CRA-W NEWS

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Study day on 26 November 2003

Outdoor pig production: an opportunity ...

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FOREWORD BY THE DIRECTOR

In the past two years 2002-2003, the Ministry of Small Enterprises, Traders and Agriculture has been regionalised. CRA-W is now a public-interest organisation (PIO).

To raise our public profile, the Communications Unit at CRA-W has launched CRA-W INFO, a periodical produced by the Walloon Agricultural Research Centre. Published quarterly, it comprises various sections with information on fundamental research, applied research, services and what's happening at the CRA-W.

A number of events took place during the last quarter, including the "Outdoor Pig Production" day, which is covered in this, the first edition. See inside for a report.

P. Meeùs

Director a.i

Walloon Agricultural Research Centre

PIGS ENJOY THE OUTDOOR LIFE IN WALLONIA…

Outdoor pig production at CRA-W under the direction of José Wavreille and Frédéric Pilette

Adequate land, permanent grass, a purpose-built hut, a breeding sow, good practice, a desire to produce pork and willingness to innovate… outdoor pig production offers an entry to pig rearing with minimal investment.

'Outdoor pig production: an opportunity' was the topic for the half-day of study recently organised by the CRA-W together with the Centre for Rural Economics and the Department of Development and Extension in collaboration with the Faculty of Veterinary Medicine and the Pig Production Network of the Walloon Region (*Filière Porcine wallonne asbl*). The afternoon provided an opportunity for sharing the experience garnered by the Walloon Agricultural Research Centre with everyone with an interest in pig farming. Aspects covered also included the administrative formalities necessary for outdoor pig keeping, the main health risks involved, economic aspects of the system and a presentation of a promising marketing channel.

The study day was an unqualified success, attracting the attention of farmers, food producers, meat industry operators and distributors.

The walloon Region is on the right track: outdoor pig rearing is an alternative method of production which offers a means of promoting rural land use and biodiversity, developing differentiated quality sectors and following a path to success. As a result of the innovations introduced, sows, piglets and pigs are now a feature of Wallonia's grasslands. Production takes place under the established 'Organic Farming' (*Agriculture biologique*) and 'Farm Pork' (*Porc fermier*) labels, along with some newcomers such as 'Ardennes Grassland Pork' (*Le Porc des Prairies d'Ardenne*) and 'Hill Country Pork' (*Le Porc du Pays des Collines*). At the same time, a new sector has emerged, under the aegis of *Porc Qualité Ardenne* (pig breeders cooperative), bringing 'Ardennes Outdoor Pork' (*Le Porc Plein Air d'Ardenne*) to the supermarket shopper.

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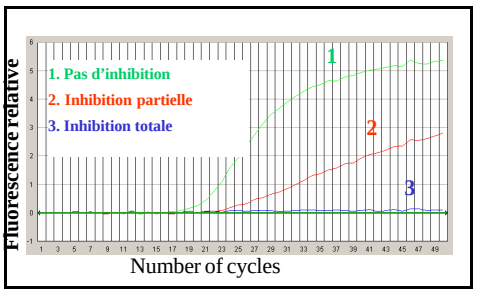
GMO: DNA QUANTIFICATION AND QUALITY

GMO quantification involves determining the quantity of DNA fragments extracted from the sample and subjected to a gene amplification reaction. To carry out such an analysis accurately requires detailed knowledge of the kinetics of the amplification reactions underlying the method. One of the aspects to be taken into account when analysing the kinetics is the potential inhibitory effect of inferior quality DNA extracts. Real-time PCR study of extracts from matrices commonly encountered in routine analysis has revealed several kinds of inhibition of which two ones - partial and total inhibition - are illustrated in the figure.



Inhibitory effect illustrated by real-time PCR curves

Further study into DNA quality and determining the kinetic parameters of amplification will be carried on under the extended (2004) network contract entitled "Tracing and Authenticating GMOs and Derived Products in the agro-food sector" no. CP/42/322, financed under the Federal Scientific Policy. Working with the CRA-W on this project are the Institute of Public Health (IPH) in Brussels (the co-ordinator), the Agricultural Research Centre (CLO) in Ghent, the Veterinary and Agro-chemical Research Centre (VAR) at Tervuren and Notre-Dame de la Paix University (FUNDP), Namur.

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PHYTOPHTHORA ALERT: FRESH THREAT TO THE WALLOON FORESTS?

Phytophthora ramorum symptoms on rhododendron leaves

In recent years, *Phytophthora ramorum*, one of the fungi on the EPPO (European and Mediterranean Plant Protection Organization) Alert list, has been found to be infecting some ornamental shrub species in Europe. This fungus' American strains are responsible for Sudden Oak Death. In Europe, it has mainly been found in nurseries, on *Viburnum bodnantense* and *Rhododendron* sp., but the list of susceptible species members with members affected is growing all the time, notably in the case of forest species. The Netherlands Plant Protection Service has notified a fungus attack on *Quercus rubra* in a park. In Britain, the disease has been identified in *Taxus*. As part of the monitoring conducted by AFSCA, the CRA-W has found infection in *Viburnum opulus* at a nursery. Like *Umbellularia californica* in the USA, this species could act as a relay, spreading the disease through our forests.

Phytophthora ramorum in a nursery leads to rapid plant death. Rhododendrons that become naturally infected have brownish leaf spotting and branch and bud necrosis. In *Viburnum (mettre en italique)*, the fungus causes wilting, discolouration of the vascular tissue and collar necrosis.

