

Technological innovations in agriculture, including digitalisation, Information and Communication Technologies (ICT) and precision farming

Technological innovations, either high- or low-tech, have an important role to play in agriculture, and may create the conditions to develop innovative tools and provide solutions. Agroecology is a knowledge-intensive process, that also includes re-vitalisation and optimisation of traditional practices in the light of new scientific evidence. Traditional and novel technologies do not necessarily go in the opposite direction, as they can often provide site-specific solutions and solve local issues by optimising natural resource use, reducing fatigue in farm work and spreading agroecological knowledge.

However, Agroecology Europe considers that technological innovations, including recent ones like digital and data-sharing tools are not expected to be the main drivers of the transition towards agroecology and truly sustainable food systems. The main drivers will be the re-design of food systems and agroecosystem management approaches. In particular, patented technological innovations developed with a top-down approach are unlikely to serve the purpose of agroecological systems because they clash with the participatory approach to knowledge co-creation which is at the heart of agroecology. ICT-based innovations are in line with the principles of agroecology when they foresee the active engagement of farmers and other local actors in the co-development of a solution, e.g. in participatory-based development of Decision Support Systems, smartphone applications and the like. Including farmers in the creation of technological innovations will maximise uptake, minimise recourse to technology transfer activities of dubious efficacy, and facilitate the build-up of mutual trust between scientists, technology developers and farmers themselves. Participatory approaches will also minimise the risk of inappropriate use of personal data and will likely provide tools at an affordable cost, also for small-scale farmers. Finally, participatory processes will empower all actors collectively involved in developing an innovation.

Agroecology Europe contends that ICT-based technologies typical of precision farming can only represent an initial step in the Efficiency-Substitution-Redesign transition from conventional to agroecological systems, or fine-tuned technological applications in an already redesigned system. Precision farming is not in line with agroecological principles where seen only as a way to optimise the efficacy of agricultural inputs (e.g. fertilisers, pesticides, irrigation).