French study on Quality and Safety of Organic Food

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


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

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 flavonoids in organic food (apples, tomatoes, peaches, pears, wine, olive oils)
Food safety aspects: pesticides, nitrates, heavy metals

- Controversial viewpoints 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**
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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.


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**Organic Food Quality and Health – ongoing and future research**  
**Nuremberg, February 20th, 2004**
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