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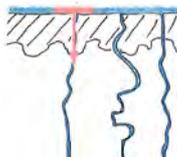
News from ICROFS

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CORE Organic is in motion

Your input to ICROFSnews

We listen to our readers's response with pleasure, as we are here for you!

Therefore, any responses are more than welcome, be it about the new format, suggestions to improvements, changes, content or anything you can think of.

Contact us at: simon.rebsdorf@icrofs.org

CORE organic



CORE Organic II is set in motion

The Core Organic II partners have started working. The European transnational research cooperation project, CORE Organic II, consists of a network of 27 European organic research funding bodies (22 countries).

The main aim of the project is to agree on common research priorities and to select transnational research projects to be funded by the partners.

The project started in March 2010 and will run for three years. It will launch at least two transnational calls, initiate research projects, organize project monitoring and dissemination of results, and consider funding models.

Pre-announcement of the research areas selected for the first call is expected to be launched in 1 July 2010.

ICROFS coordinates CORE Organic II

ICROFS is coordinator of the ERA-net CORE Organic II with 27 partners in 22 European countries (11 countries having taken part in the first CORE Organic ERA-net, and 11 are new countries).

The European Commission supports coordination and meetings with 1 million Euros. The official starting date accepted by the European Commission was 1 March 2010, allowing for the partners to follow the scheduled time plan. The Kick-off meeting of the project was held in April, where draft call texts were discussed and Call Boards established based on preparatory work following an earlier meeting, where the partners expressed their priorities for organic research.

Read more about CORE Organic Funding Body Network: www.icrofs.org/coreorganic.

Back in 2007, the first CORE Organic ERA-NET successfully ended. The final scientific report is now available and gives details on the activities and achievements of the project: www.coreorganic.org.

CORE Organic launched 8 pilot projects - running until 2010. These projects have each their own website: www.coreorganic.org/research.

Next Danish research programme: Organic RD

ICROFS and its Programme Committee have worked intensively on preparing a call text in an open working process for the next national research programme, which is to be named Organic Research, Development, and Demonstration Programme - Organic RDD in short (and not ØkoForskPLUS, as formerly announced).

Based on a series of Programme Committee meetings in 2009-2010, the secretariat has prepared a final call text, which will be put forward for endorsement by the newly established research and innovation board (GUDP) in the Ministry of Food, Agriculture and Fisheries by the end of May 2010.

It is hoped that the call will be published in June 2010.

Organic RD focuses on a strategy for the Danish organic research, development and demonstration, but with a strengthened synergy from international collaboration. The programme will focus on three main themes, *viz.* Growth, Integrity and Robust Systems.

The programme is thought of as a continuation of the whole research effort that has been made in the three research programmes, DARCOF I-III (DARCOF III runs out in 2010).

Read more about the current research programme, DARCOF III: www.icrofs.org/darcofiii

1st CERTCOST newsletter under way

The latest results from the EU project CERTCOST were discussed at the fourth project meeting in Prague. The ten partners from the European project discussed research results on organic certification and costs.

Among many things, the partners decided that the amount of research results has now reached a quantity and quality for them to be published to a broad audience, also outside the circles of the scientific community. Therefore, the first CERTCOST newsletter is expected to be published in the coming months.

Read more at www.certcost.org.

ICROFS partner in VOA³R project

ICROFS has become a partner in a new innovative research project for digital libraries, VOA³R, which stands "Virtual Open Access Agriculture & Aquaculture Repository: Sharing Scientific and Scholarly Research related to Agriculture, Food, and Environment."

The general objective of the VOA³R project is to improve the spread of European agriculture and aquaculture research results by using an innovative approach to sharing open access research products.

That will be achieved by carrying out innovative experiments with open access to scientific agriculture and aquaculture contents and by developing and providing services that integrates existing open access repositories and scholarly publication management systems by means of a federation approach.

One obvious task for ICROFS is to make the on-line, open research database Organic Eprints an active part in the sharing of scientific research results together with other repositories.

The project is funded by the EU, it will run from March 2010 until February 2013 and is kicked-off in late May.

VOA³R is coordinated by Universität Duisburg Essen, Germany. Read more about VOA³R at the [Universität Duisburg Essen website](http://www.voa3r.eu).

The upcoming project website still to be constructed will eventually be found at www.voa3r.eu.

Danish Academy of Technical Sciences



ICROFS' board chairman talks at Sustainable Food Systems conference

The chairman of the ICROFS Board, Thomas Harttung, speaks at the Sustainable Food Systems conference in Copenhagen with the subtitle: "Food for all forever."

Other speakers include DG Shengen Fan, IFPRI, President Marion Guilou, INRA, the Danish Minister for Development Policy, Søren Pind, and many more.

The Conference is organised by an Organising Committee set up by the Danish ATV Governing Board. Get the programme at the ATV website:

www.atv.dk

Public organic food procurement for youth in four European countries



By Niels H. Kristensen, Mette W. Hansen & Thorkild Nielsen,
Aalborg University, Copenhagen Institute of Technology, Ballerup, Denmark.

Public food provision has received increased attention over the past decades from policymakers, consumers and citizens. As an example food at schools are increasingly coming into focus of change and innovation agendas. One of the most persistent agendas is the call for more organic foods and organic procurement schemes are developing as a strategic part of policymaker's tools.

The CORE Organic project, innovative Public Organic food Procurement for Youth (iPOPY), aims to establish the feasibility of introducing a greater prevalence of organic food into school lunches, thus helping to support more environmentally friendly and sustainable agriculture, while contributing to better nutrition for long-term eating habits of school children.

