



## The new CRA-W



The Walloon Agricultural Research Centre has undergone a major overhaul in January 2010. Its structure has been reorganized to handle the ever-changing tasks and requirements facing agricultural research as effectively as possible.

### **But what exactly are those requirements ?**

Agricultural research is traditionally defined as a set of scientific investigations with the ultimate aim of passing on the overall benefits of scientific and technological progress to the agricultural industry and the rural community. It comprises both fundamental research, which produces results of general relevance in the longer term, and applied research, which aims to solve practical problems facing players in the agricultural sectors in the shorter term.

At the same time, agricultural research has to meet the high socio-economic expectations surrounding the topics covered (food, agriculture, environment, sustainable development, and so on) and deal with complex subjects (grassland, agricultural practices, etc.).

These specific features of agricultural research compel it to adapt to changing contexts (growing significance of environmental concerns and food safety) and they require a multi-disciplinary approach. Furthermore, adaptation to new issues must not take place at the expense of scientific excellence.

Therefore, if a research institution like CRA-W is to maintain and develop the scientific excellence and social usefulness that justify its existence, it must ensure its work and activities have a high profile in today's world in order to face up to its responsibilities.

The Regional Government sees CRA-W as a special tool for putting agricul-

tural Wallonia at the forefront of technical, economic and social progress and guaranteeing the region an effective presence in agricultural expertise at both national and international level.

The Centre's new structure has therefore been designed and put in place in response to these various demands (see organisation chart). It is intended to enable relevant, realistic, open-ended projects to be established and developed on the basis of multi-disciplinary scientific expertise.

CRA-W will thus be well equipped to tackle the major issues of our time by pursuing the five main directions of research established in 2004:

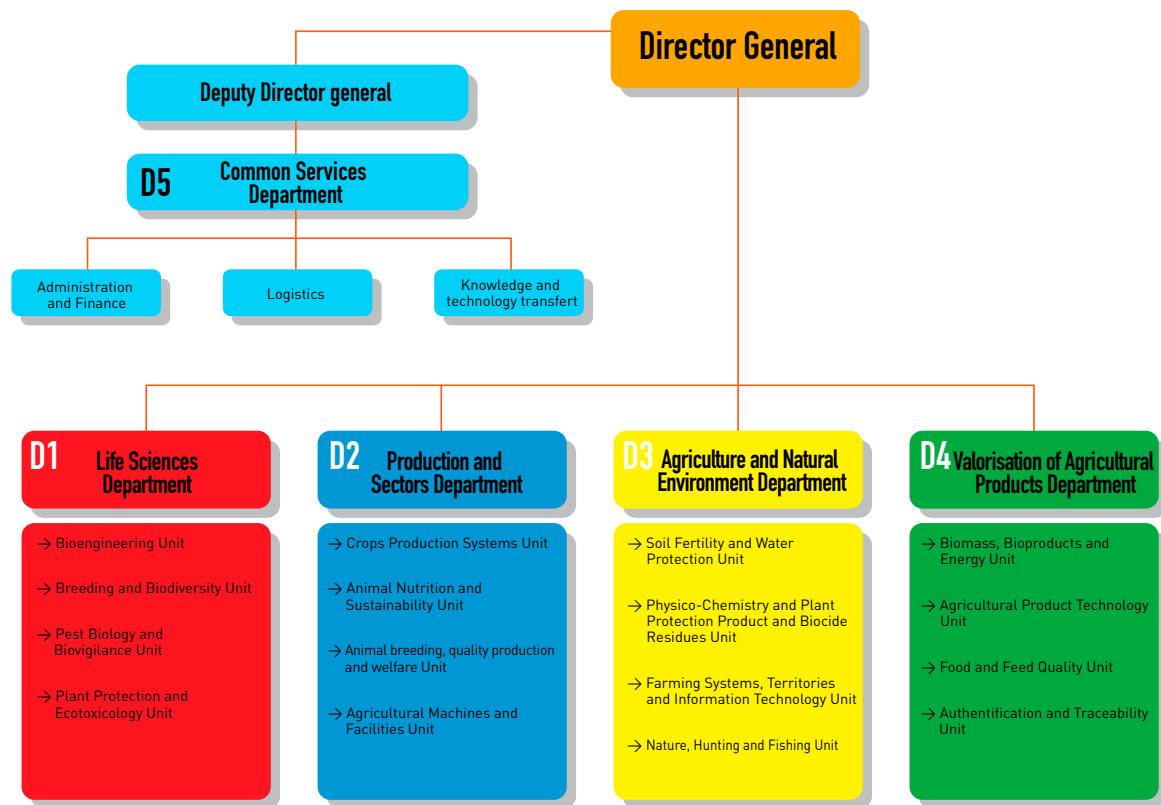
1. Improving the living environment, protecting the natural environment and producing in a sustainable manner
2. Improving human food, protecting consumer health and understanding consumer behaviour
3. Diversifying products and their uses, and improving the competitiveness of producers and companies
4. Adapting species, practices and production systems to changing contexts
5. Providing decision support for public- and private-sector players

