



Agroecology: Importance and its principles

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DESCRIPTION

Agroecology's intellectual landscape is mapped here by a multidisciplinary team. It highlights important elements and newly discovered relationships. We make an effort to broaden and introduce agroecology as a field of study in which agriculture can be viewed as a linked system including a variety of social and natural phenomena and analysed within the context of global change. The practice of agroecology and agriculture itself face challenges as a result of this inherent coupling and strong emerging drivers of change. However, it also provides the framework for some of the most cutting-edge research areas and the greatest potential for innovation for a sustainable future in agriculture. The goal of is to identify forward-looking scientific questions to increase the relevance of agroecology for the major challenges of reducing chronic hunger and malnutrition while significantly increasing global food production, improving livelihoods, and minimising the environmental impacts of agriculture over the ensuing decades.

In a plenary World Cafe exercise, 310 stakeholders (mostly researchers and students, but also farmers, technicians, political decision-makers, representatives of national and European institutions, non-governmental organisations, and social movement organisations) highlighted major challenges for the development of sustainable agriculture and food systems, and more specifically the amplification of agroecology, as well as the actions needed to promote it. By gathering a large number of stakeholders in one location and utilising a highly structured procedure to establish flexible and ever-evolving networks of dialogues and discussions, the World Cafe is a participatory method that seeks to effect collective change. Participants in the Lyon World Café were split into two sizable groups of roughly 150 each, each made up of five-person "table groups" that changed composition after each question. Perspectives and suggestions were discussed at each of the roughly 60 tables, and notes were collected.

Principle

Agroecology has arisen as a scientific method for examining, diagnosing, and suggesting alternative low-input management of agroecosystems in their various concepts. Agroecology's main goal is to address agriculture's sustainability issue. It is argued here, however, that focusing only on the technological aspects of the issue obscures the underlying issues that underlie the technology-induced environmental crisis and rural poverty that are affecting the agricultural regions of the world, even though the promoted technologies are low-input. Agroecology can offer the ecological principles that will drive technical advancement in the right directions, but in the process, technological issues must assume their proper place within a rural development strategy that also takes into account social and economic difficulties.

The principles of agroecology can be used to create diverse agroecosystems that maximize complex interactions and synergisms as well as the benefits of integrating plant and animal biodiversity.

Scientists and developers have neglected a critical component in the creation of a more self-sufficient and sustainable agriculture in their quest to reintroduce more ecological reasoning into agricultural production: a thorough understanding of the nature of agroecosystems and the principles by which they operate. Agroecology has developed as the field that provides the fundamental ecological concepts for studying, designing, and managing agroecosystems that are both productive and resource-conserving, as well as being culturally sensitive, socially just, and economically viable, in light of this limitation. Agroecology embraces an understanding of ecological and social levels of co-evolution, structure, and function, going beyond a one-dimensional perspective of agroecosystems their genetics, agronomy, edaphology, and so on. Agroecology emphasises the interconnectedness of all agroecosystem components and the complex dynamics of ecological processes rather than concentrating on one specific agroecosystem component.

CONCLUSION

Agroecosystems may support their own functioning thanks to ecosystem processes and activities like nutrient recycling, biomass generation, and biotic management of hazardous species. Improved economic and ecological sustainability of agriculture is the end consequence of agro ecological design. The recommended management systems for the agroecosystem, which are especially aligned with the local resource base and operational framework of the current environmental and socioeconomic conditions.

Management is key in an agro-ecological plan. Components emphasise a development methodology that encourages farmer participation, use of traditional knowledge, and adaptation of farm enterprises that fit local needs and socioeconomic and biophysical conditions. This aims to highlight the conservation and enhancement of local agricultural resources (germplasm, soil, beneficial fauna, plant biodiversity, etc.) and to highlight a development methodology that encourages farmer participation.