

New AWEP scheme for Piétrain boar progeny testing CRA-W involved in R&D



Caption (left to right): Nicole Bartiaux-Thill, General Scientific Inspector, Department of Animal Production and Nutrition (CRA-W D6), Véronique Jaspard, Secretary and Henri Stas, President, Walloon Pig Breeders' Association (AWEP), José Wavreille (CRA-W D6) and Patrick Meëus, acting Director of the Walloon Agricultural Research Centre

The Walloon Pig Breeders' Association (AWEP asbl), formed in 2003 following the regionalisation of agriculture, keeps progeny records of breeds of pig reared in Wallonia and oversees breeding programmes.

In this context AWEP and CRA-W have signed a cooperation agreement with the aim of launching a new progeny testing scheme for Piétrain boars and injecting fresh dynamism into the industry. The aim is to measure the fattening performance of progeny who although no longer pure-bred are of the genetic type corresponding to porkers. This involves determining the genetic potential of Piétrain boars with respect to different characteristics that are specifically relevant to rearing porkers, notably growth, feed conversion rate and carcass quality. To this end the progeny will be produced at CRA-W, thus initiating a new line of R&D activity and taking advantage of the herd of 120 sows used for research. This step is a specific acknowledgment by the industry of the work carried on at CRA-W by the team headed by J. Wavreille in the area of pig production.

Publication in the *Moniteur Belge* on 27 October 2006 of the Royal Decree on the health conditions for pig sperm production has given concrete form to the design of this new progeny testing scheme. It is now permissible, under certain conditions, to produce sperm for use in inseminating sows in a reference herd (CRA-W) in order to send the progeny to a performance measuring station (Cerexhe-Heuseux).

On 15 January and 26 March 2007, CRA-W inseminated a group of 30 sows for progeny testing of the first Piétrain boars from Walloon breeders. This will be repeated every ten weeks. The piglets born and reared at CRA-W will be transferred to the testing station. Geneticists at the Faculty of Veterinary Medicine and at Gembloux Agricultural University will then establish the summary indices in order to quantify the genetic potential of the terminal boars compared with their contemporaries. The results will enable breeders to market products with a scientifically proven breeding value.

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CRA-W at Libramont Agricultural Fair—27-31 Juli 2007

The CRA-W researchers look forward to seeing you again this summer at Libramont Agricultural Fair, in Walexpo. Each day will be devoted to a fresh topic. Come along and say hello – there are lots of things of interest for you to see.

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The 7th in our now-traditional series of seminars, "Pig and Poultry Products" - 17/10/07- Espace Senghor, Gembloux

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Bluetongue vectors trapped by CRA-W

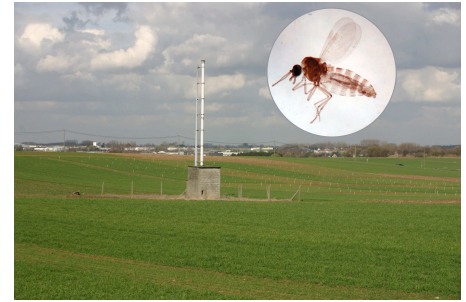
The two Rothamsted tower suction traps belonging to CRA-W, located at Gembloux and Libramont, are used to monitor economically significant aphid swarms in the potato industry. These traps also catch *Culicoides* species (Diptera, Ceratopogonidae), some species of which are known to be potential vectors of the Bluetongue virus or Ovine Catarrhal Fever (OCF). These tiny flies (1–2 mm) are among the windborne insects drawn into these traps, which operate at a height of 12 metres.

The crisis sparked by the discovery of focuses of this disease in this country in August 2006 triggered the rapid launch, under the aegis of FASFC and EFSA (European Food Safety Authority), of an insect monitoring project in Belgium. The work of monitoring was undertaken jointly by ITGA, Gembloux Agricultural University and ULg, using light traps of limited autonomy.

