the horticulture sector bore the costs via its product board, the question now is which parties see possibilities in the injection method. Hilfred: "Although the environmental benefits and disadvantages have yet to be established, it could offer an elegant way of preventing drift in intensively sprayed crops and thus further reduce any harmful effects on the environment."

Provided by Wageningen University