



EFFICIENT 20, A NETWORK OF EUROPEAN FARMERS, REDUCES FUEL CONSUMPTION BY 20%

Efficient 20 is a European project within the Intelligent Energy Europe (IEE) programme. The European Union has set a target of 20% energy savings compared to the projections by 2020. Efficient 20 is designed to encourage farmers to contribute to reaching that goal. The focus is put on fuel used in farming machinery, which represents more than 50% of the energy consumed in agriculture.

This three-year project involves partners from nine countries (Austria, Italy, Poland, Spain, Belgium, the UK, Slovenia, France and Germany).

Little research has been done into fuel consumption in the agricultural and forestry sectors to date, due to the complexity of the operations involved. The only certainty at present is that fuel consumption varies greatly for the same equipment combination, suggesting various options for saving fuel. Given the steady rise in petroleum prod-

uct prices and the environmental issues that everyone is aware of nowadays, this project may provide the answers which the agricultural and forestry sectors increasingly expect.

The EFFICIENT 20 project therefore aims to create a European network devoted to saving fuel in these sectors. In order to develop a bottom-up approach (from users to experts) the following initiatives are being carried out locally in each participating country:

- Fuel consumption data are collected directly from farmers and also from expert tests in order to fill the gaps in earlier research (external contributions are also encouraged). One key tool in the project is the creation of an Internet-based interactive database which is expected to hold more than 3,500 pieces of fuel consumption data by the end of the project.
- 30 pilot groups of farmers and foresters have undertaken to monitor and reduce their fuel consumption

by 20% during the project and are taking steps to that end.

- Surveys are conducted to find out how well farmers and foresters currently understand and use their machinery and, in particular, fuel consumption monitoring equipment.

Through these three local initiatives the European partners will be able to share not only their results but also their current knowledge of eco-driving, the impact of mechanisation and practices on fuel consumption, etc. Common documents and methods for reducing fuel consumption (training manuals, lists of effective techniques, and so on) are now being produced on this basis and will then be disseminated to users.

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Visit the www.efficient20.eu Website.

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UTILISING GREEN GOLD AND BROWN GOLD ON OUR FARMS



Following a question from a nature parc on how it can support its farming in the face of rising input prices, the level of utilisation of home-grown fodder resources and farmyard manure was assessed by CRA-W in cooperation with the Fourrages-Mieux association and the Haute Sûre Forêt d'Anlier nature parc, with backing from the Leader+ programme.

To answer that question 18 farms were monitored in 2010. Two-thirds of them were 'beef cattle' systems with moderate (1.5 LU/ha) to very high (> 2.5 LU/ha) stocking densities. The other third included dual-system cattle farms with both a dairy and a suckler herd (2 to 3.2 LU/ha). Pasture accounted for 86% of the UAA on average [75 - 100%].

The fodder produced (grass and maize silage, hay, fodder cereals) was characterised in terms of quantity and quality. A simulation was then performed to optimise the utilisation of this fodder to meet the herds' needs. The stocks of supplements necessary were then determined and compared with the supplements actually fed. The results show that home-grown resources are used effectively on more than 75% of the farms, and that high stocking densities are a limiting factor.

With regard to good utilisation of farmyard manure (dung, compost and slurry) we started from a comparison of the expected fertilisation levels based on the recorded fodder production figures and fertilisation levels

actually practised. Fodder production levels were determined on the basis of the recorded stocks and the grazing animals' needs. The pastures' nitrogen requirements were then established based on production of 5 t of DM per hectare without nitrogen fertilisation. The difference between the production levels observed and this basic production arose from the nitrogen input either from organic fertilizers (80% efficiency of the N content, if applied annually) or mineral fertilizers. Production of 25 kg DM per kg of N applied was expected. This approach reveals a good correlation between the recommended and actual fertilizer applications, though some of the most extensive farms could limit their fertilizer application to prevent the stock produced from exceeding the animals' requirements. Nevertheless, this procedure enables them to manage the risk posed by leaner years due to the vagaries of the weather.

The results of the work were presented to the farmers involved as a group and an individual report was also provided for each farm to help them identify possible margins of progress.

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SELECTED SEEDS FOR WALLONIA'S CHRISTMAS TREE INDUSTRY



Christmas trees cover an area of 5,000 ha in Belgium and annual production amounts to four million trees, mostly for export. 80% of Wallonia's output consists of *Abies nordmanniana*.

However, the Nordmann Fir has one big drawback: it is propagated by seed only. This generative propagation results in heterogeneous growth among the trees produced in this way and that in turns hits the growers' turnover.

