



CRA-W INFO

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CRA-W INFO



SUMMARY

P2. SOIL HEALTH AND SUSTAINABLE AGRICULTURE

P3. NEW INDICATORS FOR FARM SUSTAINABILITY

P4. ROBUST POTATOES

P5. BIOCONTROL PRODUCTS

P6. GRASSLAND IN WALLONIA

P8. MONITORING CEREALS WITH SATELLITES

P9. PROTECTING DATA

P10. PROTEIN AUTONOMY

P11. MARK YOUR CALENDAR

A NEW ERA FOR SOIL HEALTH AND SUSTAINABLE AGRICULTURE



THE WHEATWATCHER PROJECT AIMS TO COMBINE SOIL MONITORING, PLANT HEALTH AND FOOD TRACEABILITY VIA AN INTEGRATED DIGITAL SYSTEM.

WHEATWATCHER, coordinated by Ghent University, is bringing together universities, research centres and industrial partners across Europe to develop cutting-edge monitoring technologies. By integrating advanced sensors, robotic platforms and decision support systems, the project aims to provide real-time data and predictive information, enabling farmers to make informed decisions. Various case studies will enable the team to apply and validate these predictive models by integrating local soil conditions and the specific needs of wheat farming.

THE CRA-W AT THE HEART OF WHEATWATCHER

The **CRA-W** is actively involved in data collection through the laboratory analysis of soil, grains and wheat flour. It contributes to predictions, including the pre-processing and standardisation of data on the contamination of soils, crops and food via machine learning methods. One of the CRA-W's major contributions is the adaptation of the chemometric method of locally weighted regression (LWR), an innovative approach that improves the accuracy

of predictions. The team is also supporting the development of a web-based platform for data fusion, ensuring seamless integration of knowledge on soil, crop and food contamination.

LEADING THE WAY IN TRACEABILITY

As **leader of WP7**, dedicated to **food traceability**, the CRA-W is at the forefront of improving transparency and accountability in the wheat supply chain. Advanced spectroscopic detection, modelling and digital integration will enable any food safety risks to be identified early, helping farmers, decision-makers and the industry as a whole to make better decisions.

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GOOD TO KNOW

More information:

www.cra.wallonie.be/fr/wheatwatcher

Funding: European Research Executive Agency (REA) under powers delegated by the European Commission (Call: HORIZON-MISS-2023-SOIL-01).



TWO UPDATES FOR A BETTER APPROACH TO FARM SUSTAINABILITY



DECIDE IS BEING ENHANCED WITH NEW INDICATORS TO TAKE BETTER ACCOUNT OF THE PRACTICES AND EXTERNALITIES ASSOCIATED WITH AGRICULTURAL ACTIVITY.

VERSION 7.0 (LAUNCHED 25 FEBRUARY 2025)

This version assesses the contribution of livestock farming to **food safety**. It includes three new indicators related to protein production:

- Protein **supply potential for human food**
- Net protein **conversion efficiency**
- Net protein **productivity**

They can assess a **farm's capacity to produce edible proteins for human consumption**, in the form of milk or meat, from feedstuffs that are not in competition with human food. These are explained in the "*Contribution to food safety*" section.

Version 7.0 also **takes better account of intercropping practices** and associated inputs (seeds, plant protection products (PPP) etc.). These can now be entered as grazed by sheep, which clarifies the assessment of the **nitrogen balance**.



VERSION 7.1 (SCHEDULED: END OF MAY 2025)

Optimising the use of PPPs is of primary importance for improving the sustainability of agricultural systems. The CRA-W has developed new indicators to assess their use **in relation to the quantities of active substances sprayed**.

The first indicator, the ISA (Indice de Substance Active — Active Substance Index), shows how much the maximum authorised dose of each active substance is exceeded per plot, depending on the crop planted. This information is invaluable to farmers, as the same active substance may be present in several different PPPs, increasing the risk of inadvertently exceeding the maximum authorised dose. The second indicator is the ISAC (Indice de Substance Active par Culture — Active Substance Index by Crop), which is the sum of all the ISAs of the various active substances for the plot in question.

