

# Chapter 13

## Training Strategies for Organic Agriculture as a Pathway to Achieve the SDGs

**Miguel de Porras**

*FiBL Europe, Belgium*

**Lisa Haller**

*FiBL Europe, Belgium*

**Sigrid Alexander**

*Beratung Nachhaltige Lebensmittel, Germany*

### ABSTRACT

*The current agricultural and food system needs to become more sustainable. Scientific evidence shows that organic agriculture is particularly environmental beneficial and can contribute to the achievement of the SDGs. Yet, it is a knowledge intensive practice and all actors along the value chain need to be accordingly trained. Focusing on farmers, this chapter assesses available training initiatives in the sector. In order to become more effective, public bodies should engage more in capacity building and training on organics. Moreover, additional training initiatives should focus on specific crops or agricultural systems, which also addresses the training need of farmers in conversion. The use of ICT has the potential to facilitate the development of more efficient training interventions. The further development of training initiatives is a vehicle to promote organic agriculture and ultimately to contribute to achieving the SDGs and climate mitigation and adaptation in particular.*

### INTRODUCTION

In order to tackle the global environmental, social and economic challenges of the 21<sup>st</sup> century, the United Nations Member States have compromised to the 17 Sustainable Development Goals (SDGs) under the commitments of the Agenda 2030. The SDGs address climate change and the preservation of nature,

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oceans and forests, while at the same time set goals to end poverty and other deprivations, improve health and education, reduce inequality and foster economic growth (UN 2020a).

Land and land use, including agricultural production, are the basis for our livelihoods. In the context of a changing climate and environmental degradation, agriculture and food systems need to provide enough nutritious and high quality food for a growing population. The intensification of agriculture in the last century has led to a significant increase in production and food security globally. However, current agricultural practices are also a major driver for environmental problems (e.g. biodiversity loss, pollution, soil degradation) including climate change. According to the IPCC (2019), 21-37% of the total GHG emissions can be attributed to the food system, including land use, agriculture, storage, transport, processing and packaging as well as retail and consumption. While land use is responsible for approximately a quarter of the total direct and indirect GHG emissions (10-12 Gt CO<sub>2</sub>-equivalents), half of the emissions derive from agriculture (5-5,8 Gt CO<sub>2</sub>-equivalents; IPCC 2014). These agricultural emissions are mainly emissions of methane (CH<sub>4</sub>) from enteric fermentation of livestock (mainly cattle); methane emissions from rice fields; and nitrous oxide/nitrous oxide (N<sub>2</sub>O) emissions from agricultural soils (Tubiello et al. 2013; Smith et al. 2014). Regarding emissions from livestock, however, the balance of intensive, so-called industrial production that is highly dependent on concentrated feed, is different from species-appropriate grazing with limited input of concentrated feed. Crop production and animal husbandry account for 4-14% of the GHG emissions and land use and land use change is estimated to be the cause of 5-14% of the GHG emissions. If “business as usual” continues and current trends in the food system are pursued, it is estimated that the food system will account for 30-40% of the total GHG emissions in 2050 (Shukla et al. 2019).

At the same time, the food system, and particularly the agricultural sector, are highly vulnerable to a changing climate. Extreme weather events disrupting the food chain are expected to increase in the future, both in terms of intensity and in terms of frequency. Desertification and land degradation caused by climate change further adversely impact food security. Moreover, higher CO<sub>2</sub> levels in the atmosphere may lower the nutritional quality of crops (IPCC 2019).

Therefore, it is evident that an environmentally sound and sustainable transformation of the whole food system is needed. According to the FAO (2020) “to be sustainable, agriculture must meet the needs of present and future generations, while ensuring profitability, environmental health, and social and economic equity”. There are three dimensions to sustainability – environmental, social and economic, that all have to be met, even though there might be trade-offs between them.

The transformation has to take place both on the production (e.g. increase of the share of sustainable agricultural practices such as organic agriculture, see below) as well as on the consumption side. Modelling efforts at a global scale show that an overall more environmentally sustainable agriculture can only be achieved if both the production and consumption of animal products as well as food waste and losses are significantly reduced (Schader et al. 2015; Müller et al. 2017).

## **The Contribution of Organic Agriculture to the SDGs**

In order to achieve the necessary transformation towards more sustainability and fight against the most relevant environmental challenges that our food systems are facing, there are several alternative approaches to agriculture that can make a significant contribution. For this chapter we have selected organic agriculture, as one of the systems that can support this transition. There is sound scientific evi-

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