



Thought-out crop protection

Wageningen UR Greenhouse Horticulture

Sustainable crop protection is an important condition for profitable and socially responsible operation and for a safe end product. Wageningen UR Greenhouse Horticulture develops new and improved crop protection strategies, and improves the applicability of existing ones, together with partners in the sector. We also provide governments and companies with policy advice, plus methods and techniques for testing reliability and suitability. We do work not only for horticulture in the Netherlands, but also in the tropics and subtropics.

Expert strategies

We are experts in the field of crop protection as applied to greenhouse horticulture. They have a great deal of know how and experience in the biology, epidemiology and effects of diseases and pests affecting a wide range of crops. This allows Wageningen UR Greenhouse Horticulture to dedicate itself to the competent development of new strategies and approaches in crop protection.

Examples of new strategies include:

- A new approach in terms of prevention and hygiene, such as the one formulated for viruses and fungi in the production of young plants, cymbidium, tomatoes and potted plants.
- The implementation of so-called Multiplex Real-Time Detection. This allows a single analysis to simultaneously detect the presence and amount of several harmful factors, well before symptoms or actual damage become apparent.
- Integrated pest control in multiple crops, including roses, chrysanthemums and other flowers, indoor vegetables, outdoor flowers, potted plants and indoor strawberries.
- The identification of new biological control agents and the



development of an optimal method to employ them. Good examples include the use of *Amblyseius swirskii* against thrips, whiteflies and spidermites, the use of *A. barkeri* against bulb scale mites in amaryllis, and of *Hypoaspis miles* against soil dwelling insects.

- Crop protection for mobile, semi-closed and closed cultivation systems, each of which requires a particular approach due to their distinctive climactic conditions.
- New biological and energy-saving soil decontamination against soil fungi, nematodes and insects.
- The development of automated advisory networks for disease and pest control.

Introduction into practice

New crop protection strategies consist of a combination of different measures. This makes them initially more complex and difficult to implement than older ones. Their introduction requires new know how and confidence on the part of the company. Market operators, researchers, advisors, suppliers and manufacturers work together in the knowledge meetings, open days, demonstrations and various grower networks in the framework of the 'Growing with a Future' project to disseminate knowledge about the new strategies and to apply it within companies. "Growing with future" is a project to promote in a interactive way the introduction of IPM into practice.

Dedicated services

Wageningen UR Greenhouse Horticulture can also support with the following:

- Determining the suitability of pesticides and any side effects against the natural enemies of pests
- Determining the effectiveness of systems for decontamination of (recirculated) water, soils and substrates
- Identification of pests and natural enemies
- Screening, analysis and advice for persistent recurrence of diseases and pests at the company and within the production chain.

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New strategies for crop protection

Impulses for innovation and improvement come from various sources: The market, the consumers, developments in crops and cultivation systems, new technologies and methods, and last but not least the appearance of new diseases and pests. Some of the developments that respond to these impulses include:

- Faster and cheaper detection techniques for better monitoring and automation
- New biological control agents such as swirskii (see www.allaboutswirskii.com) and banker plants, as well as early detection systems and chemical substances for selective use, all ensure robust integrated systems with a larger role for biological control agents
- New, natural soil additives and bio-fumigation for energy-saving soil decontamination

Partners: The Dutch Product Board for Horticulture, the Dutch Ministry of Agriculture, Nature and Food, and various suppliers and crop committees.



Testing and advice

Our tests for the suitability of new methods and undesired side effects on natural enemies of pests give chemical industry, suppliers and growers a degree of confidence regarding the appropriateness of various pesticides in greenhouse horticulture.

Where persistent bottlenecks regarding crop protection at the level of individual companies or the production chain, we work hard to analyse the problem, define a direction for the solution and help implement it.

Partners: Industry, companies, growers and grower groups.



Putting knowledge to work

We consider active use of our knowledge and innovations to be of the utmost importance. When updating their crop protection systems, for instance, growers naturally do not wish to take any unnecessary risks. In the framework of the 'Farming with a Future' project, knowledge and insights are exchanged and innovations applied via networks in various crops. Participating in open days and demonstrations allows colleagues to pass on and acquire new knowledge and insights, promoting the practical application of various innovations.

Partners: The Dutch Ministry of Agriculture, Nature and Food, various horticultural study groups and individual growers.