These indicators have been designed to **overcome some of the limitations of the widely used Treatment Frequency Indicator (Indicateur de Fréquence de Traitements, IFT)**. The use of PPPs formulated with numerous active substances can help limit the IFT without necessarily reducing the impact of phytosanitary treatments. ISA/ISAC indicators help avoid this bias.

We encourage you to explore these new features in your DECIDE account!

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GOOD TO KNOW

More information:

www.decide.cra.wallonie.be

Funding:

Wallon Recovery Plan



WORKING TOWARDS COMMON PROTOCOLS FOR ROBUST POTATOES



PROROB, A EUROPEAN MICRO-PROJECT, IS AIMING TO HARMONISE FRENCH-BELGIAN EVALUATION PROTOCOLS FOR ROBUST POTATOES.

Potato farming is important for both culture and the economy in Belgium and northern France. The negative environmental and societal impacts of this crop are a common concern in this cross-border region. In order to remedy this, the varietal lever is seen as a central asset, with the characterisation and identification of robust varieties.

Since 2018, members of both the Walloon and Flemish populations have been working together as part of the "Robust organic potatoes" agreement, with annual trials set up to assess the potential of these varieties. Since 2023, French partners have also joined the initiative with trials in Northern France. The PROROB's relevance lies in the desire to provide the various links in the chain operating in the cross-border region with reliable and comparable characteristics of the potato varieties that are best suited to their needs and local conditions.

The overall aim of this 18-month project is to develop harmonised protocols for assessing potato variety robustness criteria, including resistance to late blight, nitrogen efficiency, tolerance to water/thermal stress and harvest quality. The entire industry will benefit from these protocols, with a view to promoting the integration of these varieties into sustainable, environmentally friendly agricultural practices and transformation processes. By promoting the adoption of best practices and facilitating access to objective, transparent information, the project is helping to strengthen the resilience of the agricultural sector and preserve the environment for farmers on both sides of the border.

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GOOD TO KNOW

More information:
www.cra.wallonie.be/fr/prorob

Funding:
Interreg FWVI



DEVELOPING SKILLS TO CHARACTERISE BIOCONTROL PRODUCTS

AS NATURAL ALTERNATIVES TO PESTICIDES, BIOCONTROL PRODUCTS MUST BE ASSESSED FOR THEIR RISKS TO HEALTH AND THE ENVIRONMENT.

Biocontrol products are agents and products that use natural mechanisms to control crop pests. They include macro-organisms and plant protection products composed of micro-organisms, chemical mediators such as pheromones and kairomones, or natural substances of plant, animal or mineral origin.

These natural products, an alternative to synthetic pesticides, are considered to be less toxic and less harmful to the environment. They can, however, present risks to health, the environment and biodiversity, so it's important they are characterised properly.

Like synthetic pesticides, biocontrol products must be authorised by the competent authorities before they can be used in agriculture or public health. The chemical, biological and/or physical characterisation of these products is generally much more complex than for synthetic pesticides.

Products based on plant extracts, for example, are made up of mixtures of several molecules constituting the active substance and others that may be relevant impurities, requiring chromatographic methods alongside conventional detectors or mass spectrometry. Similarly, **products based on microorganisms** (bacteria, viruses, fungi) require the development of microbiological or molecular biology methods to accurately identify and quantify the microbial strain and microbial contaminants.

The CRA-W is increasingly developing its skills to characterise these biocontrol products, whether through research activities or contractual studies under Good Laboratory Practice, with a view to providing the data required for them to be authorised. The CRA-W also has extensive expertise in the characterisation of formulated products and any residues and metabolites in foodstuffs and the environment.

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Tea tree



**LESS TOXIC AND
LESS DANGEROUS PRODUCTS
FOR THE ENVIRONMENT**



WORKING TOWARDS A NEW APPROACH TO GRASSLAND MANAGEMENT IN WALLONIA?



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LIVESTOCK FARMING IS FACING CLIMATIC, SOCIETAL AND ECONOMIC CHALLENGES IN A CONTEXT OF CLIMATE CHANGE AND GLOBAL ECONOMIC VOLATILITY.

WHAT ABOUT WALLOON BREEDERS?