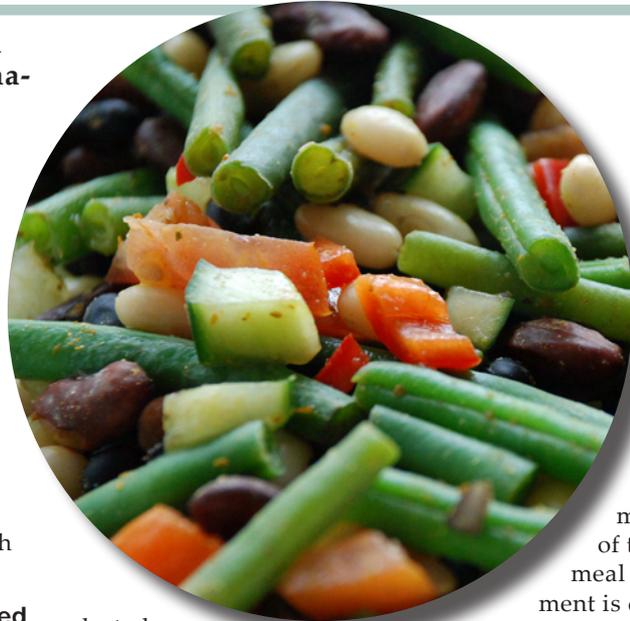
Great public attention

The daily meal for school children is a subject that has a considerable public attention in many countries these years. The discussions are often related to the considerations of how to secure pupils a healthy and genuine and tasty meal. The concept of "a proper meal" tends to become an obliga-

tory passage point for this attention, which also qualifies to bridge to other agendas such as food culture, obesity, tackling poor or no lunch for school children, etc.

Four countries examined

In some countries there has in recent years been a focus on organic school food, and this topic has been the basis for the iPOPY research project. Here we present a part of the research conducted in the iPOPY project where the focus has been on the character and implications of various organic school food systems, and the embedding of organic food in these systems by analyzing various factors in (e.g. economic, structural, regulatory, cultural). Four countries have been examined in relation to se-



system is well established. The operational management of the school meal procurement is decentrali-

zed and organized at the local municipal level. In Finland, the warm meal system is well established and has a long history just as in Italy, but the school meal system is much more centralized. Important decisions about the regulatory framework such as nutritional recommendations, in-house food safety control, or mandatory vocational curriculum for the employees are taken at the national level. In general, Finland can be characterized as having a scientific management approach, where Italy tends to have strong elements of an artisan approach. In Denmark, the additional food and meal system is negotiated at the moment; rather many local initiatives try to extend the school food procurement into the direction of full warm meals. In Norway, food procurement is mainly restricted to milk and fruit schemes.

lected organic school food systems – Italy, Finland, Norway and Denmark. Data have been collected for this study through national data reports that have been conducted by all national partners in the iPOPY project on the basis of tailored data collection and reporting guidelines mapping and analyzing the state-of-art of organic school food schemes in Denmark, Finland, Italy and Norway.

Similarities & differences

The study has uncovered some major characteristics in the school meal systems. In both Italy (Bocchi et al 2008) and Finland (Mikkola 2008), school food is an important part of the school day. Contrary to this, Norway (Løes et al 2008) and Denmark (Hansen et al 2008) are dominated by a system where lunch packages are brought from home and often eaten in the classroom.

Besides the similarities there are also some differences between the countries. In Italy, the full warm meal

Prices and payment systems

Normally, in most European countries, equipment and





education is tax financed, but in our study we find that when introducing food service systems to public schools, an economic public controversy is introduced to the schools. Finland is one of the exceptions here. This controversy is especially found where user payment is practiced, in Italy and Denmark.

In Denmark, there is an expectation that the price per meal cannot be above 3 € if a certain level of sale is to be expected.

In Italy, there is a wide range of different payment systems Rome has chosen to fix the price on 2 € which means that Rome municipality has to pay 3 € for each meal just in order to cover the food expenses (approximately 6 €/meal). In Milan on the other hand the parents pay almost all the expenses, so the costs per meal are about 5 €. One consequence of a focus on reducing costs is that it can reduce the organic share and the quality of the food. In Finland there is a dominating price focus which reduces the possibility of

introducing organic products. Here the meals can be made for 2€ including all expenses.

It is clear from the studies in this part of the iPOPY project that the complexity of school food systems, where different countries have various approaches, and many actors are involved, that a fruitful discussion to address obesity and health problems among children should build on some analytical understanding of the many different aspects and cultural meanings of a given area, in this case the school meals. On this basis our study we have derived some tentative recommendations. These vary from more general to more concrete and they will be further qualified in the final publication of the findings in the iPOPY project.

Embedding organic food
Embedding organic food in public school meals is not done by a simple product replacement. It is necessary to address also legal issues, price premium issues, structural issues, sourcing issues etc

Successful embedding of organic food has to be

careful synchronised with other agendas on the local, municipal, (provincial), regional and state level, and also European conditions and policies must be taken into consideration.

Involving the most relevant user groups (pupils, parents, school personnel, municipal administrative staff) at relevant stages of the development and operation of organic school meal schemes have a positive and proactive effect on the embedding of organic food in school meals.

Systematic regulatory efforts can be very helpful as shown in Italy. The assessment of the implementation should also be carefully planned into this effort, using relevant constructive instruments to support the progress of implementation and the building of commitment.

