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**Consumer expectations, nature conservation and
environmental protection in the context of animal
health and welfare**

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Consumer expectations, nature conservation and environmental protection in the context of animal health and welfare

by Gerold Rahmann¹

1 Introduction

In conventional farming animal husbandry has an immense negative impact on the environment: water pollution from slush, pesticides and nitrates, dust in the air, erosion and degradation of soils, over-grazing, low biodiversity with only high yielding fodder plants on grassland and monotonous landscapes. At the UN world summit in Rio de Janeiro in 1992 the international community declared environmental protection a goal for the future.² In farming three levels of environmental protection can be differentiated: biotic protection, a-biotic protection and aesthetic protection.

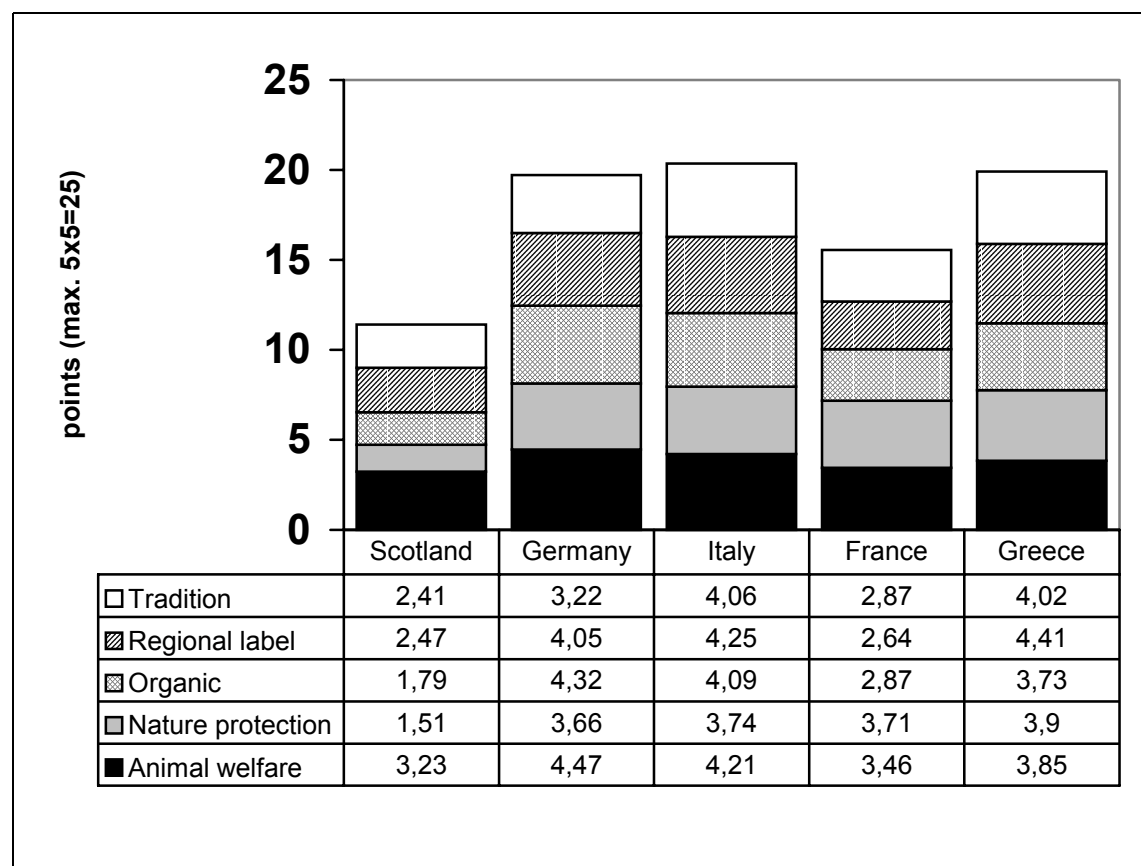
The protection of nature and the environment is one of the major principles of organic farming (IFOAM, 1995).³ Thus organic farming is valued as an holistic, accepted and sustainable means of achieving the goals of environmentally sound food production and an environmentally sound land use system in the understanding of the Rio declaration and Agenda 21. Governmental regulations such as EC No. 2092/91 and 1804/99, international organisations such as the FAO⁴ and last but not least consumers have acknowledged this fact. For example, since 1992 the EU has supported organic farming and environmentally sound farming practices (EU Reg. 2078/92 and 1257/99).