CRA-W has the only two suction traps

in Belgium that can operate continuously and is also involved in this project with the aim of determining the specific fate in time of the *Culicoides* captured by the towers. The expected data will correlate species dispersion with ecological parameters such as minimum temperature or wind and with physiological parameters such as feeding. This stationary trapping system will act as a sentry in detecting insect flying activity. A light trap will be set up near the CRA-W cowsheds in 2007 with the aim of establishing a correlation between captures in the two types of trap in use at the Gembloux site.

In comparison to the results of trapping with light traps by the project partners at different sites in Wallonia and Flanders in 2006, the *Culicoides* species caught by the towers are far less numerous, but very diversified. The qualitative representativeness compared with the total species listed is very good (86%) and nearly one-third of the species recorded were caught purely



Gembloux suction trap, Medallion a Culicoides (size = 1–2 mm)

thanks to the suction traps. The proportion of potential vectors is close to the result for light traps.

Project subsidised by SPF and FASFC, RF 6187.

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SAFEED-PAP project takes off !

Since the outbreak of bovine spongiform encephalopathy (BSE) in the UK in 1987, European legislation has become increasingly strict in the area of animal feed. Now, however, the European Commission is considering amending some measures, though without endangering health or the BSE eradication policy. The scientific conditions involve a total ban on animal meal and thus require the development and validation of analytical methods and tools to detect the presence of and identify animal proteins in animal feed. Current methods do not enable such proteins to be accurately identified, however, and so the total ban cannot be lifted.

Against this background, a new three-year European project entitled **SAFEED-PAP (FOOD-CT-2006-036221)** financed by the Sixth Framework Programme got under way on 1st December 2006. The project's main aim is to find a solution to the problems of species-level detection of animal proteins in animal feed. The project is intended to (i) develop and validate methods applicable to species-level detection and quantification of animal

proteins in animal feed compounds; (ii) develop analytical tools and kits for correct laboratory application of the methods; (iii) create an appropriate environment for application of the methods. This project, coordinated by CRA-W, really took off on 29, 30 and 31 January 2007, at a kick-off meeting held in Gembloux. The SAFEED-PAP consortium comprises thirteen partners, all European leaders involved in developing analytical methods for detecting animal proteins. As well as coordinating and managing the project, CRA-W leads the team working on improving and validating test kits. CRA-W is also involved in the development of NIR microscopy analytical methods and PCR techniques and in validation of methods and feasibility studies for the production of certified reference material. The CRA-W also plays a decisive part in the dissemination of results via a **W e b s i t e** <http://safeedpap.feedsafety.org/> and through international conferences. The second **FEEDSAFETY 2007** symposium, hosted by CRA-W in cooperation with Agrobiopôle wallon asbl, will be held in Namur on 27th and 28th Novem-

ber 2007 and will offer a review of the latest legislative, scientific and industrial progress in animal feed chain safety. For further details visit <http://safeedpap.feedsafety.org/fs2007>.



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What future for the horse chestnut tree in Belgium?

The horse chestnut tree, *Aesculus hippocastanum*, known in French as the Indian chestnut, (although in fact it comes from the Balkans) is a majestic tree which is very popular. It is planted sometimes in lines along the edge of roads, sometimes on its own or in small stands as an ornamental species in parks, public and private gardens, school yards, memorial sites and even cemeteries. People generally tend to be very fond of chestnut trees.

However, the future wellbeing of the horse chestnut tree is now in doubt, due to a number of phytosanitary problems that have recently come to light. Apart from the problem of leaf miners, which cause premature damage to the foliage during the season, an apparently new bacterial disease caused by a pathogen of the *Pseudomonas syringae* species is causing cankers and loosening of the bark on the trunk and main branches. These bacterial attacks can result in the death of a tree in a few years. They have also been noted in the Netherlands, the United Kingdom, Germany and northern France. The disease complicates the work of plantation managers faced on the one hand with popular fondness for the species and on the other with the uncertainty surrounding the future of plantations *in situ* and possible new plantations.