One way of improving the homogeneity of the plantations would be to use selected material (seeds) harvested

from listed populations, but this system remains unsatisfactory to date, as is often the case when demand for seeds of a given origin outstrips the supply.

To overcome these drawbacks, individual variability has been exploited in order to select specimens with attractive growth characteristics and thus create seed orchards, i.e., plantations of 'selected' trees produced by grafting which then cross-pollinate freely to create seeds of controlled origin.

Between 1996 and 2004, various field grafting trials using shoots from thirty trees selected for their growth characteristics resulted in the establishment of about 300 'selected' trees on a one-hectare site at Neufchâteau.

The most interesting result of this technique has been the rapid achievement of orthotropic (straight) shoots resulting from the use of well established, aged rootstock. This has proved determining for fruiting, which takes place at the last four or five verticils

on the side shoots of adult trees. The first fructifications, which occurred in 2011 after only 15 years, yielded 60 kg of seeds which will produce a first generation of some 48,000 trees. Production from this orchard is set to rise steadily in coming years.

This work was subsidised by the Department of Technologies, Research and Energy (DG06). The prospects offered by these early results ought to encourage focus on the need to create more new seed orchards of this kind in Wallonia. They also show the way ahead for interspecific crosses aimed at meeting the ever-increasing quality criteria demanded by Christmas tree lovers. Hasn't the Nordmann Fir been criticised for its lack of scent? Work currently in progress in cooperation with the General and Organic Chemistry Unit at Gembloux Agro-Bio-Tech is directed at remedying that particular shortcoming (project subsidised by the Department of Research (DG03: subsidy D31-1239).

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STOMACH WORMS SHALL NOT PASS!



Parasitism management is a key part of raising young cattle at pasture. Nevertheless practices vary greatly, in terms of types of treatments, number of treatments, administration period, persistence of the drugs used and the method of application. The project entitled 'Integrated parasitism management in young grazing dairy cattle' was set up in cooperation with the ULg Faculty of Veterinary Medicine to optimise these practices. We monitored heifers in the first year of grazing, looking at grazing management, growth monitoring and heifer feeding, on the one hand, and determining the parasite pressure, on the other. Cattle

need to come into contact with the parasite in order to develop immunity. Continuous, moderate contact activates the animals' immune system without impacting upon growth.

Which indicators for the farmer?

Assessing the grass height avoids too short grazing, which increases the parasite risk, so the animals can be moved to another field or supplemented when the grass is less than 5 cm tall. An initial examination of the parasite pressure in mid-season (July-August) involves a faecal analysis to establish whether the cattle are excreting parasite eggs and if so, in what quantities. At the same time it is advisable to monitor heifer growth by heart girth measurement if an initial measurement was made just before putting them out to grass.

A second examination should be made when the animals are brought indoors again, with a second faecal analysis and growth measurement. Blood pepsinogen should also be determined at this time. This provides information on the level of abomasum infestation

by stomach worms. The more strongyles there are in the abomasum, the more damage is done to its mucous membrane and the less pepsinogen is converted into active pepsin. When this happens, pepsinogen builds up in the abomasum, leading to an increase in blood pepsinogen. Pepsinogen is therefore a good indicator of the exposure of young cattle to digestive tract worms and, consequently, of their acquired immunity. Too high a rate indicates excessive infestation, so treatment is necessary; too low a rate shows that the animal has not acquired sufficient immunity and will be particularly at risk in the next grazing season.

In conclusion, two things are necessary for parasitism management: knowledge of the parasite (cycle) and knowledge of parasitism on the farm combined with good grassland management by the grazing system. For the most effective treatment, grazing and animal growth need to be monitored and the best product to deal with the existing parasite pressure should be chosen.

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FERTILISATION GOES BACK A LONG WAY AT CRA-W



The CRA-W's experimental work includes two permanent trials at its Gembloux-Ernage site to study the impact of agricultural practices on soil fertility. These trials, which date back to 1959 and 1967 respectively, are among the oldest in Europe. They are an asset which CRA-W takes pains to maintain and manage very carefully, especially in the last few years when there has been a big surge in awareness that soil is a non-renewable natural resource and maintaining agricultural soil quality is an ongoing challenge.

Besides their long history, one of the chief merits of these trials is that CRA-W has a complete record of crop husbandry, inputs applied, crop yields and any by-products of harvest that were exported. In addition, in each trial the following parameters have been regularly monitored: pH, total organic carbon (TOC), N, P, K, Ca and Mg content along with, more occasionally, other criteria relating to structural stability and biological fertility.

