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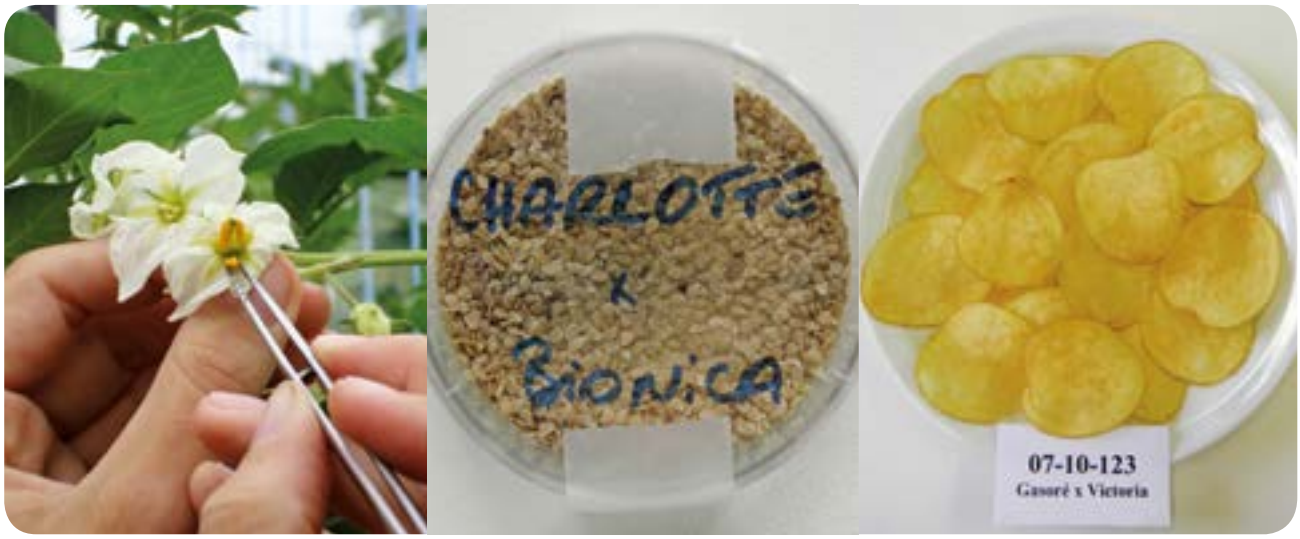

FULL SPEED AHEAD FOR WALLOON POTATOES

CRA-W's potato breeding programme forged ahead in 2013 with the start of a research project, an application to register a clone in the Belgian catalogue and the close involvement of private players.

Launched on 1st May 2013, the Moerman-funded research project entitled GEREPHYTI 'Improving and managing potato resistance to *Phytophthora infestans* in order to develop ecologically intensive agriculture' has ramped up the breeding programme initiated by CRA-W in 2005. The aim of the project is to obtain clones/improved varieties bred for sustainable late blight (*Phytophthora infestans*) resistance. The proposed route to improving variety behaviour involves combining conventional breeding methods with the use of germplasm extended to include wild *Solanum* species as a source of new resistance genes and applying marker-assisted selection for early detection of resistance genes, along with cisgenesis for gene transfer.

An initial application has also been made for registration of a clone in the national potato variety catalogue. This clone, obtained from a Gasoré x Victoria cross, has the properties required by the processing industry for making potato crisps, namely its round shape and the good colour developed by the potato slices when fried. Other advantages include a good yield, high Y virus resistance and moderate susceptibility to late blight.

At the same time, the private players (seed potato producers, seed potato distributors, traders and industry) have been closely involved in the programme for the last two years. This takes the form, on the one hand, of a half-day in late November each year dedicated to a detailed technical presentation of the clones at the advanced breeding stage: description, agronomic performance, tasting. On the other hand, a call for applications has been drawn up following consultation with users of the future catalogue varieties. The aim is to list enterprises authorised to test one or more clones in specific conditions. It sets out the rights and obligations of the successful tenderer and CRA-W throughout the assessment period.

So we can hope to see potato varieties with the CRA-W mark back in the national catalogue soon!

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OILSEED RAPE GROWING WITH NO POLLEN BEETLES AND NO INSECTICIDE - UTOPIA OR REALITY?

Of all the crops grown in Wallonia, Oilseed rape is one of the biggest insecticide consumers. There may be alternative solutions!

The main reason for this is the risk presented by adult pollen beetles. These little beetles destroy the flower buds to get to their favourite food, pollen. The damage they cause varies considerably from year to year, but can be extensive and a major concern for many farmers. Their response is intensive, repeated insecticide applications. Unfortunately, this has resulted in the emergence of a number of resistant pollen beetle strains, to the extent that out of the dozen or so preparations originally available there are now only three or four insecticides that are still sufficiently effective. Moreover, the insecticides used eliminate natural predators and are therefore also suspected of favouring other pests that occur later in the crop, not forgetting of course that their use in a crop so important to bees raises a few questions.

