EcoGest software : a tool for predicting high biological value environment management costs with grazing

In recent years European Union environmental policy has worked towards preserving the habitats of endangered animal and plant species. Farmers are playing a steadily growing role in this, either by adopting agri-environmental measures (AEM) on their own farms or by taking part in the management of open spaces within nature reserve networks. Farmers have to adapt to the specific features of such environments by altering their practices, learning new skills and, when the grazing land is very poor or rough, by going for hardier breeds suited to the terrain, such as Red Ardennes or Mergelland sheep, Highland or Galloway cattle and Fjord ponies.

CRA-W has developed EcoGest software to assist with this. The aim is to supply economic results to farmers managing natural environments who maintain their land by means of grazing and who have already reached cruising speed (sufficiently large herds/flocks to manage the entire area). The software was constructed from theoretical data and field data collected from 16 farms in Wallonia. It comes in the form of an Excel workbook containing six worksheets: instructions for use, an encoding page, a results page and a further three more theoretical pages covering the calculations, a cost variation simulation and presentation of field survey results. The software user can either encode only the number of hectares of high biological value environment and the software will simulate the requisite number of animals and supply the desired economic results, or the user can encode additional information (number of head of cattle, subsidies, etc.) to increase the accuracy of the output.

The program is being tested in a link-up with GIREA, the Interuniversity Applied Ecology Research Group. For further information about the software please contact Mr Alain Le Roi at GIREA (alain.leroi@uclouvain.be).

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Successful 2010 Production Season for Belgis Biotech s.a.

Since its creation in 2007 Belgis Biotech s.a. practices its research and plant production activities in close cooperation with the Walloon Agricultural Research Centre. New micropropagation technologies for botanical species of major economic importance, such as *Adenium*, have been developed in this framework. Subjected to the practice these technologies are very efficient and show positive results.

Concerning plant production, we were able in 2008 to produce 500 000 orchids belonging to various genera (*Cattleya, Dendrobium...*). In March 2010 we produced 85 000 petunias which were delivered to our customers based in the Lebanon.

Concerning *Adenium* production, we established in 2009 partnership and cooperative links with growers in southern Spain, where the climate is ideal for *Adenium* growing. This collaboration has for objective the large-scale production and the marketing of *Adenium* plants on European markets. In addition to 75 000 adeniums, produced in 2010 and which are growing at the moment in Spain, supplementary deliveries are programmed from March 2011.

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CRA-W AGENDA

22-25 July 2011
FOIRE AGRICOLE DE LIBRAMONT
CRA-W stand at Walexpo
Contact: Communications Service,
communication@cra.wallonie.be

19 October 2011
PORK AND POULTRY PRODUCTS SEMINAR
11th SEMINAR IN THE SERIES
Contact: Communications Service,
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Organic insecticides and beneficials : I love you, me neither

The selectivity of insecticides for beneficials is a significant factor in integrated pest management. Beneficials like ladybirds, which prey on aphids, play an important role in controlling pest populations naturally. Many insecticides are more toxic to pest natural enemies than to the pests themselves and thus favour the pests rather than controlling them.

Organic farming does not escape this problem as it, too, uses insecticides. Even though they are of natural origin, such products can affect pest natural enemies. This problem is sometimes more thorny here than in integrated pest management, as an organic farmer often has fewer remedies at hand if pests are promoted by the use of products with little or no selectivity.

The Ecotoxicology Laboratory performed a specific study to assess the toxicity of different insecticides for use in biological control. Two formulations containing natural pyrethrum extracts (pyrethrum + piperonyl-butoxide and pyrethrum + rapeseed oil) and two insecticidal soaps effective against certain aphids were tested on five different beneficials generally used in routine testing: the ladybird *Adalia bipunctata*, the rove beetle *Aleochara bilineata*, the parasitic wasp *Aphidius rhopalosiphi*, the carabid beetle *Bembidion lampros* and the hoverfly *Episyrphus balteatus*. Flonicamid and pymetrozine, two synthetic insecticides with a new specific mode of action, effective against aphids and potentially not toxic to natural enemies, along with deltamethrin and pirimicarb, non selective insecticides used as reference, were also tested by the same methods for comparison.

