

## **The SAFO project: outcomes, conclusions and challenges for the future**

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### **Introduction**

In 2003, the concerted action network project ‘Sustaining Animal Health and Food Safety in Organic Farming’ (SAFO) was initiated with the central aim of improving food safety and animal health in organic livestock production systems in existing and candidate member countries of the European Union. This was primarily met through exchange and communication of research results and conclusions between researchers, policy makers, farmers and the wider stakeholder community. The intermediate objectives of the project were to identify important food quality characteristics linked to organic livestock products and improve food quality, including food safety, with regard to zoonoses, drug residues and the development of anti-microbial resistance in the food chain. This objective also includes aspects of food processing quality with regard to animal health and welfare in organic livestock production systems. A further aim was to develop strategies for implementing and harmonising organic livestock production standards in existing and candidate member countries, and to improve the interaction between researchers, farmers, certification bodies and policy makers so as to guarantee that the development of organic livestock standards was driven by inputs from all stakeholders in the EU. In the following paper, the main themes, conclusions and future challenges identified through this process are presented and discussed.

### **Physical outputs of the SAFO Network**

The physical outputs of the SAFO Network are listed in Box 1. Apart from these outputs, suggestions for research proposals have been formulated and discussed. The SAFO Network has also been represented at a number of international conferences, meetings and workshops and in journal articles.

**Box 1.** The physical outputs from the SAFO project.

- 1) Five workshops have formed the basis for the formal and active sharing and learning experience of the project (see Table 1). These workshops have focused on certain themes related to the objectives of the SAFO project, plus the conditions for organic livestock farming in the host country. The first four workshops included visits to farms and processing units of organic animal food.
- 2) A web-site is the focus for presentation and exchange of knowledge, results and products of the project ([www.safonetwork.org](http://www.safonetwork.org)), where reports and proceedings of the project are now available.
- 3) Workshop proceedings with papers (81 oral and 39 poster presentations) from all five workshops (including this volume) have been produced.
- 4) Translated summaries of all workshop proceedings in 18 partner country languages are available on the website and have been used as the basis for national publications in farmer journals, newsletters etc.
- 5) Five road shows (dissemination workshops focusing on organic livestock farming) were held in Latvia, Hungary, Romania, Slovakia (jointly with Czech Republic) and Estonia. Material from the roadshows is available on the SAFO website, and the report covering all five roadshows is presented in this set of proceedings.
- 6) Three consultations with SAFO participants have been held, dealing with (a) the participants' expectations of the SAFO network, (b) implementation of the EU Regulation on organic farming in the participating countries, and (c) key messages from the SAFO network.
- 7) Five Standard Development Reports presenting analysis of, and recommendations for, the EU Regulations have been prepared and are presented in the proceedings from this and previous workshops. These reports are also available from the SAFO website.

**Conclusions from the SAFO Network*****Value of research networks***

The participants' expectations of the network (as mentioned in the consultation at the second workshop) focus on three main areas:

- 1) Development of organic livestock farming under diverse European conditions
- 2) Creating a link between animal health and food safety
- 3) Creating links between research and stakeholder organisations.

There appears to be general agreement among participants that the network activities were of great value. Towards the end of the SAFO project, effort has been made to create sustainable networking facilities (e.g. via the internet), and to initiate new network projects.

***Effect of diversity within Europe on the development of organic livestock farming***

Many of the presentations given at SAFO workshops demonstrate that the conditions of organic animal husbandry throughout Europe are extremely diverse. During the project, a greater understanding developed between project participants of this diversity. This was combined with the identification of different and common challenges and solutions to problem areas, and was a major task in workshops and

working group discussions. The diversity within Europe is vividly illustrated in the roadshow report (Younie et al., 2006) and in the report on the questionnaire survey that was conducted with SAFO participants (Vaarst et al., 2006). The diversity reduces the extent of direct technology transfer that can be done between countries and regions, but nevertheless there are great opportunities and possibilities to learn from each other and share knowledge and experience. These opportunities were taken up on many occasions. A clear conclusion from the entire network process was that all developments must relate to the national, regional and local context, and that there are many different ways of living up to the organic principles and standards. With the inclusion of new member states into the EU, and the involvement of pre-accession countries in the SAFO network, many new dimensions were added to describe and discuss the diversity between livestock systems within the European Union. This is reflected in a number of the papers presented at the workshops and roadshows.

