CRA-W NEWS

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New molecular techniques applied to the apple tree

The research project under this agreement is aimed at developing an innovative molecular labelling methodology for reliable, unambiguous identification of apple tree cultivars even when of very close genetic origin (as in the case of mutants). This methodology is based on the presence of mobile elements known as retrotransposons in plant genomes. Besides their practical usefulness in identifying apple trees, the results are expected to enable significant progress to be made in understanding the basic phenomena involved in genome evolution. Our work will be developed from a *copia* retroelement previously identified in the apple tree.

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Financing: DGA

Chicory in the age of genomics

Industrial chicory is grown in order to extract inulin from the root. Inulin is a sugar which is used in a wide range of foods, both as a sweetener and as dietary fibre. The quantity of inulin in the root and the quality vary during the growing period according to the variety. These variations correspond to modifications in the genes expressed and the proteins present. The aim of the project is to study the genes expressed (genomics) and the proteins present (proteomics) in the chicory root during a growing season. This research is expected to reveal the mechanisms involved in sugar metabolism and thence to develop molecular tools for selection of high-performance chicory varieties. This is a joint project with FUNDP (Pr. P. Van Cutsem), UCL (Pr. M. Boutry), FUSAGx (Pr. M. Paquot) and CRA-W as genomics subcontractor.

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Financing: DGTRE, Standard interuniversity "Initiative research"

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20 October 2004

Fourth one-day conference on pig and poultry products: The Environment of the Pig and Poultry Sectors

18 and 19 November 2004

Second international conference on embedded near infrared spectrometers

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GEOGRAPHICAL TRACEABILITY OF AGRICULTURAL PRODUCTS

If farmers in the Walloon Region are to maintain a reasonable income in the Europe of 25, the main challenge is obviously to differentiate their products from other producers' and to market products with a quality stamp. A set of tools is available at both national and European level to help farmers guarantee certification of protected designation of origin (protected designation of origin, protected geographical indication) for local agricultural products.

The GeoTraceAgri project is based on the simple idea of linking geography to the established traceability process. From that idea the concept of geotraceability (geographical traceability) evolved.

The focus is specifically on the relationship between a product, the field where it was produced and its environment and the cultural practices used (http://www.geotraceagri.net). Spatial analysis then yields non-declaratory information for integration into the traceability chain.

The most innovative technical result is the development of geotraceability indicators. These are useful diagnostic tools, providing actors in the sector with a guarantee of the origin and method of production of the food purchased.

The GeoTraceAgri system is constructed on an Internet platform, using open source technology. It incorporates extended GIS capabilities, such as spatial data analysis, web mapping and metadata catalogue query.

The fact that a number of actors are exchanging data with different formats and contents led to consideration of the issue of system interoperability. Interoperability has to do with the data structure (geographical or other) and standardisation of data exchange, use and representation.

In terms of positive benefits for agriculture, the georeferenced data used in the traceability process are expected both to enhance the value of the traced products and also to provide efficient tools for organising the supervision of agri-environmental measures at regional level.

Within the framework of GeoTraceAgri and with a view to the 1st January 2005 deadline when traceability of agricultural products becomes mandatory, there is an evident need for new tools integrating different systems for management of agricultural land and different data sources. Over the coming months a new project (GTIS-CAP) will aim to develop a prototype for an integrated management and control system in line with the new requirements of a reformed CAP.

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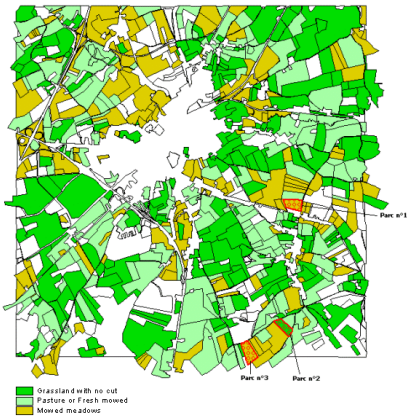