The results showed that the products containing pyrethrum extracts were very toxic to ladybirds and parasitic wasps and not toxic or hardly toxic to hoverflies, carabid beetles and rove beetles. The toxicity level for ladybirds and parasitic hymenoptera was comparable to that of deltamethrin, a synthetic pyrethrin. In comparison, flonicamid and pymetrozine were selective for the five species of natural enemies tested. The insecticidal soaps were also selective and these offer an attractive alternative to pyrethrins in organic farming for the crops and pests on which they are effective. That, unfortunately, restricts their suitability to a few specific situations.

Even though the acute toxicity of natural pyrethrum is no doubt tempered in the field by its rapid degradation, the question nevertheless arises of the effects on pest natural enemies, especially in organic farming where a number of measures are aimed specifically at optimising their activity (sheltered areas, habitat management, mass production and release into the wild, etc.). The range of natural insecticides that are both effective and selective for beneficial arthropods is currently too restricted, whereas among the synthetic insecticides on the market, although many products are not selective overall, there are some that are markedly more impressive, combining selectivity with effectiveness.

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GeoFairTrade : a communication and decision support tool for southern hemisphere producers

European consumption of Fairtrade products is soaring. Consumers are becoming more aware and are demanding greater transparency as regards product origins and production methods. GeoFairTrade attempts to satisfy this burgeoning demand.

In the last ten years European consumers have bought more and more Fairtrade products. Sales volumes have risen 70 times over within that period. However, Fairtrade players are facing new issues that are highly likely to check this dazzling growth: European consumers are becoming increasingly concerned about the concrete effects of their behaviour. Aware consumers are responsible and committed, and they think about what and how they consume. This need for transparency is the driving force of the GeoFairTrade project, which is funded by the European Commission through the Seventh Framework Programme (FP7).

This project aims to put in place a tool to raise the visibility of the sustainable development movement created by Fairtrade. In April 2009 CRA-W began developing a tool to give consumers access to objective information and to provide producers with a sustainable management tool for their business. The project brings together partners from a wide range of backgrounds: scientists, Civil Society Organisations (CSO) and certification bodies.

The GeoFairTrade project's development is based on partnerships with six producers' associations on three continents representing the diversity of Fairtrade. Each association has to confront specific problems arising from the context in which it operates, its activity, its technical capacity and its financial resources. Various indicators have been established to characterise them.

Sustainable development indicators are coming into increasing use worldwide, both in agriculture and in commerce. The GeoFairTrade project uses a base of more than 50 indicators to enable producers to identify the acute aspects of their situation and monitor them over time. Producers will also be able to use them to communicate with consumers in Europe. These indicators are closely linked to Fairtrade concerns and sustainable development objectives.

Each combination of indicators is suited to users' needs and the constraints they are likely to encounter (e.g. FAO, WHO, etc.). The project uses three main types of data to populate these indicators. The first two types are

derived from enterprise data or remote sensing data and are used to build up a detailed description of the producers' associations and their activities. The third type of data comes from official statistics supplied by national or regional government bodies. These data describe the context in which producers operate and the constraints to which they are subject.

When completed, the tool will give producers access to a map of their farm and a set of indicators enabling them to target their activities more specifically. They will also be able to tell consumers about the improvements resulting from the Fairtrade movement.

Consumers will thus see how important Fairtrade is to producers from the results presented in summary form on a dedicated Internet platform.

www.geofaitrade.eu
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Laboratory analysis of the sowability of industrial chicory seeds

For the last ten years the Agricultural Machinery and Facilities Unit has been conducting industrial chicory sowing tests on behalf of the Beet and Chicory Breeding Centre. Several lots of coated or mini-coated chicory are analysed each year.

The sowability tests consist of identifying any errant behaviour in a seed lot at sowing. This is done before distributing lots to farmers and growers.

The test rig is a sowing bench fitted with three sensors connected to a data acquisition and processing computer. The bench comprises a moving conveyor belt to which a narrow streak of oil is applied. The test seeder is positioned at the beginning of the conveyor belt and deposits the seeds on the streak of oil. The first sensor, located on the test seeder, measures the disk rotation rate. The second sensor gives the speed of travel and, lastly, the third sensor shows the length of time taken by each seed to travel the distance.

