**Going towards Organic 3.0**

G. Rahmann1

1 President of the International Society for Organic Agriculture Research (ISOFAR), www.isofar.org, isofar@thuenen.de

**Implications**

Organic 3.0 discussions have released a discussion about the future development of the Organic sector (Rahmann et al. 2016). There are many think tanks started ideas (Arbenz et al. 2017). Most of the ideas are very rough and not with practical visions for research. But there should be no time lost, that Organic takes the leadership for innovations, that helps to tackle with the future challenges, to design clear pathways to be more sustainable: food supply and to have ownership for the definition of ecology, health, care, fair and quality.

**Back grounds and objectives**

Organic can help to prevent hunger, reduce farm land degradation and losses in biodiversity, mitigate climate change, income and jobs, and supply healthy and enough food with a low-external-input / medium output farming strategy. The Organic 3.0 approach is the basis for this contribution.

* Feed 9 to 11 billion people in the next 30 to 80 years with enough, affordable and healthy food.
* Protect environment like soils, water, air, biodiversity and landscapes in increasing intensification strategies.
* Mitigate greenhouse gas emissions and adapt on climate change in all farming systems and value chains.
* Incorporate novel ethics, food habits, demographic and lifestyles in the food chains.
* Produce food on limited farm land and fossil (non-renewable) resources efficient and profitable.

**Key results and discussion**

The “Organic 3.0” approach is the basis for this contribution. What has to be done that Organic is fit to contribute to tackle the future challenges? There are two time dimensions: the next 35 years till 2050 and the time from 2050 up to 2100. In 2050 we will have approximately 9 billion people and 1 ha agricultural farm land per capita. In 2100 we will have 11 billion people and only 0.7 ha per capita. This discussion and challenge is the same like for conventional agriculture: limited resources needs to intensify (factor-factor relation) and be more productive (output-factor relation) and be more efficient (factor-output relation).

**How work has to be carried out?**

**Conventional can learn from Organic:** The production must be more and more sustainable. That means: ecological sound, high ethical standards (e.g., animal welfare, fair trade), profitable and social acceptable. There is a need to change the industrial production strain of conventional and be back to local acceptable farming systems, where farmers can have a good income and the price is affortable for everyone. The external costs of production needs to be included into the price of products.

**Organic can learn from Conventional:** Efficiency and productivity with limited resources, e.g., agricultural land. Organic needs to be more productive to be accepted in societies with limited land and food quantities. Not all farm inputs are bad. Clear criteria are needed to incorporate good conventional strategies into Organic: e.g., synthetic amino acid if all feeds are produced on the farm. Mineral fertilizers, if produced with renewable energy and in a quantity, which does not pollute the environment and products.

**Scale-up Good Organic Farming Practice:** Good Farming Practice is necessary to fulfil the consumer and public demands as well as be more efficient with limited resources. Both, organic and conventional have to train and trigger their farming systems on the track of better practice. In future we cannot effort spoiling and inefficient farming practices. Capacity building and training needs to the support of research, mainly via socio-economics: How can we transfer Good Organic Farming Practice to all farms as a permanent process?

**The food production needs more close links to the consumer:** Consumer must accept, that in the coming future not everything will be always and everywhere for a cheap price available. It will be not possible and producable in the coming future that everyone on the earth will consume like the western world today. We need to avoid wasted food, reduce livestock and utilize novel food sources. Additionally, the consumers need to bring back valuable nutrients back to farming: clean and efficient.

**Farming has to change from “commodity related” towards “needs related” production:** Ecological Food First means also that non-food production is second and needs alternative - not farm related - production bases. Community Supported Agriculture needs to be improved and scaled-up.

**Less livestock and changed animal husbandry systems:** Numbers of livestock needs to be reduced by a significant number, from ethical point of view probably even towards zero (in specific cultures and regions). That needs improved food consumption skills (e.g., avoiding malnutrion with vegan diets). Invention of novel protein food resources based on insects and sea food are necessary.

**Local versus global food chains:** The transport of food from one place to another place on the earth will be not as easy as today. Fossil energy and probably limited space will need new farming and food distribution systems. Probably people have to go to food areas and not food to people areas as today. Migration and better distribution of humans and food have to be initiated.

**Land-less food production:** Organic farming likes soil and prohibits soil-less food production. But: soil is scarce, probably degraded, polluted or sealed and therefore not avail for healthy food production. Food can be produced on sealed surface (urban agriculture, in-door/household, on roofs etc.). Aquaponics is a chance to link water and land related food production. Last but not least inventions should be done to substitute some food ingredients from agriculture towards reactor production.

**References**

Arbenz, M., Gould, D. & Stopes, C. Org. Agr. (2017). doi:10.1007/s13165-017-0177-7

Rahmann G, Ardakani MR, Bàrberi P, Böhm H, Canali S, Chander M, David M, Dengel L, Erisman JW, Galvis-Martinez AC, Hamm U, Kahl J, Köpke U, Kühne S, Lee SB, Loes A K, Moos JH, Neuhoff D, Nuutila JJ, Oppermann R, et al (2016) Organic Agriculture 3.0 is innovation with research. Organic Agric, [DOI:10.1007/s13165-016-0171-5](https://doi.org/10.1007/s13165-016-0171-5)