The CRA-W is behind the discovery of the first European strain with A2 type compatibility, proving that the fungus' sexual cycle, which requires type A1 to be crossed with type A2, can take place in Europe. Initial artificial inoculation trials at CRA-W with both type A1 and type A2 show that *Picea abies*, *Pseudotsuga menziesii*, *Abies nordmanniana* and *Carpinus betulus* are resistant to fungal infection, whereas *Quercus robur*, *Quercus petraea*, *Fagus sylvatica* and *Fraxinus excelsior*, on the other hand, developed bark infections, in the form of either oozing patches (oak and beech) or canker, with no discolouration (ash).

The alert is sufficiently serious to warrant stepping up plant health inspection and measures to eradicate the disease. As this is a quarantine organism, notification is mandatory under the Commission Decision dated 19 September 2002 concerning provisional emergency measures in the area of plant health to prevent the introduction and spread of *Phytophthora ramorum* Werres, De Cock & Man 't Veld sp.nov. in the Community.

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BACTERIAL DISEASES IN OUR ORCHARDS ...

Pseudomonas syringae is a bacterial pathogen affecting cherry trees, where it can limit the life of intensive orchards. It also commonly occurs in pear orchards (attacking buds, inflorescences and young trees) and plum trees. Work begun by the CRA-W in the mid-nineties led to the development of techniques for its identification and characterization which helped to show the diversity of strains isolated from some Walloon orchards.

The original team now has the backing of two subsidies from the Walloon Region (2631 and 2654), enabling the scope to be extended to *Erwinia amylovora*, which causes fire blight in pear trees and apple trees. The first project comprises collecting bacterial strains representative of the diversities occurring throughout Wallonia and also addressing the problems of correctly diagnosing ambiguous symptoms and assessing varietal susceptibility. The second project involves a detailed description of the collection strains with a view to subsequently establishing techniques for detection in the plant, for improved control of the most virulent pathogens.

Xanthomonas fragariae is under study at gene level, as this strawberry plant quarantine organism is now making inroads into Belgium. The work now reaching a conclusion indicates repeated introductions, via contaminated plants from France and the Netherlands, and points to internal heterogeneity within the populations in these two countries. It thus looks likely that tracing of certain strains will be possible, though not systematically differentiating between incursions from France and from the Netherlands.

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Xanthomonas fragariae attack on a strawberry leaf

INSECT PESTS: CRISIS AFTER CRISIS

The beech woods of the Ardennes had not fully recovered from wood boring beetle attack when the Western corn root worm struck in the Zaventem area. This was followed by a fresh wave of bark beetle, this time affecting spruces. Three outbreaks with significant economic implications within three years call for a swift, co-ordinated response from the appropriate authorities and an endeavour to understand and assess the issues and put forward plans of action. The services of the CRA-W were called upon in each instance.

In response to the ambrosia beetle attack on the beech trees, a little-known and complex phenomenon in which apparently healthy trees are attacked by *Trypodendron domesticum* and *Trypodendron signatum*, considered strictly secondary pests, a number of research teams were called in. Foresters, pathologists and entomologists from three French-speaking universities and from the CRA-W are working together to identify the causes, keep a check on development and guide the authorities in making appropriate choices.

Trypodendron domesticum

The plan for detecting Western corn rootworm (*Diabrotica virgifera virgifera* Leconte), requested by the AFSCA (Federal Agency for the Safety of the Food Chain), was drawn up and put into action with the participation of several institutions as CIPF, CLO and CRA-W. The discovery of an already fairly widespread seat of the disease not far from Zaventem International Airport creates a fresh challenge for AFSCA and a new demand for the scientists: the need to eradicate the insect from the affected area.

Last but not least, the spruce bark beetles *Ips typographus* and *Pityogenes chalcographus*, almost forgotten for the last ten years, took advantage of summer 2003 to reassert their threat to our forests. In this case too, the CRA-W is involved in implementing a plan of action to check their rapid multiplication, which could turn into a crisis with disastrous implications if the coming months bring weather conditions that favour this pest.

Research, consultation and information transfer: busy days for the CRA-W as it fulfils its role.

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CRA-W AT THE AGRIBEX INTERNATIONAL FAIR

9 – 15 FEBRUARY 2004

Agribex, the international agricultural, horticultural and stock breeding fair, will soon be taking place in Brussels. The CRA-W has a stand next to the Walloon Department of Agriculture and Rural Affairs and the Directorate-General for Agriculture (DGA).

We intend to take full advantage of our location and will be putting on a variety of promotions and tastings. Our famous apple juice, made from old apple varieties (Fruit Genetic Resources) will be featured on 10, 12 and 14 February. On 11 and 15 February, you can sample the many nutritional benefits of kefir and find out how to make it at home. Meanwhile on 13 February, an *in vitro* and molecular biology day (DNA extraction, etc.) will be held.

We will also be demonstrating some tractor testing software (BP Tractormanager and Castrol Performance Center), which is innovative and compares well with rival programs at this stage of development.

A competition will be held with the support of the DGA. There will be lots of prizes to be won twice a day and one big prize at the end of the Fair.

CRA-W staff will be on hand to talk to you and to answer all your questions. We look forward to seeing you there.

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FOOD AND FEED SAFETY IN THE CONTEXT OF PRION DISEASES:

16, 17 AND 18 JUNE 2004

Stratfeed

Project financed under the 5th programme GROWTH-FP5 within the framework of general measurement and testing work (January 2001-June 2004)

Within the framework of the European Stratfeed project, concerned with strategies and methods to detect and quantify meat-and-bone meals in feedingstuffs, the CRA-W is organising an international symposium, in collaboration with the European Commission's Joint Research Centre, Institute for Reference Materials and Measurements (JRC-IRMM), the Food Agency (AFSCA) and the Agrobiopole. The symposium, entitled "Food and Feed Safety in the Context of Prion Diseases", will be held in Namur on 16, 17 and 18 June 2004.

**** For further details and to register, visit** http://stratfeed.cra.wallonie.be*

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