The oldest trial was set up to study organic matter (OM) management. It compares six farming schemes defined by the nature and frequency of the OM returned to the soil. One control scheme in which no OM has been applied for more than fifty years is thus compared with other schemes where the by-products of cultivation are either incorporated into the soil or exported and additional inputs in the form of pig slurry, cattle dung or green fertilizer may be applied.

The second trial is a comparison of several levels of phosphate or potas-

sium chemical fertilizer. The different systems studied are a factorial combination of three levels of P fertilisation with three levels of K fertilisation. For each of these the fertilizer levels applied were none, input equivalent to removals at harvest (nutrient balance) and input equivalent to double the amounts removed.

The data collected from these ongoing long-term trials enable practical recommendations to be made to farmers with regard to managing organic matter or phosphorous-potassium chemical fertilizers, on the one hand, and also provide an essential frame of reference for studying the sustainability of agricultural systems, on the other. These trials potentially provide very useful experimental backup in the context of more fundamental research into the impact of agricultural practices on changes in soil physical, chemical and biological fertility, carbon and nitrogen cycles, pesticide metabolism and mobility in the soil, and so forth.

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INFRARED MICROSCOPY SERVING THE AGRICULTURAL AND FOOD SECTORS



Since 1998 CRA-W has been a key player in the development of analytical methods based on near infrared microscopy (NIRM). In that context an investment has been made in the purchase of a new instrument for near and mid infrared microscopic measurements. This opens the doors to new possibilities and will enable the spectra of objects no bigger than a micron to be recorded. This equipment will enable CRA-W to retain its lead in this field and to continue proposing innovative analytical solutions for quality control of food and

feed products. For example, research into contaminant detection and analysis of bioactive components will continue. The development of advanced analytical methods for detecting contaminants in our agricultural products like animal feed and milk is increasingly essential in a constantly changing production context. Also, the development of screening tools for components of interest in agricultural cultivars ought to speed up the selection of high added value cultivars and the development of the CRA-W's variety collections.

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LATE BLIGHT - POTATO ENEMY NO. 1 IN 2012!



Late blight has been the most harmful pathogen in potato crops for decades. Its emergence and development are closely linked to weather condi-

tions and, if conditions are favourable (heavy rain), if there is no fungicide protection the disease can spread very rapidly, with devastating effects on susceptible varieties.

This year has not spared potato growers, as the weather has been extremely favourable to late blight. From early spring (roughly when planting started) the weather has been characterized by a succession of spells of heavy showers with temperatures around 15°C, an ideal combination for the fungus to develop. The only weapon available to growers for controlling late blight is plant pro-

tection products. Few cultivars in fact currently have sufficient resistance to this disease. In some cases the constant rainfall prevented access to some plots of land or even washed away the products applied. Consequently, late blight was omnipresent this year, both in the fields and in vegetable gardens. In late July the farmers were scanning the skies in the hope that Nature would be kind to them, as sunshine and dry weather are in fact one of the growers' main allies in slowing down or halting late blight development.

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DURAGRISO: THE ISO IN AGRICULTURE!

First collective environmental certification for DuragrISO farmers

On 27 July this year the 18 Terr'Avenir Wallonie-Beloftevol Boeren farmers who have formed themselves into the DuragrISO vzw association were honoured by the official presentation of their ISO14001 certificates at Libramont Agricultural Fair.

The ceremony on the CRA-W stand was organized by the DurAgr'ISO14001 project partners, which came to an end in June. The Walloon and Flemish farm-

ers present received their certificates from Mr Van Bogaert, of the LRQA certifying organisation; Mr Auquier, representing the Federal Minister for Agriculture, Sabine Laruelle; and Mr Ghysel, on behalf of Wallonia's Minister for Agriculture, Carlo Di Antonio. They also received farm gate signs from Mr Destain, CRA-W's Director General, and Ms Demeulemeester, Director of INAGRO. Certification enables these farmers to give the outside world a clear message: "We integrate environmental concerns

into our work and we have a certificate to prove it."

For more info: www.cra.wallonie.be



Première certification environnementale collective pour les agriculteurs de DuragrISO

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AGENDA

28 November 2012
PORK AND POULTRY PRODUCTS SEMINAR : ANIMAL AND FARMER WELFARE AND SUSTAINABLE PRODUCTION

12th Pork and Poultry Products Seminar, Espace Senghor, Gembloux

20 February 2013
CARREFOUR DES PRODUCTIONS ANIMALES

18th seminar, on the topic of research results
Espace Senghor, Gembloux

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