

Media release

New study shows that organic farming can contribute to the world food supply

A worldwide conversion to organic farming can contribute to a comprehensive and sustainable food system, if combined with further measures. Thus, it is important to reduce over-consumption of livestock products, to use less concentrated feed in livestock production and to avoid food waste. Such a food system has positive effects on important environmental aspects by curbing greenhouse gas emissions, reducing over-fertilisation and use of pesticides, and does not lead to a higher land use despite organic management. This was shown in a new study led by the Research Institute of Organic Agriculture FiBL, which has recently been published in the renowned scientific journal “Nature Communications”.

(Frick, 14 November 2017) Different scenarios show that the negative impacts of agriculture on the environment will drastically increase by 2050, should the projections of the Food and Agriculture Organization FAO be accurate. Their estimates suggest a population of over 9 billion people and a change in dietary habits, such as increased meat consumption, using more resources such as water, energy and land.

Conversion to organic farming as a solution?

The conversion to organic farming, which practises a more environmentally-friendly use of resources, is thus often suggested as a solution to counteract the negative developments. However, critics emphasize that this conversion would lead to higher land use and thus would not be a feasible alternative.

Several strategies are required to feed the world sustainably

The new study shows that organic farming can play an important role in a sustainable food system, in combination with reduced consumption of animal products, avoiding concentrated livestock feed and reduced food waste. The world’s food security would be ensured even with over 9 billion people in 2050, agricultural land area would not increase, greenhouse gas emissions would be lowered and the negative effects of today’s intensive food systems, such as nitrogen surplus and high pesticide exposure, would be greatly reduced. In contrast, the conversion to organic farming should consumption patterns remain unchanged would lead to increased land use change to agriculture.

Conflict of goals

Sustainable food security cannot avoid conflicts of goals.

Organic farming has major advantages with regard to many central environmental impacts, such as the issues of nitrogen and pesticides. On the other hand, it requires higher land use because the generally more extensive management results in lower yields compared to conventional farming.

The advantages of grassland-based animal production without concentrated feed are that pastures, which cannot be used for arable crops, are used for food production. The disadvantages are increased greenhouse gas emissions per kilogramme of meat and milk.

The advantages of reduced food waste are rather obvious, since such a reduction would directly lead to lower production.

Optimal combination of various strategies

The new study shows how to optimally combine these various strategies to deal with conflicts of goals. Even if 60 % of agriculture would convert to organic farming, concentrated feed were reduced by 50 % and food waste by 50 %, it would result in a food system with significantly decreased environmental impacts, including lower overall greenhouse gas emissions, and only a marginal increase in agricultural land area.

The consumption of animal products would need to decrease by about a third because less feed would be available.

Thus, sustainable agriculture is only possible when consumption patterns are changed – then, the possibilities are promising. Organic farming can play a key role in it.

This study was carried out in collaboration with researchers from the Food and Agriculture Organization of the United Nations FAO, the University of Aberdeen, the Alpen-Adria-Universität Klagenfurt and the ETH Zurich, and has recently been published in the renowned scientific journal “Nature Communications”.

FiBL contacts

- Adrian Müller, Sustainable food systems, FiBL Switzerland
Phone +41 62 865 72 52, e-mail adrian.mueller@fibl.org
- Christian Schader, Sustainability assessment, FiBL Switzerland
Phone +41 62 865 04 16, e-mail christian.schader@fibl.org
- Helga Willer, Communication, FiBL Switzerland
Phone +41 62 865 72 07, e-mail helga.willer@fibl.org

Partners

- Institute of Biological and Environmental Sciences, University of Aberdeen, United Kingdom
- Institute of Social Ecology, Vienna, Alpen-Adria Universität, Austria
- Institute for Environmental Decisions IED, Swiss Federal Institute of Technology ETHZ, Zurich, Switzerland

Links

- Study in "Nature Communications": <http://nature.com/articles/doi:10.1038/s41467-017-01410-w>
- Video summarizing the results of the study: <https://www.youtube.com/watch?v=z4daLqmureU>

References

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This media release online

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About FiBL

Since 1973, the Research Institute of Organic Agriculture FiBL has been finding intelligent solutions for regenerative agriculture and sustainable nutrition. About 280 employees carry out research, advisory services and training at various sites to support organic agriculture.

- Homepage: www.fibl.org
- Video: www.youtube.com/watch?v=U84NrjIORFc