

Little Owls • ©Stéphane Cornet



## RAPTOR SUPPORT PROGRAMME AT CRA-W

CRA-W HAS FOR SEVERAL YEARS PURSUED A STRATEGY FOR PROMOTING RAPTOR DEVELOPMENT, IN PARTICULAR BY INSTALLING RAPTOR PERCHES, AS A MEANS OF RODENT CONTROL.

The first series was introduced in our experimental orchards ten years ago to help diurnal raptors to hunt the well-established vole population. Two fresh initiatives were launched in spring 2016: a further series of raptor perches was installed in various crop fields on the site and a number of Little Owl nesting boxes were set up.

Thanks to the involvement of Guy Latteur (Honorary Head of Department at CRA-W), himself a keen ornithologist, a cooperative link-up was established between CRA-W and the Noctua association in Chastre (contacts with Mr and Mrs Stéphane Cornet, who are very active members). The association is working on a whole series of initiatives to study and protect the Little Owl and its biotope

([www.noctua.org](http://www.noctua.org)). They supplied two nesting boxes which we have set up in our orchards to encourage more breeding pairs. Although they have very varied diets, the Kestrel, the Buzzard and the Little Owl mainly feed on small rodents, which cause a great deal of crop damage. Supporting their development in CRA-W's orchards and field crops not only helps to diversify the region's birdlife but also provides a supplementary means of biological control of crop pests.

**Contact: Marc Lateur,**  
[m.lateur@cra.wallonie.be](mailto:m.lateur@cra.wallonie.be).

*Note: Our thanks to Mr Stéphane Cornet for his Little Owl pictures.*



Little Owl nesting boxes

Sign up for this quarterly free on our website [www.cra.wallonie.be](http://www.cra.wallonie.be)

Wallon Agricultural Research Center | Building Léon Lacroix | rue de Liroux, 9 | B-5030 Gembloux  
Tél: +32 (0)81 62 65 55 | Fax +32 (0)81 62 65 59 | [www.cra.wallonie.be](http://www.cra.wallonie.be)



## CAN HIGH NUTRITIONAL VALUE MILK STILL BE 'GREEN'?

CAN DAIRY COW FEED BE ALTERED IN ORDER TO LIMIT OUR HERDS' ENVIRONMENTAL FOOTPRINT WHILE PRODUCING HIGH QUALITY MILK?

To answer that question, a 'conventional' ration with a high forage content, adjusted by the addition of soybean meal and beet pulp, was compared with an 'optimised' ration, formulated on the same forage basis but containing linseed and barley seed, in the experimental dairy herd. The latter ration had a lower protein content but was higher in starch and fats.

The 'optimised' ration moderately reduced the fat corrected milk production (31 vs 29 L/d/al) with a slight drop in the useful matter content of the milk. On the other hand, it markedly increased the milk's polyunsaturated fatty acid, conjugated linoleic acid and  $\Omega 3$  contents, all of which are held to be beneficial to human health. It also lowered the milk's palmitic acid content, which is considered atherogenic.

In environmental terms, the 'optimised' ration limited the cows' daily methane production by 12.5% and significantly improved their nitrogen efficiency (+14.4%), thus

reducing the environmental waste nitrogen. Lastly, the feed cost was similar for the two feed types in the trial.

The concept, developed jointly by UCL (Professors M. Focant and Y. Larondelle) and CRA-W, illustrates the prospects for progress in feeding practices in order to improve the sustainability of milk production, integrating environmental approaches (waste nitrogen and methane emission), social aspects (demand for products with consumer health benefits) and economic considerations (cost of feed to be factored into a context of falling prices).

A half-day seminar titled 'Dairy cattle feed for sustainable development' will be held at Louvain-la-Neuve on the afternoon of Wednesday 12 October 2016, when the results of this project will be presented.

Contact: Eric Froidmont,  
[e.froidmont@cra.wallonie.be](mailto:e.froidmont@cra.wallonie.be)



## HOW DO WALLONIA'S FARMERS SEE THEIR WORK?

WORK ON LIVESTOCK FARMS IS AN INCREASING CONCERN FOR FARMERS\*. TO SHED SOME LIGHT ON THIS, BETWEEN DECEMBER 2015 AND FEBRUARY 2016 WE CARRIED OUT A SURVEY OF THE PRESSURE OF WORK PERCEIVED BY FARMERS.



Institut de l'élevage

The aim was to describe how farmers felt about their work and to establish how interested they would be in receiving advice on work organisation. The survey was designed to be straightforward and short. It was based on a methodology used in the north of France titled 'The livestock farming life in Picardy'.

Five hundred farmers responded to the survey (6% of all Wallonia's farmers), a figure that underscores the significance of the topic. The findings were (1) that 32% of farmers urgently need to improve their situation in terms of work organisation and (2) that 45% of farmers cannot carry on working as they are. Nearly 80% of livestock farmers therefore have problems with their workload. Age, type of farming and number of workers did not greatly affect the results.

Only 50% of the farmers with problems expressed a desire for help to improve their situation.