However, pollen beetles can be controlled naturally by several species of parasitic wasps of the Tersilochinae family. These mini-wasps attack the beetle larvae, thus reducing the following season's pollen beetle populations. Although these beneficials have been studied in various countries, no data were hitherto available for Belgium. A study carried out by CRA-W in Wallonia in spring 2013 showed that these parasitic wasps occurred in most rape fields and were fully synchronised with their hosts. Unfortunately, there is little hope that they could contribute significantly to damage reduction, as their populations are usually small.

Two main reasons for this shortcoming were identified. The first of these is intensive tillage after the rape harvest in preparation for sowing cereals. This is particularly detrimental to the parasite larvae and pupae, which are forced to spend the autumn and winter in the soil, unlike their pollen beetle counterparts, which generally hatch before ploughing. The second reason is that the parasitic wasps are highly susceptible to the insecticides, which are often more toxic to the parasite than to the pest. This was shown by another 2013 study which found that of the registered insecticides, only one is both selective for the parasitic wasps and effective against the pollen beetles.

In conclusion, there is potential for biological control of the pollen beetle in Wallonia, but it is currently probably too low to allow one or more insecticide treatments to be skipped. New cropping systems that tilt the balance in favour of the beetles' natural predators, such as minimal tillage after a field rape crop and the use of selective products, ought to be introduced in future to reduce the incidence of pollen beetles and, thus, the crop's dependence on insecticides.

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SHARING EXPERTISE IN NEW SPECTROSCOPIC TECHNIQUES

Under a scientific cooperation agreement between Brazil and Wallonie-Bruxelles International (WBI), CRA-W and Universidade Estatual de Campinas UNICAMP have joined forces to study the prospects for new spectroscopic techniques in fruit analysis through the PhotonFruit project.

Professor Celio Pasquini of UNICAMP's Department of Chemical Analysis is a major player in the area of spectroscopy in Latin America and in the development of advanced techniques such as Thz-TD (Terahertz - Time Domain) and LIBS (Laser Induced Breakdown Spectroscopy). CRA-W, for its part, enjoys worldwide renown in the application of vibrational spectroscopy to the food processing industry and has more than 30 years' experience in this field. The Centre has also pioneered the development of analytical methods based on advanced techniques such as NIR imaging and FT-Raman spectroscopy and has acknowledged expertise in chemometrics applied to spectroscopic data. That made it an easy decision for UNICAMP and CRA-W to pool their efforts and respective expertise and set up an ambitious research and training programme for applying spectroscopic techniques to fruit and fruit product quality control and traceability. The project will develop the participating teams' scientific knowledge through the acquisition of new areas of expertise in emerging spectroscopic and chemometric techniques. The PhotonFruit link-up will lead to international research initiatives and a cooperative network will be set up involving Universidade Federal do Pará (UFPA), Universidade Federal de Pernambuco (UFPE) and Université catholique de Louvain (UCL).

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OUR FORESTS THREATENED BY NON-NATIVE FUNGI

In the last 30 years our forests have increasingly suffered so-called 'emerging' diseases caused by virulent pathogenic fungi from other continents.

These fungal forest diseases can have a threefold impact: economic (drop in wood production, loss of jobs in the timber industry, financial loss for forestry nurseries), environmental (loss of biodiversity, disturbance to ecosystems) and societal (changes to the landscape and loss of well-loved forest species).

These fungi come into Europe through our growing international trade and also via tourism to far-flung destinations. On top of that comes climate change, making our forest species more susceptible to infections.

In the face of these threats to plant health, Europe's scientific community is mobilising to develop phytosanitary warning systems, gain a better understanding of these diseases and put management measures in place. CRA-W studies emerging diseases affecting forest species through nationally and internationally funded research projects. The research concerns some particularly formidable organisms, *Phytophthora*, and specifically *Phytophthora* alni which causes common alder disease (research into disease-resistant alders), *P. ramorum*, the cause of 'sudden larch death' (assessment of the risk to conifers in Belgium) and *P. cambivora*, the causal agent of beech dieback (monitoring and epidemiology). CRA-W is also developing diagnostic methods targeting the emerging fungi.
As a National Reference Laboratory for plant diseases, CRA-W attends international meetings (in particular, those held by the European and Mediterranean Plant Protection Organization – EPPO) as a channel for informing regional and federal political bodies about any new plant health threats to our forests. CRA-W is also a member of the group of laboratories involved in the work of the Walloon Forest Health Monitoring Organisation. In that capacity the Centre participates in monitoring the health of Wallonia's forests with respect to emerging fungi, makes recommendations and arranges training on recognising diseases affecting forest species.

For further information we suggest you have a look at the FORPATH, FORPRAM, PALNIRIV and LNR-MY project data sheets, which are available on the CRA-W website.

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LAMENESS AS AN INDICATOR OF DAIRY HERD HEALTH

Lameness is a well-known pathology in cattle, but its significance is often underestimated. Nevertheless, it ranks third among reasons for culling dairy cows, after mastitis and reproductive disorders, causing farmers not inconsiderable financial losses.

