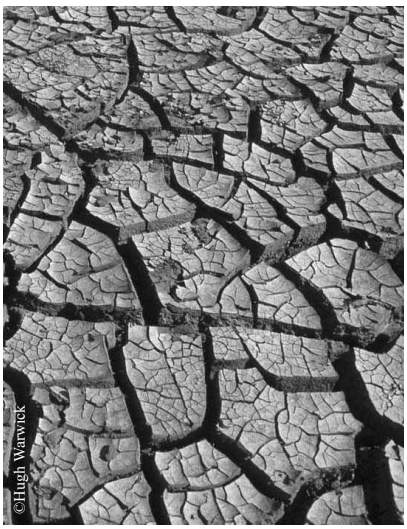
The future of farming

Modern agriculture is intrinsically destructive of the environment. It is particularly destructive of biological diversity.
— The Royal Society

The legacy of the agriculture industry

- Industrial agriculture has undermined our future food security
- Farm chemicals such as weedkillers and chemical fertiliser have created resistant weeds, added to global warming, degraded the earth's soil, polluted drinking water and killed off wildlife such as birds and fish.
- Food scares and epidemics have become commonplace
- The same industry that created these problems is now trying to sell a 'solution' to the problem of their own creation – the further industrialisation of food production through GM



Today's agriculture industry is more like mining than farming. Its system compromises the very earth on which all our future food needs depend. Only about 16% of the world's farmland remains free of problems such as chemical pollution.

Rather than growing food to meet the needs of local communities for a healthy, diverse diet, industrial agriculture produces crops to sell on world markets. This agriculture uses costly farm chemicals and machinery. While world crop production has trebled since the 1950s, more people go hungry now as 20 years ago. Small family farmers are driven off their land and local people cannot afford to buy what is grown. Too often, the result is a downward spiral of environmental destruction, poverty and hunger.

Greenpeace aims to 'ensure the ability of the Earth to nurture life in all its diversity'. That includes human life – and meeting people's food needs, through sustainable farming practice, is at the heart of our survival. Farming methods that undermine people's food security affect more than just those who go hungry. They undermine the environment. Forest wilderness and wildlife are destroyed in the search for food and land to farm.

Hunger and poverty go hand-in-hand. Technological 'solutions' like GM overshadow the real social and environmental problems causing hunger. These issues include who grows our food, how and where it is grown, how it is distributed, and who has access to it. Simple practical changes such as improving rainwater collection can increase harvests dramatically. Basic social measures are also critical. Between 1970 and 1995, provision of basic health care and improvements in women's status and education were responsible for nearly 75% of reductions in childhood malnutrition.

So how can we reverse the devastation caused by the agriculture industry and ensure that the world can feed itself in the future? Funded by Greenpeace and the UK Department for International Development, Essex University researchers undertook the largest ever study of sustainable farming practices. The study includes projects on more than four million farms in 52 countries. It explores how the world's poor can feed themselves using cheap, locally-available technologies that will not damage the environment. The findings:

Switching to sustainable farming methods increases harvests for these farmers by an average of 73%.

Greenpeace works for real solutions. The future for farming lies in recognising its role not only in the production of food, but also in providing us with the clean water, diverse wildlife and plants, and the fertile soil on which all our futures depend.

For some, talk of 'sustainable agriculture' sounds like a luxury the poor can ill afford. But in truth it is good science, addressing real needs and delivering real results. For too long it has been the preserve of environmentalists and a few aid charities. It is time for the major agricultural research centres and their funding agencies to join the revolution.
— New Scientist, 3 February 2001

Nature's potential

Madagascar – challenging basic principles

Rice is a staple food in Madagascar, but chronic shortages lead poorer households to slash-and-burn the rainforest in order to feed themselves.

For centuries, rice farmers have kept their paddy fields flooded. Flooding keeps weeds from growing, reducing the labour needed in the field. Because this approach has been so long-standing, farmers and scientists assume that rice grows best in these conditions. However, rice is not naturally a water plant. By growing rice in different conditions, its own potential is tapped.

The System of Rice Intensification (SRI) was first developed by a missionary priest in Madagascar during the 1980s when he observed that rice seedlings that had to struggle in the initial stages of growth were later stronger and more well-developed, better resisting pests and diseases and producing more rice. The practices he developed with farmers saw rice harvests improve by more than four times the regional average without the use of expensive farm chemicals. Now 20,000 farmers in the region use these practices.