School external agendas can be supportive to include in the embedding task. For example can close cooperation or partnerships with local organic producers support both a cultural, social and other inclusive embeddings.

References

1: Bocchi S., Spigarolo R., Marcomini N. & Sarti, V. (2008). Organic and conventional public food procurement for youth in Italy. Bioforsk report 42, Tingvoll, Norway.

2: Hansen, S.R., H.W. Schmidt, T. Nielsen, N.H. Kristensen; Bioforsk Report Vol. 3 No. 40 2008, iPOPY discussion paper 1/2008, Organic and conventional public food procurement for youth in Denmark.

3: Løes, A.-K., M. Koesling, G. Roos, L. Birkeland, L. Solemdal; Bioforsk Report Vol. 3 No. 43 2008, iPOPY discussion paper 4/2008, Organic and conventional public food procurement for youth in Norway.

4: Mikkola, M.; Bioforsk Report Vol. 3 No. 41 2008, iPOPY discussion paper 2/2008, Organic and conventional public food procurement for youth in Finland.

5: Nielsen, T., Nölting, B., Kristensen, N. H. & Løes, A.-K. (2009). A comparative study of the implementation of organic food in school meal systems in four European countries. Bioforsk Report Vol. 4 No. 145; iPOPY discussion paper 3/2009, Bioforsk Organic Food and Farming, Tingvoll, Norway.

Read more

Find more information about the European FP6 CORE Organic research project iPopy on the webpages:

www.coreorganic.org/research/
and
<http://ipopy.coreportal.org>



Cattle trampling reduces the risk of nitrate leaching in organic dairy rotations

By [Mathieu Lamandé](#), [Jørgen Eriksen](#), [Ole H. Jacobsen](#), Aarhus University, Department of Agroecology and Environment, Research Centre Foulum, and [Paul H. Krogh](#), National Environmental Research Institute, Aarhus University, Department of Terrestrial Ecology



The project is funded by the Danish Ministry of Food, Agriculture and Fisheries

Organic dairy farming is characterized by grazing cows in contrast to Danish conventional farms where the majority of cows are kept indoors. Cattle trampling reduces the finer macroporosity in the first five to ten centimetres of the soil. This caused a low infiltration capacity at the soil surface, giving a higher probability to initiate macropore flow at the surface. Rapid water movement through macropores bypasses the soil matrix, reducing nitrate leaching.

Macropore flow depends to a large degree on hydraulic conductivity of the soil and the rain intensity. Water will only flow from the soil matrix out into the non-capillary macropores if the soil is water saturated.

This is a situation mostly occurring in the period from autumn to spring. The cattle may still be grazing in the autumn and there is a high potential for leaching of nitrate from the urine patches at this time of the year (Figure 1).

On the other hand, macropore flow can cause the rain water to bypass large parts of the bulk soil where higher concentrations of nitrate are found and therefore delay leaching. Intensive cattle trampling reduces the porosity of the first five to ten centimetres of the soil. This decreases near-saturated hydraulic conductivity, giving a higher probability to initiate macropore flow at the surface (Figure 2). At the same time, the use of semi-permanent grass-clover pastures in organic dairy crop rotations is greatly stimulating earthworm populations.

Earthworms living under the soil surface may significantly increase soil macroporosity. Moreover, deep-burrowing species, which are particularly favoured by organic farming and in pastures, creates persistent vertical burrow systems that penetrate to deep soil layers.

It means that, after some years of grazing, we may have a topsoil where the density of finer macropores have been reduced by cattle trampling, and where many permanent vertical burrows of deep-burrowing earthworms are connected to the surface.

Figure 3 presents the model we tested in the ICROFS project, OrgGrass, where we investigated how three years of cattle trampling in grass-clover fields could influence the risk of nitrate leaching in the autumn.

The experiment

The experiment was situated within the dairy crop rotation on loamy sand at the Foulum experimental farm. The dairy crop rotation, converted to organic practice in 1987, is among the oldest organic experimental areas in Denmark.

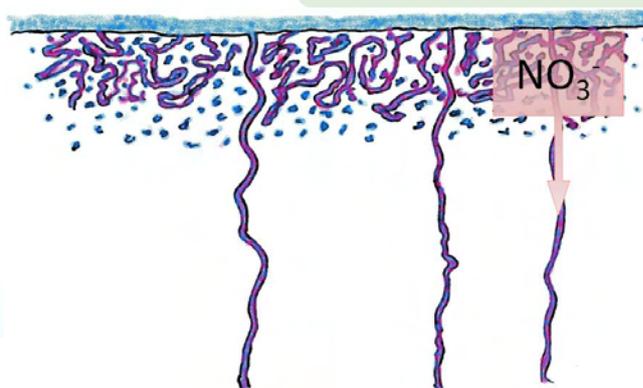


Figure 1. In this schematic situation, high rain fall occurred while the soil was close to saturation. After three years in pasture without grazing or traffic with heavy machinery, macropores (> 30 μm) will be numerous and well connected in the topsoil. Rain water will be transported slowly through a large part of the soil porosity, and will mobilize soil water containing solutes.

