



ICOAS '18

6th International Conference on
Organic Agriculture Sciences

DYNAMIC DEVELOPMENTS IN ORGANIC RESEARCH

Strengthening
partnerships across
Europe and
beyond

**BOOK OF
ABSTRACTS**

7 – 9 November 2018
Esterházy Palace
Eisenstadt, Austria



Foreword

The present Book of Abstracts includes the abstracts of the scientific contributions presented at the 6th International Conference on Organic Agriculture Sciences (ICOAS), held 7 – 9 November 2018 in Eisenstadt, Austria. The 80 contributions, oral and poster presentations alike, from 26 countries show that ICOAS is an important hub for presenting significant research results on organic agriculture in Europe and beyond.

As the big challenges of organic agriculture cannot be addressed by single researchers, the main purpose of ICOAS is to share latest research results on organic agriculture in Central and Eastern Europe among scientists and other stakeholders. ICOAS, therefore, fosters the strong partnership across stakeholders in these countries. Knowledge dissemination and capacity building along the value chain in Central and Eastern European countries are the main focal point of ICOAS.

For the first time ICOAS 2018 is held in Austria. After a longstanding collaboration in various agricultural fields, the Austrian Research Institute on Organic Agriculture (FiBL) and Esterhazy Betriebe GmbH decided to jointly organize ICOAS 2018. Eisenstadt, located in Eastern Austria, was chosen as it is the perfect location for ICOAS – building a bridge between Central and East European countries.

In the present Book of Abstracts you find the scientific contributions presented at ICOAS 2018 compiled. From the numerous submissions following the open call for abstracts, the contributions presented were selected in a two-step reviewing process. Each abstract was reviewed by two independent reviewers before a final decision was made by the Scientific Committee. The organisers of ICOAS 2018 would like to thank all the reviewers for their support in the reviewing process – you can find the list of reviewers at the end of this book.

The first part of the Book of Abstract includes the abstracts of the oral presentations given during the 16 parallel sessions. The second part contains the abstracts of the two poster sessions. Within the two parts the abstracts are sorted in alphabetical order according to the authors' names.

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The following partner organizations kindly support ICOAS 2018:

Governmental institutions:

- BMNT – Federal Ministry for Sustainability and Tourism, Austria
- Ministry of Agriculture and Rural Development, Poland
- Ministry of Agriculture, Hungary
- UKZUZ – Central Institute for supervising and testing in agriculture, Czech Republic

Research institutes:

- FiBL – Research Institute on Organic Agriculture
- ÖMKi – Research Institute on Organic Agriculture, Hungary
- BOKU – University of Natural Resources and Life Sciences, Austria
- Bioinstitut, o.p.s, Czech Republic
- CTPEZ/CTPOA – Czech Technology Platform for Organic Agriculture, Czech Republic
- University of Agriculture in Nitra, Slovakia
- LfL – Bavarian State Research Center for Agriculture, Germany

Associations and other organisations:

- LKÖ – Chamber of Agriculture Austria
- NZR – Netzwerk Zukunftsraum Land – the Austrian Rural Network
- IDM – Institute for the Danube Region and Central Europe, Austria
- Bioselena – Foundation for Organic Agriculture, Bulgaria
- BioEAST, Hungary
- IFOAM EU

Opportunities for farming in alpine countries – pathways to truly grassland-based beef and milk production in Austria and Switzerland

Weisshaidinger, R.¹; Frick, R.²; Moakes, S.²; Muller, A.²; Bartel, A.³; Schwank, O.⁴; Petrasek, R.¹; Biedermann, R.⁴; Stolze, M.²

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Farming in the alpine countries of Austria and Switzerland fulfils important economic, socio-cultural and ecological functions for society. However, even though both Austria and Switzerland have increasingly focused their agricultural policy towards ecology, in both countries negative environmental impacts of agriculture still have to be reduced massively.

Our comprehensive analysis identifies nitrogen balance surpluses and related impacts as central factors for the negative environmental impacts of agriculture in Austria and Switzerland. The starting points for a more ecologically sustainable agriculture are therefore locally appropriate livestock numbers as part of an overall reduction in livestock densities, together with reduced reliance on concentrated feed and forage maize (Stolze et al., 2018).

To address these issues, we used the SOL mass-flow model (Muller et al. 2017, Schader et al. 2015) to analyse to what extent site-appropriate, grassland based regenerative beef and dairy systems (RDB) that minimise competition between food and feed production, could contribute to ecologically sustainable land use without exceeding the regional ecosystem boundaries.

Model results suggest that the implementation of 'regenerative beef and milk production systems' would

result in lower ammonia emissions, a reduction of nitrogen balance surpluses and lower total greenhouse gas emissions from agriculture. From our analysis we can conclude for Austria and Switzerland that: a) A reduction in nitrogen intensity is urgently needed; b) Site-adapted production and closing material cycles are crucial; c) The improvements in environmental impacts achievable through regenerative beef and milk production exceed the effects of the previous agricultural policy since the 1990s; d) Arable land released by growing less concentrated feed and forage maize allows other options to be explored; and e) Reductions in the degree of self-sufficiency could be offset by sustainable trade and a significant change in dietary habits.

It has to be emphasized that creating the necessary framework and conditions for such a transformation from a production-led to an ecologically oriented land use and corresponding food systems cannot be achieved within a few years but that it signifies a long-term fundamental societal change.

Muller, A., et al. 2017. Strategies for feeding the world more sustainably with organic agriculture. *Nature Communications* 8, 1290.