

Abstracts of Presentations

1. Agroecology and Systems Analysis for Sustainable Agriculture

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Agroecology is more than technique for agricultural production. Although its origins are based on harnessing ecological interactions for crop production and protection, today agroecology is considered a scientific discipline, a series of agricultural practices and a political or social movement. In the last decade, with increasing poverty, malnutrition and environmental degradation in the rural world, agroecology has gained attention from a wide range of actors including research and development agencies, policy makers and grassroots organizations to move forward towards the elusive sustainable development goals.

One of the theoretical foundations of agroecology is a system's approach, where the whole is more than the simple sum of its parts, and interaction among components, the systems at different scales amplify synergies increasing the overall resource use efficiency and sustainability of agricultural systems. System's approaches can be employed across scales and disciplines and, through multi-criteria assessment, provides the theoretical and practical elements for the design of more sustainable agricultural systems.

Recently, ten elements have been identified as the basis, and evaluation criteria, for agroecology and the agro-ecological transition: diversity, co-creation of knowledge, synergies, efficiency, recycling, resilience, human and social values, culture and food traditions, responsible governance, and circular and solidarity economy. In practical terms, agroecology is based on bottom-up and territorial processes to generate contextualized solutions to local problems. It combines scientific with traditional, practical, and local knowledge to enhance autonomy and adaptive capacity empowering producers and local communities as key agents of change.

In this presentation, an overview of the basic principles of agroecology will be described as well as different approaches used for the evaluation and design of agricultural systems through the lens of agroecology. Concrete experiences on the use of systems approaches for multi-criteria assessment of agroecological systems, including the analysis of synergies and trade-offs, will be presented for different biophysical and socioeconomic contexts.