

# Organic farming could feed the world

by Catherine Brahic

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A switch to organic farming would not reduce the world's food supply and could also increase food security in developing countries, say the authors of a new study.

They claim their findings lay to rest the debate over whether organic farming could sustainably feed the world. Organic farming avoids or heavily restricts the use of synthetic pesticides and fertilisers, as well as livestock feed additives.

Numerous studies have compared the yields of organic and conventional methods for individual crops and animal products (see 20-year study backs organic farming).

Now, a team of researchers has compiled research from 293 different comparisons into a single study to assess the overall efficiency of the two agricultural systems.

## Available materials

Ivette Perfecto of the University of Michigan in the US and her colleagues found that, in developed countries, organic systems on average produce 92% of the yield produced by conventional agriculture. In developing countries, however, organic systems produce 80% more than conventional farms.

Perfecto points out that the materials needed for organic farming are more accessible to farmers in poor countries.

Those poor farmers may buy the same seeds as conventional farms use in rich countries, but they cannot afford the fertilisers and pesticides needed for intensive agriculture. However, "organic fertiliser doesn't cost much - they can produce it on their own farms", says Perfecto.

Using data from the UN Food and Agriculture Organization, the team then estimated what would happen if farms worldwide were to switch to organic methods today.

The world currently produces the equivalent of 2786 calories per person per day. The researchers found that under an organic-only regime, farms could produce between 2641 and 4381 calories per person per day.

## Misplaced debate

Perfecto's colleague Catherine Badgley says she believes the calculations they carried out to arrive at the upper number are more realistic. These took into account the higher yields that would be obtained in developing countries, and the details of which crops are grown where.

She points out that even the lower number is sufficient to feed the world. Nutritionists recommend that people consume between 2100 and 2500 calories a day.

The debate over whether the world can produce enough organic food is misplaced, argues Perfecto: "We are producing enough food - it's a question of distribution of that food."

The researchers also found that small farms tend to produce more per hectare of land. "An increase in the number of small farms would enhance food production," they say. They also note that although organic production tends to require more labour, this labour is often spread out more evenly over the growing season, making it easier to manage.

## **Precision farming**

Carl Pray, at University of Rutgers, New Jersey, US, says there is good evidence that small-scale farming in developing countries is more efficient. This is probably because small farms put more effort in the precise management of small areas of land.

But, he says, "the likelihood of all farms reverting to 'small farmerdom' is a big question in an age in which labour is becoming more and more expensive. Take China and India, for instance: the demand for labour is such that people are continually being pulled out of the countryside".

Perfecto, however, maintains that the idea that conventional farming is cheap is a fallacy. "That is not including the real costs. Once you incorporate the cost to the health of people, once you incorporate the environment cost - then organic agriculture is a much superior system."

Pesticides are associated with a number of diseases, including cancer - a fact that was first brought to public attention in Rachel Carson's book *Silent Spring*. Organic farming is thought to benefit biodiversity and the environment, as well as human health.