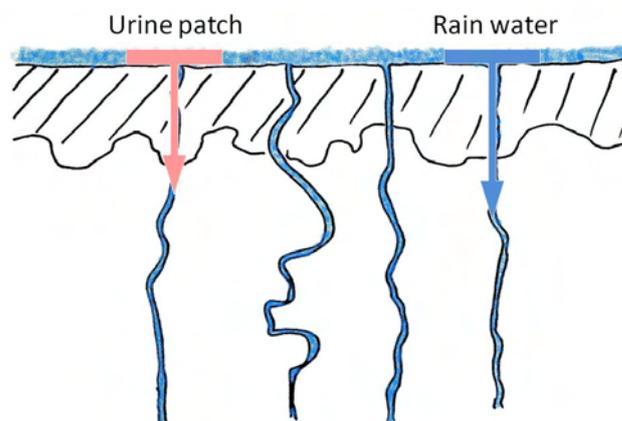


Figure 2. Here again, high rain fall occurred while the soil was close to saturation. Cattle trampling has reduced the finer macropores and increased tortuosity. Rain water will then bypass the soil matrix. This situation leads to a low risk of nitrate leaching. However, a urine patch would then be swiftly transported to the subsoil through preferential flow paths.

Irrigation experiments were performed in third year grass-clover plots with cutting regime or grazing regime (8 heifers per hectare from May to October).

Each plot was irrigated during an hour with 18.5 mm of water containing a non-reactive tracer (bromide). 24 hours after the ir-

rigation, macropores larger than 1 mm were recorded on horizontal plan at five depths, Bromide concentration in soil was analysed at the same depths and the density of earthworm was recorded.

All field work took place in October 2008 at a soil water content corresponding

to field capacity.

Consequences of cattle trampling on water transport downward

The results of the irrigation experiment showed that the concentration of Bromide was significantly larger with the grazing regime than with the cutting regime below 30 cm depth (Figure 4). The amount of water transported downward was larger with the grazing regime, down to at least 1 m depth. The velocity of water transport was higher with the grazing regime, indicating that preferential flow through large macropores happened to a larger extent than for the cutting regime. The rain fall intensity and the soil water potential are two very important factors regarding the occurrence of preferential flow. The combination of an irrigation intensity of 18.5 mm h⁻¹ and a soil water potential close to field capacity is a situation observed several times during a year in Denmark.

Density of the largest macropores

We observed equivalent macropore densities between the two treatments, both at 10 and at 30 cm in the soil profile. We have to remember that only the largest macropores were recorded

(i. e. larger than 1 mm; per definition a macropore is larger than 30 μm).

The dry bulk density measured at 10 cm depth was significantly larger in the plots with the grazing regime as compared to the plots with the cutting regime (1.48 and 1.54 kg m⁻³, respectively), indicating a reduction of the porosity at this depth for the plots subjected to cattle trampling.

Earthworm population

A slightly lower earthworm density was recorded in the plots with grazing (Figure 5). Cattle trampling reduced the density of earthworms living in the topsoil. Deep-burrowing species were not affected by cattle trampling. These results are supported by other studies. Cattle trampling affects mainly earthworm species living at the soil surface and in the topsoil (i.e. epigeic and endogeic species, respectively).

Deep-burrowing species (i.e. anecic species) are the less sensitive to cattle trampling, protected in the permanent vertical burrows they produce.

Conclusions

A tracer experiment in the field showed a deeper infiltration of water

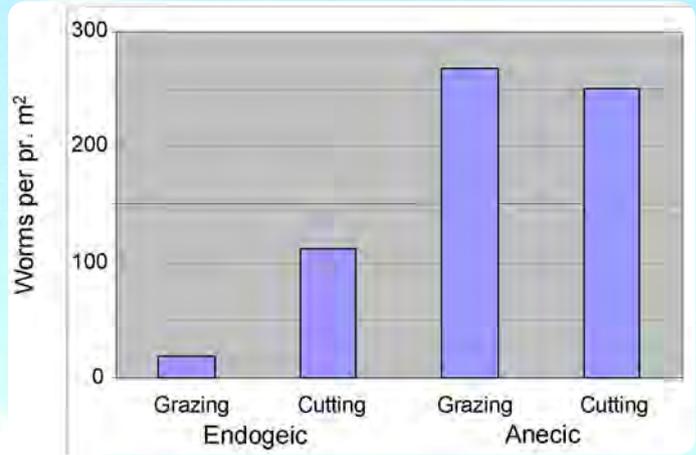


Figure 5. The density of earthworms was slightly lower for the grazing regime than for the cutting regime. Cattle trampling reduced the density of earthworms living in the topsoil. Deep-burrowing species were not affected by cattle trampling.

when the soil was subjected to cattle trampling. It indicates that preferential flow through large macropores occurred, and that rain water may bypass the soil matrix under similar or more extreme conditions than this experiment. We expect such hydraulic functioning to reduce the risk of leaching the nitrate contained in the soil water.

The conclusion drawn from the irrigation experiment was supported by investigations of the porosity and earthworm activity.

Three years of cattle

trampling lead to a reduction of porosity in the upper topsoil but did not affect the density of macropores larger than 1 mm in diameter. These macropores are often associated with the activity of earthworms living under the soil surface, especially deep-burrowing species, which are the less sensitive to cattle trampling.

Read more

You can find more information about the DARCOF III research project OrgGrass on the webpage:

www.icrofs.org/Pages/Research/darcofIII_orggrass.html

Figure 3. Our hypothesis was that three years of cattle trampling in grass-clover fields could reduce the risk of nitrate leaching in the autumn by enhancing the macropore flows.

