

# Reducing food poverty with sustainable agriculture: new evidence

In 1998 the SAFE-World project started to audit recent worldwide progress towards sustainable agriculture. A survey of sustainable agriculture initiatives was conducted with the aim of investigating both processes and outcome, and to draw conclusions on whether such improvements could significantly help to feed the growing world population without causing further damage to environment and human health. At the end of 2000, the database contained information on 208 cases from 52 countries involving some 8.98 million farmers on 28.92 million hectares. On this basis it is estimated that on at least 3 % of the farmed land in Asia, Africa and Latin America, farmers are using sustainable agricultural technologies. A summary of the conclusions of the survey has been published on the web, and a book to be launched soon. The following are excerpts from this summary.

## Types of improvement for sustainable agriculture

- 1: Better use of locally available natural resources – in 88% of the cases
- 2: Intensified use of microenvironments in farm systems (gardens, orchards, ponds) – 21%
- 3: Diversification by adding new regenerative components – 59%
- 4: Better use of non-renewable inputs and external technologies – 18 %
- 5: Social and participatory processes leading to group action - 55%
- 6: Human capital building through continuous learning programmes – 92%
- 7: Access to affordable finance (credit, grants, subsidies) – 17%
- 8: Adding value through processing to reduce losses and increase returns – 12%
- 9: Adding value through direct or organised marketing to consumers – 15%

## Achievements

Of the 208 cases, 91 contain data on yield changes obtained by improvements as presented in the box. The proportional yield increases are generally: 50 – 100% for rain fed crops, though considerably greater in a few cases; 5 – 10% for irrigated crops, though starting from a higher absolute yield base.

Most initiatives report significant increases in household food production – some as yield improvements, and some as increases in cropping intensity or diversity of produce. The evidence shows that:

1. For 4.42 million farmers on 3.58 million ha., average food production per household increased by 1.71 tonnes (an increase of 73%).
2. For 146,000 farmers on 542,000 ha cultivating root crops (potato, sweet potato and cassava), the increase in food production per household was 17 tonnes (an increase of 150%).
3. For the larger farmers in Latin America (av. size = 90 ha/farm), total production increased by 150 tonnes per household (an increase of 46%).

## Conducive factors

The successes have been mainly founded on:

- Appropriate technology adapted by farmers' experimentation;
- Social learning and participatory approaches;
- Good linkages between farmers and external agencies, together with the existence of working partnerships between agencies;
- Presence of social capital at local level.

It is concluded that if sustainable agriculture is to spread to larger numbers of farmers and communities, then future attention needs to be focused on:

1. Ensuring the policy environment is enabling rather than disabling
2. Investing in infrastructure for markets, transport and communications;
3. Ensuring the support of government agencies, in particular, for local sustainable agricultural initiatives;
4. Developing social capital within rural communities and between external agencies.

## Proud portraits

Both the website and the publication present an impressive list of proud portraits of sustainable agriculture. Two examples:

Most initiatives seek both to reduce soil erosion and to make improvements in soil physical structure, organic matter content, water holding capacity and nutrient balances. One sustainable agriculture technology to spread at extraordinary speed is zero- or minimal tillage (ZT). For example, in Brazil, there were 1 million ha. under ZT in 1991; by 1999, this had grown to about 11 million ha. in three southern states only. ZT has resulted in better input use, water retention, soil management, diverse rotations, break crops for weed control (e.g. ray and black oats between maize/soybeans) and use of green manure and cover crops. ZT also cuts erosion and water run-off, thus reducing water pollution.

Many sustainable agricultural initiatives have reported very large reductions in pesticide use following the adoption of IPM through farmer field schools in rice agroecosystems.

In Kenya, about 2000 farmers have adopted 'push-pull' strategies developed by ICIPE to repel (push) stem borers from the cereal crop (maize and sorghum) using a repellent intercrop (e.g. molasses grass (*Melinis minutiflora*) and silver leaf (*Desmodium uncinatum*)) and to attract (pull) them to intercrop or barrier forage grasses e.g. Napier grass (*Pennisetum purpureum*) or Sudan grass (*Sorghum vulgare*). In this way maize yields have improved by 60 – 70 % in 1998-99. ICIPE has also found that intercropping maize with the fodder legumes silver leaf and green leaf (*Desmodium intortum*) reduced infestation of the parasitic weed, *Striga hermonthica*, by a factor of 40 compared to maize monocropping. This is significantly more than intercropping maize with soybean, sunhemp and cowpea.

## Supportive policies are missing

The past decade has seen considerable global recognition of the need for policies to support sustainable agriculture. In most countries, however, sustainable agricultural policies remain marginal. The collected evidence shows that sustainable agricultural systems can be both economically, environmentally and socially viable, and contribute positively to local livelihoods. But without appropriate policy support, they are likely to remain localised in extent.

From: Pretty J and Hine R. 2001. **Reducing Food Poverty with Sustainable Agriculture: A Summary of New Evidence**. Final Report from the SAFE-World Research Project, Feb 2001. University of Essex, Colchester, UK. A summary of the report is available on <http://www2.essex.ac.uk/ces/ResearchProgrammes/SAFEW47casesusag.htm>

## References

- Pretty J, 1999. **Can sustainable agriculture feed Africa? New evidence on progress, processes and impacts**. *Environment, Development and Sustainability 1*: 253-274. Kluwer Academic Publishers.
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