



Sustainable Agriculture

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Sustainable agriculture is a prerequisite for sustainable development.

ISF understands sustainable agriculture as the evolving management and conservation of the natural resource base in a region, and the global orientation of technical and institutional change in such a manner as to ensure the steady attainment and continued safe satisfaction of human needs for present and future generations.

A balanced diversity of sustainable systems that share the objectives of reasonable environmental management, conservation of land, water, air, plant, animal and energy resources, technical appropriateness, economic feasibility and social acceptability must be encouraged.

The sustainability of an agricultural system cannot be assessed without taking into account the upstream and downstream activities of the society in which it has been developed and implemented. Neither can it be done without regard to the number of people it has to feed and clothe, and their purchasing power.

The slash and burn cultivation developed during the Neolithic Age, which 40 years ago still provided 200 million people the bulk of their food and is still practised in some areas, is certainly sustainable for a population of 10 people per square kilometre. However, as soon as the population exceeds this limit, the duration of the fallow is too short to regenerate the soil and restore its fertility leading to an unsustainable system.

According to a report by the International Food Policy Research Institute (Andersen et al., 1999*) global population is expected to reach 7.5 billion in 2020. Per capita incomes are also expected to rise in all major developing regions. Meeting the food needs of a growing and urbanised population with growing incomes poses a great challenge. The total demand for cereal products will increase by about 39%, for meat by about 58% and for root and tuber crops by 37%.

Meeting this demand will not be possible without increasing agricultural productivity per farmer and per unit of land and water. The alternative is to clear forests and reclaim marginal lands to the detriment of biodiversity. However, any increase in productivity must not only permit the conservation of wild and marginal areas but also conserve the cultivated biotope by preventing erosion, maintaining soil fertility and yield stability.

Plant breeding helps sustainable agriculture worldwide through the development of better yielding varieties with improved resistance pests and diseases, and a higher tolerance to abiotic stresses. However, high quality seed of adapted modern varieties alone is not enough. Sustainable agriculture also requires:

- Conserving and better managing soil and water resources, in particular to minimise soil erosion and salinity;
- Adopting integrated nutrient management approaches to maintain soil nutrient stocks whilst avoiding soil and water pollution;

- Embracing integrated pest management based on the safe use of pesticides, crop rotation, biological control, global phytosanitary programmes and using resistant cultivars.

This global strategy has to be adapted locally. In some parts of the world where neither food scarcity nor the amount of food produced is a concern productivity may not be the main objective of agriculture. But in food-insecure regions, productivity must be the main goal of agriculture. All the available technologies that have proven efficient and safe for human health and the environment must be used. Research as a growth promoter, especially in the field of biotechnology, has a key role to play both in the public and the private sectors. In order to encourage research an effective protection of intellectual property is necessary.

- * Pinstrip-Andersen P., Pandya-Lorch R. and M.W. Rosegrant, 1999. World food prospects: Critical issues for the early twenty-first century in food policy. Food Policy Report, International Food Policy Research Institute.