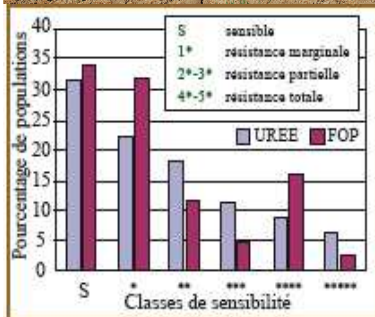




Resistance spreads to Belgium!

Weed resistance to herbicides is spreading. Across the world it concerns over 180 weed species and all modes of herbicide action [www.weedscience.org]. Farmers in northern Europe specifically have to contend with blackgrass (*Alopecurus myosuroides* HUDS.), mainly in France and Britain, where agricultural practice has selected resistant biotypes of blackgrass.

Resistance makes control extremely hard and often leads to multiple herbicide treatments. It also requires a return to labour-intensive cultural practices such as ploughing, stubble ploughing and false seed-bed preparation which farmers have in many cases nowadays given up. Belgium had largely escaped so far, with only a small number of clearly delimited areas affected (the Polders, the Scheldt marshes and the area around Fosses-la-Ville).



Now, however, resistance is spreading and ears of blackgrass can often be seen towering over cereal crops by late June.

In July 2006 CRA-W collected about forty sam-

ples of blackgrass seeds from fields throughout Wallonia where weed control had been unsuccessful. These populations were tested under controlled conditions. The test simply involved spraying the blackgrass plantlets with different types of herbicide. Two reference populations, one susceptible and the other resistant, within the test enabled the test to be validated and the “wild” populations to be ranked. This kind of bioassay does not, however, identify the resistance mechanism concerned (target site resistance or enhanced metabolism resistance).

The results reveal differences in susceptibility to ureas (*chlortoluron* and *isoproturon*) and FOPs (*fenoxaprop* and *clodinafop*): blackgrass populations occur in all susceptibility classes (cf. graph). It also appears that resistance is no longer confined to specific areas (cf. maps).

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Libramont Agricultural Fair

Come and see us at Walexpo during the weekend of 25-28 July when the topic will be technological issues in agricultural Europe. Lots of activities and a big compe-



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How can the impact of mastitis on Wallonia's dairy farms be limited?

Farmers often underestimate the cost of disease. Mastitis, an inflammation of one or more quarters of the udder, accounts for more than one-third of the direct and indirect costs of diseases in dairy farming, averaging 140 euros per cow per year. Its multifactorial nature makes prevention difficult and farmers want easy-to-implement recommendations in order to limit the economic impact of this disease, which affects nearly all of our farms.

A mammary health audit was carried out on 350 dairy farms as part of a multidisciplinary research project involving CRA-W, ULg, AWE and the Milk Committee and subsidised by MRW-DGA-IG3. During the farm visits the scientists collected information on cow housing, milking methods, herd management (feeding, use of drugs, etc.) along with general data, making a total of more than 175 observations per visit.

A statistical analysis was developed by CRA-W in order to rank the main triggers for mastitis on the basis of the estimated tank cell count (ETCC) in the last three milk checks.

Among the main predisposing factors, the analysis shows that a strawed lying area creates 2.4 times the risk of an ETCC > 400,000 cells than loose box housing. Failure to carry out teat dipping, which is done to protect the cow from contamination via the sphincters, creates twice the risk; dirty teat cup liners increase the risk by a factor of 2.3; occasional stripping (emptying the udder completely) causes 2.3 times the risk of no stripping; and the lack of a calving box multiplies the risk by 2.5. The latter observation confirms the utmost importance of preparing cows for calving in the best possible health conditions, as risks of contamination are already present in the drying off period.

Other factors that were found to be lesser triggers of mastitis should nevertheless be taken into consideration for improved stock keeping on certain farms. Building on this, a tool should ideally be developed for use by the farmer that would highlight the main risk factors on the particular farm.



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The Consultancy Office answers your questions about plant diseases and pests

Plants are affected by a wide variety of diseases and pests: fungi, viruses, bacteria, insects, mites, rodents or physiological disorders are among the main causes of symptoms in plants. It is therefore essential to pinpoint the cause of the symptoms in order to take appropriate control action. To this end the CRA-W Consultancy Office answers questions from the industry and from individuals about all plant diseases and pests. The Office performs analyses to identify the cause of the symptoms occurring and provides advice on control measures. Due to the wide range of plant problems encountered the Consultancy Office sometimes calls on the expertise of various CRA-W laboratories specialising in particular disciplines related to plant diseases or pests to assist with identification. With this system the customer always has a single point of contact, no matter what the phytosanitary problem.

