THE CRA-W AT THE AID OF MISCANTHUS PRODUCERS

THE CRA-W IS CULTIVATING AN IN VITRO CROP OF MISCANTHUS X GIGANTEUS. THE DIFFERENT ORIGINS COLLECTED ARE CLEANED UP BEFORE COMPARISON ON AGRICULTURAL LAND AND MARGINAL AREAS.

Miscanthus x giganteus is a perennial rhizomatous grass, native to Asia and cultivated for its biomass. The plant can be used for heat generation, mulching or the manufacture of biomaterials. It can be planted on both good soil and marginal land. The crop is inseminated for a minimum of 15 years. The right variety must now be chosen...

The CRA-W is supporting several Walloon stakeholders who believe in and are developing this sector.

Rhizomes of various origins were collected with the help of farmers. The plants were then cleaned up by removing the meristems and cultivated in vitro. This enables a better comparison of varieties based on the observation of healthy plants.

Using in vitro cultivation, a single *Miscanthus x giganteus* plant can be multiplied exponentially in the laboratory, even in the winter season. The CRA-W is studying different in vitro growth conditions in order to optimise the cultivation of vitroplants while remaining genetically consistent with the original individual. In this way, the varieties are ready to be planted in May. Farmers can then compare the varieties harvested and select those suited to their purpose.

Various field trials are being performed, predominantly with the help of a farmer from Walloon Brabant. The various origins are thus compared under field conditions. In vitro plantations have a more uniform number of plants per hectare. In vitro plants are also highly prized for the purpose of compensatory planting, since their vitality enables them to compensate for rhizomes that would not have generated plants when they were planted.

Trials are also being conducted at the former Martinet mining site in the Charleroi region. This area forms an ideal experimental location for the simultaneous assessment of miscanthus farming on this type of soil, the behaviour of different varieties, the planting of vitroplants as opposed to rhizomes on difficult soils, and also the development of an ecological network using plants that can colonise this environment and make it attractive.

Frédéric Debode
f.debode@cra.wallonie.be

THE CRA-W, KEY PLAYER IN THE STANDARDISATION OF PPP ANALYTICAL METHODS ON SEEDS

SINCE 2012, THE CRA-W HAS BEEN COLLABORATING IN THE DEVELOPMENT OF AN ANALYTICAL METHOD TO DETERMINE PLANT PROTECTION PRODUCTS (PPP) ON COATED BEET SEEDS.

Approximately every two years, the German Sugar Beet Research Institute (IFZ) sends the CRA-W and other European laboratories a series of beet seed samples to be analysed according to one or more well-defined methods. These analyses are used in the development and standardisation of a high performance liquid chromatography method by which several fungicides and insecticides used on treated seeds can be analysed. The aim of these studies is to test the method in the choice of extraction solvent, extraction technique and chromatographic determination, in order to obtain a method that can be used to determine the maximum number of active substances with optimum accuracy and precision.

The CRA-W once again participated in the Round Robin Test organised by the IFZ in 2021.

For many years, the CRA-W has been conducting physical and chemical studies to provide the data required for the registration of seed treatment products, not only in the case of beet, but for an entire series of cereal and vegetable seeds. The quality of seed treatment is checked using the following tests: dust content, adhesion and average content of active substance on the seeds, distribution of active substance from seed to seed, and stability of active substance on seeds after storage.

Analytical methods are developed and optimised at each stage of PPP extraction and chromatographic determination. They are then validated in accordance with European and international requirements. These methods are then used to assess the quality of seed treatments within the context of product approval,

and also to check commercial seeds or experiments on the effectiveness of products.

For further information ℹ️
www.cra.wallonie.be/en/pesticides-on-treated-seeds

Patricia De Vos
p.devos@cra.wallonie.be

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THE INTERNATIONAL CONIFER SEED TRADE: WHAT RISK TO THE HEALTH OF OUR FORESTS?

IN BELGIUM, CONIFEROUS FORESTS ARE MAINLY REGENERATED BY PLANTING.

Abies nordmanniana seeds (used for the production of Christmas trees).

The seeds used for the production of plants are often of indigenous origin. However, when supply is lacking, seeds of foreign origin are used. These seeds are mostly sourced from other European countries, but sometimes from third countries. A broad diversity of ornamental conifer seeds - sometimes belonging to the same genera as our forest species - are also imported into Belgium.

Unlike other commodities such as seedlings, wood or bark, the problem of seeds of woody plants acting as vectors in the transmission of diseases is underestimated. There is therefore little or no control from a phytosanitary point of view. However, recent research has shown that the seeds of woody species can transport many fungi, some of which are pathogenic. The risk of emerging diseases linked to international trade in conifer seeds is therefore largely unknown, and needs to be studied within the context of increasing trade and climate change.

To assess this risk, the ALERTSEED project was launched in July 2021 for a period of 30 months. It is a collaboration of two scientific partners - the CRA-W (coordinator) and the Proefcentrum voor Sierteelt (PCS) - and consists of two study sections. The first is concerned with the collection of data from nurserymen, foresters, seed suppliers and regional authorities, to quantify the extent of the overseas purchase of conifer seeds, identify the conifer species (forest or ornamental), and determine the trends in forest species in the future. The second aims to

develop a method for the detection of fungi associated with conifer seeds using high throughput sequencing technology (broad spectrum detection method), and to apply this method to batches of seeds from Belgium, other European countries, or other continents. The results of the project will help improve our understanding of the risk presented by international conifer seed trade in the transmission of emerging fungi.