AUTHENTICATION AND TRACEABILITY OF AGRICULTURAL AND FOOD PRODUCTS: DEVELOPMENT AND VALIDATION OF ANALYTICAL METHODS

Over the last few years CRA-W has gained expertise in the development and validation of analytical methods based on molecular biology, infrared spectroscopy and gas chromatography techniques. The aim is to control and monitor quality and to authenticate agricultural and food products. The CRA-W's expertise has resulted in participation, as part of the fifth European framework programme, in various projects aimed at developing methods for detecting hazelnut oil in olive oil (MEDEO project, http://www.cica.es/aliens/igmedeo/) or for detecting mammalian tissues in feedingstuffs (RTD STRATFEED project, http://www.stratfeed.cra.wallonie.be). Another example is the CRA-W's involvement in the TYPIC project (http://www.typic.org), a study of differentiated quality food products (wine and dried ham) designed to identify consumer preferences and establish objective criteria for evaluation of such products. The project uses objective parameters defining the typical characteristics of the products to analyse consumer behaviour and perception of differentiated quality products. A further aspect of the TYPIC project is the development of analytical methods to describe and guarantee the specific qualities of such products and their traceability.

In the context of the sixth European framework programme the CRA-W is working on two new integrated projects due to get under way before the end of this year and to run for five years. The first of these has to do with developing traceability methods and systems to certify both geographical or genetic origin and the method of production of food products (cereal, mineral water, olive oil, honey, wine and meat). The second project will investigate the co-existence and traceability of genetically modified organisms (GMO).

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A FIRST CALVING AT 24 MONTHS, AN ADVANTAGE FOR BREEDERS OF SUCKLING CATTLE

In suckling cattle systems, managing heifers for early calving (between 24 and 30 months) is fairly uncommon. Nevertheless, this practice could be interesting from both economic and environmental points of view. It reduces the unproductive life of breeding animals by 6–12 months, and hence lowers their breeding costs. In addition, the cows are younger at slaughter and thus have a higher value. From the environmental perspective, early calving, involving the same calving numbers, results in a lower stocking rate and a better soil link at the farm level.

Belgian Blue White heifers and grass: a winning duo !

In the Luxembourg Province (SPIGVA database), however, farms practising early calving, even those performing well economically, tend to use a more intensive system of production, based on using more feed concentrates and more fertilisers and, thus increasing pressures on the environment.

The question, "Is early calving able, with optimal usage of grass and harvested forages, to address both economic and environmental needs?" was investigated by the Farming System Section. Such a practice would also improve product traceability and image.

The results show that it is possible to achieve an average daily gain (ADG) of 750 g, with target performances of 420 kg (70% of the adult weight necessary for a first insemination) at 15 months, with optimal usage of grass and silage. Winter diets based on grass, silage and hay result in an ADG of 755 g. With pasture, the ADG remains much the same (709 g). If winter diets are based on feed concentrates, the ADG can reach 920 g but with pasture this can fall to an ADG of 538 g.

From this study it also seems possible for 6-month-old heifers in their first grazing year to get 600 g /day from pasture. This performance level can be reached with a feed concentrate complement (1 kg of breeding concentrate/animal/day).

To conclude, it is possible to achieve early calving with feeding schemes where 50-70% consists of farm forage. Close attention needs to be paid, however, to the quality of this forage if an ADG of 750 g is to be achieved. This practice should benefit breeders of suckling cattle in terms of economic performance.

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LUTANUIS: A CROSS-BORDER PROJECT TO CONTROL THE MUSKRAT

Although there is general agreement today on the need to control the muskrat (*Ondatra zibethicus* L.), which causes serious damage to the banks of lakes and rivers, grassland and nearby crops and even hydraulic structures such as abutments, conduits, drain pipes, etc., it has to be said that the techniques and means used in the field vary, often considerably, from one region to another.

Given this rodent's high reproduction and dispersal potential, it is nevertheless essential for control efforts by adjacent regions to be effectively coordinated, as the muskrat is no respecter of frontiers. Accordingly, the LUTANUIS project ("Cross-border cooperation on pest control: the muskrat") was launched as part of the INTERREG III programme, with funding from the European Regional Development Fund and the Ministry of the Walloon Region (DGRNE).