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- 1 Gerold Rahmann, Institute of Organic Farming, Federal Agricultural Research Centre, Trentthorst, 23847 Westerau, Germany, Gerold.Rahmann@fal.de, (<http://www.oel.fal.de>)
 - 2 These levels comprise the international Convention on Biological Diversity (CBD) (<http://www.biodiv.org>): *"At the 1992 Earth Summit in Rio de Janeiro, world leaders agreed on a comprehensive strategy for "sustainable development" -- meeting our needs while ensuring that we leave a healthy and viable world for future generations. One of the key agreements adopted at Rio was the Convention on Biological Diversity. ... This diversity is often understood in terms of the wide variety of plants, animals and micro-organisms. ... Biodiversity also includes genetic differences within each species - for example, between varieties of crops and breeds of livestock. ... Yet another aspect of biodiversity is the variety of ecosystems such as those that occur in deserts, forests, wetlands, mountains, lakes, rivers, and agricultural landscapes. In each ecosystem, living creatures, including humans, form a community, interacting with one another and with the air, water, and soil around them. ... The Convention establishes three main goals: the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits from the use of genetic resources."*
 - 3 Environmental related aspects in the international accepted basic standards of organic farming (IFOAM, 1995) (<http://www.ifoam.org>): *"Organic agriculture includes all agricultural systems that promote the environmentally, socially and economically sound production of food and fibres. To interact in a constructive and life-enhancing way with natural systems and cycles. To maintain and increase long-term fertility of soils. To help in the conservation of soil and water. To use, as far as possible, renewable resources in locally organized agricultural systems. To minimize all forms of pollution that may result from agricultural practice. To maintain the genetic diversity of the agricultural system and its surroundings, including the protection of plant and wildlife habitats. To consider the wider social and ecological impact of the farming system."*
 - 4 FAO/WHO Codex Alimentarius Commission (1999) (<http://www.fao.org>): *"Organic agriculture is a holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles, and soil biological activity."*

However, not all consumer expectations concerning product and process qualities or the objectives of nature conservation and environmental protection can be satisfied by organic animal husbandry, because animal health and welfare is affected.

2 Consumer expectations versus animal health and welfare

Consumers value animal products according to product and process qualities. Fulfilling consumer expectations of high quality products and processes is difficult and sometimes impossible in organic farming practices. A good example is the antagonistic relationship between expectations of lamb production and expectations of biotope conservation by sheep grazing. It is not possible to produce well-marbled lamb without concentrate feeding in parallel with biotope conservation. This problem increases with seasonal and endangered breeds and when summer-season consumption of lamb is expected. Lambs are not ready for slaughtering in the summer. Lambs have to be separated from mothers and fed with concentrates indoors to satisfy consumer expectations.