There are many economic, social and environmental benefits to this approach. Improved harvests mean that far less land and labour is needed to produce the same amount of rice. Households do not therefore need to cultivate all of their land for rice, and can grow other crops for a more healthy and diverse diet.

The agricultural research community has been slow to show interest in this radical success because it does not fit in with received assumptions and corporate research agendas. Proponents of GM technology often say that we have reached the limits of our ability to improve harvests through management. However, the SRI improves people's harvests precisely because it works with the plant's own natural potential, and breaks many of the conventional 'rules' of management.

China – valuing diversity

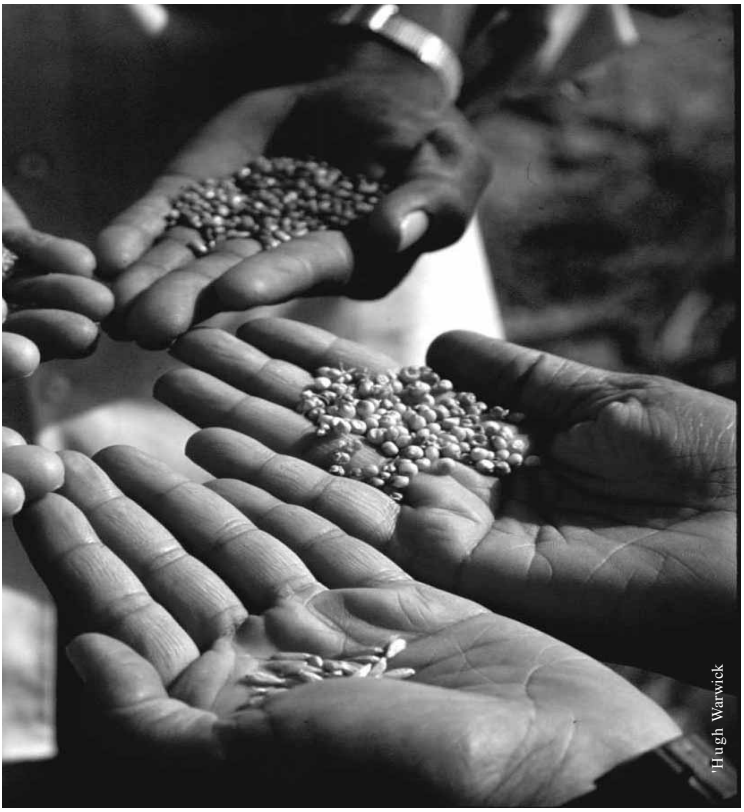
In one of the largest agricultural experiments ever, thousands of rice farmers in China have doubled the harvests of their most valuable rice variety and nearly eliminated its most devastating disease – without resorting to expensive farm chemicals.

Farmers in China's Yunnan Province abandoned the industrial practice of planting a single type of rice in their paddies and started mixing varieties. This simple change led to a 94% reduction in the incidence of Blast – the most important disease of rice, the most important staple food in the world. Within just two years, farmers were able to abandon the chemicals previously widely used to fight the disease. At the same time, harvests of a valuable rice variety nearly doubled.

***Seeds of Hope** – Indian farmers from the southern state of Karnataka showing the diversity of seed that their arid land generates. Clockwise from bottom left: mung (green gram); red gram; millet; horse gram; sorghum; wheat.*

This study serves as an important reminder of the value of diversity and simple solutions. As Chris Mundt, the Oregon State University plant pathologist overseeing the study notes, 'Our goal should be to fool with Mother Nature as little as possible. Sometimes there is a simple fundamental fix that makes a whole lot more sense than going for a real high-tech system'.

In China's Jiangshu Province, mixed rice-fish cultivation is having many benefits for rural households and environments. This low-cost non-polluting farming system provides rapid results, improving food harvests, diversity and quality of peoples's diets and farmer income. Rice-fish culture also helps eliminate mosquito larva harmful to human health. In one area, incidence of malaria fell by 99% as the area of rice-fish cultivation grew from zero to 43% over a ten year period.



Bolivia - helping people help themselves

The soils of the high mountains of Northern Potos in Bolivia suffer acute erosion. Rates of illiteracy are high, infant mortality runs at one in five, one in ten mothers die in childbirth and average life span is a mere 36 years.

One initiative has set out to help farmers develop new technologies. At farmers request, the programme focuses on potatoes. Breaking away from conventional approaches, the programme helps teach the farmers how to experiment and find their own solutions to farming problems. Farmers found that they could increase potato harvests immediately from 1780 kg/ha to 8500 kg/ha by planting them with lupins — a type of pea. If they used sheep manure as well, harvests rose to 13,000 kg/ha. The lupin seeds cost $18/ha — a tenth the price of the equivalent amount of chemical fertilizer.