In late 2004 the Brussels Regional Gov-

ernment asked CRA-W to investigate. The problems are acute in Brussels because the horse chestnut tree has been widely planted at locations, some of them protected, where it contributes to the attractiveness of the city not only for the inhabitants but also for visitors. Tensions between local people and the authorities run high when existing plantations have to be replaced. Carried out with the assistance of the Brussels Regional Government, the Ministry of Equipment and Transport of the Regional Government of Wallonia, and Green Spaces administrations of Walloon cities, the CRA-W study revealed the role played by *Pseudomonas syringae* in the disease. Cases have been noted in Wallonia in and around Mouscron, La Louvière (along the Canal du Centre, a protected area), Charleroi, Gembloux, Namur and Liège, but the disease has not so far been detected in the Ardennes or in Gaume.

Pseudomonas syringae is a heterogeneous bacterial species divided into a number of pathovars with a generally limited host spectrum. Analyses of Belgian strains isolated from *Aesculus hippocastanum* indicate genetic proximity and similar virulence on *Aesculus hippocastanum* to the strains of *Pseudomonas syringae* that attack the foliage of *Aesculus indica* (the true Indian chestnut). They also have a

surprising genetic proximity to certain strains that attack the cherry tree, which have been under investigation by CRA-W for some time.

A forthcoming research agreement subsidised by the Brussels Regional Government will aim at a better understanding of the pathogen, its ecology, initial tree contamination routes, virulence of strains and variety susceptibilities, thus leading to effective management of the plantations presently *in situ* and a confident resumption of planting of young chestnut trees.

Description of the risks faced and proposed solutions to limit those risks will lead to the approaches best suited both to the technical requirements of plantation managers and the population's desire for attractive surroundings.



Horse chestnut trees attacked by *Pseudomonas syringae* in a garden at CRA-W

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EPPO: a European week at CRA-W

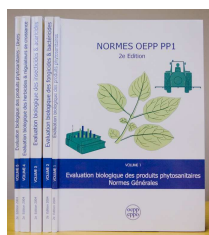
EPPO, the European and Mediterranean Plant Protection Organization, promotes international cooperation in the sphere of plant health in agriculture, forestry and the uncultivated environment. It comprises a number of panels, each dealing with one area of plant protection and formed by specialists drawn from the member states.

For several decades now, CRA-W scientists have taken part in the panels developing guidelines for testing plant protection products. The aim is not only to develop the methods through exchange and sharing of information and experiences but also to permit, within the different states' registration processes, mutual recognition of trials conducted according to agreed experimental standards.

With the introduction of Directive 91/414/EEC on the placing of plant protection products on the market, the role of EPPO is now crucial and EPPO standards for biological assessment of plant protection products are an essential reference system.

This work is obviously of a long-term nature, as the experimental rules have to be expressed in concrete terms, through

the whole diversity of the organisms studied and types of crop. More than 200 standards have been published to date. The oldest or most obsolete of these are revised in order to adapt to new possibilities arising and the new constraints of agronomic experimentation.



The panels meet once a year. In November 2006, the Pesticide Research Department of the CRA-W hosted the "Herbicides and Growth Regulators" and "Fungicides and Insecticides" panels at Gembloux for a week. The previous meeting at Gembloux was back in 1985.

Social interaction, work, sharing, ... : these get-togethers are always extremely motivating and useful. Alongside the on-going work, the opportunities for exchanges with crop protection specialists from the different regions of Europe and the Mediterranean enable us to put our day-to-day work into perspective and also generate lots of ideas!

For more information about EPPO, visit <http://www.eppo.org/>



EPPO standards for assessment of plant protection products

Photo caption 2: The EPPO members who visited CRA-W in November 2006 came from Austria, Croatia, Denmark, France, Germany, Ireland, Italy, the Netherlands, Switzerland and the UK.