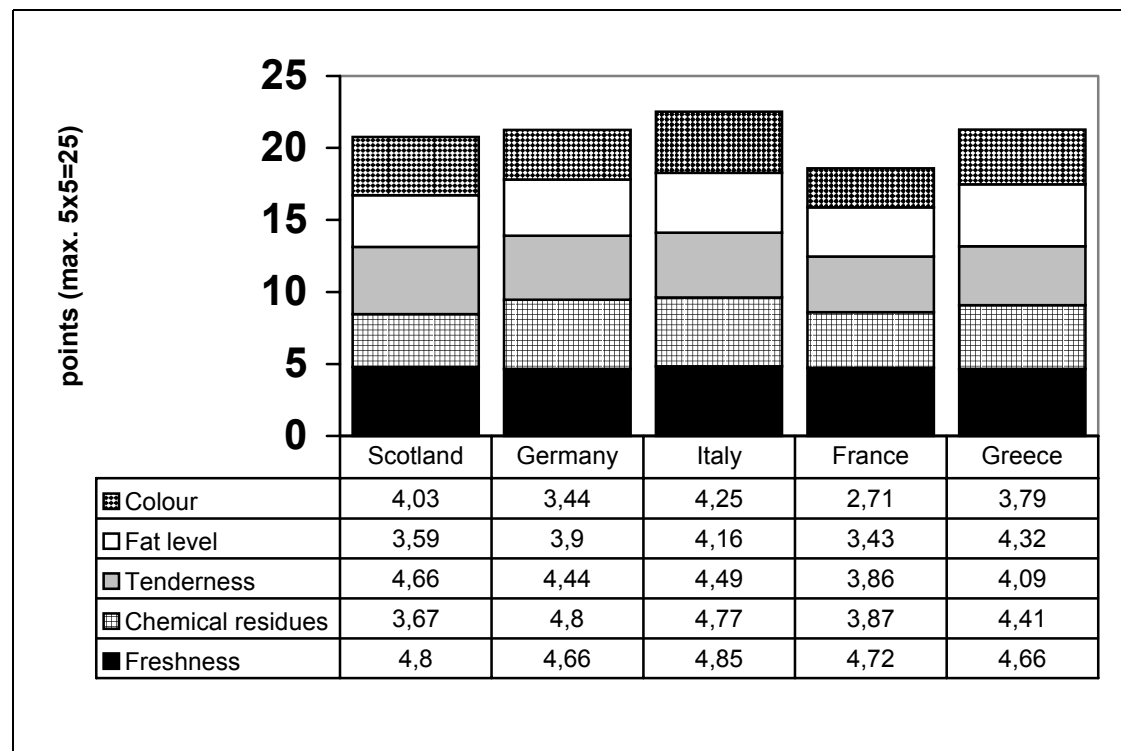


(Survey in 1997, n = 1.557; ranking: 1 = unimportant, 5 = very important)

Figure 1: European consumer perceptions of process qualities in animal husbandry

Source: RAHMANN et al., 2001

Consumers' regional and cultural habits and expectations determine the definition of product and process qualities. In 1997, a European-wide survey in five areas (north-south-transect: Scotland, Germany, France, Italy and Greece) assessed consumer perceptions of and attitudes towards product and process qualities from environmentally sound animal husbandry (RAHMANN et al. 2001). The result was that different countries and regions have different cultures and expectations in relation to product and process qualities.



(Survey in 1997, n = 1.557; ranking: 1 = unimportant, 5 = very important)

Figure 2: European consumer perception of product qualities of meat (lamb)

Source: RAHMANN et al., 2001

To the extent that consumers have lost knowledge about production conditions, incompatible expectations occur. Many urban consumers have lost the understanding that meat production is linked with the slaughtering of animals. Pre-processed meat and pasteurized and homogenized milk is preferred, bloody meat or raw milk are less and less accepted by consumers. Another problem is posed by rapid changes in consumption habits; organic farmers can only satisfy changing demands after a certain time lag. Changing cultural and consumption habits influence production patterns in farming (e. g. season, region). Organic farming follows - and has to follow - changes as much as possible, but not all consumer expectations can be fulfilled. Difficulties occur when demands conflict with the principles of organic farming, animal health and welfare.

In future it is necessary to improve consumer knowledge about organic farming, animal health and welfare in order to preserve the links between consumption and production in times to come.

But it is not only consumer expectations that create difficulties. Middlemen and public health regulations influence animal health and welfare. In organic farming it is difficult to satisfy all demands regarding product qualities. Zoonotic aspects of raw milk (e. g. E. coli EHEC, listera, staphylococcus), meat and eggs (e. g. salmonella) require production and processing methods which are difficult for organic farming.

For organic farming there is a need to define product claims and to develop product quality parameters for human safety and health (e. g. food safety programmes based on Hazard Analysis and Critical Control Point HACCP and Maximum Residue Limits MRLs).