The hardest tasks in work organisation were chiefly (1) regulations and paperwork and (2) managing to free up some time. More than 80% of farmers in fact found the regulations and paperwork onerous, with 72% of farmers reporting an acceptable workload being unable to find any spare time during the week. The strenuousness of the work also starts to be a concern for farmers from the age of 40.

The results of this survey underscore the usefulness of the network of 'work' advisors set up via the OTEI project who, from now on, can help farmers to review work organisation on their farm.

\**DuraLait, Duralait Plus and OTEI projects*

Contact: Amélie Turlot,  
[a.turlot@cra.wallonie.be](mailto:a.turlot@cra.wallonie.be)

## THE VULNERABILITY OF AGRICULTURAL ECOSYSTEMS TO WEATHER ANALYSED AND REPRESENTED

WEATHER CONDITIONS HAVE A BIG IMPACT ON THE FUNCTIONING AND PRODUCTIVITY OF AGRICULTURAL ECOSYSTEMS. SOME EXTREME WEATHER EVENTS, SUCH AS VERY HEAVY RAIN, DROUGHT, HAIL, ETC., CAN HAVE A MARKED ADVERSE EFFECT NOT ONLY ON THE HARVEST BUT ALSO ON THE CULTIVATED ECOSYSTEM GENERALLY (SOIL, PLANTING, ETC.). CRA-W HAS DEVELOPED AN ORIGINAL APPROACH TO ASSESSING THE VULNERABILITY OF BELGIAN AGRICULTURAL ECOSYSTEMS AND PRODUCING VULNERABILITY AND RISK MAPS FOR SUCH EXTREME EVENTS.



*Vulnerability of agricultural ecosystems to heavy rain in Belgium (erosion risk mainly)*

The effects of extreme weather events on agricultural ecosystems reflect a complex system involving farmers and farming practices along with a variety of environmental factors of an ecological, economic and social nature. In the context of climate change their increased frequency could affect the functions that produce agricultural goods and services.

The research team on the MERINOVA project started from the assumption that extreme weather events in Belgium can be considered a potential source of agricultural innovation. Within the framework of this project CRA-W was asked to develop an original method for assessing the vulnerability of agricultural ecosystems based on expert knowledge. The proposed approach combines methodologies drawn from different disciplines: qualitative interviews, cognitive mapping, a fuzzy inference system and a geographical information system.

The approach was applied to two case studies: heavy rain in field crops and drought in grassland. The result is a map assessing the vulnerability of agricultural ecosystems in Belgium to each extreme weather event. The approach also produced risk maps taking the probability of occurrence of such events into account.

When applied to the case studies the approach identified the areas most vulnerable to extreme weather events in Belgium. It also identified the various factors underlying that vulnerability and provided a useful tool for looking at potential sources of resilience within Belgian agricultural ecosystems.

The MERINOVA project (contract no. SD/RI/03A) was financed by Federal Scientific Policy (BELSPO) and involved teams from four Belgian scientific institutions: IRM/KMI, VITO, CRA-W and UGent. The project started in 2012 and was completed on 30 April 2016.

Sources and useful information: <http://www.cra.wallonie.be/fr/nouvelles/merinova-les-evenements-climatiques-extremes-facteurs-dinnovation>

**Contact: Frédéric Vanwindekens, f.vanwindekens@cra.wallonie.be**

## IF TRACTORS COULD TALK...

AGRICULTURAL TRACTORS ARE NOW AMONG THE BEST EQUIPPED VEHICLES IN TERMS OF ON-BOARD ELECTRONICS – A RESEARCH OPPORTUNITY EXPLOITED BY THE GÉOCAN PROJECT.

GéoCAN: 'Geo' for GPS geolocation and 'CAN' for CANBUS, the communications technology installed on most mid and high power modern tractors. Briefly, the principle of CAN is that all the tractor's electronic components (sensors, controllers/actuators, displays) are connected to a single line and communicate with one another in turn.

The aim of the project was to detect, record, decode and validate these communications on various tractors. Fuel consumption, engine power and torque and speed, along with tillage depth, soil resistance to tillage, slip, air temperature, etc. are some of the dozens of parameters that the project can now routinely capture, accurately and at high frequency. Rather than thinking of tractors as noisy, we quickly realised they are chatterboxes!

Why study a combination of GPS and CAN data? One has to step back when interpreting columns of CAN data. Add a GPS or a video camera and those data are then contextualised, comprehensible and analysable in agricultural and technico-economic terms. While working, the tractor instantly writes everything it does to an on-board memory, along with how it does it and where it does it. A colossal amount of analysable data is thus stored, awaiting automated processing models.

The project opens the door to a number of opportunities, both for research (measuring tool, assessment calculations, big data), for farmers and contractors (decision support tool, remote control of operation, eco-driving) and for decision-makers (statistics).

So tractors can talk, and they still have a lot to tell us!

