

Organic Food Processing – Principles, Concepts and Recommendations for the Future



- > **Ursula Kretzschmar,**
in collaboration with Alex Beck, Otto Schmid
- > **Research Institute of Organic Agriculture (FiBL)**
- > **Biofach, Nuernberg, Thursday 15th of February, 2007**

Study design

The presentation focus on the results of work done on processing within the EU-Project Quality of Low Input Food

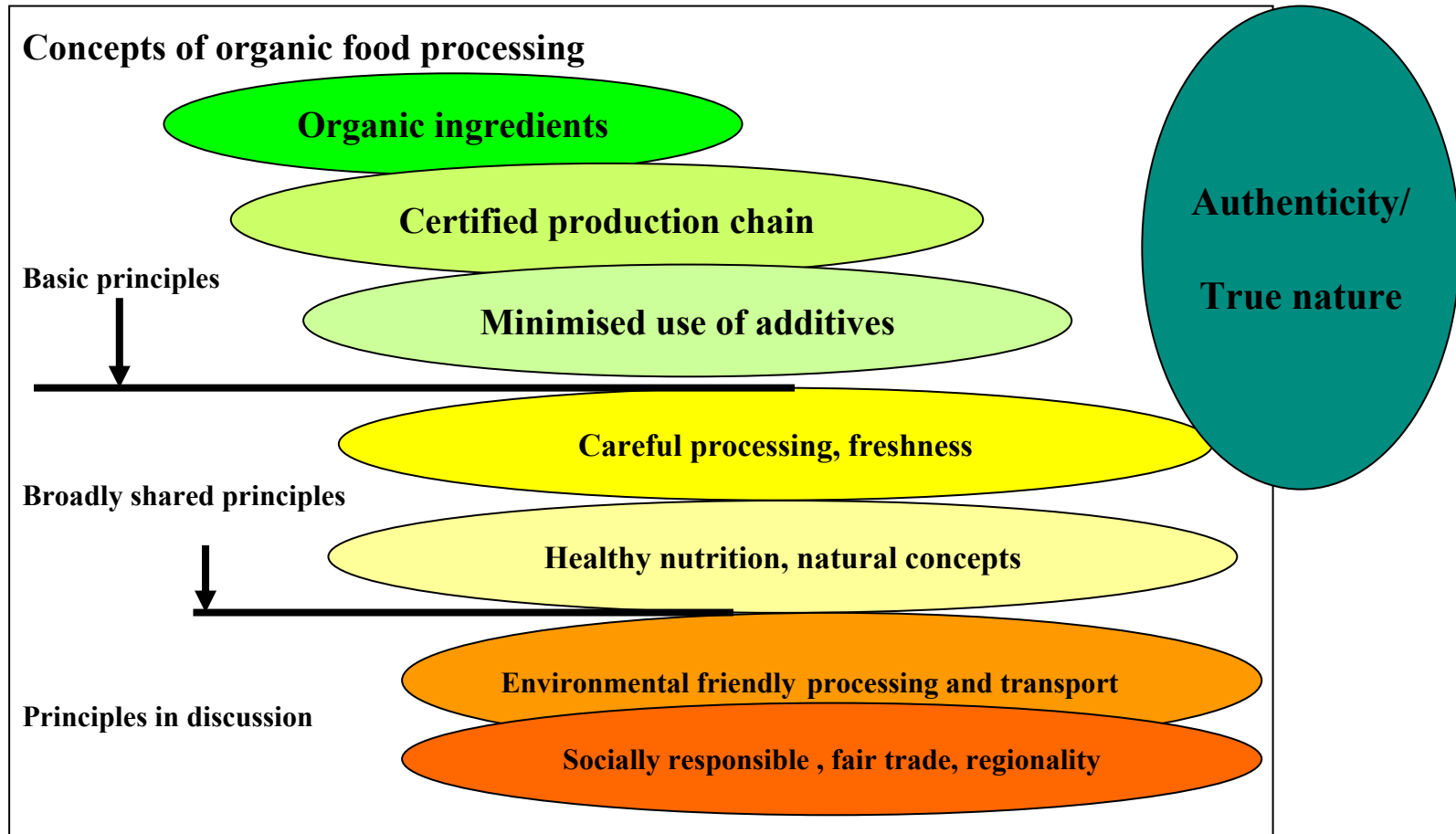
The project started in March 04 and finished in December 06. The synthesis of this work is based on:

- **A literature survey**
- **A Delphi expert survey with 120 food processing specialists in Europe**
- **A analysis of consumer studies and the relevant regulatory framework**
- **Elaboration of recommendations by the consortium involved in the project**

Reasons why to reflect more about principles in organic food processing?