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Goat's cheeses naturally richer in omega-3 fatty acids: benefiting consumer health

The fat of ruminants, long disparaged, is now enjoying renewed interest due to the presence of fatty acids beneficial to human health at potentially interesting levels, namely omega-3 fatty acids and conjugated linoleic acids (or CLA). A number of studies have shown that it is possible, through feeding, to improve the fatty acid content of meat and milk in a natural way. This trial pursues a similar aim by investigating the effect of supplementation with different sources of omega-3 on the fatty acid content of goats' milk.

The trial is being conducted on a flock of 129 Saenen goats divided into three groups. The three systems tested are iso-fats but differ in the way the unsaturated fatty acids are provided: as whole linseed, extruded linseed and rapeseed cake made on the farm. The linseed (whole or extruded) is fed at a rate of 100 g/goat/day and the rapeseed cake at a rate of 200 g/goat/day.

The diets studied do not affect the milk yield (2.2 kg/goat/day) or the levels of

useful substances (fats and proteins). The "rapeseed" diet leads to a higher proportion of monounsaturated fatty acids, which may be due to the cake being richer in these fatty acids. This diet, together with the extruded linseed diet, also has the highest CLA content (0.8% of total fatty acids). This finding appears to indicate that the extruded linseed and rapeseed diets cause greater hydrogenation of the omega-3 in the rumen, probably due to the form of presentation. Lastly, providing supplementary linseed significantly enriches the milk with omega-3. This is favoured by the extrusion process (+30 and 110% compared with the "whole linseed" and "rapeseed" diets respectively).

Moreover, cheese making (*fromage frais* or more mature cheeses) does not appear to alter the initial fatty acid pattern of the milk. The changes in the milk fatty acid content as a result of linseed supplementation are thus also apparent in the cheese making process,

which can only be beneficial for consumer health!



This trial was carried out by CRA-W in close cooperation with Messrs Delmotte and Fameree of D33-RW. We should like to thank Mr and Mrs Marechal most sincerely for looking after the dairy goat flock, Ms Dupuis (F.I.C.O.W.) for her assistance and the firm of VERSIS S.A. for their support.

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Reconciling livestock farming and the environment ...

On the 5 of April the Farming Systems Section presented the researches undertaken to ensure the environmental sustainability of livestock farming systems development.

The environmental impact of livestock manure production and storage was one of the problems tackled. This research, in cooperation with the UCL, assesses the potential of different manure management practices to reduce greenhouse gas production (CO₂, NO₂ and methane) and limit fertilizer losses (N, P, K).

Similarly, improving the nitrogen balance of the Belgian Blue Bull during fattening is another field of research, in cooperation with the FUSAGx. The aim of this approach is to adjust the protein/energy ratio of the diet in order to lead to a significant reduction in nitrogen release in the environment (urine, faeces, ...) without decreasing animal growth.

The sustainability of agriculture was also approached through its multi-functionality supported by the agri-environmental scheme (AES). Nevertheless, farm compliance with AES can lead to some evolutions in terms of technical or economic performances. To quantify such impacts, the Farming Systems Section develops a decision support system (OptiMAE) for the farmers and their advisory services.

In organic farming, the research aims to develop a beef product that could be clearly identified, qualified by the costumers and this in accordance with the organic frame of reference. Studied parameters include feeding strategies, sex and breed of the animals and meat maturation and transformation processes.

Grazing management has not been forgotten. Reducing the risks of nitrogen leaching in pasture while respecting the maximum levels of nitrogen fertilisation imposed by the Nitrates Directive have been studied. The stocking rate, the form (organic or mineral) and date of nitrogen application explain a significant part of the nitrogen residues observed, in grassland soil at the end of the grazing season, in specialised dairy farms. The data col-

lected in 24 farms of reference allow the development of a decision support system to assess nitrogen leaching risk in grazed grasslands in link to farmer practices.

Optimum utilisation of grassland is also studied while exploiting sheep and cattle complementarity under grazing. The results obtained show the beneficial effects of this combination both on grassland production (consumption of ungrazed plants) and on the control of animal parasite infestation. It is possible to run both sheep and cattle without any major changes to grassland fertilisation scheme : the excess of spring production being consumed by the second herd.

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