Grazing and forage production account for significant added value and differentiation for livestock farming in Wallonia, where (permanent and temporary) grasslands cover an area of 340,580 ha (46.4% of UAA in 2023). But managing forage stocks in general, and estimating the availability of grass across grasslands, is becoming more complex in the context of climate change (more pronounced periods of drought). Often singled out for its methane and nitrous oxide emissions from livestock farming, agriculture is already suffering the consequences — but it can also be part of the solution.

The tool provides breeders with the most relevant information possible (RMSE < 400 kgMS/ha) on the biomass of grass available on a daily basis at the level of each plot.

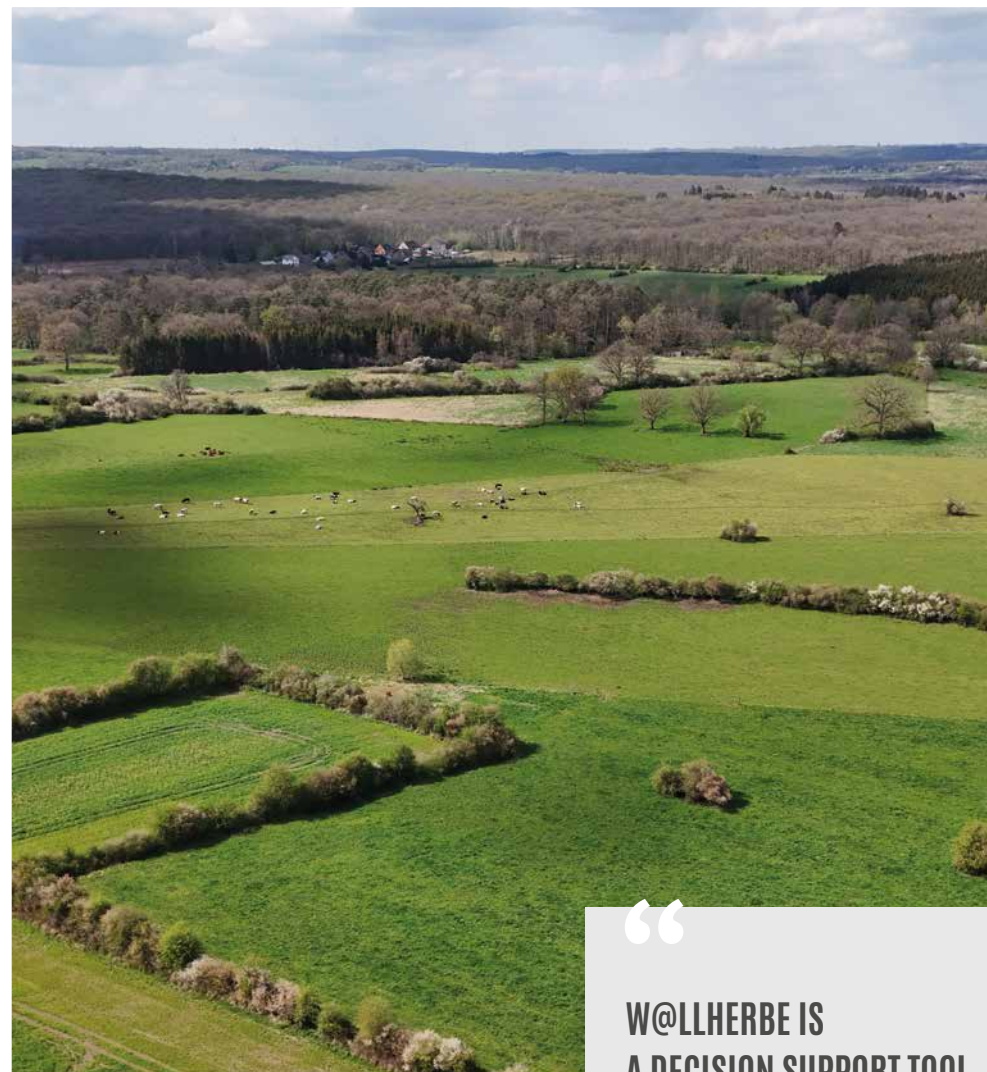
Weather data, complementary data (soil type, flora, management, etc.) and field reference data are essential for the calibration/validation of growth models and remote sensing models. Via the *WALLeSmart* platform on which the *W@llHerbe* tool will be hosted, farmers will benefit from selective access to various databases to simplify the administrative and technical management of their farms.