- **Increasing demand for more processed organic food (long shelf life, convenience)**
=> challenge for the organic food sector
- **Frequent discussions to the underlying principles on organic food processing**
=> revision of the EU Regulation 2092/91
- **Consumer demand of organic food with a high quality regarding different quality parameters like **sensory quality, health aspect and the use of additives****
- **To link the ideas and expectations regarding organic processed food from the field to the table**

Underlying principles for organic food processing



Results of the studies in reflection to the revision of the EU regulation 2092/91:

Recommendation based on the studies at the EU regulatory level:

- *Minimal use of additives*
 - *Minimal and careful processing*
 - *Authenticity*
- > all aspects were taken into consideration with the revised EU regulation 2092/91*

Which criteria are important for an organic product to be successful on the food market?

From 12 possible criteria

- The most important criteria was **sensory quality**
 - The second most the **minimum use of additives and processing aids**
 - Third most **freshness**, followed by **authenticity**
- > all quality aspects that are recognizable to the consumer

The general aspect health is for the experts in the food processing sector an important but not the most important aspect.

Important aspects in organic food processing to be successful on the market

The importance of the subjects sensory quality and freshness for the success on the market reflect clearly:

- > consumer of organic food is expecting more than “organic”
- > it is important to advance the quality understanding by the different market player (included farmer)
- > the innovation prize at the Biofach is already one of a possible instrument, also the bread degustation of Demeter Germany as well the sensory prize of Bio Suisse at the Bio Marché

Aspects which can not be defined/regulated by the EU regulation -> **it's the responsibility of the processors!**

Important aspects in organic food processing to be successful on the market:

minimum use of additives

- The experts clearly supported the reduction of the use of additives in organic processed food.
- A further development in this area is really needed.
- The restricted list of additives in the EU Regulation 2092/91 is only partly covering this aspect.
- It could be a three step scenario:
 - >standardizing evaluation processes for the authorization of additives (as in Codex Alimentarius)
 - >reduction of the already allowed additives on a minimum
 - >replacement of additives on agriculture origin with certified organic additives (e.g. organic soy lecithin, organic starch for stabilization)

Results regarding minimum use of additives

	New	Consequences
Flavours	Flavours certified organic	<p>New quality understanding on flavouring</p> <p>Question: is there really a need of flavours?</p> <p>No use of flavours means:</p> <p>-> products with a own character,</p> <p>own sensory quality</p>
Antioxidants	Antioxidants certified organic and of non synthetic origin	<p>Development of alternative substances</p> <p>e. g. rosemary extract</p>

Results regarding minimum use of additives

	New	Consequences
Emulsifiers	Certified organic	No GMO problematic with e.g. soy lecithin
Enzymes	Specific requirements depending on the use	e.g. prohibition of enzymes in the bread production -> no continuous bakery process
Micro-organisms	Certified organic	Less carry over of additives by the micro-organisms

Processing methods/processing with care

Situation:

- **specific processing methods for organic food production are generally expected**
- **on the question; which methods are acceptable for processed organic food -> no explicit result in the survey**
- **the discussion has to be broken down on the level of product groups or single products**
 - > **An obligation of the declaration of the processing methods could activate a re-consideration of this problematic**
 - > **Research in this area would help for the further product development**

Processing methods/processing with care

- **goal to strive for: *the use of the most cautious and environmentally friendly techniques for the processing of organic foods***
- > **This goal is supported by the experts and is one important perception of the consumers**
- **The EU-Regulation 2092/91 is new covering this aspect with the principle of **processing with care****

Important aspects in organic food processing to be successful on the market:

authenticity/true nature

➤ high relevance of aspect authenticity

->reflects the sensitisation of the consumer on the different scandals in food processing

The EU-Regulation 2092/91 is new covering this aspect with the principle of **true nature**

There are two steps to take account to this expectation:

->sensitisation in the product development of organic food:

a cream sauce should be made with cream and not be a mixture of low fat milk powder, palm fat, water, emulsifier and a little cream

a strawberry yoghurt should contain fruits and not only flavours and colouring organic ingredients, like beet juice.