The CRA-W is working with the muskrat trapping department at the Water Division (MRW-DGRNE) to contribute scientific expertise to the project. The other participants are the trapping department of West Flanders Province, the Ministry of the Flemish Community, the Cross-canton Muskrat Control Group in French Maritime Flanders and the Union of Cleansing Associations in the Nord Department.

Ondatra zibethicus: adult and juvenile

Close cooperation between these five bodies is expected to result in effective harmonisation of the means of control used (trapping and chemical control, in accordance with legislation in force). Building a shared database and setting up a joint Internet site will be the first concrete steps in implementing this project, which covers no fewer than 38 cross-border districts in France and the Flemish and Walloon regions.

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GETTING BIOFUELS UNDER WAY

Tuesday 3 and Wednesday 4 February 2004 Liège - Convention Centre, Marchin -Manu Lange

ValBiom (Valorisation de la Biomasse / biomass development) is a non-profit organisation, which aims at promoting the use of biomass for non-food applications, such as new materials or energy use. Mainly housed within the CRA-W, ValBiom represents a remarkable link between the applied research carried out in CRA-W as well as in others scientific institutions and the economic development of these innovative chains. ValBiom and CRA-W join common efforts to develop new opportunities for agricultural products such as the liquid biofuels, particularly topical consequently to the European policy changes on sugar market.

Following these perspective, ValBiom organised on 3rd February the conference and round table on biofuels, at the joint initiative of Ministers J. Daras and J. Happart. This meeting, held at the Liège Convention Centre, has gathered more than 150 people. Representatives of the political sphere (staff from the Agriculture and Energy Departments, Members of the Walloon Parliament), agricultural institutions (CBB, FWA), potential users (TEC, STIB, IBGE), oil companies (ESSO, TOTAL), federal and Walloon Region institutions (Customs & Excise, DGTRE, DGA), along with various companies and potential project sponsors attended this event.

Against a backdrop of thoughts on the implementation of the European directives for the promotion and tax exemption of biofuels and also the recent government and regional declarations on the conversion of the Genappe sugar refinery, the event was an opportunity to review biofuel development and the associated challenges and curbs. The role of biofuels in crop diversification and new jobs creation in agriculture was highlighted. The environmental benefits of this sector, in terms of savings on CO2 emissions into the atmosphere and the advantages over bare fallow, were also confirmed and emphasized. Participants also stressed the need for an neutral comparison of the sectors and a choice among the various options (use on its own or in a mixture, pure oil or biodiesel, etc.). Minister José Daras and Mrs Odette Doyen, a member of José Happart's departmental staff, closed the day by reaffirming their support in principle for biofuels.

The visit of Mr Lange's rapeseed oil production plant the following day provided an illustration of the technical feasibility of this process in the Walloon Region. ValBiom is delighted at the great interest shown by those attending and the success of the event generally.

Slides of the presentations can be viewed on the ValBiom site at www.valbiom.be

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LES LIVRETS DE L'AGRICULTURE NO. 9

"Outdoor pig production in the Walloon Region. From birth to a quality meat product". J. Wavreille et al, 2004, 52 pages. This is the result of a joint undertaking by CRA-W, ULg and the pork sector.

The booklet contains lots of practical tips for pig farmers.

It is available free of charge, only in french, at the DGA and from the CRA-W.

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FOURTH ONE-DAY CONFERENCE ON PIG AND POULTRY PRODUCTS

Wednesday 20 October 2004, Espace Senghor, Gembloux
Organised jointly by CRA-W, FUSAGx, FPW, FACW and DGA

Topic: The Environment of the Pig and Poultry Sectors : The smell problem, waste management, atmospheric emissions, noise

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SECOND INTERNATIONAL CONFERENCE ON EMBEDDED NEAR INFRARED SPECTROMETERS

GEMBLOUX, 18 AND 19 NOVEMBER 2004

CRA-W is holding a symposium entitled "On-board NIR, data processing and precision farming" at Gembloux on 18 and 19 November 2004. A number of European research groups from both the public and the private sector will be invited to describe the research they are undertaking in this field.

Log on to http://cra.wallonie.be for more information and to register.

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