

Photo: hubert.guerriat@mellifica.be



GENETIC ANALYSIS, A MEANS OF CONSERVING THE BLACK BEE IN WALLONIA

CRA-W AND THE MELLIFICA ASSOCIATION ARE INTRODUCING NEW DNA-BASED ANALYSES TO CONSERVE OUR NATIVE BEE.

The black bee is native to Wallonia. This very hardy insect is well suited to the type of apiculture carried on in the region. The black bee is an extremely active pollinator. However, the trend is for other types of bee that produce more honey with as side effect an increasing ousting of the black bee in Wallonia. With a view to genetic preservation and conserving our valuable natural heritage, the Chimay local authority has made it compulsory for all beekeepers in the district to keep black bees.

This creates demand for analytical methods to distinguish the black bee from other breeds of bee. Through a cooperative link-up between the Mellifica Association and CRA-W, new DNA-based analyses are now available for identifying the lines occurring in hives. This could enable the apiaries to be mapped, encourage players to work

together to secure the future of the black bee, and provide better visibility to honey producers keen to work with a local breed.

Moreover, until now, Belgian beekeepers had no access to these analyses, despite their significance in establishing the origin of their queens selected for breeding. After a development period during summer 2015, analyses were routinely performed over the winter of 2015-2016 on workers from thirty colonies from Wallonia, the Brussels-Capital Region and northern France. Twenty-eight of the thirty colonies sampled by the Mellifica Association had a profile corresponding to that of the black bee, whereas two colonies (in northern France) corresponded to a different line (North-Mediterranean). This initial series of analyses is reassuring with a view to conserving the black bee in the regions sampled, Wallonia in particular.

The development of other DNA markers and collecting a larger number of samples will supplement these initial data and thus improve our knowledge of the genetic landscape of bee populations in Wallonia and adjoining regions.

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EDITORIAL



HELLO TO ALL READERS OF CRA-W INFO.

My name is René Poismans and I have been appointed by the Regional Government of Wallonia as Director General of CRA-W since 1st April 2016.

In that capacity, I have set myself two main objectives.

First, improving and enhancing the effectiveness of the Common Services as supports to facilitate CRA-W's research work and service activities.

Second, and more importantly, coordinating the activities of agricultural research partners in Wallonia more closely in order to focus their work on common aims that will provide answers to farmers' and the agro-industrial sector's present questions and problems while preparing them to face tomorrow's challenges.

As a reader of this quarterly publication, you already know how rich and varied CRA-W's work is. I regard communication as vitally important to make everyone aware of the Centre's research results and how one can use them. Research must produce useful and usable results. The beneficiaries of those results must be kept informed.

I intend to build and develop the institution's communication. In a future issue of CRA-W info you will be asked about the form and nature of the information you expect from such a publication and also about the other forms of communication which you think CRA-W could improve or develop. So start thinking about it now, because very soon we will be inviting you to tell us about your expectations.

René POISMANS
CRA-W Director General

FEEDING THE SOIL TO FEED THE PLANTS

TO PROVIDE ANSWERS TO THE ORGANIC SECTOR'S QUESTIONS ABOUT SOIL FERTILITY CRA-W HAS PERFORMED SOIL ANALYSES WITHIN THE BIO2020 FARM NETWORK TO STUDY THE SOIL'S BIOLOGICAL ACTIVITY.



Preserving and improving soil fertility is one of the foundations of organic farming. The soil is fed in order to feed the plants. The soil comprises five main components (mineral, liquid, gaseous, organic and living portions) which interact with one another. A soil can contain up to 1 T/ha earthworms and 3 to 9 T/ha microorganisms. These play a key role in breaking down organic matter and supplying elements for plants to assimilate. That is why soil life is a major concern in organic farming.

In the context of the BIO20201 research programme the beneficial effects of soil organisms on the crop in situ are quantified by soil-plant monitoring, among other things. Two complementary methods are used: biological activity analyses in the laboratory and field methods. Twelve situations within the farm network were monitored in this way in 2014. The number of situations monitored was increased in 2015 in order to study crop rotation. A reference plot was analysed on nearly every one of the network farms in autumn, analysing the overall biological activity, the nitrogen fertility potential and the organic matter content.

One interesting idea – a suggestion made during talks with the farmers in the network – would be to take soil samples earlier, at the end of the winter, so that predictive results would be available before the new growth starts. The aim would then be to adjust the fertility, if necessary, by applying commercial organic fertiliser. The advice given in respect of the reference plots could also be applied to similar plots in the farm network and to other farmers' plots.

Another aspect has to do with determining the effectiveness of the commercial organic fertilisers used in organic farming. The commercial organic fertilisers used by the farmers in the farm network were collected this year. Their mineral composition (N, P, K, Ca, Mg, C) is currently being analysed. There is strong demand from the industry for their effectiveness to be determined (by analysing the potential nitrification) and this is included in the work schedule for the coming years.

** BIO2020: a global organic farming research programme implemented by CRA-W in liaison with other industry players.*

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SÉRÉNITÉ: THE NEW SPELT VARIETY!

A SPELT VARIETY OF GOOD BREADMAKING QUALITY REGISTERED IN SUSTAINABLE PRODUCTION.

The spelt improvement programme which CRA-W has been running for several decades is expanding. An average of 33 crosses per year were produced between 1998 and 2008, compared with 68 in the 2009 to 2015 period, and a hundred crosses are scheduled for 2016. The collection that provides the germplasm needed for these crosses comprises Belgian varieties, local Belgian

germplasm and foreign cultivars, principally German, Swiss and Austrian.