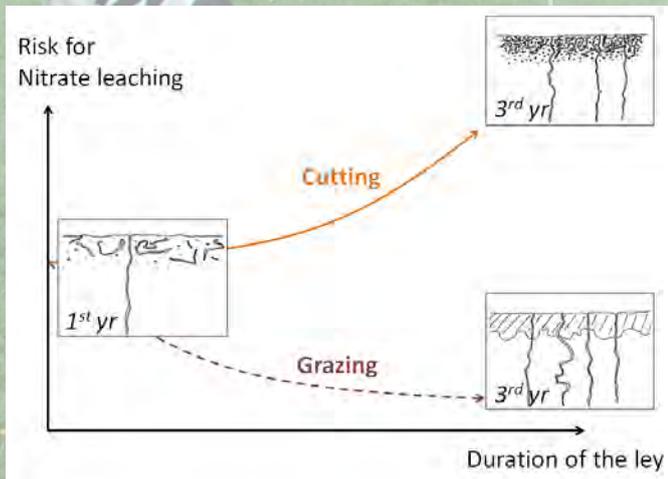
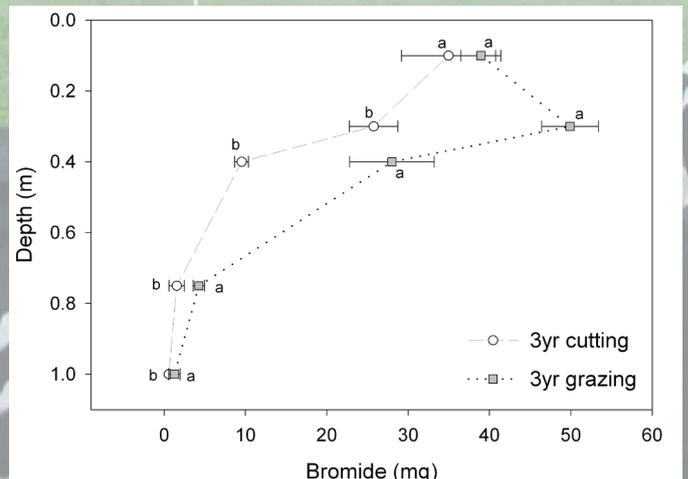


Figure 4. The concentration of Bromide in soil, which is proportional to the amount of irrigation water transported downward, was larger below 30 cm depths for the grazing regime as compared to the cutting regime. Different letters indicate significant differences between the two treatments.



Horse bean, pea and rape protein and flax seed oil in feed for organic trout

By Alfred Jokumsen, Senior Advisory Scientist, Technical University of Denmark, National Institute of Aquatic Resources (DTU Aqua), The North Sea Research Centre, Denmark.



ORAQUA is funded by the Danish Ministry of Food, Agriculture and Fisheries.

Organic horse bean, pea and rape may partly replace the fish meal protein, and flax seed oil may replace the fish oil in feed for organic rainbow trout. These are the most recent results from the ORAQUA project.

Fish meal and fish oil are unique sources to protein and oil in fish feed due to the optimum content of amino acids and omega-3 fatty acids. However, as these resources are globally very limited, the ORAQUA project is focusing alternative organic plant crops in the feed for organic trout.

The content of protein in plant crops is lower than that of fish meal (72 %) and therefore only a limited part of the fish meal can be replaced by plant protein. However, the extent of replacement of fish meal is determined by the technologies available for shifting the protein content of the plant crops and in agreement with current organic legislations.

As concerns fish oil the attention is focused to the healthy omega-3 fatty acids, which are very limited in most plant oils. However, flax seed oil is an exception with content of about 60 % omega-3 fatty acids. Therefore, experiments were also performed with replacement of fish oil with flax seed oil.

Protein concentrates and experimental diets

Based on organic horse beans, peas and rape, respectively, experiments have been performed to concentrate their content of

protein. According to organic legislations the methods used were exclusively mechanical, i.e. hulling, grinding and air classification. The following contents of raw protein on oil- and water free basis were achieved: Horse bean (59.0 %), peas (57.8 %) and rape (42.6 %).

In four experimental diets the inclusion of fish meal gradually were reduced from 59 % (control) to 35 %, by replacing it by a matrix of the three protein concentrates by the ratio of 1:1:0,7 to achieve the best possible amino acid profile. In contradiction to conventional feed it is not allowed to balance the amino acid profile by adding artificial amino acids to feed for organic fish.

In two additional experimental diets fish oil were half and fully, respectively, replaced by flax seed oil.

Growth and digestibility

Growth and digestibility experiments with rainbow trout were performed at DTU Aqua facilities at the North Sea Research Centre in Hirtshals, Denmark.

No significant differences were found between the diets. All experimental groups showed good growth (about 1.8 %/day) and feed conversion (about 0.75 kg feed/kg weight gain). The digestibilities of protein and fat



ranged from 90 – 92 % in all experimental groups, which is very satisfying, and no significant differences were found between any of the nutrient components.

The results showed that the performed replacement of either fish meal by a matrix of horse bean, pea and rape or fish oil by flax seed oil could be done without compromising the nutrient digestibility and growth in rainbow trout.

Perspectives

The unique characteristic of fish as healthy food for humans is their content of the unsaturated omega-3 fatty acids, which primarily are contributed by the fish oil in the fish feed. However, fish oil is a very limited resource and is currently replaced by competitive plant oils, f. ex. soya oil. Most plant oils are low in omega-3 fatty acids, but they are relatively high in the more saturated fatty acids (omega-6). However, the dietary fatty acid profile is swiftly reflected in the fatty acid profile of the fish and following the use of plant oils in feed for marketable size fish may impact the consumer quality of the fish. Consequently, this quality aspect is considered in

the succeeding series of experiments in the ORAQUA project. In addition to flax seed oil attention is paid to grape seed oil due to its high content of omega-3 fatty acids (about 67 %).

