

The Global Market of Organic Animal Product – Chances and Risks

G. Rahmann

Johann Heinrich von Thünen-Institute (vTI), Institute of Organic Farming, Westerau
email: gerold.rahmann@vti.bund.de

ABSTRACT

Organic farming has a high reputation of sustainable food production chain. The global market has encroached to over 40 billion US Dollar. Main consumption is located in Europe and the USA but in about 135 countries of the world organic production is practiced. The global market for organic livestock products is less developed than crop products. Sanitary trade restrictions of importing countries, lack of organic infrastructure (processing facilities, traceability, inspection and certification, training and education, public support) and comparative cost disadvantages (mass production versus premium production) and production efficiency. It is difficult to meet the requirements of the international market for organic meat, milk and egg products and it will remain on low quantities as niche production. Nevertheless, some livestock products like aquaculture can become relevant for countries like Indonesia.

INTRODUCTION

In the last decade organic farming has left its niche and is spreading worldwide. Organic farming is a worldwide harmonized concept (IFOAM standards 2005, FAO/WHO codex alimentarius 2008) to ensure the environmentally sound and socially fair production and consumption of agricultural products. Organic production is practiced in more than 135 countries (of a total of 197 countries) on 30 million hectares of land (0.7 % of total agricultural land use) by more than 718,000 farms (of a total of 700 million farms) (Table 1).

The products are mainly consumed in developed western countries – the market has a value of about 40 billion US-\$ and is growing by more than 15 % annually (Organic Monitor 2008). The global organic market is attractive for developing countries to sell premium products to the developed countries.

The EU and the US are the biggest markets (97 % of the world market) with an annual growth of 10 to 20%. Tropical fruits, vegetables, coffee, tea, cotton etc. are important products exported from tropical like Indonesia to these importing countries.

The quantities of organic livestock products on the national and international markets are not known. The monetary share can be estimated be about 25%. Milk, beef and eggs are the main animal products. Pork, lamb and poultry meat have only little share on the main organic

markets. Honey and fish, prawn, scrimps and molluscs can be considered as livestock products as well 20 Mio. Ha permanent grassland is certified organic and used by ruminants. A share of the arable crops is used as well for livestock (poultry, pigs, milk production). About 4.222 ha ponds are used for aquaculture. Only aquaculture can be seen as important livestock export products from Asia (Taiwan, Thailand etc.). Other livestock products (beef, eggs, poultry meat, livestock non-food products like wool, feather and leather) are exported as well but on a very little level.

High international sanitary product quality demands particularly for organic products are difficult to fulfil in many countries (comparative disadvantages). Little quantities of livestock product face high transaction costs (particularly if permanent cooling is obligatory). Australia (beef), New Zealand (lamb, milk), Argentina (beef, lamb) can be seen as main organic livestock export orientated countries. They have the relevant infrastructure and the standards demanded. USA and Japan – and increasingly Arabian countries – are the main importing countries, while the EU is self sufficient in livestock products.

The chances for countries like Indonesia for export orientated organic livestock production are limited but not zero. Aquaculture products like scrimps etc. are on increasing demand. Nevertheless, the risks of the highly sophisticated organic niche markets have to be considered.

Table 1. Organic farming in the world (2006)

	No of countries with organic farming (%)	Certified Organic Farmland in ha (% total farm land)	Certified Organic Farms No.	Consumption US-Dollar
Africa	30 (55%)	417,059 (0.05%)	175,266	0.1 billion
Asia	30 (61%)	3,090,924 (0.17%)	97,020	0.8 billion
Australia/Oceania	8 (61%)	7,389,085 (1.62%)	203,523	0.3 billion
Europe	42 (93%)	4,915,643 (0.68%)	223,277	20.0 billion
Latin America	23 (70%)	2,224,755 (0.57%)	12,064	0.1 billion
North America	2 (100%)	12,380,796 (2.70%)	7,594	17.3 billion
Total	135 (69%)	30,418,261 (0.65%)	718,744	38.6 billion

Source: Willer *et al.* 2008.