For extensive organic grazing systems, low and medium growing breeds are preferable because they grow well even without concentrate feeds and/or they can be outside for long periods during the year (winter grazing). But farmers use high yielding breeds with better daily weight gain to optimize their productivity and to fulfil market expectations. To prevent lower EUROP-classification under conditions of extensive grazing bulls and male lambs are castrated. Castration improves the EUROP classification compared to un-castrated bulls (e.g. from R₂ to U₂). The marbling of the beef of steers under extensive grazing is better than of un-castrated bulls. Although castration is allowed in organic farming, castration is considered as animal cruelty.

Many classification standards are not acceptable for organic farming. Organic classification standards have to be developed. These standards must respect animal health and welfare as well as cultural and regional aspects.

3 Nature conservation versus animal health and welfare

The protection of biotic elements of the environment comprises natural and cultural flora and fauna (RAHMANN, 2000). Organic animal farming has a positive impact on natural and cultural flora and fauna on grassland, on fodder crop land, in and on stables and barns (see Table 1). Because pesticides and synthetic fertilizers are prohibited, a natural vegetation composition can become established, with rare and often endangered plants (FRIEBEN, 1997). Many wild animals need these plants as a host or as a source of fodder. It has been proven worldwide that organic farming has a positive impact on the presence and density of invertebrates. Many of them are considered important for biological disease control (PFIFFNER, 1997).

Table 1: Biotic impact of organic farming compared to conventional farming in the EU

	better ++	+	equal 0	-	worse --
Ecosystem		X			
• Floral diversity		X			
• Faunal diversity		X			
• Habitat diversity			X		
• Landscape			X		
Soil		X			
• Soil organic matter		X			
• Biological activity	X				
• Structure			X		
• Erosion		X			

Source: STOLZE et al., 2000

In comparison to usual livestock keeping conditions, extensive grazing systems on protected biotopes (agri-environmental schemes) are beneficial for animal welfare. A wide floristic biodiversity is perceived as favourable for animal health and productivity. For example on biotopes with shrub succession goats can browse and practise browsing habits (e. g. facultative bipedie). It is common that in such extensive grazing systems young stock remain with their mothers in bigger herds and natural mating is practised, which influences positive social and family relations. Enriched and multi-structured habitat conditions are better than monotonous grasslands for all livestock activities like playing, observing, moving and/or resting. Low stocking densities and diversified vegetation enables grazing stock to select their fodder. Year-round keeping outdoors is good for animal respiration and fitness if they are adapted to cold and wet conditions (extensive breeds) and shelter and fodder is available.

Extensive grazing systems are good for animal welfare. Extensive livestock keeping does not mean neglecting the needs of the animals. Shelter, sufficient fodder and health of the animals must be controlled by the farmer. Adapted livestock keeping systems as well as adapted animals are necessary for extensive grazing on protected biotopes.

Health problems can occur while grazing on protected biotopes. Poisonous plants or wild carnivores (wolves, wild dogs and bears) can kill or injure livestock. Wet land conditions can infect livestock with endo-parasites (e. g. big leaver leech). Animal infections by soil-borne diseases (e. g. hoof rot) can not be avoided in mobile grazing systems (e. g. transhumance in Southern Europe and the Alps). Outdoor keeping in the winter season under harsh conditions is difficult for pregnant animals and young stock.

Biotope conservation is not suitable and acceptable for every breed. Adapted and robust livestock is necessary to avoid animal health problems under harsh conditions in extensive grazing systems.

4 Environmental protection versus animal health and welfare

Livestock has an impact on the environment. Water and air can be contaminated by animal husbandry systems and methane is a negative contributing factor in global climate change. Therefore it is argued that conventional animal husbandry is better than organic animal husbandry. High yielding livestock produces the same quantity but with fewer animals. Animals in housing systems do not pollute groundwater. Plans for huge industrial indoor farming systems (one building for fish, pork, chicken, vegetable and energy production in one building close to harbours) have less negative environmental impacts than organic farming systems. But animal welfare and health is ignored in such concepts. To avoid environmental pollution by organic animal husbandry, management and keeping systems have to be improved in the context of the principles of organic animal husbandry and an animal has to be considered as a fellow creature.