->a more detailed declaration in the EU-legislation

Environmental friendly processing

- **The goal of *the use of the most cautious and environmentally friendly techniques* is**
 - 1. a important perception of the consumer**
 - 2. a logical consequence on the principle of organic agriculture**

It needs to take account into this discussion the following problematic:

The most cautious technique is not always the best for the product quality

e.g. UHT milk:

- 1. produced by the indirect techniques we need less energy but we have a milk with the typical cooking flavor**
- 2. Produced by the direct method we need more energy but we have no off flavor**

Instruments for the implementation of those principles:

recommendation for the food processors

1. **Development of a specific quality concept for organic products, to advance the sensory quality of organic products.**
2. **More detailed declaration concept for a better consumer information.**
 - > courage to declare the difference, the specialties eg. No emulsifier, no cooking taste, vanilla is not imported by airplane
3. **Concept of environment friendly package materials as well environment friendly processing.**
4. **Instrument: Code of best practice is seen as a good instrument to eliminate the need to describe all in EU regulation level.**
5. **Checklist for the product development**

Checklist for the product development

Next to the basic principles in the EU Regulation 2092/91 the following aspects should be considered:

> Ingredients:

➤ Could the non organic ingredients (listed in Annex C) be replaced by organic ingredients?

2. Additives and processing aids

➤ Could the additives replaced by a ingredient? E.g. thickener xanthenes in ice cream could be replaced by milk protein

➤ Could the additive based on agricultural sources be replaced by an organic additive? E.g emulsifier soy lecithin replace with organic soy lecithin

Checklist for the product development

3. Processing methods

- a) Are the processing steps really needed? E.g. deep frozen vegetables to produce mixed sterilized vegetables in cans.

4. Packaging:

- a) Is the packaging really needed to save the product -> no over packaging
- b) Is the packaging from ecological growing sources?
- c) Can the packaging be littered without problems?
- d) Can you recycle the package?

Checklist for the product development

5. Declaration:

- a) Could the declaration be wide out for a better consumer understanding?

Research needs: proposals of the experts

- Research needs were mostly named regarding
 - > minimum use of additives
 - > careful processing
 - > develop suitable production and processing methods in respect to the requirements
- > General focus of future research regarding food processing should be on **premium, sustainable produced quality**, to upgrade the sensory quality of processed organic food.

Conclusion

- **Revised EU Regulation makes gap between consumer expectation and regulation smaller with the principles:**
 - True nature
 - Processing with care
 - Clear principles and related criteria for the evaluation of **additives and processing methods** are still needed!
 - Realization of the principle: true nature has to be guided

Conclusion

- **Research regarding minimal use of additives, replacement of additives and careful processing is needed**
- **Label organisations should define and public reward regionality**
- **Development of a specific quality concept for organic products, to advance the sensory quality of organic products**

In cooperation with:

- **University of Kassel, Department of Organic Food Quality and Food Culture**
- **University of Helsinki, Mikkeli Centre for Rural Research and Training**
- **Danish Research Centre for Organic Farming Technical University of Denmark, Lyngby**
- **Research Institute of Organic Agriculture FiBL, Switzerland**

Project reports

- QLIF website www.qlif.org and were published by the Research Institute of Organic Agriculture (FiBL) Frick, Switzerland:
- Schmid O., Alexander Beck A., Ursula Kretzschmar U. (2004) (eds.): A literature survey on underlying principles of organic and 'low-input food' processing.
- Kretzschmar U., Schmid, O. (2006). 'Approaches Used in Organic and Low Input Food Processing – Impact on Food Quality and Safety. Results of a Delphi survey from an expert consultation in 13 European countries.
- Beck A. (2006): Code of Practice for Organic Food Processing. Frick.
- Beck A., Kretzschmar U. and Schmid O. (2006) (eds.): Organic Food Processing - Principles, Concepts and Recommendations for the Future. All these publications can also be downloaded from http://orgprints.org/view/projects/eu_qlif_sub5.html

Acknowledgements

- **We gratefully acknowledge funding from the European Community financial participation under the Sixth Framework Programme for Research, Technological Development and Demonstration Activities, for the Integrated Project QUALITYLOWINPUTFOOD,FP6-FOOD-CT-2003- 506358.**