AN INTERACTIVE DECISION SUPPORT TOOL

In this context, the **W@llHerbe** tool offers a dynamic, interactive method for managing livestock farming that works closely with farmers and advisors to co-construct appropriate strategies.

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W@llHerbe is based on a multi-source approach that harmoniously combines the 'ModVege' growth model with spatialised information derived from satellite images from the European *Copernicus* programme (S1 and S2).



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**W@LLHERBE IS
A DECISION SUPPORT TOOL
FOR GRAZING MANAGEMENT**

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COOPERATION PARTNERSHIP

The W@llHerbe tool is the result of a **collaboration between the Walloon partners** of the SUNSHINE project (CRA-W, Elevéo, UCLouvain, Fourrages Mieux), the ROAD-STEP project (ULiège-GxABT, UMons, ARSIA, CTA Strée) and the WALLeSmart project (Elevéo, CRA-W, ULiège-GxABT, UMons, ARSIA, WalDigiFarm).

GOOD TO KNOW

More information:
www.cra.wallonie.be/fr/wallherbe

Funding:
Walloon Recovery Plan



MONITORING CEREALS WITH HYPERSPPECTRAL SATELLITES



THE SPAGHYTI PROJECT AIMS TO MAKE THE MOST OF HYPERSPPECTRAL SATELLITE IMAGES TO MONITOR THE (A)BIOTIC STRESS AND NITROGEN STATUS OF WINTER WHEAT IN FIELDS LOCATED IN WALLONIA.

TWO INTENSIVE FIELD CAMPAIGNS

Over two seasons, observations and measurements were carried out in 22 experimental trials and 103 sampling units in farmers' winter wheat fields in Wallonia. Data collected in the field include disease severity scoring, phenological stage and crop canopy reflectance measured with a portable spectrometer. Plants were also sampled to measure their biomass and estimate their nitrogen content. At the same time, EnMAP and PRISMA hyperspectral satellite images were acquired within the study area.

BIOTIC STRESS MONITORING

Different modelling approaches were compared in order to detect the presence of biotic stress from spectral data, such as the use of spectral indices (traditional remote sensing approach), a multivariate linear approach (traditional chemometrics approach) and a machine learning approach. The results show fair detection performances from the phenological stage of heading.

NITROGEN STATUS MONITORING

The canopy nitrogen content was modelled using spectral bands and spectral indices for both satellites. The results are consistent with the literature (R^2 : 0.57-0.79 and RMSE: 20.86-18.65 kg.N/ha). Biomass was also modelled in order to estimate the Nitrogen Nutrition Index (NNI), which enables farmers to monitor nitrogen status.

PERSPECTIVES

The results of this project demonstrate that these hyperspectral satellites can be used to monitor biotic stress and the nitrogen status of cereals. However, the availability of these images is currently limited in Wallonia, due to the frequent dense cloud cover.

Many thanks to all those who gave us access to their wheat trials and fields, and to those who contributed to the measurement campaigns.

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GOOD TO KNOW

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Cooperation partnership: private stakeholders (Constellr – project coordinator, AMOS, DELTATEC) and scientific/technical stakeholders (UCLouvain, CePiCop)

Funding: Skywin* competitiveness cluster, agreement no. 8614



PROTECTING AND PROMOTING AGRICULTURAL AND ENVIRONMENTAL DATA



OPENAGRO IS A GROUNDBREAKING COLLABORATION BETWEEN RESEARCHERS AND LAWYERS AT CRIDS (UNIVERSITY OF NAMUR), AIMED AT ANALYSING THE LEGAL ISSUES ASSOCIATED WITH DIGITAL PLATFORMS AND DECISION SUPPORT TOOLS (DSTS), TO ENSURE THEIR EQUAL DEVELOPMENT.