Table 2: A-biotic impact of organic farming compared to conventional farming in the EU

	better ++	+	equal 0	-	worse --
Ground and surface water		X			
• Nitrate leaching		X			
• Pesticides	X				
Climate and air			X		
• CO ₂		X			
• N ₂ O			X		
• CH ₄			X		
• NH ₃		X			
• Pesticides	X				
Farm input and output		X			
• Nutrient use		X			
• Water use			X		
• Energy use		X			

Source: STOLZE et al., 2000

Water protection by organic animal husbandry:

Outdoor runs can contaminate water with fluid manure and urea. Particularly after rainfall these fecals can flow into ditches or leach into the ground. Waste water collection of outdoor runs is necessary. Outdoor keeping of pigs (muddy pools) and chickens (places close to the doors of the chicken houses) can contaminate ground water. Rotational keeping systems are necessary for pigs and chickens as well as for cattle and small ruminants to avoid too high fecal concentration in particular places.

Even organic animal husbandry must improve the protection of water and air. In order to reduce methane production, consumption patterns must change. Less meat means less livestock.

Reducing air pollution in organic animal husbandry:

Even in organic animal husbandry air is polluted by dust and smells. Fluid slush or dust from chicken and pig houses can disturb people. Slush prevention and dust-reducing housing systems for livestock have to be improved in order to avoid disharmony between organic farmers and non-farmers in rural villages.

Air pollution by dust and smell must be reduced via adapted organic livestock keeping systems.

5 References

- Elsen, T. & G. Daniel (2000): Naturschutz praktisch. Ein Handbuch für den ökologischen Landbau. Mainz, Germany
- EQULFA (2000): Husbandry Systems and Sustainable Social/Environmental Quality in Less Favoured Areas. Final report of the EU project FAIR CT95-0481 from 1996 – 2000. Achincruive, UK
- FAO/WHO (1999): Codex Alimentarius of Organic Farming. Rome, Italy
- Friebe, B. (1997): Arten- und Biotopschutz durch organischen Landbau. Ökologische Konzepte 95, Bad Dürkheim, pp 73-92
- IFAOM (1977): Basic standards of organic farming. Tholey-Theley, Germany
- Krug, A. (1997): Zukunftsfähiger Gewässerschutz durch ökologischen Landbau. Ökologische Konzepte 95, Bad Dürkheim, pp 153-164
- Pfiffner, L. (1997): Welchen Beitrag leistet der ökologische Landbau zur Förderung der Kleintierfauna? Ökologische Konzepte 95, Bad Dürkheim, pp 93-120
- Rahmann, G. (2000): Biotoppflege als neue Funktion und Leistung der Tierhaltung. Agraria 28, Hamburg, Germany
- Rahmann, G., S. W. Ashworth, J.-P. Boutonnet, G. Brunori and I. Papadopoulos (2001): Opportunities and Barriers for Niche Marketing of Lamb in European LFAs based on Consumer Attitudes to Product Quality. Agrarwirtschaft, in print, Frankfurt/M.
- Rifkin, J. (1992): Beyond beef. New York
- Rösler, S. & C. Weins (1997): Situation der Vogelwelt in der Agrarlandschaft und der Einfluß des ökologischen Landbaus auf ihre Bestände. Ökologische Konzepte 95, Bad Dürkheim, pp 121-152
- Spatz, G. (1994): Freiflächenpflege. Stuttgart, Germany
- Stolze, M., A. Pierr, A. Häring, S. Dabbert (2000): The Environmental Impacts of Organic Farming in Europe. Organic Farming in Europe, Vol. 6, Stuttgart, Germany
- Weiger, H. & H. Willer (1997): Naturschutz durch ökologischen Landbau. Ökologische Konzepte 95, Bad Dürkheim, Germany