Table 2. Organic land use (ha in 2006)

Main use	Africa	Asia	Europe	Latin America	North America	Oceania
Arable land total	34,190	93,873	3,061,840	306,454	958,338	n.a.
Permanent crops	163,447	66,126	701,103	494,692	45,321	100
Permanent grassland total	50,305	11,452	3,171,533	3,792,234	991,024	11,925,461

Source: Willer *et al.* 2008

Standards of Organic Livestock Production

Organic farming¹ is based on the idea of practices that are environmentally friendly, animal welfare oriented and geared toward improving the living conditions of farmers. To “strive for close-to-nature farming” is a central piece of the farmers’ own concept.² The first organic standards have been defined in the mid of the last century by farmer associations (mainly in Europe) and have been harmonized throughout the organic world in 1980 in the first IFOAM basic standards (Huber *et al.* 2006).³ In the mid of the 80s, Austria and France were the first countries with legal national organic standards. In 1991, the EU created the first international legal organic standard with the regulation 2092/91. Not just agriculture but even processing, inspection and labelling was considered.

Many countries followed the EU in the 90s and the FAO defined organic plant production in 1999 in the codex alimentarius. In the last 10 years many developing countries have followed to gain from the premium export opportunities. About 70 countries have own legal organic standards and more than 20 are preparing for them.

The EU, USA and Japan dominate the international organic trade (about 90 % of the international trade is done into these countries) and therefore they dominate the international organic standards.⁴ Most of the organic standards are harmonized between the countries but still there are some important differences. Inspection and certification guarantees the standards of the importing countries. Worldwide, more than 460 organisations are active in organic inspection and certification. Most of them are located in the EU (37 %), Asia (31 %) and North America (18 %) (Rundgren, 2008; www.organic-world.net). Many of them are active all over the world to guarantee organic standards in international organic trade.

The EU has reformed her organic standards and replaced in 2009 the old regulation 2092/91 with regulation 834/2007 and the implementation regulation 889/2008. These regulations integrate goals for organic agriculture (834/2007 article 3). Organic production shall pursue the general objectives of establishing sustainable manage systems for agriculture, that respects nature’s systems and cycles and enhances the health of soil, water, plants and animal, and the balance between them. A high level of agricultural and natural biological diversity is also target as responsible use of energy, water, soil, organic

¹ The term „organic farming“ is imprecise since it is used for both the production of food as well as off-farm processes (farm inputs, processing, trade, consumption).

² Defined by the International Federation of Organic Agriculture Movements (www.ifoam.org).

³ A comparison of the several international organic standards are found under <http://organicrules.org/>.

⁴ EU: regulation 834/2007 (be found under: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2007:189:0001:01:EN:HTML>, USA: NOP (www.ams.usda.gov/nop/indexIE.htm), Japan: JAS (www.maff.go.jp/soshiki/syokuhin/hinshitu/e_label/specificJAS-organic.htm)

matter and air. Animal welfare is of major importance. The products shall have high process and product qualities.

The overall principles (834/2007, article 4) of organic production shall follow an appropriate design and management of biological processes and ecological systems using natural resources. Livestock has to be land - related and integrated

into a crop system (see figure 1). GMOs and products produced by GMOs are not allowed on any stage and purpose (except veterinary products). Therefore organic principles base on preventive measures and risk assessment. External inputs are limited and shall not harm the environment.