In this way, CRA-W is making its contribution in response to the general policy statement announcing the determination to "Ensure sustainable, multifunctional agriculture to meet the challenges of the century".

It also plays a part through its many service activities, its involvement in the various sectors and the use or supply of living assets such as animals, land and orchards without which some aspects of the research work could not be undertaken, either by CRA-W or by its numerous partner institutions.

# ORGANISATION CHART

CRA-W



## The new structure

CRA-W now comprises four research departments and one Common Services Department. Each research department is divided into four sections. Contact details for the personnel of the various departments can be found on our Website.

Only the departments dealing with scientific research will be briefly discussed here.

### Life Sciences Department

The work of this Department is based on a detailed understanding of the living world, its organisation, complexity and functioning. Drawing on recent progress in the various areas of modern biology, it thus contributes to designing new products and processes, maintaining genetic resources, improving cultivated species, protecting crops and the environment and optimising cultural practices.

### Production and Sectors Department

This Department's research is aimed at productive agriculture with a high ecological value.

Producing food, energy, materials and active ingredients in a limited area for a steady income

Producing differently by reducing energy intensity, developing resilience and integrating agriculture and ecosystems.

Producing something different, for instance ecological services and the carbon service.

And, therefore, developing more sustainable crop and animal production systems with a balanced, integrated approach that takes account of economic, agricultural, ecological and social interests.

### Agriculture and Natural Environment Department

This Department's role is to

- > optimise agricultural practices to ensure the profitability of agriculture, conserve the environment and protect consumer health;
- > identify farming systems that meet society's expectations with a view to sustainable development.

### Valorisation of Agricultural Products Department

The research conducted by this Department involves characterising products and diversifying Wallonia's agricultural sectors in order, on one hand, to maintain sustainable production and, on the other, to ensure consumers are sufficiently supplied with healthy, quality products.

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## Milk Analysis Serving the Environment

Livestock farming is right at the forefront of climate change issues. Stock farming is regarded as the biggest producer of anthropogenic methane (CH<sub>4</sub>), chiefly through ruminant gas emissions. Methane absorbs 23 times more infrared radiation than CO<sub>2</sub>, and that aggravates its very harmful contribution to global warming. Moreover, methane emissions mean a significant energy loss for the cow, which it has to make up for by eating more.

In response to this problem, two of the CRA-W departments have combined their efforts in a joint project undertaken in partnership with INRA (Theix), ULg-Gembloux AgroBioTech and funded by the Regional Government (Department of Agriculture, Natural Resources and the Environment).

The overall aim of this project is to reduce CH<sub>4</sub> production by optimizing dairy herd management in terms of both feed and genetics. Having a means of measuring CH<sub>4</sub> rates individually, efficiently and rapidly is an important prerequisite for this work.

The first phase of the research therefore aims to develop a simple way of measuring methane that allows individual measurements to be made on a large scale. This is done by trying to prove the hypothesis that CH<sub>4</sub> production can be estimated from milk measurements made using mid infrared (MIR) spectrometry.