The ORAQUA project also includes case studies to compile data on current Danish organic farming systems. Further, a feed experiment will be performed at two organic farms in 2010. The experimental diets are selected, based on the small scale experiments reported above. The two diets are the control diet and the diet, which had the inclusion of fish meal reduced from 59 to 35 % and replaced by the matrix of horse bean, pea and rape.

Information about the health status of the fish at the organic farms is currently collected in cooperation with the veterinary inspector.

The influence of the experimental diets on the product quality of the organic fish includes objective sensory and biochemical analyses of the meat to evaluate the eating quality.

Thus, the research is primarily focused on the most critical areas in the chain connecting organic feed production, the organic farmers and the consumer.

Read more

You can find more information about the DARCOF III research project ORAQUA on the webpage:

www.icrofs.org/Pages/Research/darcofIII_oraqua.html

Cows fed vitamin-rich feed produce vitamin-rich milk

By [Lisbeth Mogensen](#), [Troels Kristensen](#), [Karen Søgaard](#), Department of Agroecology and Environment and [Søren Krogh Jensen](#), Department of Animal Health and Bioscience, Aarhus University, Faculty of Agricultural Sciences



On five organic dairy farms there was a positive effect of a high vitamin content in the home-grown roughage on the vitamin content of the milk produced.

Vitamins and minerals are of crucial importance for the health and performance of the animals, and they also affect the nutritional value of the products. The highest concentrations of pro-vitamin A (in the form of beta-carotene) and vitamin E (alpha-tocopherol) are found in grass, legumes and other green plants, while seeds and whole-crop silage only contain small amounts of vitamins. While the requirements for fat-soluble vitamins of grazing cattle are normally met via their intake from pasture, the supply of fat-soluble vitamins may decrease to very low amounts when conserved herbage is used instead of pasture.

The ECOVIT project

The DARCOF III project ECOVIT involved five private organic dairy farms. On these farms the two most important types of roughage were monitored from harvest in 2007 and until the roughage was fed to cattle. Seven times during this period (every six weeks) a sample was collected from each of the two types of roughage and from the milk tank, and analysed for the concentrations of pro-vitamin A (in the form of beta-carotene) and vitamin E (alpha-tocopherol). At the

same time the feed intake per cow per day was registered at herd level, including the supplement from a vitamin mixture, if any. This registration enabled cow total daily intake of vitamins from feed and supplements to be calculated. The two most important types of roughage in which the vitamin content was analysed constituted 90-100% of the roughage fed to cattle. For the remaining part of the roughage and the concentrated feed, table values were used for the vitamin content. The vitamin content in the vitamin mixture was assumed to be the guaranteed amount.

We found a positive effect of a high vitamin content in the home-grown roughage, and thus ration, on the vitamin content in the produced milk. This article focuses on the vitamin E supply from roughage and its concentration in milk on two of the case study farm – the farms with respectively the highest and the lowest concentration of vitamin E in roughage and milk.

Vitamin content in silage

Table 1 shows the composition of the crops included in the different types of silage registered at field level before harvest. The vitamin E content in roughage was

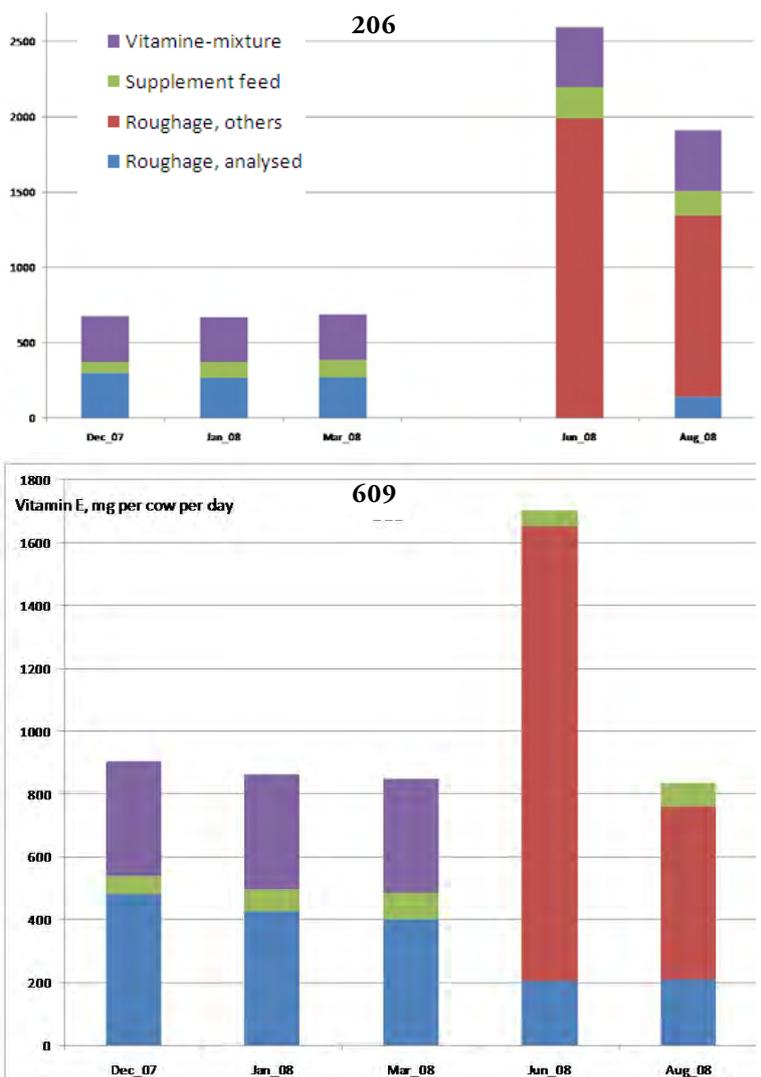


Figure 1. Daily supply of vitamin E for a lactating cow during the winter 2007/08 for farms 206 and 609