### ***Food quality characteristics identified***

One of the aims of SAFO was to identify important food quality characteristics associated with organic livestock products. The papers in the SAFO proceedings illustrate that we have taken the concepts of process quality and product quality of food as a starting point. Process quality refers to the production process, including the lives of the animals, their welfare, environment and the history of the food. This includes also some aspects of traditional products, e.g. the local origin of certain sausages or cheese products, which are highly valued in some regions and are specially marketed in farm and local shops. The product quality refers to 'the quality of the food alone', which means the characteristics and contents of nutrients, vitamins, minerals etc. and the food safety. Aspects of both of these quality concepts are briefly discussed below regarding the main conclusions from the SAFO project.

### ***Process quality: animal health and welfare in organic agriculture***

Several presentations and a consultation process among all the participants in the SAFO Network show that the existence of standards alone is no guarantee of good animal health and welfare on organic farms, or of safe livestock food products. A broad spectrum of different challenges were identified in both old and new EU member countries, which mitigate against the achievement of good animal health and welfare, as well as good food quality and safety. Some of these challenges were of a more general character, for example, the creation of good conditions for outdoor access especially for poultry, provision of adequate protein quantity and quality for monogastric animals, and the lack of breeding programs to meet the demands of organic production for all animal species. Other challenges were connected to regions, for example the use of old housing systems or climatic challenges in hot, cold or humid areas.

### ***No major risks observed from zoonoses***

The risk of many zoonoses appears at first sight to be higher in organic farming, because of the requirement for outdoor access, the fact that animals are group housed, have straw or other litter material, and the manure is circulated on the farm. There is only a limited amount of research in this area, but many of the risks have not been confirmed by research results or experience. However, it is acknowledged that these risks do exist and should be handled by careful management, for example, proper manure handling, feeding hygiene, reduced movements of animals in flocks or between farms and improved hygiene in general. In pigs, the risk of *Toxoplasma*

*gondii* was found to be very low (non-existent) in conventional indoor systems, but present in free range and organic systems. The incidence of *Campylobacter* and *Salmonella* in pigs varies widely within systems, and a clear pattern of risks is difficult to identify, since it also varies between individual animals. The level of hygiene in, for example, outdoor huts is important and the whole processing chain of the products needs to be considered when determining the risk to the consumer. In working groups, it was concluded that consumer education was of great importance. In cattle, paratuberculosis was concluded (Working Group report, 2004) to demand specific attention, as it was widespread and identified as a potential zoonosis, although the incidence seems to be the same in both conventional and organic herds. In poultry, *Campylobacter* and *Salmonella* are major challenges. The infected animals are not necessarily clinically affected. The incidence varies widely between countries, and some studies show that there are no systematic differences between conventional and organic production systems, and food safety risks are no higher in organic systems compared with conventional ones. However, it must be emphasised that very little research has been done in this area to date.

### ***Food quality and safety of organic livestock products***

The product quality of organic animal foods was investigated and presented in a number of papers. In situations (such as in Britain and Switzerland) where dairy animals are grazed (and because in such situations the diets of organic animals tend to have a greater proportion of grass than those of conventional animals), it was reported that the concentrations of conjugated linoleic acid (CLA),  $\alpha$ -linolenic acid, and the ratio of n-3:n-6 fatty acids were greater in organic milk compared with conventional milk. However, this is a feature of the diet rather than the system, as the concentrations and ratios of these acids decrease when the proportion of concentrate, maize silage and grass silage in the diet is increased, according to Dutch studies. Similarly, somatic cell counts were found to be linked to farm practices and hygiene rather than system differences. A number of different studies were presented that also indicated no systematic differences, for example, between parasite burden and milk quality in small ruminants. Presentations and discussions on pork production also concluded that the quality of pork is more related to the genotype, feeding strategy and other factors than to the organic production method itself.

