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Sustainability strategies for organic food and farming

The challenge of sustainable food production is, how to assure an equal access to food to the increasing population in conditions of limited and degrading resources, taking into consideration the socio-cultural goals and restrictions. The central means is food supply based on local ecosystem services and human resources, through intensive cooperation. Organic food and farming can have a significant contribution, if the practices are developed in coincidence with the underlying strategy. Regulation of price relations through public tax policies, allocation of subsidizes and legislation has a key role.

The challenge

We face the challenge to feed the world, where 800 million people are chronically undernourished primarily due to a lack of access to food caused by poverty. The demand for food will double within the next 25–50 years, and the diet will become more meat-based in the developing world. Simultaneously, exploitation of fossil energy and chemicalization contribute to environmental pollution and climate change, habitat loss and genetic erosion of cultivars threaten biodiversity, economically exploitable fossil energy and phosphorus resources become depleted, and linear nutrient flows from fields collapse water ecosystems while soils continue to degrade. In many parts of the world, pure water is the most limited resource. In addition, 70 % of poor people live in rural areas with decreasing employment opportunities and social disintegration. This challenge is addressed also in the International Assessment of Agricultural Science and Technology for Development (IAASTD, 2005–2007), performed by the World Bank and several organizations of the United Nations.

Strategies

Sustainability as a concept includes both a vision of desirable characteristics of a target system to be sustained, and the requirement that it can be sustained at long term. There are different perspectives on sustainable agriculture. Focus can be on food sufficiency through yields per hectare, or it can be broadened to take into account conservation of the resource base also, or even further – in coincidence with the World Commission on Environment and Development (Brundtland Committee, 1987) – to embrace the social and cultural aspects such as equity of power and benefits, democracy, community and care. The last perspective emphasizes functional integrity, i.e. consideration of the interactions of production practices with processes of renewal, avoidance of vulnerability and conservation of the capacity for resilience, all of them including both ecological and social dimensions.

The different sustainability perspectives can be linked both to different

views of relation between man and nature and to different management strategies. In the first perspective, nature can be seen divided in two, being on the other hand a source of resources and on the other hand a sink for wastes of industrialized food production. In the second perspective, nature is seen as one whole which man stewards from outside it applying the strategy of sustainable use. The precision agriculture, saving resources and environment by adjusting the old techniques, could represent this approach. The third, three-dimensional sustainability perspective seeking for functional integrity implies that man is part of nature adapting the human economy to the principles of the ecosystem, conserving its functions and structure – processes and diversity – and relying on them, through the ecosystem approach adopted in Johannesburg (The World Summit on Sustainable Development, 2002). The last approach requires system redesign based on agroecological knowledge.

Means

Based on the three-dimensional sustainability perspective oriented to meet the challenge in its whole complexity, the point in feeding the world is not only to produce enough food, but also to save the resource base for it and to make sure that there is access to food for all equally. There production strategies, which rely on local resources instead of expensive and non-renewable external inputs, are of high value. The social inequality, corruption and crises dominating the hungry world set meeting the basic food needs by local supply to a superior position compared with global food markets, from the point of view of food security. To make this possible in the developing world, *the industrialized regions should also rely largely on their own resources.*

More local food systems have some environmental benefits, like alleviation of recycling organic matter and nutrients, use of local renewable energy and reduction of energy use and its detrimental climatic effects in transportation. There is, however, evidence that for the local rural economies higher share of local food is especially important due to increased employment and public finance by the value added of e.g. processing, trade and transport. For full benefits, not only processing but also agricultural and input production should be local. Local food chains seem to represent also clearly higher social sustainability than the conventional ones, in terms of equity of power and benefits, as well as vitality of the communities.

For environmental benefits reliance on recycling and other ecosystem services instead of purchased nutrient and energy inputs is of key value. High intensity in terms of purchased inputs usually reduces the possibility to utilize the ecosystem services, and may turn them even a cost. The concept of efficiency is most often used to express production per hectare or animal unit, sometimes per labour use, in coincidence with the narrowest perspective on sustainability focusing on food sufficiency through yields per hectare and on short-term firm economy only. High intensity and efficiency in those terms is not possible for the whole world, neither at long term. Thus, intensive production in that sense has created inequity. Wouldn't it be more appropriate to strive for *high production per unit of the most limited resources*, like non-renewable inputs or destroyed

environment? The concept of efficiency could be used even to show the gains of other outputs of the multifunctional agriculture than products, including social benefits.