The spelt nursery and the trials are organised with the aim of selecting lines suited to 'low input' growing conditions. This means using no fungicides, growth regulators or insecticides and reducing the nitrogen application by 60 U/ha compared with Azobil spelt.

Whereas yield is still the main selection criterion, lodging resistance, cold resistance and disease tolerance are other important criteria. Special attention is also paid to the uses for the cultivars, to ensure that farmers find outlets for their produce.

The breeding programme set up several years ago to improve spelt's breadmaking quality and replace the Ressac variety has thus resulted in the Sérénité variety being registered in 2015. Sérénité offers stable yield, tolerance to the main foliar diseases and good lodging resistance. Its chief asset is its very good technological profile as revealed by the Chopin alveograph.

Sérénité will be available to farmers from all Belgian seed producers by autumn 2016 and will be marketed in France by Lemaire-Deffontaines.

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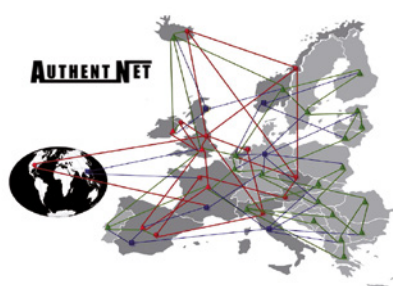


Spelt nursery at Gembloux



CRA-W CONTRIBUTES TO THE FOOD AUTHENTICATION RESEARCH NETWORK

TODAY EUROPE NEEDS TO BRING TOGETHER RESEARCHERS, INSPECTION AUTHORITIES, LAWMAKERS, POLITICAL DECISION-MAKERS AND FINANCIAL PLAYERS TO DEVELOP TOOLS AND PUT IN PLACE STRATEGIES FOR CONTROLLING FOOD FRAUD.



AUTHENT-NET project (H2020) coordinated by Fera Science Ltd kicked off on 1st April 2016. It aims to establish ongoing cooperation between national and international financing organisations in the area of food product authentication, to make the food chain more competitive and to bolster consumer confidence in the food chain by coordinating relevant R&D more closely.

Within the framework of this project CRA-W is coordinating a 16-partner working group in charge of collecting data (reports, projects, publications, directives, etc.) on current initiatives in the area of food authentication and controlling food fraud. CRA-W has expertise built up over a number of years in validating analytical methods based on molecular biology, infrared spectroscopy and analytical chemistry techniques. The aim of these methods is to control and monitor quality and to authenticate and ensure the traceability of food products from the fork to the farm. In that context CRA-W will be responsible for the inventory for Belgium.

CRA-W is also involved in setting up a database and a platform for exchanging information between member states. This platform will enable industry players to obtain details for each country of the organisation in place, the legislation in force, the research funded

and the priorities in terms of food authentication and food fraud detection. This will give each production sector a view of current initiatives across the board and concerns and needs in Europe in this area.

The platform will enable complementary activities between member states to be identified and requirements established as regards developing tools for preventing, detecting and anticipating food fraud.

Coordination and Support Action (CSA) project no. 696371 financed by the EU H2020 programme

More information from: www.authentnet.eu (under construction)

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CHEMOMETRICS XVII CONFERENCE IN NAMUR A BIG SUCCESS



BY ORGANISING THE CHEMOMETRICS XVII CONFERENCE, CRA-W CONTRIBUTES TO PROMOTING THE USE OF CHEMOMETRICS IN FRENCH-SPEAKING COUNTRIES EVEN BEYOND THE APPLICATION OF STATISTICS IN THE FIELD OF CHEMISTRY.



The conference presented the results of recent chemometrics research and the development of a number of actual applications. The many discussions on methods and future challenges showed that chemometrics has its deserved place in the analytical field.

For the 2016 event the University of Lausanne was in charge of the traditional Challenge. In this competition the participants are supplied with data and asked to build the best predictive model, which is then applied to a blind series. Only the organisers know the correct answers. The CRA-W Chemometrics Group pulled off the coup of getting the best results for QSAR data (Quantitative Structure-Activity and Relationships), once again demonstrating its knowledge and experience of chemometric approaches.

Further details of the conference can be found at: <http://chimio2016.sciencesconf.org/>

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Chemometrics is a fast-growing discipline. It is recognised as a necessary step in the various analytical processes that produce multiple data series from different techniques and experimental designs. In this context CRA-W and the French Chemometrics Group of the French Statistical Society, in cooperation with the Belgian Statistical Society, Louvain Catholic University and the University of Liège-Gembloux Agro-Bio Tech organised the Chemometrics XVII Conference in Namur from 17 to 20 January 2016.

This mainly French-language conference brings together theoreticians and experimenters, scientists, academics and manufacturers for a review of progress in chemometrics, ranging from data collection via experimental designs to analysis and data modelling. The event was attended by around 150 delegates, mostly from Belgium, France and Switzerland, with Spain, Morocco, the UK, Italy and the Netherlands also represented.



AGENDA

22 - 25 JULY 2016

CRA-W will be at Libramont Agricultural Fair

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19 - 20 OCTOBER 2016

Fifth International Feed Conference FEED2016

More information at www.feed2016.eu

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What are the prospects for legumes in Wallonia? | Gembloux

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