The experiment involves distributing the different seed lots over several seeder models.

The test bench simulates the progress of a seeder-tractor combination. The parameters measured or calculated in the tests are:

- actual average distance between seeds
- average distance between correctly sown seeds (disregarding duplicates and gaps)
- the standard deviation of these data provides a measure of the regularity of spacing between correctly sown seeds
- feed quality index of the feeder (this must be very close to 100%)
- duplicate index
- gap index

The sowability test has the advantage of saving growers and farmers the wasted effort of distributing a seed lot that behaves unusually with one or more seeders.

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Replacing all soybean meal by home-grown protein sources in dairy cattle feed : can it be done ?

The European Union imports more than 30 million tonnes of soya each year. Soybean meal is a benchmark for its high nutritional value, and the high production potential cattle resulting from the advanced genetic selection of the last few years increasingly need such feeding. So, to maintain high milk production, a high nutritional value diet including soybean meal is essential. However, large-scale importing of proteins into Europe has its consequences: nitrogen enrichment of the environment and eutrophication of water, introduction of GMOs, economic dependence on external markets and, in some cases, clearing of primary forests. With a view to sustainability it is therefore vital to promote European plant protein production. Apart from producing protein crops (lupins, horse beans, field peas) and maximum utilisation of grassland and grass products, the growth of the biofuel industries opens up new alternatives to food manufacturers, such as rapeseed meal or brewer's grains. These are already incorporated into cattle feed, but can they entirely replace soybean meal? The aim of this trial, backed by Dumoulin, was therefore to compare a conventional soybean meal-based protein concentrate, representing 15% of the ration, with a concentrate containing European protein sources (rapeseed cake (55%), sunflower cake (18%), maize germ cake (4%) and brewer's grains (18%), which made up 19% of the ration. These concentrates were fed as a supplement to the same basic ration of maize silage, grass silage and straw. The results showed similar diet appetence and both milk production (26 l/animal/day) and the butterfat and protein content were equivalent in the two systems. As regards cost,

the feed price per litre of milk was similar in both cases. The results therefore confirm the production and economic feasibility of replacing soybean meal with European protein sources, assuming soybean meal to cost €300/tonne.

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15 years of CRA-W research into pesticide residues in minor crops

The plant protection products used to protect our crops from diseases and pests and to control weeds can leave residues in the harvested produce and in the environment. This is a big issue not only for consumers and regulatory authorities but also for the pesticides industry. For the last 15 years CRA-W has run a major research programme concerned with pesticide residues and their metabolites in minor crops (principally market garden and fruit crops). This programme, funded by the Federal Public Service Health, Food Chain Safety and Environment (Raw Materials Budget Fund), supplies the requisite scientific data for European authorisation of plant protection products for minor crops. It also establishes pesticide maximum residue limits (MRLs) which are designed to check that products are applied correctly, protect consumers and facilitate international trade in food.

Residue trial : plant protection product application to cauliflowers under protection

Under this programme more than 600 residue trials involving different insecticides, fungicides, herbicides and plant growth regulators have been carried out in the last fifteen years on crops such as carrots, blackcurrants, celery, cucumbers, courgettes, spinach, fennel, broad beans, raspberries, green beans, lamb's lettuce, turnips, spring onions, parsley, leeks, peas, plums, radishes, rhubarb, black salsify and various types of cabbage.

A residue trial is carried out in two stages. First of all, the 'field' part involves marking off the experimental plots, applying the treatments in accordance with good agricultural practice, taking samples and sending them to the laboratory. This is followed by the analytical part, comprising sample storage and preparation, development and validation of analytical methods, pesticide residue determination in the samples and writing a final report covering all the scientific data and the Quality Assurance aspects.

These trials and analyses are conducted in accordance with European (EU) and international (Codex/FAO/WHO) legislation on pesticide residues and according to the OECD principles of Good Laboratory Practice (GLP) (GLP certificate C04).

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