



Organic Food Quality & Health

Organic Food Quality & Health Newsletter May 2010

Edition No. 1/2010

Dear Reader,

With pleasure we present to you the first FQH newsletter of 2010.

The focus of the FQH Newsletter is to make information on topics, relevant to FQH, visible and easy to find.

In this Newsletter you will find a lot of information, from several Journals, from Organic E-prints and from some organisations related to FQH. We wish you pleasure and inspiration reading.

More information on Organic Food Quality and Health you can find on the FQH-website www.organicfqhresearch.org. We heartily thank the members who provide us with information.

Contributions to a next Newsletter or to the Agenda can be sent to the present FQH-coordinator Dr. Johannes Kahl, email: kahl@uni-kassel.de.

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1 FQH News

1.1 Workshop on latest research results at the BIOFACH, Nürnberg, February 18th

On 18 February 2010 five FQH members gave very inspiring presentations on their latest research results on various topics at the BIOFACH in Nürnberg, D. The workshop was moderated from Manon Haccius (Alnatura, D).

Alberta Velimirov from FiBL, A presented her results of a mice feeding study for quality assessment of BT-corn. She reported how difficult it is to work on this topic for political reasons.

Johannes Kahl from University of Kassel, D described the Core Organic research project QACCP, Quality analysis of critical control points in organic production. He focuses on organic carrot baby food as an example and underlined the importance of this tool for the organic industry.

Daniel Kusche from University of Kassel could discriminate organic from conventional milk quality, although this depends on the farming practice applied. The management seems to influence selected milk quality parameters (e.g. fatty acid profile) in a way that makes it to the most important factor of influence.

Lucy van de Vijver from Louis Bolk Institute, NL reported on consumer experience of a health effect of organic food. The group at LBI found a clear relationship between lifestyle of the consumers and the tendency to buy organic food. In dependence of that people think that organic food is good for their health.

Machteld Huber from Louis Bolk Institute closed the workshop by a very inspiring talk about recent developments of the concept of "Health". It seems important for the research on this topic to follow this discussion within e.g. WHO. There is a tendency to a more dynamic health definition which seems to fit to the organic concept.

1.2 FQH member Workshop on organic food quality definition 23-24 March 2010, Warsaw, Poland

As the follow up on our meeting in Frick last year, the participants continued with the intensive work on the definition of organic food quality. Because Ton Baars was not able to prepare and attend the meeting, Johannes Kahl took over the responsibility. Together with Machteld Huber he structured the work according a consensus discussion on those terms, which are mentioned in the EC Reg. 834/2007 already. Based on the identified needs on this topic (see FQH paper in Food Technology, Kahl et al. 2010), the terms "organic integrity", "vital qualities", "true nature", "natural substances" were defined in a way which allows a consistent relation between the concept frame and criteria for being evaluated. A paper on soil quality definition, published by US scientists in 1997 gave a very good example how to structure the ongoing work, aimed to be published by the end of this year. At a next workshop for members in fall 2010 in Paris, the definitions of the criteria will be finished and the paper will be structured. In addition FQH members and later on TP Organics will be invited for comments.

1.3 Open FQH conference on 'Organic Food Quality and Health Research' in May 18-20 2011 in Prague

The planning of the Conference is going ahead. The conference title, the sessions and workshops, the scientific committee, the meeting venue and the organization is now defined and work tasks prepared by Machteld Huber and Johannes Kahl. FQH member Jana Haslova (ICT, Prague) will be the local organizer and TPOrganics with Marco Schlüter (IFOAM, TP Organics) a co-organizer. The homepage is set up: www.fqh2011.org.

2 Articles

2.1 Effects of organically and conventionally produced feed on biomarkers of health in a chicken model

Abstract

Consumers expect organic products to be healthier. However, limited research has been performed to study the effect of organic food on health. The present study aimed to identify biomarkers of health to enable future studies in human subjects. A feeding experiment was performed in two generations of three groups of chickens differing in immune responsiveness, which were fed identically composed feeds from either organic or conventional produce. The animals of the second generation were exposed to an immune challenge and sacrificed at 13 weeks of age. Feed and ingredients were analysed on macro- and micronutrients, i.e. vitamins, minerals, trace elements, heavy metals and microbes. The chickens were studied by general health and immune parameters, metabolomics, genomics and post-mortem evaluation. The organic and conventional feeds were comparable with respect to metabolisable energy. On average, the conventionally produced feeds had a 10 % higher protein content and some differences in micronutrients were observed. Although animals on both feeds were healthy, differences between the groups were found. The random control group of chickens fed conventional feed showed overall a higher weight gain during life span than the group on organic feed, although feed intake was mostly comparable. The animals on organic feed showed an enhanced immune reactivity, a stronger reaction to the immune challenge as well as a slightly stronger 'catch-up growth' after the challenge. Biomarkers for future research were identified in the parameters feed intake, body weight and growth rate, and in immunological, physiological and metabolic parameters, several of these differing most pronounced after the challenge.

Connected to this paper was an **Editorial** stating that, however nutritional research is complex and however the topic of organic and health effects is much under debate, this papers shows that good research brings the topic further. **Paper and editorial available:**

Huber et al., British Journal of Nutrition (2010), 103:663-676 Cambridge University Press

doi:10.1017/S0007114509992236

Niewold T.A., Invited Commentary, British Journal of Nutrition (2010), 103:627-628

2.2 Organic Food Claims in Europe

Abstract

Better regulatory guidelines, improved testing methods, and additional research into product quality criteria are needed to further develop the European organic food market.