Building on people s own ability to learn and experiment has seen many social benefits, not least improved household food security and health. Once harvests improved, many farmers actually reduced their field size by up to 90%. This had great benefits for women — making it easier for them to continue to farm while men went to cities in search of work.

Cuba — feeding a nation

Until 1990, Cuba s agricultural and food sector was heavily dependent on support from the Soviet bloc. It imported 57% of all calories consumed, 94% of fertilizer, 82% of pesticides and 97% of animal feed. But in 1990, trade with the Soviet bloc collapsed, leading to severe shortages in all imported goods. Cuba was forced to find a solution to an imminent food crisis.

Starting as a move by individuals to feed themselves, there has been a return to organic farming techniques — and the re-emergence of urban gardens. This soon became adopted as national policy. Urban gardens make a significant contribution to the country s food harvests — 727,000 tonnes in 1999 — and play a vital part in ensuring that people s diet is now at least as healthy as it was before the loss of Soviet support.

Cuba did not enter into this countrywide experiment of its own free will, and there remain many difficulties. However, this cultural change demonstrates the dramatic results of giving people a direct and personal investment in creating their own (and the nation s) food security. Chemical industrial agriculture is not the only way to feed a country.

Kenya — the science of nature s systems

Maize is a key crop in Africa. Stemborers are the most important pest of maize and other food crops. Stemborers can quickly destroy up to 80% of a harvest. Preventing these losses would feed an additional 27 million people in the region.

Kenya s International Centre for Insect Physiology and Ecology works closely with farmers to test and adapt cheap, sustainable and innovative answers to some of Africa s key problems. One project is developing novel push-pull strategies to repel stemborers from crops and attract them to barrier grass crops which can then be fed to animals. Farmer trials in 1997 and 1998 showed significant harvest increases in maize.

This is an example of science working in the genuine interests of people and the environment by optimising nature s own systems rather than intervening in ways which create weak crops and breed dependence on expensive farm chemicals.

Looking for real answers

GM – flawed logic & false promise

GM targets symptoms not causes of hunger. GM vitamin A rice is an example of the technology's flawed logic and false promise. The GM rice experiment remains in a laboratory, and it is not a crop available for people to grow.

While the GM industry seeks to use this rice to justify the technology generally, their own data show that adults would need to eat 9kg of it every day to meet their vitamin A needs.

Cheap, proven remedies to the very real problem of vitamin A deficiency are already available today: a single spoonful of red palm oil – abundant and cheap in Africa and Asia – is far easier to swallow than 9kg of GM rice!

Effective long-term solutions to vitamin A deficiency lie in improving people's access to a diverse healthy diet.

GM extends all the worst practices of industrial agriculture and poses further unique threats to our natural world. It is not an answer, but part of the problem.

There is a fundamental conflict within agricultural research and development – between an agenda that caters to private industry demands and one that addresses the real needs of the poor and the environment.

The argument that GM technology is vital to feed the world is based on the assumption that hunger is the result of too little food. The truth is that although about a third of the world's children suffer from malnutrition, nearly 80% of them live in countries with food surpluses. In India (which accounts for more than a third of the world's hungry and where 53% of children are undernourished), grain silos overflowed with nearly 50 million tonnes of surplus grain in 2000. In a world where free trade has higher priority than people's right to food, the existence of 1.1 billion undernourished people is inevitable.

Solutions lies not in feeding the world but allowing the world to feed itself. Food security – the ability of a community to feed itself consistently on a diverse diet – is a complex problem that will not be solved overnight: it depends on people having access to land and money. GM provides neither.

Not only do GM crops not provide the solution, they also pose a threat of irreversible harm to the environment – the real basis of people's food security. GM technology, and the industrial system it maintains, increases dependence on expensive farm chemicals and single food crops, denying people a balanced diet and destroying the environment on which we all depend. It increases dependence on the companies that supply the technology and the countries that supply the loans to pay for it. Far from a solution, GM crops extend all the worst practices of industrial agriculture. Perversely, its widespread adoption would lead to more hungry people – not fewer.

The time has come to reject the false promise of GM and the agriculture industry and to support the real revolution in farming that meets the many needs of local communities and the environment, restores the land degraded by the agriculture industry, and helps the poor to combat their own poverty and hunger.

April 2001

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