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Discussion report

## Feeding for health and welfare

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Feeding of livestock in organic production systems was discussed in four different groups: beef production, dairy production, pig production and poultry production.

### **A. Beef production**

Whilst feeding to achieve good health status in organic beef production was generally considered unproblematic, the following key problem areas were identified:

- Finishing of beef cattle for slaughter was considered problematic in areas where home-grown cereal production is difficult or impossible and of organic cereals is expensive. This problem was considered particularly pertinent in beef production areas in Scottish highlands, where traditionally local, slow-maturing breeds have been used. The problem has been exacerbated by the 30 Month Rule that requires that all cattle destined for human consumption have to be killed before 30 months of age (due to BSE precautions).
- Some EU areas with low summer rainfall have traditionally practiced zero/buffer grazing (cut and carry systems) during the dry summer season. The requirement to maximise pasturage in organic standards may limit conversion to organic production in these areas.
- Maximisation of pasturage was seen as a problem in young cows due to increased parasite burdens.

- The preference for permanent pastures and the popularity of organic production systems in upland areas may cause problems with trace element provision, as farmers often do not carry out routine supplementation.
- Killing of dairy bull calves at birth, practised both in conventional and organic systems, was considered to have serious animal welfare implications.
- The difficulty of clover management was considered a potential health risk for cattle. Too high levels of clover in the sward has been shown to lead to increased risk of bloat and poor absorption of certain minerals and trace elements.
- The effect of castration on welfare, growth rates, meat quality and husbandry systems on organic farms should be examined to avoid unnecessary castrations.
- It was felt that there was a certain amount of incompatibility between consumers' perceptions about local breeds and their actual buying habits. The consumers were seen to desire the use of local breeds but were not often happy with the type of end product these breeds produced (e.g. marbled, fatty beef).
- In some countries (e.g. Denmark), organic beef production on marginal, ecologically sensitive areas was seen to be conflicting with the environmental objectives of organic farming.

The general consensus was that most of these problems require solutions on management and systems level, rather than further nutritional research. The following suggestions were made:

- The breed and animal type needs to be taken into careful consideration at conversion stage. Types and breeds that mature poorly on grass-based diets should not be kept in organic systems.
- The standards on the extent of buffer grazing/cut-and-carry practices should be set. It was pointed out that the Soil Association in the UK had recently set a limit of 20% of daily DM intake to cut-and-carry systems during the grazing season.
- It was suggested that there is adequate information on good clover management available, and that this information needs to be implemented better on organic farms. Strip grazing swards that are too heavy on clover was also suggested as a management system for organic beef farms.
- The following suggestions were made to solve the problem of unwanted dairy bull calves: use of dual purpose breeds for dairying, organic veal production, communal/co-operative fattening system for dairy farms, collaboration between organic arable farms and dairy farms.
- It was also felt that there was adequate information on the influence of castration on growth rates, meat quality and other aspects of beef production. It was considered important to weigh the animal welfare implications of castration against other welfare-related aspects of management on individual farm basis (e.g. if castration would make finishing by grazing possible, whereas entire animals would need to be kept housed, castration might be considered a lesser breach of welfare than housing).
- Mineral deficiencies were not considered a particular problem as the EU Regulation 1804/99 allows routine supplementation in organic beef systems. There is, however, a need to emphasise an evidence-based approach on organic farms with appropriate soil, forage and blood analyses in order to avoid deficiencies.

- Unrelated to the health and welfare issues, it was concluded that organic beef production needs higher profile and more emphasis on ensuring good quality to justify higher prices for organic beef to reflect the higher production costs. Simultaneously, environmental problems related to the use of marginal land for beef production on organic farms need to be solved in order to maintain customer demands.

#### Research and development needs:

- Identification of suitable crosses for “production” of desirable dairy bull calves. This research would need to take into consideration the varying conditions in different production systems and individual farms.
- Identification of constraints to collaborative approach to fattening of store cattle (including dairy bull calves) and development of systems that have minimal impact on health and welfare (e.g. minimal travelling time and distances, herd health safety procedures).
- Research into the practicalities of producing non-castrated bulls for organic beef.
- Consumer education on organic beef production with the emphasis on understanding welfare and quality.

#### **B. Dairy production**

The discussion on health and welfare related problems in dairy feeding focused on the following issues:

- Selenium and copper deficiencies were seen as a problem in some countries (e.g. Finland) or regions as a result of no routine supplementation in bought-in concentrates or discontinuation of Se-containing artificial fertiliser use on deficient soils.
- Energy deficiency in early lactation in high-yielding dairy cows was considered a potential problem due to poor adaptation of milk performance and poor energy quality of home-grown feedstuffs.
- Diets with high clover content and without additional supply of energy-rich forage or concentrates was seen as a potential problem on dairy farms due to the high protein content leading to excess urea levels and potential fertility problems.

The following management solutions were suggested:

- To avoid the restrictions of the requirement for the production to be land based (i.e. for the concentrates to be home-grown), it was suggested that collaboration between arable and dairy farms could help in solving the regional shortages of home-grown concentrates on organic dairy farms. It was, however, pointed out that such collaboration might require large inputs in form of transport of manure from the dairy farm to the arable farm and of feed from the arable farm to the dairy farm.
- It was suggested that full utilisation of existing know-how on grassland management and conservation of forage combined with 24-hour access to forage at *ad libitum*-basis should be the basis of organic milk production. Data from Austria and Sweden suggest that relatively high yields are possible on forage-based diets without any concentrates (see papers by Knaus and Jonsson in these proceedings).
- A discussion on the acceptability of energy deficiency during the first 6 to 8 weeks of lactation in organic cows was discussed. It was pointed out that, whilst relatively

high yields are obtained from apparently healthy cows, monitoring of potential long-term effects (poor fertility, fatty liver syndrome, subclinical ketosis, early culling due to all these problems etc.) of such energy deficit should be carried out. Monitoring of the environmental consequences of high clover-based forage diets in terms of excess N, should also be carried out.