In practice...

- Advice is obtainable over the telephone on Wednesdays, when the Consultancy Office is manned. Growers or amateur gardeners can also submit samples then for immediate examination by staff. An answer is given straight away whenever possible.

- Outside these duty hours, samples can be handed in from Mondays to Fridays or posted to the Consultancy Office. Samples are analysed and a written answer is sent to the customer as soon as possible.

- Site visits can also be arranged. These are especially useful in the case of certain problems, notably when assessing the stability of ornamental trees showing signs of decay, a major concern both for park and estate managers and for gardeners. Such site visits also provide a more effective answer to questions from indi-

viduals faced with more than one phytosanitary problem on their property.

- The Consultancy Office offers some customers annual contracts for phytosanitary monitoring of growing plots or for year-round analysis of large numbers of samples.

Full details of services offered by the Consultancy Office and a schedule of rates can be found on the CRA-W Website

(www.cra.wallonie.be/services/consultations/consultations.php).



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VETAB, a cross-border project serving the organic sector

Implemented and financed in the context of the Interreg III France – Wallonia – Flanders programme, the VETAB project (Valoriser l'Expérience Transfrontalière en Agriculture Biologique / Developing cross-border experience in organic farming) aimed to establish benchmarks for the development of organic field crops in each of the three partner regions. The project was completed in September 2007 after six years of useful cross-border research. CRA-W was a stakeholder in this venture. A sizeable part of the Potato study was in fact undertaken within this project. The aim here was to propose new cropping methods for organic farmers for more effective management of blight. Two major lines of research were undertaken to meet these aims. Firstly, the various project partners set up variety blight susceptibility trials. Secondly, at the laboratory CRA-W explored the alternatives to copper fungicides. The most promising products

were then proposed to the partners and assessed in multisite field trials. Among other things the VETAB project identified several potato varieties that combine very good leaf blight resistance with good taste properties. These include Sarpo-Mira, a soft fleshed variety with very high blight resistance, and Valor, a firm fleshed variety with low leaf blight susceptibility. The project also identified some credible alternatives for reducing rates of copper application in the field or possibly replacing copper by products like PK2 and Zonix. PK2 is a potassium phosphonate currently used in conventional agriculture as a foliar fertilizer, whereas Zonix comprises lipids produced by microorganisms. Unfortunately, neither product has yet been authorised in Belgium.

However, the VETAB project partners were keen to go further and proposed a new Interreg project to meet the future challenges facing the organic sector.

This project was named VETABIO. As well as further developing some lines already explored by VETAB in the area of market gardening, VETABIO would also provide farmers with concrete solutions in terms of cattle feed. With the new European Union requirement for herbivores reared according to the organic specification to be fed 100% organic feed coming into force this year, farming systems will need to adapt to comply with this obligation in terms of supplementation.



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The Asian ladybird in Wallonia and at CRA-W

Introduced in Belgium in the late 90s to control aphids in greenhouses, the Asian ladybird *Harmonia axyridis* Pallas soon escaped from these confined environment. In just a few years it had invaded the whole country and is now ousting several native species of ladybird both from natural environments, parks, gardens and agricultural ecosystems.

Things would not be so bad if this species only fed on aphids. But when confronted with other ladybird larvae the intruder almost always comes off best, first of all by exhausting the available food resources then by eating the larvae of other species present in the same resources. This is also called intraguild predation. A video sequence which can be viewed on our Website <http://www.cra.wallonie.be> shows the behavior in a predation laboratory of the Asian ladybird with respect to the 7-spot ladybird familiar to gardeners.

A recent CRA-W study in potatoes shows that whereas the Asian ladybird keeps a low profile in the early stages of aphid infestation, the populations gradually increase until it completely dominates European species by the end of the season. By then, the Asian ladybird is



Asian ladybird preying on 7-spot ladybird observed in a potato field

still emphatically present despite the decline in aphids. GC-MS analysis of the contents of Asian ladybird larvae collected at the time, by a method developed in cooperation with ULB, re-

veals the presence of alkaloids from other ladybirds, a clear sign of predation. The evidence suggests behavior more akin to a ladybird superpredator than an aphid predator. The detection method opens the door for field intraguild predation quantification studies. Lack of suitable techniques has made success in this area elusive to date.