The OpEnAgro4.2 project has answered many of the questions raised by the integration of digital technologies into decision support tools and various information systems for the agricultural sector, research and society, such as those surrounding data control, the regulations to comply with (GDPR, Open data, Data Act, etc.), the types of agreements for data sharing, and the types of licences required for users of decision support tools.

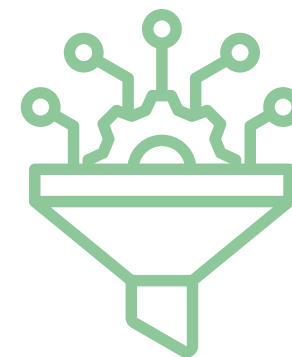
In concrete terms, the main results that will be usable at the end of the project will be as follows:

- An explanatory guide to the legislation applicable to agricultural data management (GDPR-Data Act) – Illustrated by three case studies;
- An EUPL open-source IT application – **Data Management Plan** – available for use by research centres and universities.

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**OPENAGRO IS A TOOL
DESIGNED TO PROTECT
AND ENHANCE WALLON
AGRICULTURAL DATA**
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GOOD TO KNOW

More information:

www.openagro.be

Funding: Walloon Recovery Plan



WORKING TOWARDS GREATER PROTEIN AUTONOMY IN WALLONIA



EIGHT DIFFERENT PARTIES INVOLVED IN RESEARCH HAVE JOINED FORCES TO DEVELOP THE **SKILLS AND TOOLS** NEEDED TO SET UP **PLANT AND ALTERNATIVE PROTEIN CHAINS** IN WALLONIA.

INNOVATING TO SECURE THE FUTURE

This is nothing new: Wallonia and Europe as a whole are still largely dependent on imports to meet all their plant protein needs. Against this backdrop, the ERDF WAL'PROT project was set up to encourage local researchers to develop new approaches that add value, as well as innovative, sustainable technological solutions for the sector's manufacturers.

PROTEINS OF THE FUTURE: A LOCAL SYNERGY

WAL'PROT brings together four universities (ULiège, UCLouvain, ULB and UMONS) and four research centres (CETIC, CRA-W, CER Groupe and CELABOR) working together on a range of themes, from the production of raw materials (dedicated crops, insects, algae), to the development of new ingredients and analytical methods, the recovery of non-protein fractions and the digitisation of processes.

THE CRA-W AT THE HEART OF WAL'PROT

The CRA-W is using its expertise to contribute to this project at various levels. The first stage consists of creating a collection of samples of interest from dedicated cultures, which is made available to the entire consortium. Primary samples, sorting fractions or collected products from processing are measured on near-infrared spectroscopy instruments and characterised using reference methods in order to update or calibrate predictive composition models. In addition, the CRA-W is working on the development of innovative methods for sorting protein crops, to enhance the value of batches. Finally, one team is focusing on environmental and socio-economic Life Cycle Assessment (LCA) studies of production or transformation processes. The project is also mapping existing initiatives and identifying the obstacles to, and levers for the development of these value chains.

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Seed-to-seed optical sorting of peas with QSorter Explorer (QualySense, CH)

GOOD TO KNOW

More information:

www.cra.wallonie.be/fr/walprot

Funding:

ERDF programming 2021-2027



MARK YOUR CALENDARS



**Agrometeorology
Morning Event**



High-quality observations from your local area in Wallonia, available at your fingertips!

Tuesday 30 sept 25
9:00 a.m. to 2:00 p.m.
CFR Bouge (Namur)

*Save
T.M.E
DATE*



A three-hour event for participants to :

- discover the latest developments on the Agromet.be platform
- learn how to use the new connected tools
- share views with others during a workshop on the platform



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Two days of celebration!

25 SEPTEMBER 2025
Inauguration - Official day
subject to invitation



26 SEPTEMBER 2025
Trade & Public Day

Snack bar

CRA.WALLONIE.BE



CRA-W - BUILDING FRANCINI
chée de Namur, 146, Gembloux



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2025, THE CRA-W'S YEAR OF DIGITALISATION



This year the focus is on "digital technology" to inform farmers, and food companies about our research projects, and the tools we are developing in this area.

Follow us throughout the year to find out about all our activities!

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