Eco-farming could double food output of poor countries, says UN

Report cites insect-trapping plants in Kenya and Bangladesh's use of ducks in paddy fields, and resulting rise in crop yields

Some rice farmers have started using ducks for weeding instead of industrial methods. Photograph: Anupam Nath/AP

A move by farmers in developing countries to ecological agriculture, away from chemical fertilisers and pesticides, could double food production within a decade, a UN report says.

Insect-trapping plants in Kenya and ducks eating weeds in Bangladesh's rice fields are among examples of recommendations for feeding the world's 7 billion people, which the UN says will become about 9 billion by 2050.

"Agriculture is at a crossroads," says the study by Olivier de Schutter, the UN special reporter on the right to food, in a drive to depress record food prices and avoid the costly oil-dependent model of industrial farming.

So far, eco-farming projects in 57 nations demonstrated average crop yield gains of 80 per cent by tapping natural methods for enhancing soil and protecting against pests, it says.

Recent projects in 20 African countries resulted in a doubling of crop yields within three to 10 years. Those lessons could be widely mimicked elsewhere, it adds.

"Sound ecological farming can significantly boost production and in the long term be more effective than conventional farming," De Schutter said of steps such as more use of natural compost or high-canopy trees to shade coffee groves.

It is also believed "agroecology" could make farms more resilient to extreme weather conditions associated with climate change, including floods, droughts and a rise in sea levels that the report said was already making fresh water near some coasts too salty for use in irrigation.

Benefits would be greatest in "regions where too few efforts have been put in to
agriculture, particularly sub-Saharan Africa,” he said. "There are also a number of very promising experiences in parts of Latin America and parts of Asia.

"The cost of food production has been very closely following the cost of oil," he said. Upheavals in Egypt and Tunisia have been partly linked to discontent at soaring food prices. Oil prices were around $115 a barrel on Tuesday.

"If food prices are not kept under control and populations are unable to feed themselves ... we will increasingly have states being disrupted and failed states developing,” De Schutter said.

Examples of successful agroecology in Africa include the thousands of Kenyan farmers who planted insect-repelling desmodium or tick clover, used as animal fodder, within corn fields to keep damaging insects away and sowed small plots of napier grass nearby that excretes a sticky gum to trap pests.

The study also called for better research, training and use of local knowledge. "Farmer field schools" by rice growers in Indonesia, Vietnam and Bangladesh had led to cuts in insecticide use by between 35 and 92 percent, it said.

De Schutter also recommended a diversification in global farm output, from reliance on rice, wheat and maize.

Developed nations, however, would be unable to make a quick shift to agroecology because of what he called an "addiction" to an industrial, oil-based model of farming – but a global long-term effort to shift to agroecology was needed.

It cited Cuba as an example of how change was possible, as the collapse of the Soviet Union in 1991 led to supplies of cheap pesticides and fertilisers being cut off. Yields had risen after a downturn in the 1990s as farmers adopted more eco-friendly methods.

• This article was amended on 14 March 2011. The original referred to feeding the world’s 7 million people and to rice paddies. These have both been corrected.