

Sharing best practices in Europe with ENDURE Information Centre

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The ENDURE Information Centre is developed as a part of the EU funded program named ENDURE (European Network for the DURable Exploitation of crop protection strategies). The ENDURE IC is a dynamic web-application which disseminates information on best practices, IPM measures and non-chemical alternatives in crop protection. ENDURE IC is a central point of reference for extending expert knowledge, recommendations and advice for extension services, advisers, farmers and researchers. Users can search using a combination of crop and pest or disease/region and as a result receive information on IPM measures. All the available IPM measures are tested in the field, cost effective and practical to implement. The aim is to present a quality selection to ENDURE IC users, and enable them to easily search for information which usually is only available in national languages or gives information about very regional practices. Such practices could have the potential for adoption in different regions or reflect very valuable potential for disease or pest control. All the information is scientifically sound and the different levels of their practicability are indicated.

Currently documents are available mainly on potato and wheat. In the coming months the website will be launched and new documents will about crop protection in pome fruit, mais, field vegetables and grapes will be added. ENDURE IC will not offer a complete database of all integrated measures, but offers a European quality selection (European Best Practices) with information validated by experts.

The identification of the needs of advisers and their suggestions are very important for the development of ENDURE IC. Therefore a first prototype has been tested by advisers during national and international tests and feedback sessions. To maintain the connection between advisers and the research network in Endure the Endure Network of Advisors is established.

Autonomous spraying in pomefruit orchards

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Introduction

Crop protection with traditional spray equipment costs much time. Most of the time is spent on 'driving around' in the orchard, as every tree row must be sprayed separately. If tree spraying could be done with an autonomous driving machine this would save much precious labour time. A further integration of such an autonomous driving system could potentially also be integrated with current developments in the field of sensor spraying. With sensor spraying switching on and off of spray nozzle can be managed based on awareness of leaf canopy. Spray volume can be adapted based on canopy density and switching Fine/Coarse nozzles and amount of air assistance based on the position relative to vulnerable areas like ditches and housing.

In the Netherlands a project is initiated to evaluate the potential of developing an autonomous spray technique for apple and pear orchards. First an inventory was made of the growers' ideas on requirements for such an autonomous system. Raised points were:

- Usable in existing cultivation and growing systems in the fruit sector
- Integration with a mowing function is positive
- All spray application can be done, also herbicide spraying
- Limited weight to minimise damage to grass paths and headlands
- Sufficient capacity to spray a minimum of 1 ha per hour
- Easy connectivity of spray information to GPS based information of the orchard
- Integration of different systems provides the potential of 'tracking and tracing' in standard cropping systems in the fruit sector.

Results

With growers study groups discussions were held resulting in four options for developments of autonomous systems: track system like in greenhouses; autonomous tractor and sprayer combination; autonomous tunnel sprayer and autonomous multi-row sprayer. From further discussions and based on cost and labour time evaluations for three typical orchard lay-out regions in the Netherlands: Zeeland, Betuwe and IJsselmeerpolders it was concluded that an tractor + sprayer combination was the best option. Also the growers feelings of an tractor + sprayer combination moving autonomously through the orchard is more easily accepted than an new design robot like tunnel or multi-row system. At the moment preparations are made to interest sprayer manufacturers and get funding for further development of a fully autonomous tractor + sprayer combination in apple and pear orchards.