

Organic Food Quality and Human Health

Organic consumer demand for health reasons

Consumer research has identified trends in the food area showing that organic consumers move away from “good food being just tasty” to “good taste must also be healthy food.” In other words, consumers attribute positive qualities to organic foods, such as healthy, tasty, authentic, local, natural and fresh, free from pesticides, safe and certified. The question is to what extent there is solid scientific evidence to support such consumer perceptions?



Photos: Organic Denmark



Many consumers are interested in the relation between food and health and take responsibility for preventing lifestyle diseases. This means an increasing interest in the relation between organic agriculture, food and health.

Health and lifestyle claims

Organic food may offer an active approach to improve human health. A direct reason is that a diet based on organic foods may be healthier than the same diet with conventional foods. The indirect reason is that consumers taking interest in organic foods are likely to modify their lifestyles in ways that stimulate their general health situation.

Are organic foods healthier?

Quite a few consumers are convinced that organic products contain more health promoting substances than conventional products. In fact, there is strong experimental evidence, indicating that organic plant products contain higher concentrations of certain health promoting secondary metabolites e.g. flavonoids than conventional. This is due to the lower input of fertilizer nitrogen in organic agriculture. However, it is not scientifically confirmed, that consuming organic foods with an increased content of secondary metabolites are healthier - but it might come in the future.

Less nitrate in organic

Numerous studies have shown that organic vegetables contain significantly less nitrate than the conventional counterparts. Nitrate is converted to nitrite and nitrosamines in the human body, which might lead to diseases in the human gut system. But it still remains to be demonstrated that the difference in nitrate content has any health impact in humans.

Photo: Organic Denmark

Consumer trend:

“Good food being just tasty” → “Good taste must also be healthy food”



Organic milk may be healthier

The health claim can be substantiated by results on organic milk research, showing that the content of fatty acids like omega-3, phyto-estrogens and natural vitamin E is enhanced when cows have a high intake of clover grass and leguminous plants. These compounds have potential beneficial health effects in relation

to overall immune status, prevention of cancer and lower risk of cardio-vascular diseases.

A higher content of plant estrogens, the so-called phyto-estrogens, in organic milk may be important, as studies indicate that regular consumption of food rich on phyto-estrogens may reduce the risk of developing cancer due to anti-estrogenic effects of the phyto-estrogens.

The absence of pesticides

Organic consumers think that organic produce is healthier, mainly because of the absence of unwanted substances such as pesticides or pharmaceutical residues.

In fact, organic plant products contain markedly lower amounts of pesticides.

In Denmark, 95 % of the pesticide intake comes from about 25 crops of fruit and vegetables. However, according to the Danish pesticide control, there are rarely any pesticide residues in samples of organic fruit and vegetables.

An organic diet therefore is virtually pesticide free, which eliminates any possible adversaries from pesticides.

Photo: Organic Denmark

Organic cereals are safe

Organic plant products are just as safe as conventional products with regard to e.g. mycotoxins. Mycotoxins are toxic metabolites produced by fungi and mycotoxin poisoning has been known since the beginning of agriculture.

It has been widely discussed whether organic food and feed is more heavily contaminated with mycotoxins than conventional and genetically modified foods where pesticides are used.

Targeted research has made it clear that there is presently no increased occurrence of fungal toxins in organic cereals, when standard good practices for harvest and storage of dries wheat are followed.

Organic meat is safe

Organic livestock products are just as safe as conventional and studies of usage of animal manure have not indicated any problems with infectious matter.

Organic agriculture seeks to re-integrate livestock production with land use. All livestock must have access to open air and will often be used on grassland.

Immune defence of organic pigs

Outdoor systems are often associated with lower consumption of antibiotics per pig produced, lower antibiotics resistance and for the same level of pig mortality. A higher abundance of e.g. salmonella antibodies in organic pigs suggests higher zoonosis, which is the word for infectious diseases that can be transmitted between animals and humans. Nevertheless, the level of corresponding release of salmonella at slaughtering time has been found to be lower compared to conventional pigs. This lower correlation between positive immunological response and excretion of zoonosis with manure suggests that the immune defence in the organic pigs has been able to cure the zoonosis before slaughtering.

Outdoor laying hens

A similar finding as for organic pigs applies to laying hens with access to outdoor areas, which may be due to natural regulation in the more diverse farm systems. But the precise biological mechanism for this is not known.

However, there are other zoonoses in outdoor livestock, which needs to be controlled better, such as campylobacter in broilers.



Selected research projects

CORE Organic

Eight trans-national European research projects in organic food systems are described at www.coreorganic.org/research. CORE Organic projects relevant to this fact sheet include:

- ▶ The PHYTOMILK project on optimising production of organic milk
- ▶ The QACCP project on safety and health of organic products

QLIF

The project QualityLowInputFood (QLIF) includes a specific subproject on quantification of the effect of organic and low input-production methods on food quality, safety and health. More Information is available at www.qlif.org.

DARCOF III

International research programmes on topics of organic food quality and health are described on www.icrofs.org. These so-called DARCOF III projects – coordinated by ICROFS – include:

- ▶ “OrgTrace” on organic food and health: www.orgtrace.elr.dk/uk
- ▶ “OrMilkQual” – organic milk of high quality: www.ormilkqual.elr.dk/uk/

- ▶ “VegQure” on organic cropping systems for vegetable production: www.vegquire.elr.dk/uk/

More reading

Research Vision: Organics

European research in organic agriculture and food systems, the Organics Research Vision (Technology Platform), FiBL.

IFOAM’s EU group and ISOFAR have jointly begun a process towards a vision for 2025 focusing on innovative research into organic food and farming. The initiative is a technology platform named ‘Organics.’”

Knowledge synthesis

ICROFS has coordinated a research based fact finding work on how to secure the future of organics in Denmark. The knowledge synthesis was commissioned by the Danish Ministry of Food. Read the White paper of the synthesis with summary of results and recommendations:

www.icrofs.org/pdf/knowledge_synthesis.pdf

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The open archive database includes vast amounts of information, articles and research results on organic food and health. Visit www.orgprints.org

About ICROFS

The International Centre for Research in Organic Food Systems (ICROFS) is a “centre without walls” where the research is performed in interdisciplinary collaboration between research groups in different institutions. The centre is an expansion of the former research centre DARCOF, which the Danish Government in 2008 decided to give an international mandate and an international board.

The main purpose of ICROFS is to coordinate and monitor international research in organic food and farming systems in order to achieve optimum benefit from the allocated resources. Further, the aim of ICROFS is to initiate research and create impact of the research results through support and dissemination of high quality research of international standard.

More information at www.icrofs.org