As an example, an ulcerated sole in a dairy cow can result in an overall loss in the region of EUR 300-600 (Institut de l'Elevage, 2008). That makes it important to take an inventory of the prevalence of this pathology among Wallonia's dairy farms and to highlight risk factors.

To that end, a preliminary study was conducted in the context of a final dissertation. The study was based, on the one hand, on data collected since 2010 by monitoring the CRA-W herd and, on the other, on a survey of eight farms in the DAIRYMAN network practising different management methods.

The farm survey showed that zero grazing is more favourable to lameness. This was confirmed by monitoring the CRA-W herd, with some of the cows being kept indoors for the purpose. Within that group there were twice as many animals with foot lesions as in the grazing group. These observations were corroborated by the locomotor score, which was poorer in the zero grazing group. Apart from the number of cases occurring, the nature of the infection also appears to be linked to the management method. There is a higher incidence of foot-rot in the zero grazing herd, along with lesions such as abscesses, ulcers, granulation tissue and haematomas. Conversely, Mortellaro's Disease was found to affect both cows at pasture and zero grazing cows equally.

CRA-W intends to pursue this line of research by increasing the number of farms audited in order to pinpoint the significance of this issue on Wallonia's dairy farms according to the herd management method. Areas of work are under consideration in collaboration with ULg's Ruminants and Pigs unit.

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ORGANISING FARM WORK, AN INVESTMENT THAT PAYS

A recent survey in the framework of the Duralait Plus project found that work organisation is a key concern for farmers who, like all self-employed people, aspire to similar working conditions to other socio professional categories.

Bigger farms mean more and more work for farmers, who therefore want information on how best to organise their work. Nearly 200 people attended the project seminars held in late November (*), emphatically confirming this.

The DuraLait study involved a 'work' audit of about seventy dairy farms. Working hours were found to be a problem for nearly 65% of farmers. Milking, which accounts for 52% of routine work, is a common problem area, as all too often the milking parlour has not expanded in size to keep up with the growing herd. The result is that milking durations vary considerably from case to case, ranging from 2 to 8 minutes per cow per day.

Various factors may account for the differences in working hours between farms (size, labour, etc.), but the main factor is the farmer's behavior and approach to his work (simplistic, efficient, perfectionist). Also, work is an abstract and elastic concept and that makes it hard to quantify. The fact is that the time spent on a task depends very much on the time available for it. The same task may be performed faster or more slowly, depending on how much time the farmer has at his disposal.

In addition, a combination of factors may make situations more precarious as regards work organisation. For instance, farmers working on their own generally have a fairly large farm to run. Because of that, no matter how efficient they are, they are at a disadvantage and tend to be time-poor available. Ideally, farm size should not exceed 50 dairy cows per person in order to maintain good working conditions and leave enough spare time for family life.

(*) The documents from the seminars on 'Organising farm work, an investment that pays' are available on the CRA-W website (Documentation).

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AT PRESS

RENATURATION OF RIVER BANKS AND PHYTOREMEDIATION

Although planting woody plants have long been used to stabilize the river banks ,they have now become part of a wider approach that takes account of the ecological requirements of river ecosystems and of the development of plant engineering, which supports any re storation of riparian zones...

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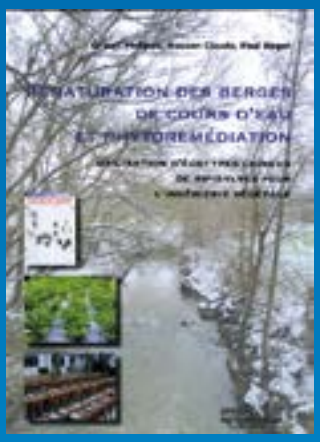

AGENDA

13 and 14 June 2014
AGRONOMICALLY YOURS: RESEARCH FOR EVERYONE
Presentation of CRA-W's work in the field.
CRA-W, Domaine de Liroux, Gembloux
Contact: communication@cra.wallonie.be

17 - 26 June 2014
CIPAC/FAO/WHO ANNUAL CONFERENCE
Annual platform for exchanges of views and knowledge among scientists working in physicochemical specifications, analytical methods and quality control of plant protection products and biocides.
Liège
More: www.cipac.org/datepla.htm
Contact: Olivier Pigeon, o.pigeon@cra.wallonie.be

6 - 11 July 2014
EAPR TRIENNIAL CONFERENCE
19th Triennial Conference of the European Association for Potato Research (EAPR).
Brussels
More: www.eapr2014.be
Contact: Jean-Pierre Goffart, j.goffart@cra.wallonie.be

25 - 28 July 2014
LIBRAMONT AGRICULTURAL FAIR
CRA-W will be at Libramont Fair with "*le Village de l'Agriculture de Wallonie*" (Hall 3).
Contact: communication@cra.wallonie.be

29 July 2014
4TH *JOURNÉE DE L'HERBE* GRASS SEMINAR
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Contact: Gaëtan Dubois, g.dubois@cra.wallonie.be