Paper available:

Kahl et al., Food Technology Magazine March 2010, Volume 64, No.3

http://orgprints.org/16968/1/kahl-et-al-2010-foodtechnology_0310feat_organic.pdf

2.3 A new engineering method for understanding extrusion cooking process

Abstract

A new engineering method is proposed to understand extrudate expansion and extrusion operation parameters for starch based food extrusion cooking process through dimensional analysis principle, i.e. Buckingham pi theorem. Three dimensionless groups, i.e. pump efficiency, water content and temperature, are suggested to describe the extrudate expansion. Using the three dimensionless groups, an equation is derived to express the extrudate expansion. The model has been used to correlate the experimental data for whole wheat flour and fish feed extrusion cooking. The average deviations of the correlation are respectively 5.9% and 9% for the whole wheat flour and the fish feed extrusion. An alternative 4-coefficient equation is also suggested from the 3 dimensionless groups. The average deviations of the alternative equation are respectively 5.8% and 2.5% in correlation with the same set of experimental data.

Paper available:

Cheng and Friis, <http://orgprints.org/16126/>

2.4 Conjugated linoleic acid isomer concentrations in milk from high- and low-input management dairy systems

Abstract

BACKGROUND: Different conjugated linoleic acid (CLA) isomers are known to have contrasting physiology or health effects and there is growing evidence that the profile of natural isomers in milk is influenced by the production system. This survey is the first to compare feeding regimes and concentrations of 14 CLA isomers in milk from three production systems in the UK.

RESULTS: Total CLA and seven isomers (including C18 : 2 c9t11 which comprised >80% of total) were significantly higher in milk from both organically certified and non certified low input (LI) systems compared with milk from conventional high input farms. Sampling date also affected concentrations of total CLA and nine isomers; being lowest in March and highest in August.

Seasonal differences were greater in milk from LI herds, thought to be due to changes in herbage and/or stage of lactation.

Multivariate analysis showed a strong positive relationship between several CLA isomers and increasing levels of fresh forage in the diet.

CONCLUSIONS: These results add to the evidence on how management adjustment may improve the profile of CLA isomers in milk fat, although animal or human intervention studies are required to identify the effects of consuming milk with different CLA levels and isomer profiles on human health.

Paper available:

Butler et al., <http://orgprints.org/16012/>

2.5 CORE Organic pilot project QACCP - presentation at mid-term: QACCP within the whole food chain and their impact on food quality, safety and health

Abstract

Presentation of the project with experience from the participants, including main results at mid-term, research ideas, experience with trans-national research.

Paper available:

Kahl et al., <http://orgprints.org/15939/>

2.6 The added value of organic farming for environment and health: facts and consumer perceptions

Abstract

The added value of organic farming for environment and health: facts and consumer perceptions. This paper introduces the articles in the Special Issue on Organic Food and Farming. cf. the related links to get access to each of the individual articles

Paper available:

<http://hdl.handle.net/1854/LU-821742>

2.7 Feeding trials in organic food quality and health research

Abstract

Feeding experiments comparing organically and conventionally produced food are performed to assess the overall impact on the animals' health as a model for the effects experienced by the human consumers. These experiments are based on systems research and characterized by their focus on production methods, whole food testing and procedures in accordance with the terms of organic farming. A short review of such experiments shows that the majority of these tests revealed effects of the organically produced feed on health parameters such as reproductive performance and immune responses. Systems research is not just about simple cause-effect chains, but rather about the pluralism of interactions in biological networks; therefore, the interpretation of the outcome of whole food experiments is difficult. Furthermore, the test diets of organic and conventional origin can be constituted in different ways, compensating for or maintaining existing differ-

ences in nutrient and energy contents. The science-based results suggest positive influences from organic feeds, but there is still a need for confirmation in animals and, finally, in humans. For this purpose animal feeding trials with feed from different production systems should be conducted, with the aims to define health indicators and to establish biomarkers as a basis for future dietary intervention studies in humans.

Paper available:

Velimirov et al., J Sci Food Agric. 2010 Jan 30;90(2):175-82.

<http://www.ncbi.nlm.nih.gov/pubmed/20355028>

3 Related organisations

Below we offer you some information from other organisations that are related to FQH:

3.1 The Organic Centre

3.1.1 Organic Seed

"The Magnitude and Impacts of the Biotech and Organic Seed Price Premiums"

December 2009

Author(s): Charles Benbrook, PhD

In recent years the price of genetically engineered corn, soybean, and cotton seed has risen sharply. Seed expenditures per acre are now cutting into net farm income, and transferring earnings that used to stay on the farm to the seed industry.

The magnitude of the biotech and organic seed price premiums are contrasted, and impacts on gross and net farm income are estimated. Surprisingly, the biotech seed price premium is much larger than the organic seed price premium, despite the major differences in the value embedded in each.

The report: http://www.organic-center.org/reportfiles/Seeds_Final_11-30-09.pdf

4 Agenda

☞ **Third FQH member Workshop 2010 in Paris**

Date: October 11-12 2010.

Location: Paris

Subject: Finishing the quality definition process for being published. For more information please contact the FQH coordinator at kahl@uni-kassel.de

☞ **Open FQH Conference on 'Organic Food Quality and Health Research' in 2011, in Prague, May 18-20**

Further informations: www.fqh2011.org

Imprint

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Editor

Johannes Kahl, University of Kassel, Nordbahnhofstr. 1a, D-37213 Witzenhausen

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