[http://manuals.deere.com/omview/OMPFP13250\\_19/RW00482,000018D\\_19\\_20130516.html](http://manuals.deere.com/omview/OMPFP13250_19/RW00482,000018D_19_20130516.html)

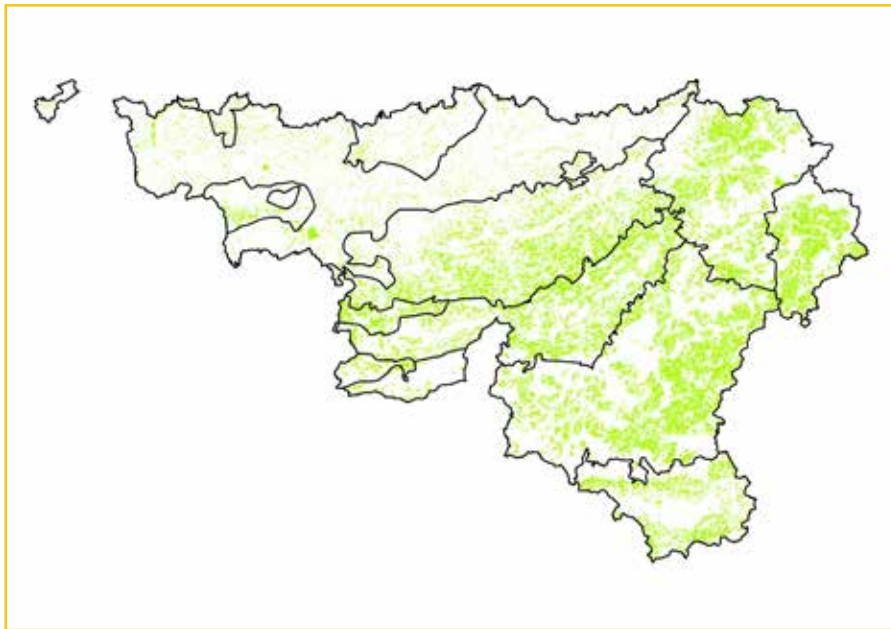
**Contact: Guillaume Defays, g.defays@cra.wallonie.be**





## MAPPING MANDATORY GRASSLAND IN WALLONIA, A TOOL FOR COMBATING SOIL EROSION

AN ECOSYSTEM'S ABILITY TO PROVIDE ENVIRONMENTAL SERVICES DEPENDS ON ITS LOCATION IN THE COUNTRYSIDE. TAKING SUCH SPATIAL ASPECTS INTO ACCOUNT OPENS UP NEW HORIZONS FOR SUSTAINABLE MANAGEMENT OF AGRICULTURAL ECOSYSTEMS AND REGIONAL DEVELOPMENT.



and (3) areas of biological interest. Based on these criteria, different erosion and constraint scenarios were studied.

The simulation results showed that the more conservative the scenario, the greater the area of mandatory grassland. Likewise, whatever the scenario, the area under grass increases from the north of Wallonia to the south, corresponding to current distribution. The value of this approach lies in the possibility of comparing these results with the land use map in order to identify mismatched agricultural plots. These correspond to crops with a high environmental risk or, conversely, grassland offering potential for cultivation without that risk. Thus, for the same grassland area, some 67,000 ha of mismatched plots have been identified. Turning over these mismatched areas to grassland would prevent around 480,000 tonnes of erosion per annum without compromising agricultural production.

Grassland - permanent and temporary - makes up nearly half of Wallonia's agricultural land area. Among the different agricultural ecosystems, grassland provides a number of environmental services. Besides fodder production, grassland also plays a part in trapping carbon and controlling erosion and runoff. Grassland also contributes to cultural services by giving the landscape its character.

The services that grassland provides are to a great extent determined by its location in the landscape. On steep slopes or in areas of shallow soil depth, only grassland offers the possibility of agricultural production while conserving this resource. To that end, mandatory grassland has been identified as areas where the productivity is deemed too low for cultivation and/or where tilling would cause excessive risks to the environment, notably in terms of erosion or loss of biodiversity. These areas were identified according to three criteria: (1) soil erosion; (2) soil cultivability

Using this mapping approach helps to meet the main challenges facing agriculture, namely to produce sufficient food resources while developing the ecosystem services provided and improving agricultural land use.

*For more information see the [BIOECOSYS project sheet](#)*

**Contacts: Maxime Ninane and Louis Hautier, [l.hautier@cra.wallonie.be](mailto:l.hautier@cra.wallonie.be)**



## AGENDA

**12 OCTOBER 2016**

**Dairy cattle feed for sustainable development**

Louvain-La-Neuve

Contact: **Eric Froidmont, [e.froidmont@cra.wallonie.be](mailto:e.froidmont@cra.wallonie.be)**

**19 - 20 OCTOBER 2016**

**Fifth International Feed Conference FEED2016**

[www.feed2016.eu](http://www.feed2016.eu)

Geel

Contact: **Vincent Baeten, [v.baeten@cra.wallonie.be](mailto:v.baeten@cra.wallonie.be)**



**8 NOVEMBER 2016**

**What are the prospects for legumes in Wallonia?**

Gembloux

Contact: **communication@cra.wallonie.be**



**30 NOVEMBER 2016**

**Pork and Poultry Products Seminar**

Espace Senghor

Gembloux

Contact: **communication@cra.wallonie.be**