Further information can be found in the following publications:

JANSEN JP; HAUTIER L (2008), pp 223-234, H. Roy & E. Wajnberg eds, Springer Books. (Previously published in *BioControl* 53: 223-233)

HAUTIER L and al, *Chemoecology*, In press.

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First FP7 project for CRA-W

RASFF, the rapid alert system for food and feed, shows that controls on chemical contaminants in animal and human food are essential for food safety in Europe. Chemical contaminants are also a major consumer concern in terms of dietary risks. Moreover, the regulation laying down the general principles and requirements of food law (Regulation (EC) no. 178/2002) makes industries responsible for the safety of the food they produce. Current analytical methods are often expensive and can detect only one substance at a time. There is thus an urgent need to develop screening methods that are straightforward, inexpensive and rapid and that can detect several contaminants at the same time.

In this context, from this summer CRA-W will participate for four years in a new cooperative project financed by the Seventh Framework Programme of the European Commission entitled CONffIDENCE (proposal - 211326) called "CONTaminants in Food and Feed: Inexpensive DETectioN for Control of Exposure". The project aims to find permanent solutions for the control of persistent organic pollutants (POPs), perfluorinated compounds (PFCs), pesticides, veterinary

pharmaceuticals (cocciidiostats, antibiotics), heavy metals and biotoxins (alkaloids, marine toxins, mycotoxins) in high-risk products like fish, fish food, cereal-based foods and vegetables. Various new methods based on multiplex technologies will be developed. After validation the new methods will be applied in demonstration activities which will help to gauge contaminant exposure and validate the risk assessment models.



Results will be distributed to scientists and stakeholders including the food industry, official inspection authorities (DG-SANCO, EFSA) and standardisation bodies (CEN), Community Reference Laboratories (CRL), routine laboratories and consumers via a Website (<http://www.confidence.org>), an electronic newsletter, press articles, public workshops, open days, papers at international

conferences, publications and training modules.

The CONffIDENCE consortium comprises 18 partners from ten European countries. CRA-W will direct the working group on training, dissemination and use of results with special responsibility for developing the Website. The Centre is also involved in coordinating the project and setting up and maintaining the intranet. CRA-W will also play a key role in the development of a near infrared imaging based analytical method for detection of ergot (*claviceps purpurea*) in cereals. Ergot was selected for this study because of its increasing presence in recent years in samples of cereals or compound foods and the lack of relevant information. This project, coordinated by RIKILT, will get under way in the summer of 2008 at a kick-off meeting. For more information visit <http://www.confidence.org>.

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Our expertise on Biomass-to-Energy Projects

In sub-Saharan Africa, many small and medium-sized enterprises (SMEs) produce themselves the energy (heat and/or power) they need for their manufacturing processes. The energy generation equipments are often rudimentary and inefficient. Diesel generators are widely used, but they imply heavy operation charges for fuel supply, a situation which may that may be fatal for the SMEs.

However, large quantities of biomass are available to meet such enterprises' fuel needs. These comprise agricultural and food industry residues (e.g. rice husks, palm nut shells and fibres, cattle and poultry manure) and timber industry by-products (e.g. sawdust, chips.)

In some cases, adapted and efficient bioenergy technologies have been successfully implemented and disseminated in SMEs from another developing region. However, African SME managers do not always have the necessary information on the technologies available and on the improvements that could be made regarding the energy production. Furthermore, the entrepreneurs are faced to a lack of indispensable tools

and services (project developers, technical advisors, adapted financial solutions, etc.) which would enable them to improve the energy production within their SME.

The development of a bioenergy project (i.e. the improvement of an existing bioenergy unit or the replacement of a fossil-fuelled unit) in an African SME, from the project idea to the financing and the implementation, is hampered by several non technological barriers: lack of adapted financial tools, insufficient capacity of local consultants, lack of technical and economic information for SME entrepreneurs, etc. Despite the



Rice husking plant in the Senegal River valley

efforts of the local governments, these barriers may create an unfavourable framework for investments in efficient energy production from biomass.

In order to address these non-technological barriers, CRA-W has coordinated the ENEFIBIO project for the last three years. This project, funded by the European Commission, aims to create a more favourable framework for the development of efficient energy production technologies from biomass. The ENEFIBIO project is focusing on two countries, considered representative of their regions: Senegal in West Africa and Cameroon in Central Africa.

The ENEFIBIO project comprises 3 components of action:

- 1) Increasing the capacity of players in biomass-to-energy unit development
- 2) Improving the administrative and regulatory framework
- 3) Setting up of two Bioenergy Information Centres (in Senegal and in Cameroon).

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