½analysed in a sample taken from the silo just after it had been filled and 3-4 times during the period when the silage was fed to cattle, here shown as the average. In the grass-clover silage the average vitamin E content

was 30 mg per kg dry matter (DM) during the feeding period, which was the same as the average content of the freshly harvested silage in the silo. The potential loss of vitamin E from the fresh crop during the drying

period was not measured in this investigation. On farm 206 the vitamin E content in the grass-clover silage was 22 mg/kg DM and 34 mg/kg DM on farm 609.

The vitamin E content in grass-clover silage on these farms was lower compared with results from Jensen (2003), who found 62 mg vitamin E/kg DM in grass-clover silage with a variation from 10 to 150. This large variation in vitamin contents in roughage is related to factors such as type of crops grown, stage of plant development at harvest, quality of the silage production and duration of storage. A high vitamin content is related to factors such as a high proportion of leaves in the crops, high digestibility, good weather conditions at harvest, good and fast conservation and good storage facility. Another part of the present project deals with quantifying the effect of the silage-making process on the vitamin content in the roughage under controlled experimental conditions.

Reference

Jensen, S.K. 2003. "Absorption og omsætning af vitaminer. In: Kvægets ernæring og fysiologi," I Bind 1 – *Næringsstofomsætning og fodervurdering*. Hvelplund, T. & Nørgaard, P. (red.) DJF rapport, *Husdyrbrug no 53*. S. 375-388.

The average vitamin E content in whole-crop silage during the feeding period was 28 mg/kg DM (Table 1). This was only 55% of the vitamin E level found in the fresh silage just harvested. On farm 206 the average vitamin E content in barley whole-crop silage during the feeding period was 16 mg/kg DM compared with 39 mg/kg DM in a mixture of pea and barley whole crop on farm 609.

These results for vitamin E in whole crop silage is higher than results found by Jensen (2003), where conventional grown barley whole crop had an average content of 17 mg /kg DM with a

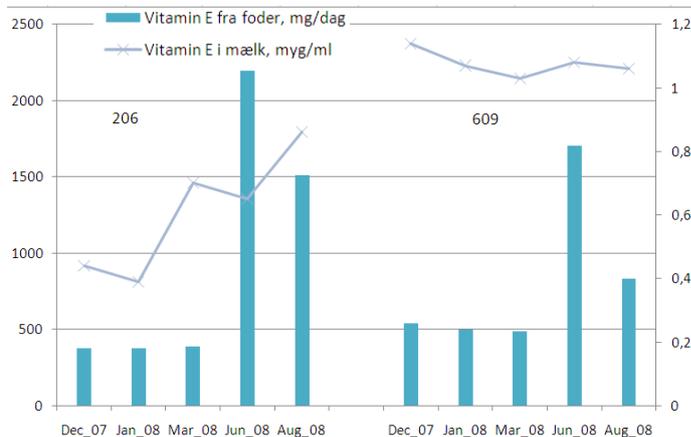


Figure 2. Vitamin E from feed (mg/cow/day) and vitamin E in milk (µg/ml milk) for farms 206 and 609

variation ranging from 10 to 35. A higher content of grass-clover in the organic whole-crop silage may be an explanation.

Figure 1 shows the daily supply of vitamin E for a lactation cow, partitioned into home-grown roughage with vitamin analysis, other types of roughage without analysis, and vitamin supply from concentrated feed and vitamin mixture. The results are based on three registrations during the winter period and two registrations during the summer period. On farm 206 the average daily vitamin E supply from feed was 380 mg, 73% of this was from roughage. On top of that 300 mg vitamin E was supplemented from a vitamin mixture.

On farm 609 similar results showed 510 mg vitamin E from feed, 86% of this from roughage, plus 365 mg from a vitamin supplement. In total, the supply was 680 mg and 875 mg vitamin E per cow per day on the two farms, respectively. During the summer period the corresponding results were 2251 and 1267 mg vitamin E per cow per day on farms 206 and 609, respectively. On farm 609 they gave no extra vitamin supplement during the summer period. On both farms the total vitamin E supply correspond to the Danish requirement, which recommends a daily intake for a cow of 400-800 mg.

The concentration of vitamins in silage affects the concentration of vitamins

in the milk

Figure 2 shows the total vitamin E supply from the feed ration and the concentration of vitamin E in milk. On farm 206 the average concentration of vitamin E in milk was 0.51 µg/ml during the winter period and 0.76 µg/ml during the summer period. On farm 609 the vitamin E concentration in milk was 1.11 and 1.07 µg/ml during winter and summer, respectively. The level of vitamin E in milk on the three other farms fell between these extremes.