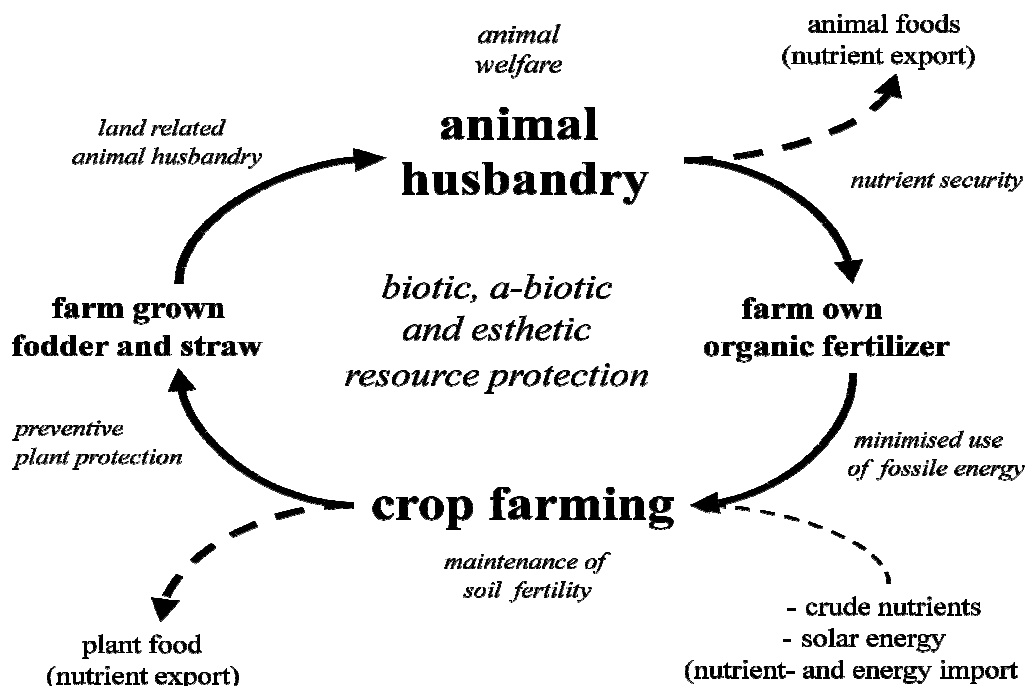


Figure 1. The Organic Farming Model

Table 3. Differences between conventional and organic animal

	Conventional	Organic (834/2007)
Breeds, origin	Highly performing special breeds and cross-breeds according to product aimed for	Only animals reared on organic farms, diversity of breeds, sometimes rare breeds of working animals
Keeping (buildings and free runs)	Animal protection laws (requirements for keeping of animals according to species)	Special requirements for keeping of animals orientated towards animal welfare (occupation-density, size of buildings, keeping tied inside the stable forbidden, etc.)
Feeding	According to current food stuffs legislation (permitted food additives such as enzymes, synthetic amino acids, etc.)	Food stuffs produced as much as possible on site, feeding rations according to animal welfare (e.g., minimum use/parts of roughage) only specifically permitted additives, no synthetic amino acids, no genetically modified organisms
Management and treatment	Managed breeding, if necessary stable-wide prophylaxis, legally required waiting periods according to drug prescription law	No prophylaxis (exception: legally required inoculations), only two allopathical treatments per year, double the waiting period after use of drugs, minimum 48 h. Restricted interfering with the animals' integrity (removal of horns, shortening of beaks, shortening of teeth, docking of tails etc.)
Transportation	Animal-transport regulation	Animal- transport regulation, short transport ways aimed for

Further on, in 834/2007 in article 14 the livestock production rules are defined more detailed. Organic livestock shall be born and raised in the organic system. Only organic feed is allowed and shall come primarily from the farm. All warm blood livestock shall have access to pasture or roughage. Conversion periods as well as housing and out-door space as well as stocking densities are defined for all livestock species. Organic livestock cannot be kept with conventional livestock together. Tethering and isolation of livestock is prohibited, duration of transport shall be minimized. Mutilation and suffering of livestock is not allowed during the entire live (including slaughter). Veterinary treatments and drugs as well as disinfection methods are restricted and natural measures are favored, cloning and embryo transfer are not allowed. Special standards are made for beekeeping and aquaculture animals (article 15).