Apart from the zoonoses referred to briefly above, a number of papers dealt with the risk of residues from veterinary medicine, antimicrobial resistance, mycotoxins and other toxins in organic animal food products. Dioxin content was found to be the same (or lower, although not significantly) in organic milk compared with conventional milk, but the outdoor access of layers was identified as a risk factor for organic eggs compared with conventional eggs because of the potential to ingest contaminated soil. Dutch research highlighted the basis of model calculations that demonstrated silage could be a risk factor in relation to mycotoxin contamination. In an Italian study, it was concluded that the risk in organic herds was no higher than in conventional herds, and maize silage was shown to present the highest risk for mycotoxin ingestion by cows.

### ***Recommendations concerning the EU Regulations***

A number of challenges were identified with regard to the implementation of standards.

- 1) The greatest challenge relates to the current status, practices and management of organic livestock at farm level. These challenges can be met by dialogue between organic farmers, producer organisations, certification bodies, governments etc. on a national level in order to improve the situation. More knowledge is needed in some regions, but exists in others, which points to the benefit of active experience exchange and networking, as well as documenting examples of best practice. The EU Regulation appears to be violated in a number of cases as a consequence of lack of knowledge and experience, as well as a lack of enforcement of parts of the regulation in individual countries.
- 2) Challenges also arise from the diversity between countries, in characteristics such as climate. These have to be considered both when making regulations, and in their national interpretation. The new proposal for a Council Regulation introduces some flexibility in implementing the standards in certain areas, but also promotes a more common understanding in clearly stating the principles of organic production.
- 3) Finally, a few terms were identified in which the regulation appears to have been misunderstood. These challenges can be met at EU level through improvement in the formulation of the regulation, and by providing clearer definitions. SAFO also suggests that animal health planning becomes mandatory for all organic livestock producers, in particular for those in conversion, and that animal based parameters should be included in the inspection of organic herds in order to ensure that good animal health and welfare is present in each organic herd.

The results of the SAFO participant consultation on the implementation of standards (Vaarst et al., 2006), and the final SAFO recommendations to the EU Regulation (Sundrum et al., 2006) are presented in this set of proceedings.

#### ***Knowledge dissemination of good organic animal husbandry***

It was consistently concluded through a number of presentations and discussions in the SAFO project that the dissemination of knowledge about organic farming needs improvement, especially among animal health and production professionals, and in particular veterinarians. In many of the participating countries, veterinarians seemed to be unfamiliar with organic farming concepts, practices or regulations and could therefore not give organic farmers appropriate advice. During conversion to organic farming, farmers and the professionals that support them have to learn to focus on prevention rather than cure for animal health management. Many of the SAFO participants underlined this by expressing a need by veterinarians to focus on preventative measures as well as the so-called alternative treatment methods.

#### ***Future challenges***

The publication of these proceedings marks the end of the SAFO project as an EU funded concerted action. In the SAFO network, much information, knowledge and insight has been exchanged. SAFO has highlighted that much knowledge exists, but it is very often only available in a national language, which limits the accessibility to these data. It remains a challenge to organise the future exchange of this knowledge in such a way that it can serve as an inspiration and a help to others, even in cases where direct technology transfer is not possible.

New initiatives and innovative approaches have been debated and steps have been taken to fulfil them. In the fifth and last SAFO workshop, one session focussed on the dissemination of results via the certification and the advisory services. In addition, the implementation of EU Regulations in new and pre-accession EU member states presents a major challenge. This network between researchers and other stakeholders has proven to be of great value in this process.

Relevant areas for future research both at local, national and international levels have been identified, including:

- breeding programmes for organic animals
- animal health planning
- improving milk quality
- small ruminants in organic production
- grassland farming
- alternatives to conventional veterinary medical treatment methods.

Research and development initiatives are also required on issues such as common grazing systems, transhumance, peri-urban farming, intensive farming, farming with mixed animal species and other specific topics within the very broad spectrum of diverse farming systems covering all animal species. Further identification of potential food safety risks also calls for future research initiatives and collaboration.

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