To achieve this aim, three trials will be carried out in the first, two-year phase with the aid of the CRA-W's dairy herd. Productive dairy cows are fitted with a device for measuring individual methane emissions by means of an eructed gas capture system. 95% of all methane produced by cat-



tle is in fact released via the mouth, by eructation. As this is a very tricky measuring system to use we opted to work with a team from INRA at Theix, France, for rapid access to their relevant know-how. The work of infrared spectrum measurement and milk chemical analysis goes on at the same time at one of the CRA-W's laboratories. On completion of the first phase of the project we expect to have produced the first predictive equations. These will enable us to move on to large-scale analysis in the context of research aimed at reducing bovine methane production.

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## Maintaining biodiversity in Wallonia, a job for farmers.



In recent years European Union environmental policy has worked towards preserving the habitats of endangered species. In this context, farmers who manage nearly 50% of the land in Wallonia, are key players.

This study aims to assess the profitability of this activity and the working time input required. The working time input for the activity has also been a focus of study.

Farmers have two ways of managing high biological value environments. The first method is grazing with hardy breeds such as Highland, Galloway, Red Ardennes and Mergelland. This takes the form, in increasing order of complexity, of fixed grazing, rotational grazing or shifting grazing. Another method is maintenance by late cutting. This may, or may not, be followed by regrowth grazing.

In economic terms this diversification does not produce much revenue, as this agricultural activity is – unusually – directed not at production but at

maintaining natural environments. Consequently, the subsidies received (agri-environmental measures, in some cases organic farming or single payment entitlement) account for more than 80% of the income and are essential to make diversification viable.

The income generated per hectare is relatively high for an agricultural activity. However, this has to be put in context, as it is not possible for maintaining biodiversity to be a farmer's main activity as the number of hectares to be maintained is too small. Nevertheless, it can offer good scope for diversification.

This research is subsidised by the Department of Agriculture, Natural Resources and the Environment, Rural Development Section .

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# Strengthening rural communities in regions where dairy farming is a main economic activity (DAIRYMAN)

**The DAIRYMAN** project is part of the INTERREG IV North-West Europe programme for the 2009-2013 period. It aims to improve both the competitiveness of the dairy sector, which has been damaged in recent years, and regional ecological performance.

The climatic and soil conditions in NW Europe are very favourable for milk production. Furthermore, these regions have good market for dairy products close at hand due to the population density. The downside is that the ecological sustainability of dairy farming systems is often criticised because of their high dependence on input such as mineral ferti-

lizer or feed supplements, which contribute to water, atmospheric and soil pollution as well as threatening the economic viability of dairy farms.

Against this background DAIRYMAN, which is coordinated by the University of Wageningen and involves CRA-W, AWE and UCL representing Wallonia, aims to strengthen rural communities by improving farm resource management in both ecological and economic terms.

After describing the role of the dairy sector in the study area, paying special attention to its strengths and weaknesses, the project aims to initiate continuous improvement of practices at a network of pilot farms that are representative of the diversity occurring within the project area (Ireland, Northern Ireland, Netherlands, France, Germany, Belgium and Luxembourg), in order to increase their economic and ecological performance. To achieve that aim, new working methods and technical innovations will be proposed and implemented at the pilot farms.

Innovations, the relevance of which is still to be validated, will be tested within a Knowledge Transfer Centre network, of which CRA-W is part, before being rolled out to pilot farms.

One of the main aims of the project is to develop cooperative links between groups of farmers and technicians within and between regions. The project also seeks to demonstrate examples of cooperation between groups of farmers and other rural stakeholders. The regional authorities will be involved in showing how the regulations can be adapted, taking account of local conditions, to make them more relevant without any loss of either transparency or ease of control, which should improve the cost-effectiveness and encourage farmers to get on board.



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# CRA-W AGENDA



**10 February 2010**  
Espace Senghor, Gembloux  
15th Animal Production Forum  
Livestock farming of the future: between scientific progress and human issues  
Contact : Geneviève Minne, [minne@cra.wallonie.be](mailto:minne@cra.wallonie.be)

**1 - 5 March 2010**  
Gembloux  
Training on infrared spectroscopy and chemometrics  
Contact : Juan Antonio Fernandez, [fernandez@cra.wallonie.be](mailto:fernandez@cra.wallonie.be)

**10 March 2010**  
Gembloux  
European Union enlargement and agriculture in Central and Eastern Europe  
Contact : Philippe Burny, [burny@cra.wallonie.be](mailto:burny@cra.wallonie.be)