

Sentinelle IV

Warning and advisory platform for the main pests and diseases in the major crops in Luxembourg



Inspiration

Plant pests and diseases cause yield losses and reduce the quality of plant materials. Depending on the crop grown, yield losses can range from about 50% to 80% if pests, pathogens, bacteria, viruses and weeds are left uncontrolled. Avoiding these losses requires the creation of an unfavorable environment for the development of pests and pathogens. This can be achieved by using resistant cultivars, crop rotation, tillage systems interrupting the pathogen's lifecycle, or, the use of pesticides. An optimum efficacy of actions taken in the field with a minimum of environmental impact can only be achieved if an effective method is used at the right time in the right place. The project focusses on answering the question when fungal pathogens in cereals and insect pests in rapeseed need to be controlled.

LIST innovation

The emerging technology domain of precision farming aims at applying what is needed when it is needed where it is needed, thereby respecting the production capacity of natural resources at increasingly small scales without jeopardizing farm income or agricultural productivity. In the context of [national](#) and EU goals, crop protection strategies are developed and communicated to farmers, teachers and advisors that limit pesticide use to a minimum at the same time safeguarding yield and quality of plant materials produced in Luxembourg. Project outputs include recommendations for optimizing integrated cropping systems, decision support tools for managing pests and diseases in the major crops, molecular tools for the accurate identification and quantification of pests and pathogens, pest and disease warning bulletins, contributions to conferences, [knowledge transfer at fairs](#) and [field days](#) as well as publications in newspapers and scientific journals.

Impact

The project contributes to:

- the safeguarding of yield in the major crops grown in Luxembourg
- maintaining a high level of food safety with a special focus on Fusarium mycotoxins
- the reduction of pesticide use
- the protection of bees and other beneficial organisms in agricultural production systems
- prolonging the duration of efficacy of insecticides and fungicides
- quick detection of emerging pests and pathogens
- adoption of precision farming technologies with benefits for both, agriculture and environment.

Partners

Chamber of Agriculture (LU) , Various farmers in the regions of Reuler, Christnach, Burmerange and Kayl (LU) , Agricultural Technical Lyceum (LU) , University of Liège (BE) , Agroptimize

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