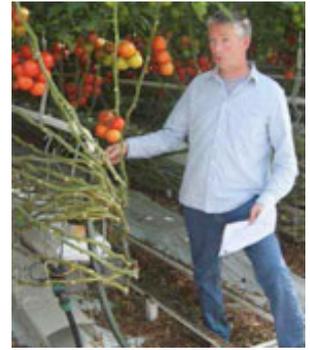




CEPE - Reduction of pest control impact of horticulture on ground and surface water through a system of constant crop monitoring, early diagnoses, prevention and early treatment

LIFE05 ENV/NL/000021



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Contact details:

Project Manager: Rob MEIJER

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Project description:

Background

The use of pesticides in horticulture is widespread. Many of these chemicals end up in ground and surface water. In order to use pesticides in an optimal way it is necessary to know when and in what quantity these have to be applied, and for how long. Currently, application decisions for soil born diseases are made by the grower based on visible crop characteristics. This is a very rough and inaccurate method which is usually wrongly timed (too late). In order to apply pesticides in an optimum way it is necessary to be able to determine the actual threat and act accordingly. Countering the threat of a disease at an early stage is easier than curing a full-blown disease and it will take significantly fewer pesticides.

Objectives

The CEPE project aimed to introduce an alternative to current pesticide practices in horticulture by focussing on early detection of diseases as well as an early solution through combining existing techniques and knowledge. In order to establish the level at which micro-organisms (MO) – that cause the most common diseases in crops – become harmful, diagnostic tests were carried out. The project used existing DNA techniques to identify the 10 most common diseases in samples of plants' roots and the water in which they grow. By doing this on a regular basis, it was anticipated that disease can be avoided or cured at an early stage, preventing massive use of pesticides. A database/software tool (dubbed CEPE - Constant Early Prevention Early) was created to provide quick diagnoses and advice to growers. Use of this tool was envisioned to enable the prevention

and/or cure of diseases at an early stage.

During the full-scale demonstration of the CEPE tool, advice was given to growers in the Netherlands during the growing season on the early treatment of disease for four different crops (tomato, sweet pepper, cucumber, and rose). An expected result of this task included quantitative proof that the use of the CEPE method leads to a decrease in the use of pesticides/chemical while maintaining a healthy crop.

## Results

The project successfully conducted a full-scale demonstration of pest control advice, although the long-term objective of reducing the amount of chemicals used by growers was not yet been observed.

All tasks were successfully completed, including the development of the CEPE tool, which was used to provide advice to growers on 1 345 occasions. This advice was used to help monitor the health of crops. Some of the growers participating in the project anticipate that they will continue to use input from the CEPE tool after LIFE as a means of monitoring crop health.

A total of 3 085 micro-organism samples and 400 chemical samples were analysed under CEPE. Of the latter, 192 were samples taken from the root zone (in order to give growers advice on the optimal application of pesticides and chemicals it is important to know which pesticides/chemicals are already contained in this zone). Although the target number of chemical samples was collected, the monitoring of chemicals in the plant effluent has not yet been proven to be an effective method to monitor the presence of pesticides in the growing system. Further research is needed to develop a more suitable way to monitor effectively pesticide concentration in the growing seasons.

Although the project has not been able to quantitatively prove that chemical/pesticide use has decreased through the CEPE tool, growers have indicated that the CEPE tool's disease diagnosis does contribute to a weighted decision in monitoring crop health.

Various dissemination activities have been conducted including the development of a website ([www.cepe-life.nl](http://www.cepe-life.nl)) and user protocols and an international seminar on the CEPE method (held October 10 2007). Articles on the project were published in Dutch horticulture and water quality periodicals (e.g. Vakblad voor de Bloemisterij, Groenten en Fruit, and Onder Glas). No articles were published in English, however, in mitigation, the international aspect of the project was much reduced following the withdrawal of UK partner, CSL.

Further information on the project can be found in the project's layman report and After-LIFE Communication Plan (see "Read more" section).

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Environmental issues addressed:

Themes

Industry-Production - Agriculture - Forestry

Keywords

agricultural method, environmental impact of agriculture, groundwater, horticulture, pest control

Target EU Legislation

- Water
- Directive 2000/60 - Framework for Community action in the field of water policy (23.10.2000)

Natura 2000 sites

Not applicable

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Beneficiaries:

Coordinator	Praktijkonderzoek Plant en Omgeving BV, Wageningen UR Glastuinbouw
Type of organisation	Research institution
Description	The Research Unit Greenhouse Horticulture (PPO) department of Praktijkonderzoek Plant & Omgeving BV contributes to the development of innovations in the horticultural production chain such as new cultivation and farm system concepts.
Partners	BLGG Oosterbeek, The Netherlands Delft Research Group B.V., The Netherlands Central Science Laboratory (CSL), United Kingdom Lucel B.V., The Netherlands

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## Administrative data:

Project reference	LIFE05 ENV/NL/000021
Duration	01-OCT-2005 to 31-DEC -2007
Total budget	1,444,386.00 €
EU contribution	409,382.00 €
Project location	Andalucía(España) Groningen(Nederland) Friesland(Nederland) Drenthe(Nederland) Overijssel(Nederland) Gelderland(Nederland) Flevoland(Nederland) Noord-Brabant(Nederland) Limburg(Nederland) Utrecht(Nederland) Noord-Holland(Nederland) Zuid-Holland(Nederland) Zeeland(Nederland) North(United Kingdom) Yorkshire and Humberside(United Kingdom)

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## Read more:

Project web site	<a href="#">Project's website (NL/EN)</a>
Publication: After-LIFE Communication Plan	Title: After-LIFE Communication Plan (EN) Year: 2007 No of pages: 1
Publication: Layman report	Title: Layman report (EN) Year: 2007 No of pages: 14
Publication: Layman report	Title: Layman report (NL) Year: 2007 No of pages: 14

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