Organic Trade

Long time, organic products have been only sold locally or in closed communities. This changed in the 90s, as organic products became protected labels and started to be offered in supermarkets and other ordinary market places. National and international trade of organic products started and increased significantly in the last 20 years. Some countries are mainly exporters (developing countries, Australia, etc.).

Some countries are mainly exporters (developing countries, Australia, etc.), others are the countries of consumption (USA, EU). In the EU many farmers produce organically and can deliver a big share of the organic demand. This is different in the USA and Japan, where domestic products have a smaller share of the national organic market. Approximately 75 % of the international organic trade goes into the USA and Japan, 20 % into the EU and 5 % somewhere else (e.g. Arabic countries) (own estimations). Clear statistics of organic sales are available from the EU and USA markets, but not about the origin of the products.⁵ There are no clear statistics about organic world trade and animal products trade.

⁵ For an worldwide organic overview see <http://www.fao.org/organicag/en/> and under <http://www.organic-world.net>. For the EU you can find information under http://ec.europa.eu/agriculture/organic/home_en. An overview of the US market is found under <http://www.ota.com/organic/mt.html>. A wide selection of more than 10.000 organic publications can be found under <http://orprints.org/>.

The International Trade Centre (ITC) tries to get better overview.⁶ Annually ITC presents the latest figures at the Biofach.⁷ Nevertheless, the chances and risks of the international trade of organic animal products can be qualified.

Milk Products

Milk is a high valuable product. In Europe the farmers get about 0.14 Euro more than conventional farmers. With the low conventional milk prices (0.20 Euro/kg) this is significant. The production impact going organic is about 20% less milk than in comparable conventional farms. Therefore milk production is profitable as long as organic feed is available. Therefore dairy production is found in adjacent areas of organic crop production and close to the consumers (northern Europe, south west USA). Milk products are used for fresh milk, cheese and other processed products. Certified organic dairy plants are mainly found in countries of consumption. Even New Zealand has little organic milk because of the market distance (mainly milk powder is relevant for New Zealand's dairy exports, this needs mass production). Milk has very high hygienic standards and is difficult to fulfill in areas with mainly small scaled farming systems and less developed infrastructures.

Eggs Products

In Europe the ban of cage keeping of chicken has an impact on egg production. The big producer see an option in organic fresh egg production and the production does increase significant in the last years. Organic eggs get about 50 % (0.18 Euro) more than conventional eggs, but the production costs are 50 % higher as well. The variable production costs are high (organic feed). Large units (10,000 – 100,000 layers, split into 3,000 layer units) become more popular to reduce the fix costs (stable, labor, logistic). High sanitary restriction (SARS, Salmonella, etc.) and difficult organic standards

⁶ ITC is a joint technical cooperation agency of the United Nations Conference on Trade and Development (UNCTAD) and the World Trade Organization (WTO). All statistics and publications of ITC are free available and can be downloaded from www.intracen.org/dbms/organics/index.asp.

⁷ Biofach ist the world biggest organic trade fair with more than 2,700 exhibitors from all over the world, held every February in Nuernberg, Germany. Satellite fairs are held irregularly in China, Japan, India, Brazil and USA (www.biofach.de/en/).

as well as availability of organic feed hinder international trade. As long as industrial-intensive conventional egg production is not restricted, the comparative production advantage is much higher than organic production.

Honey Products

Honey is an excellent product for global trade. The production costs are relatively low, the problem of environmental pollution (Europe, China) and GMO-crop areas (Northern and Latin America) limit the honey production in Europe. Non-polluted – mainly remote areas in Africa, Southern America, Asia) have production advantages. If special qualities (tastes, fair trade, environment protection, pollination) can be labeled, the market potential is high.

