

Feed more on-farm protein

A European strategy in organic agriculture to improve on-farm protein management

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The goal of this European partnership project was to facilitate exchange of ideas, experiences, and methods between experienced organic multipliers (advisors, teachers in agricultural training, researchers etc.). The group had members from several northern and mid-European countries and the focus was on-farm protein management from cultivation to feeding. Field visits to leading organic farms organized by participating organisations, discussion and resulting ideas gave new inputs to the work of the advisors in their own countries and development of approaches to increase sustainability of organic agriculture.

Discussion on a common feeding strategy to reduce the need for external input of protein concentrates focussed mainly on ruminant nutrition. In all participating countries, a high emphasis is put on producing high quality roughage and the introduction of legumes in the crop rotation in order to reduce the need for concentrates. Most countries have a limit of 40 % of concentrates on the dry matter base in the ration dairy cows, in some countries this limit is up to 50 % in the first 3 months of lactation. There is a big potential to replace concentrates by high quality roughage. A key factor in this development is advice to farmers with relevant knowledge, which can motivate them to increase roughage in the feed ration as well as the use of protein produced on the farm or in the region.

FiBL (Switzerland) and the Institute of Animal Husbandry Research in Austria we visited during the meeting propagate the focus on feeding of high quality roughage and the reduction of concentrates in the feed ration to a minimum. Limiting the ratio of concentrates in feed, Swiss organic farms work according to guidelines that have a strong impact on several aspects (genetics, roughage quality, animal health etc.). Clearly, the relatively high price for concentrates in Switzerland in the past plays a crucial role.

Protein strategy: on-farm protein production

In Finland, Sweden and Denmark the same breeds are used in organic farms as in conventional production. Average yield per cow is around 8500 kg milk/year. However, yields around 10'000 kg Milk is not exceptional. The focus is on utilisation of homegrown feed, hence, closing the nutrient cycles on the farm. Great effort is made to optimise these nutrient cycles. The cultivation of protein crops such as lupines, protein peas and beans as well as intercropped cultures or grazing of rye fields are viable methods. Closing the on-farm nutrient cycles is given more importance than to decrease the use of concentrates.

The group considers training and advice to farmers about the production of high quality roughage and homegrown protein are key factors to increase sustainability of feeding organic ruminants. A stepwise adaption of guidelines over the years, however, would foster the efforts to improve on-farm protein management.

Conclusions for organic agriculture in Switzerland (Robert Obrist, Matthias Klaiss)



In an international context, the work of the „working group to support fodder cultivation in Switzerland (www.agff.ch)“ appears to be endlessly valuable. However, there is still a lot of effort necessary to disseminate and apply all this knowledge, especially in natural roughage production.. Grassland based milk and meat production is a unique selling point of Swiss (organic) agriculture. The Knospe (Swiss organic label) guidelines are compared to international standards very strict concerning limitations of concentrates for ruminants. The domestic production of grain legumes should be used for chicken and pig production in the first hand. With the promotion of organic products in public institutions like in Denmark, the domestic market for organic agriculture could be developed.

Conclusions for organic agriculture in Belgium (Wim Govaerts, Luk Sobry and Annelies Beekman)



The Flemish part of Belgium is characterised by intensive systems of animal production. There is a high demand for arable land resulting in high prices for land. For organic animal production extensification is usually not an option unless land in nature reserves can be used. In order to remain viable the organic dairy and beef farms need to intensify forage production of high quality in order to reduce the need for expensive concentrates. The focus lies on the production of clovergrass with a high yield per hectare and a high nutritious value. In order to reduce the need for external protein, protein crops such as peas and faba beans have been introduced mostly in combination with triticale, barley or oats.

Conclusions for organic agriculture in Sweden (Niels Andresen)



Feeding and cropping of home-grown protein is a very important issue in Sweden. Good roughage quality is the best way to lower the need of concentrate in feed rations for ruminants. In Sweden roughage consumption in organic dairy production has increased significantly during the last 10 years. This is due to a better grassland management from cropping to feeding. Keeping a high amount of legumes in the grasslands are a key factor to keep up yields in the grassland but even to improve protein supply to the organic stock. For dairy cows milk yields up to 8000 kg milk is possible with good roughage and cereals, whereas higher yields can be achieved with supply of field beans, rape seed, lupins and peas. Heat treatment of home grown field beans has been tested but was not found to be the key factor for improving the feed ration.

Conclusions for organic agriculture in Finland (Pirkko Tuominen)



In the current economic situation with reasonably low market prices for also organic products, it is even more important than before to improve the quality and quantity of homegrown feed. Feeding of ruminants in Finland is strongly based on good quality clover-grass silage, which in suitable areas can be partly replaced by Lucerne. Faba beans, lupins and peas mixed with grain and harvested for silage, give an interesting possibility to increase the on farm protein production. With good quality roughage, it is possible to reduce the use of expensive concentrates and still keep the productivity of the animals in good level. There is need to get further experience of how to feed monogastric animals with homegrown feed. At the moment it is difficult to find profitable ways to insure the availability of amino acids

needed for good animal health and production without imported feed. The northern location limits the choice of strategies for all organic animal production.

Conclusions for organic agriculture in Ireland (Dan Clavin, Elaine Leavy)



The organic sector in Ireland represents only approx. 2% of land area and farm numbers. Very little locally sourced organic pulses are grown due to climatic factors and the majority of protein sources are imported which are expensive. This represents a number of challenges in terms of organic farming viability and future growth prospects. Organic farming in Ireland is predominated by drystock systems (cattle and sheep) on permanent grassland. The emphasis has been on achieving better feed through improved grassland forage yield and protein production eg. establishing permanent white clover swards and short term red clover leys. In order to further reduce the need for expensive organic concentrates and to reduce the perceived barrier for perspective new organic entrants, further organic options including cereal/legume mixtures and multi-species legume grassland swards are being considered as alternative protein sources.

Conclusions for organic agriculture in Denmark (Inger Bertelsen)



In Denmark we have a relatively intensive milk production on large herds with high production levels. Our focus on these organic farms is to increase the home and locally grown part of the feed energy and protein and to reduce the use of energy and protein sources usable for human food. A general reduction in the use on concentrate will have a huge influence on the production and the economical outcome for Danish organic dairy farmers and is not realistic. Also the health of genetically high yielding cows might be affected in some herds, if we reduce energy input markedly.

Conclusions for organic agriculture in Austria (Veronika Edler)



The members of BIO AUSTRIA, the largest organization for organic farmers in Austria, undertake following rules: In the feeding of cattle the average concentrated feed of a holding is fixed at a maximum of 15 % of the whole yearly dry matter intake. A further reduction to 10 % is not planned at the moment in Austria. The focus of BIO Austria lies on the training of farmers on this topic before a further reduction is possible. Therefore a special training program in cooperation with the Organic Institut Raumberg-Gumpenstein „Low-Input in dairy farming“ was developed.