FQH
Organic Food Quality & Health

French study on Quality and Safety of Organic Food

afssa
AGENCE FRANÇAISE DE SECURITE SANITAIRE DES ALIMENTS

Summary of the results

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How was the study done?

- Main work: literature review of 300 publications based on clear selection criteria (same as applied in the Soil Association study): exclusion of undefined conditions, etc.
- Main focus on comparative studies since 1980.
- 44 French experts involved (only 5 from the organic agriculture research), majority sceptical of Organic Agriculture
- 1 Swiss expert (Coordinator of the sub-group Food safety)
- 7 meetings of the whole group from Oct 01- July 03
- Several meetings of the 2 subgroups (quality and safety)
- Hearing in October 2002 with European experts
- Report in August 2003 (ca. 200 pages)

Reference

- Afssa (2003): Evaluation des risques et des bénéfices sanitaires et nutritionels des aliments issus de l'agriculture biologique.

- Study can be downlowded from: www.afssa.fr

- Richard, Aline. (2003) Le bio est il vraiment meilleur pour la santé? In „La Recherche" Septembre 2003 No. 367, p 32-38

Results depending on point of view

- The results confirm similar studies (DK, A, DE, Soil Association Study)
- The overall nutritional benefit of organic food seems not to be too different from conventional food, however there are interesting findings with regard to specific compounds of organic food
- The results of the evaluation indicates only tendencies, but which are in the majority of cases rather in favour of organic agriculture and food
- Food safety issues: dealing with prejudgements and different point of views about risks,
- The study shows some deficits in organic agriculture but also interesting potentials to reduce problems with the system approach and to improve the quality of organic food

*Is the glass **half full (organic point of view)** or half empty (non-organic point of view)?*

Nutritional aspects: dry matter, minerals, vitamins

- Dry matter: no significant difference in fruit and fruit vegetables (tomatoes, etc.)
- Minerals and trace elements: strong variation depending on soil and cultivation conditions: no clear tendencies except for magnesium and iron

Higher contents of organic food:

- Dry matter content of certain root and leaf vegetables (weak tendency)
- Magnesium and iron in certain vegetables (weak tendency)
- Vitamin C in certain vegetables and potatoes

"Certain Organic Food processing methods for certain food might preserve more minerals, fibres and trace elements"

Nutritional aspects: proteins, fatty acids and secondary metabolites

- In general lower raw protein content in cereals
- Lipids, glucids, proteins: strong variation, only tendencies, no clear picture
- More studies are needed about secondary metabolites: impact on health should be investigated

Higher contents of organic food:

- **Cereals: more balanced composition of essential amino acids**
- **Fatty acids: higher content of non saturated fatty acids in meat / other profiles**
- **In the majority of studies higher content of polyphenols or flavenoids in organic food (apples, tomatoes, peaches, pears, wine, olive oils)**

Food safety aspects: pesticides, nitrates, heavy metals

- **Controversial view points with regards to risks of conventional pesticides**

- **Certain risk associated with plant based products used as plant protection agents which are not registered officially**

  Problems mainly related with high registration costs for small firms offering such products

Less risks with synthetic pesticides:

- Less pollution of environment (including) water
- Large majority of studies no residues of conventional pesticides
- Very few cases of contamination with conventional pesticides but with very low residue levels

Nitrates:

- Majority of studies show lower nitrate contents of organic vegetables

Food safety aspects: mycotoxins, microbial risks, parasites/veterinary treatments

- **Mycotoxins: Controversial view points with regards to risks of** because of the non-use of many fungicides and small scale processing

  Conclusion: no higher risks with organic food with mycotoxins

- **Microbial risks:** certain risks associated with the use of farmyard manure, but **no scientific evidence** of higher risks in that risk in organic farming

Less potential risks with mycotoxins:

- « Use of indirect measures like good rotation, good soil management, no growth regulators may reduce risks »

Microbial risks:

- Less risks because of the non use of sewage sludge and the application of composting practises for manure treatment

Food safety aspects: parasites/veterinary treatments

Parasites:

- more parasites in outdoors systems (not only in organic farming),
- risks associated with limited use of medicaments and use of non-registered products

Veterinary treatments:

- Less risk with residues (double withholding period)
- High importance of preventive measures might reduce use of antibiotics (resistance risk)

Other Food safety aspects: additives, GMO, heavy metals, BSE

- **Controversial view points with regards to risks of additives, GMO and BSE: no consensus**

Additives

- Very limited list of additives for organic food: less risks with allergic reactions

GMO:

- Non-use of GMO reduces risks

Heavy metals:

- Less risks (no sewage sludge, copper restrictions, less feed concentrates)

BSE

- The risk might be potentially lower (Long-time no use of meat meal for ruminants, restrictions for brought in animals, developed inspection systems)

Potential food safety risks : evaluation of direct and indirect potential effects of standards/regulations for organic food production

Potential food safety risks	Direct potential effects					Indirect potential effects					Future issues
	++	+	=	-	--	++	+	=	-	--	
General food safety risk management	++	+				++	+				D, M, R
1 Risk of parasites			=					=			M, R
2. Risks from bacteria: *E. coli, etc.*		+						=			M, R
3 Risks of fungi/diseases:			=				+				M, R
4 Risks of viral diseases			+				+				M
5 Risks of chemicals, pesticides	++ +						+				M, D
6 Risks of additives	++					++					R
7 Risks of veterinary treatments	++						+				M, D, R
8 Nitrates, nitrites, nitrosamines risks		+					+				M, R
9 Heavy metals risks		+				++					M
10 GMO risks	++ +					++					M, D, R
11 Dioxins risks (e.g. in eggs)			=					=			M
12 BSE risks		+					+				M, R

Influence* : +++ very positive ++ positive + positive tendency - negative tendency -- negative -- very negative gfl = general food legislation / like in conv. agriculture
Proposed actions: D = broad discussion M = more specific monitoring, R = eventually more restrictions in standards

** partly based on literature and partly on subjective expert opinions.*

Source: Schmid O. : Food safety debate and organic standards. In: IFOAM Proceedings Scientific conference in Victoria 2002

Conclusions

- Confirmation of most of the findings in other similar studies
- Interesting findings with regard to health promoting compounds
- More studies are needed (consumption studies)
- Several negative prejudgements about safety of organic food have not been confirmed
- Regarding food safety issues: in some areas more monitoring might be needed
- The system approach of Organic Farming is recognized: potential model for more sustainable food safety strategies