

## Special issue of Organic Agriculture—Organic 3.0

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**Abstract** It is an honor to be able to present this special issue of Organic Agriculture: Organic 3.0 for the Organic World Congress in India 2017. In this issue, we have collected a number of papers relevant for the theme Organic 3.0. This special issue of Organic Agriculture about Organic 3.0 is published in connection to the science track “Innovative research for Organic 3.0” at the Organic World Congress in Delhi, India, November 2017. In the foreword to the proceedings (Rahmann et al. 2017), the challenges listed correspond well to those described and discussed in these five papers. The fact that the paper by Rahmann et al. (2016) that has been online in Organic Agriculture since December 2016, already after 6 months has been downloaded more than 3,000 times shows the great interest in this subject. Together, these papers give a valuable basis for the further discussion of Organic 3.0 and the future development for the organic sector and beyond. Organic agriculture—whether 2.0 or 3.0—can be one option to solve future problems, and the ideas behind organic agriculture should be integrated as much as

possible in many types of agriculture: agroecological, small-holder, conventional, conservation tillage, etc. But organic agriculture should also learn from conventional and other types of agriculture and if necessary take a critical view on, e.g., minimum requirements that result in negative effects on public goods. Governments, NGO’s, farmers, researchers, and other stakeholders should all contribute to developing organic as well as other forms of agriculture. It is our hope that this special issue will be one step in bringing organic and truly sustainable agriculture forward.

**Keywords** Organic 3.0 · Organic agriculture · Sustainable agriculture · Organic farming research

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The concept of Organic 3.0 has been developed since 2010, where it was first coined in Germany (Strotdrees et al. 2011). This development is described by Arbenz et al. (2017). The overall goal of Organic 3.0 is to enable a wide-spread uptake of truly sustainable farming

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systems based on organic principles. Instead of the minimum requirements found in Organic 2.0, Organic 3.0 puts the impact of and on the farming system in the foreground. Arbenz et al. (2017) describe the key features of Organic 3.0: (1) a culture of innovation, (2) continuous improvement towards best practice, (3) diverse ways to ensure transparency and integrity, (4) inclusiveness of wider sustainability interests, (5) empowerment from farm to the final consumer, and (6) true value and cost accounting.

Rahmann et al. (2016) further develop the concept regarding research and list the most important challenges for organic agriculture: (1) producing sufficient healthful, safe and affordable food for 9–11 billion (people), (2) reduction of pollution and greenhouse gas emissions derived from food production, processing, trading, and consumption, (3) developing food chains driven by renewable energy and recycled nutrients, (4) adapting to climate change and mitigating greenhouse gas emissions, (5) protecting soils, water, air, biodiversity, and landscapes, and (6) taking into account current and emerging ethics, food habits, lifestyles, and consumer needs. They suggest five action areas on the short term (up to 30 years): (1) conventional can learn from organic, (2) organic can learn from conventional, (3) scale-up best organic farming practices, (4) food production needs closer link to the consumers, (5) farming must change from commodity production to need-based production and further three action areas for the longer time perspective: (6) less livestock and changed animal husbandry systems, (7) local vs. global food chains, and (8) landless food production.

Niggli et al. (2017) describe how the work to build a global platform for organic farming research, innovation and technology transfer has been organized with special focus on TIPI—the technology innovation platform of IFOAM-Organics International. They describe the pathways of future research: (1) organic agriculture will become the preferred land-use system in rural areas worldwide, (2) secure food and ecosystems through eco-functional intensification and (3) organic agriculture will produce healthy food in a fair way for the well-being of all. They suggest three strategies to advance global organic food and farming systems research and innovation in the context of the three pathways: (1) develop research methods appropriate for organic food and farming systems, (2) renew partnerships

between farmers, farm advisors, scientists and consumers, and (3) integrate technological, social, and ecological dimensions of innovation.

Hamm et al. (2017) give an example of how a research strategy of the German Agricultural Research Alliance has been developed by an expert forum on Organic Farming and Food. They recommend that three approaches be pursued in parallel: (1) focusing of research on the most important themes, (2) the establishment of efficient structures for research and funding, and (3) more funding for research on organic farming. They identify the most important research topics (in Germany) and give suggestions for how to establish better performing research structures and argue for increased financial resources.

Jespersen et al. (2017) describe the contribution of organic farming to public goods in Denmark. Using the examples pesticides and antibiotics, they describe the status, legislation, and action plans for the use of these in relation to public goods, the contribution of organic farming to public goods based on the restrictive use of pesticides and antibiotics, and the influence on specific public goods such as nature, biodiversity, environment, energy use, climate change, human health and animal health and welfare, and also the possible negative effects and the synergies and dilemmas of the principles and regulations and the effect on the public goods. Thus, they describe how organic farming already now contributes to some of the key features of Organic 3.0, may contribute to solving some of the challenges, and where it could be relevant to focus on action areas.

The fact that the paper by Rahmann et al. (2016) that has been online in Organic Agriculture since December 2016, already after 6 months has been downloaded more than 3000 times shows the great interest in this subject.

Together, these papers give a valuable basis for the further discussion of Organic 3.0 and the future development for the organic sector and beyond. Organic agriculture—whether 2.0 or 3.0—can be one option to solve future problems, and the ideas behind organic agriculture should be integrated as much as possible in many types of agriculture: agroecological, small-holder, conventional, conservation tillage, etc. But organic agriculture should also learn from conventional and other types of agriculture and if necessary take a critical view on, e.g., minimum requirements that result in negative effects on public goods. Governments, NGO's, farmers, researchers, and other stakeholders should all contribute

to developing organic as well as other forms of agriculture.

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