Meat Products

Beef and lamb have the main importance in organic meat production. Grassland areas like Australia, New Zealand and Argentina have cheap natural resources to feed beef cattle and

sheep and can fulfil organic standards without big changes and differences compared to conventional production. The added value on the market is about 20%. As long as stables are not necessary (semi-arid, arid environments) and water not limited, production costs are low.

In areas with organic milk production, beef is a co-product and mainly done in Europe. If stable are necessary the production cost are much higher than beef production in out-door grazing areas. Organic feed and more in-door space for livestock are the main costs. This is the reason of the expensive production of pork and poultry meat, the market share is very low. Compared with conventional pig and poultry systems the production costs are much higher and the added value must be 100% - this is difficult to get on the market.

Organic meat production demands certified processing facilities (e.g. abattoirs). International sanitary standards are difficult and have to be certified for organic production as well. Newcomers on the global markets need large quantities and high qualities. This is difficult for small scaled farming systems.

Table 4. Estimation of chances and risks of international organic trade

Product	Important export countries	Important import countries	International trade chances	International trade risks
Cash crops	Developed countries	USA, EU, Japan	+++	--
• herbs, fruits, vegetables, coffee, tea, cocoa	Developing countries (Africa, Asia)	EU, USA, Japan	++++	-
• grain, potatoes, oil fruits, pulses	Developed countries, Latin America	USA, Japan	++	---
• Non-food products (e.g. fibre, wool, wood)	Developing countries	EU, USA	+	--
• Processed crops (e.g. wine, cosmetics, spices, dried fruits)	Developed countries, Africa	USA; EU	++++	-
Livestock food products	Developed countries	USA, EU, Japan, Arabic countries	++	----
• Dairy	New Zealand, EU	USA, Japan		----
• Meat	Australia, Argentina, Brazil, Mexico	USA, Japan	+	--
• Eggs	EU	USA	+	----
• Honey	Latin America, Africa, Asia	EU, USA	++++	-
• Aquaculture	Asia, Latin America	EU, Japan, USA	+++	--
• Non-food (e.g. wool)	Oceania, Argentina	EU	++	-

Note: +/- = low, ++/-- = fair, +++/--- = high, ++++/---- = very high.

Aquaculture Animals Products

Aquaculture will be a big chance for countries like Indonesia and other countries in Asia, which have high skills in fresh water aquaculture. Recently, the global market for organic scrimps, mollusce, crustacee, fresh water fish is relatively small but growing fast. The environmental conditions of fresh water ponds are important for production. Research and development is necessary to develop efficient aquaculture with high organic standards.

Non-food Products

International trade in non-food livestock products is very little. Nevertheless, organic fibre (wool, cashmere, mohair), fir, leather, organic fertilizer (manure, horn, feather), silk, earth worms (improvement of compost and vegetable production), insects (protein feed), cosmetic ingredients (linolenic, fat etc.) are getting more importance. These markets can be developed by countries with special production advantages.

REFERENCES

- Huber, Beate., Hansen, Jens G., Schmid, Otto and Ziegler, Katia. 2006. Database to compare standards. *The Organic Standard* (68), pp. 12-13
- Organic Monitor. 2009. *The Global Market for Organic Food and Drink: Business Opportunities & Future Outlook*. Organic Monitor, London
- Rundgren, Gunnar. 2008. Number of Organic Certifiers Jumps to 468. in Willer *et al.* 2008: *The World of Organic Agriculture - Statistics and Emerging Trends 2008*, 73-76
- Willer, Helga and Kilcher, Lukas (Eds.). 2009. *The World of Organic Agriculture - Statistics and Emerging Trends 2009*. IFOAM, Bonn; FiBL, Frick; ITC, Genf
- Willer, Helga., Youssefi-Menzler, Minou and Sorensen, Neil (Eds.). 2008. *The World of Organic Agriculture - Statistics and Emerging Trends 2008*. IFOAM, Bonn and FiBL, Frick.