Also land is becoming a more and more limiting factor in some parts of the world – characteristically, in those parts with lowest access to inputs to increase the intensity per area, due to intensive western food production including luxury meat consumption – but more equal distribution of food and resources could vastly retard that.

From the point of firm economy, *local and regional markets offer an alternative development strategy to specialization and increase of scale*. There is an opportunity to a price premium due to locality, and to higher value-added through processing, e.g. for institutional kitchens, thus compensating the lost scale benefit. A small size of a rural local market can be overcome by increasing the market area beyond that in the urbanized society. In retail, the prerequisite for the price premium is introduction of a local label. Increased recycling and reliance on ecosystem services, even if contributing to the local economy, usually lead to loss of production and thus income forgone due to avoidance of additional nutrients from outside the system. Thus, the gains for environment require either a price premium or effectively allocated economic interventions.

Cooperation, however, is turning up as a unique synergetic key between all the dimensions of sustainable development of food and farming. Recycling nutrients between the farms instead of within the farm seems to clearly decrease or totally delete the cost of recycling. This cooperation benefit is mainly due to fuller use of capacities. It also offers an alternative to increased scale and specialization yet keeping the environmental benefits of recycling and diversity. The savings in labour are biggest by half of common crop rotations and animal sheds leading to reductions of even 40 % of production costs. Cooperation between the farms and between the food system actors is essential also in recycling from consumption, in local and regional trade, planning of production and product development. In addition, cooperation conserves and rebuilds rural social structures.

Role of organics

Organic food and farming as a development strategy has since decades explicitly formulated the starting point being in the three-dimensional sustainability perspective with the effort to integrate both the ecological, economical and social aspects while developing farming and food systems (IFOAM Basic Standards). It has, however, suffered from the marginalized, even if connecting, role between the productionist intensive agriculture and the conservationist environmental movement sometimes seen as the inferior strategy, from the narrow perspective of yield per hectare, from both sides. In those cases, the conservationist view has taken man as an outsider to the nature with all interaction being negative by necessity, raising the need to limit the influence to the minimum area.

The certainly most important role of organic farming in sustainable development has been the role as the influencing agent for the development of conventional agriculture. To have a significant influence even in the future, organic food and farming has to go forward following its strategy.

Challenge for organics

The main development challenge for organic food and farming is to apply more of its principles in its practices. That requires development of the official rules and standards to be in better coincidence with the underlying strategy. The European Action Plan for Organic Food and Farming (EU Commission, 2004) gives an opportunity to that. Also the Basic Standards of IFOAM have just been reformed in order to give a better basis. Less detailed and more principle-oriented standards are important also to allow more diversity for adaptation to the local ecosystems and socio-cultural circumstances to achieve functional integrity. Diversity of the developing systems is also a precondition for resilience in the quickly changing eco-social environment of today. In addition, the focus should be transferred from mere substitution of conventional inputs with more organic ones, towards the approach of system management.

To improve the coincidence of organic practice with the sustainability strategy a key point is to connect animal husbandry to crop production through recycling and, as far as possible, recycle from the demand chain to agriculture. While decrease in luxury meat consumption in the industrialized world would be beneficial for food security and environment, the meat consumed should be produced linked to crop production. Recycling performed in economically sustainable manner requires the scope to be broadened over the farm level to the landscape or region within agriculture, and even to the food system. Saving of non-renewable energy resources should be extended from already significant avoidance of nitrogen fertilizers in agriculture, to favouring local renewable energy resources in processing and in reduced, more local transportation. In addition, the ideas of locality and social sustainability should be incorporated to the practices of production, processing and trade.

Operational environment

Local organic food should be an accessible alternative, both concerning availability and price, for a citizen-consumer influencing through food choices, and for the rural poor. This sets a challenge to the politicians, as also addressed in the European Action Plan for Organic Food and Farming. It is based on two pillars – consumer markets and public goods, and conclusively on two payers. The society pays through allocation of subsidies and taxes as well as through legislation, which regulate the price relations. The economic interventions by society increase the equity and access to food in comparison to a price premium.