- In Germany, organic farmers are advised to increase the amount of crude protein to a level that is acceptable with regard to animal health in order to increase nitrogen content in the manure. At the same time, they are advised in minimising nitrogen losses to the environment by appropriate housing, storage and distribution measures.

#### Research and development needs:

- Research into the long-term effect of early lactation energy deficit in organic dairy cows: health and welfare (culling) monitoring.
- Research into the biological efficiency and environmental impact of feeding systems in organic dairy herd.
- Development of advice based on existing information on clover management, grassland management and forage conservation adapted to organic system.
- Development of advice based on existing knowledge on the formulation of feeding rations adapted to organic systems.

### **C. Pig production**

The following problem areas were discussed:

#### *Nutritional problems:*

- It was agreed that energy and trace element deficiencies were not likely problems in organic pig systems, but deficiency in limited amino acids was considered a potential problem due to the difficulty of sourcing high quality feeding stuffs (home-grown protein sources, like corn legumes, have a low level of essential amino acids, and conventional sources, like potato protein, maize gluten or skim milk powder, are expensive).
- When home-grown grain is used, best grain is often sold and poor quality grain is used as feed: nutritional deficiencies and mycotoxins may become problems.
- Weaning management:
- Increasing the weaning age (six weeks required by organic standards) may be complicated by the sow's inability to suckle long enough in hybrid breeds and with large litters. This can result to exhausted sows with an energy deficit leading to impaired fertility.
- Early weaning, even at six weeks, requires careful feeding management, especially with regard to the creep diet in order to avoid diarrhoea in piglets.

#### Research and development needs:

- Identification of optimal weaning age for the health and welfare of piglets under specific farm conditions and identification of sow breeds that are capable of suckling to this period.
- Development of optimised system at weaning: adequate control of parasite burdens, management of salmonella etc.
- Identification of feasible alternatives to artificial amino acids.

- Development of pig health plans that include a complete feeding plan for organic farms.

#### **D. Poultry production**

The following problem areas were identified:

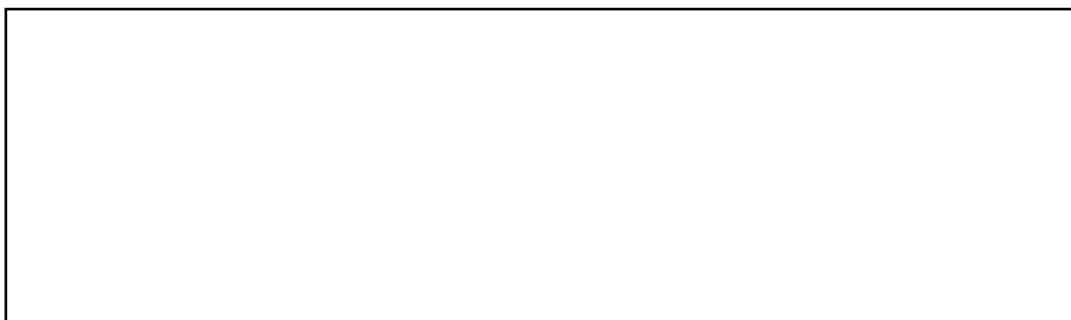
- The control of intestinal parasites, and coccidiosis in particular, was identified as a potential problem in free range systems and with rations free of in-feed prophylactic medications.
- Potential problems arising from increased use of home-grown and home-mixed rations were discussed.
- Home-grown and home-mixed rations are more likely to be of low nutrient density, leading to thin intestinal contents and poor absorption of nutrients in the short digestive tract of poultry.
- The farmers have poor understanding of ration formulation, leading to potentially serious deficiencies in home-mixed rations.
- The EU regulation banning the use of artificial amino acids was considered to cause a potential problem in the provision of essential amino acids.

Potential solutions to these problems were suggested:

- The acceptability of coccidial water-administered vaccines in organic poultry hatcheries should be clarified. In layer systems, serious coccidiosis is unlikely to be a problem in adult birds that have acquired immunity, as long as hygiene standards are good, stocking densities are not too high and site rotation is practiced.
- Training and advisory materials on poultry ration formulation for home-mixing should be developed. It was also suggested that poultry could be allowed to practice choice feeding where they choose their own rations.
- It was pointed out that high levels of limited amino acids in poultry diets are needed because of high performance levels required from the birds. The need to adjust the production levels to available diet should be considered, rather than a change of feeding standards. In Germany, the artificial amino acids have been successfully replaced by potato protein in broiler diets, but the availability of GM-free potato protein is under threat. In Scandinavian countries, soured milk powder has been used in both broiler and layer diets to replace artificial amino acids. In the future, soya bean expeller of organic origin will probably be available.

#### Research and development needs:

- There is a need to carry out research in order to identify alternatives to artificial amino acids (potato protein, soured milk powder, organic soya bean meal). The research should focus on establishing appropriate production levels without the use of artificial amino acids and ensuring that no welfare problems arise from organic poultry diets.
- Training materials on home-mixing poultry diets need to be developed for farmers.



**Bibliographic information:**

Hovi, Malla and Sundrum, Albert; Hovi, M. and Baars, T., Eds. (2001): Feeding for health and welfare. Proceedings of the 4th NAHWOA-Workshop, 24-27.03.2001, Wageningen, NL, p. 198-202., NAHWOA - Network of Animal Health and Welfare in Organic Agriculture.

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