For further information ℹ️
www.cra.wallonie.be/fr/alertseed

Financement:
FPS Public Health and Food Chain Safety

Anne Chandelier
a.chandelier@cra.wallonie.be

WHO DOES AGRICULTURAL AND ENVIRONMENTAL DATA BELONG TO?

AGRICULTURE, ENVIRONMENT: 6 WALLOON STAKEHOLDERS HAVE JOINED FORCES TO DEFINE A FRAMEWORK FOR THE PROTECTION AND EXPLOITATION OF DATA.

ew legislation (GDPR, PSI, OPEN DATA, ...) applied to Big Data, decision support tools, online platforms, digital farming tools (Smartfarming), ... how can this be navigated? How do we keep up with it? Are personal data allowed to be used for research?

The OpEnAgro 4.1 project can help.

How?

With the introduction of recommendations arising from the OpEnAgro 4.1 project, we can assure farmers and research partners that their data are used:

· according to the latest European, Belgian and Walloon regulations in force;

· according to the conditions of use required by crop farmers, livestock farmers or other «data creators».

The formalisation of user agreements and data management plans, which are established systematically for collaborative research projects, is the first good practice proposed. It helps to develop better trust and transparency in the sharing of data that may be related to strategically or commercially important issues.

Pour plus d'information ℹ️
www.cra.wallonie.be/fr/openagro41

Dominique Vrebos
d.vrebos@cra.wallonie.be

SENTINEL SATELLITE IMAGES USED FOR AGRICULTURAL MONITORING

THE SAGRIWASENT PROJECT TEAM IS DEVELOPING OPERATIONAL METHODS FOR THE MONITORING OF AGRICULTURAL ACTIVITY IN THE WALLOON REGION BY MEANS OF SENTINEL SATELLITE IMAGES.

The results obtained enable visualisation of plots whose last declared boundaries do not/ no longer correspond to the reality on the ground. This provides farmers with very recent images of plots that have changed compared with the previous year. They are then in a better position to target the plots and delineate them t when they apply for their aids (directly on PAConWEB).
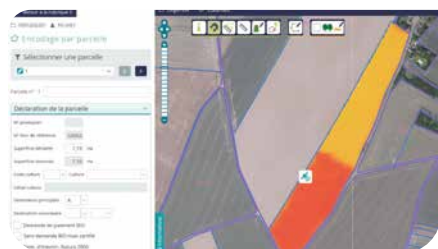

Illustration of the tool developed on PAConWEB based on the multi-cover detection protocol developed at the CRA-W.

This research has also led to the detection of bare soils, mowing and even the destruction of cover, using the temporal evolution of indices derived from SENTINEL images. The results obtained can be used as markers of agricultural activity in order to determine the eligibility for subsidies and process the payment of farmers.

They also enable the detection of new urban features on agricultural plots. The objective is to facilitate the update and to improve the quality of the agricultural plots delineation. The method is based on the evolution over time of a vegetation index derived from SENTINEL images. This index falls when the vegetation is replaced by an urban feature.

The CRA-W is developing protocols and algorithms to monitor the evolution of Walloon agriculture using satellite images. These methods provide objective information to the Walloon authorities with a view to reduce the administrative burden associated with the payment of subsidies from the Common Agricultural Policy (CAP).

For further information ℹ️
www.cra.wallonie.be/fr/sagriwasent

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Emilie Beriaux
e.beriaux@cra.wallonie.be

RECOGNITION OF THE CRA-W FOR ITS EXPERTISE IN NEAR INFRARED SPECTROSCOPY

At the 20th International Council for Near Infrared Spectroscopy - ICNIRS conference, our colleague Vincent Baeten received the Tomas Hirschfeld Award 2021.

Pierre Dardenne (President of the ICNIRS 2009-2013) (right) and Stef D'Espallier, Regional Sales Director of FOSS Benelux (left) as sponsor of the award, presenting the award to Vincent Baeten (center).

his prize is awarded in recognition of a significant contribution in the field of near infrared spectroscopy. It is awarded on the basis of excellence in research carried out by an internationally renowned scientist.

Vincent Baeten's research, which he conducted in conjunction with enthusiastic colleagues, was primarily focussed on the demonstration and validation of near infrared microscopy in the detection of processed animal proteins in compound feeds.

This pioneering work in near infrared microscopy is part of the reason why the CRA-W has been recognised as European Union Reference Laboratory for Animal Proteins (EURL-AP) since 2006. The work led to the installation, at the CRA-W in 2001, of one of the first hyperspectral near infrared imaging systems, dedicated to the laboratory analysis of food and feed. This technology has been demonstrated as an elegant solution to the detection of animal particles of various species, and provides a complete screening of compound feed ingredients. Further studies have subsequently helped, and are still helping, to demonstrate the potential of spectroscopy and near infrared imaging technologies in the detection of contaminants and botanical impurities.

The award was presented by Pierre Dardenne (President of the ICNIRS 2009-2013, now retired from the CRA-W), and Stef D'Espallier (Foss company), during a ceremony that took place in Belgium and was broadcast online during the NIR 2021 conference organised by our Chinese colleagues.

For further information
www.icnirs.org

Vincent Baeten
v.baeten@cra.wallonie.be

EVENT - 150 YEAR NOTICE

150 years at the service of agriculture & society

150 ANS

Wallonie
recherche
CRA-W

1872-2022

TO PRODUCE   TO EXPLORE   TO AUTHENTICATE   TO IMPROVE   TO INNOVATE   TO MAINTAIN   TO ANALYSE   TO PROTECT   TO SELECT   TO OBSERVE   TO PERPETUATE   TO ADVISE

The events organized within the framework of this anniversary year will be found on the website: **www.cra.wallonie.be**