For both vitamin E and A there was a positive correlation between vitamin content in the feed and in the milk.

| Farm number | 206 | 609 | Average for 5 farms |
|-----------------------------------|-----|-----|---------------------|
| Grass-clover silage | | | |
| Composition of the silage | | | |
| Grass, % | 57 | 51 | 56 |
| White clover, % | 25 | 40 | 28 |
| Red clover,% | 15 | 6 | 12 |
| Herbs, % | 2 | 4 | 3 |
| Vitamin E, mg/kg DM silage | | | |
| Just after harvest | 23 | 33 | 32 |
| Average for the feeding period | 22 | 34 | 30 |
| Average time at storage, days | 288 | 353 | 281 |
| Whole crop silage, type | | | |
| Composition of the silage | | | |
| Cereals, % | 74 | 40 | 53 |
| Legumes, % | 0 | 26 | 15 |
| Weeds, % | 22 | 33 | 30 |
| Vitamin E, mg/kg DM silage | | | |
| Just after harvest | 28 | 72 | 51 |
| Average for the feeding period | 16 | 39 | 28 |
| Average time at storage, days | 181 | 265 | 210 |

Table 1. Composition of silage and content of vitamin E, mg/kg DM

About ECOVIT

ECOVIT focuses on Health and integrity in organic dairy production

Read more at the webpage:

www.icrofs.org/Pages/Research/darcofIII_ecovit.html



The project is funded by the Danish Ministry of Food, Agriculture and Fisheries

Publications

The added value of organic farming for environment and health

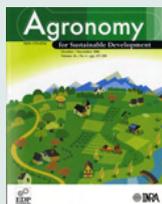


A special issue on organic food and agriculture has been released by British Food Journal entitled:

The added value of organic farming for environment and health: Facts and consumer perception

Read the articles online at the [British Food Journal website](#) (external link)

Call for review articles: Book series - Sustainable Agriculture
[Vol. 2 2010: 2nd call]



The Journal Agronomy for Sustainable Development (ASD) will publish a book series antititled Sustainable Agriculture. The journal's Editor-in-Chief writes:

"After the success of the first volume published in collaboration with Springer we are actually seeking high quality review articles covering all topics of Sustainable Agriculture and Agroecology for the second volume. Please note the following points:
- Pre-submission of a tentative title is open now."

Submission deadline is June 1, 2010.

More information is available at : www.agronomy-journal.org/doc_journal/doc/agro/call_2010.pdf

IFOAM membership directory 2010

IFOAM has released its comprehensive alphabetical directory of IFOAM members around the world. You can get the directory at the [IFOAM website](#)



FQH 2011 1st announcement

First international conference on Organic Food Quality and Health Research is held in Prague, 18-20 May 2011.



Read more at www.fqh2011.org

Congresses



Organic Horticulture (28th IHC): Productivity and sustainability
[22-27 August 2010, Lisbon, Portugal]

Call for abstracts, deadline: 31.12.2009. The 28th International Horticultural Congress (28thIHC) calls for papers is a world conference on horticultural sciences, under the patronage of the International Society for Horticultural Science (ISHS) and will be held in Lisbon, Portugal, at 22-27 August, 2010.

The 28thIHC programme includes the relevant and opportune event considering the rising consumption, production and marketing of organic food, all over the world.

For further information, go to www.ihc2010.org

1st UNAAB International Summer School on Organic Agriculture
[13-24 September 2010, Abeokuta, Nigeria]



The Organic Agriculture Project in Tertiary Institutions in Nigeria (OAPTIN) was founded in 2004 in response to the global quest for the development of sustainable agricultural systems. The University of Agriculture, Abeokuta, Nigeria (UNAAB) now holds a summer school in September. Focus is capacity building, skill and technology development in organic agriculture.

The summer school is designed to give opportunity for sound training in organic agriculture for scientists, farmers, businessmen, and policy makers.

Read the first announcement and summer school programme (jpg): www.icrofs.org/foto/images/2010_summer_school_nigeria.jpg



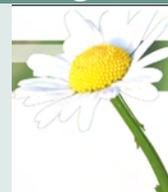
Sustainable Foods Summit
Building sustainable supply networks

Some of the leading organizations involved in eco-labels and sustainability in the food industry will congregate at the Sustainable Foods Summit in Amsterdam, June 10-11, 2010.

Read more about key topics, programme and registration at: www.sustainablefoodssummit.com

Congresses/meetings

Bioakademy 2010 - Live meeting of the Organic World
[30.6-2.7 2010, Lednice]



The European Summer Academy of Organic Farming is held in Lednice, in the Czech Republic, in the year of biodiversity. During interactive workshops, the participants are expected to come with the intent to transfer the outputs into practice by following two main themes:

- 1: Agriculture policy and organic farming in EU after 2013
- 2: Credibility and fraud in organic farming.

Read more at the Bioakademy's website: www.pro-bio.cz/bioak



[3-4 November, 2010, Petra, Jordan]

2nd International Symposium on Medicinal Plants, Their Cultivation and Aspects of Use

Interested participants are invited to participate in the Symposium, which will be held at the Petra Marriott Hotel, Petra. The Symposium will focus on recent advances in all aspects related to medicinal plants. The program will include a plenary sessions with invited papers and sessions with submitted papers related to a large range of topics, inter alia: Organic cultivation of medicinal plants, Climate change and the ethno-botanical sources, and Impact of cultivation and gathering of medicinal plants on biodiversity.

Ash-Shoubak University Collage, Al-Balqa' Applied University is organizing the symposium. Read more at the University's website: www.bau.edu.jo

The official website of the symposium will be announced soon.



3rd & 4th European Organic Congress
Registration is open for the upcoming IFOAM organic congresses held in Madrid (7 June) and in Rome (21-22 June).

The congress themes are "Green New Deal for sustainable food chains" and "The future for regulating organic food and farming in Europe", respectively.

Read more at www.organic-congress-ifoameu.org.