



LAND  
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PROJECT

# LSP Myth Buster #21

An ongoing Land  
Stewardship Project  
series on ag  
myths & ways  
of deflating them.

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## **Myth:** Sustainable farming methods cannot feed the world.

### **Fact:**

As food riots in places like Haiti and Egypt reminded us this spring, there are many hungry people in the world.

Supporters of industrialized agriculture have argued for years that the only way to feed billions of mouths is by raising crops and livestock in large-scale specialized systems reliant on petroleum-based fertilizers and pesticides. Diversified agricultural systems—organic in particular—are a luxury the world can ill afford at a time when the population has surpassed six billion people, say scientists like Nobel Prize-winning plant breeder Norman Borlaug. John Emsley, a chemist at Cambridge University, has called organic farming “the greatest catastrophe that the human race could face,” according to *World Watch* magazine.

The assumptions behind such sharp criticism is that organic crop production, for example, simply cannot produce high yields because it relies on natural sources of fertility such as animal manure. But a lot of false and outdated information serves as the basis for such arguments. For example, it’s often stated as fact that if the U.S. switched to organic farming, this country would produce only about one-fourth of what it produces today. That’s based on a USDA study showing that all the manure in the U.S. could only meet one-quarter of the country’s crop fertility

needs. But that study ignores the fact that organic farmers depend heavily on other sources of fertility besides manure: rotations with nitrogen-fixing legumes and plowing down crops to provide “green manure,” for example.

Assumptions about organic farming’s inherently low yields are also biased by the fact that during the first few years of transition from a chemical-intensive system, yields do often drop as the soil adjusts to pesticide and fertilizer withdrawal and develops its own natural systems once again.

In recent years, sophisticated research has shown that once that transition is complete, organic systems compare quite favorably with conventional systems in terms of yield. For example, the Wisconsin Integrated Cropping Systems Trial (WICST) project recently concluded 13 years of research comparing conventional and organic crop yields in the southern part of that state. According to the results, which were published in the *Agronomy Journal* earlier this year, in good years (more later on what constitutes a good year) organic systems produced corn and soybeans 90 percent to 98 percent as well as conventional systems. An analyses of similar

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*This Myth Buster is brought to you by the members and staff of the Land Stewardship Project, a private, nonprofit organization devoted to fostering an ethic of stewardship for farmland and to seeing more successful farmers on the land raising crops and livestock. For more information, call 651-653-0618 or visit [www.landstewardshipproject.org](http://www.landstewardshipproject.org).*

## ***LSP Myth Buster #21: Sustainable farming methods cannot feed the world.***

*...Continued from front page*

field trial studies done during the past several years in Iowa, Minnesota, Pennsylvania and Michigan shows that on average in good years organic and low-chemical corn yields were 98 percent to 114 percent of conventional corn yields; soybean yields under sustainable systems averaged 94 percent to 111 percent of their conventional counterparts.

“Clearly, field research has answered the question, ‘Can biologically diverse, low-input cropping systems be as productive as conventional systems?’ with a qualified yes and has refuted the most dire warnings against wide-adoption of low-input cropping systems,” concluded the WICST paper.

Now for that “qualified yes” the WICST scientists mentioned. Numerous research projects confirm what organic farmers already know: organic systems can be particularly vulnerable to wet conditions early in the season. Since organic systems cannot utilize herbicides, they must rely on mechanical weed control such as rotary hoeing to control weeds. If excessive wet weather at the wrong times of the year makes it difficult to get weed-killing steel out in the field, yields suffer. Field trials show that when weather conditions prevent good mechanical weed control, corn and soybean yields average about 74 percent of their conventional counterparts. During about a third of the years studied, weed problems significantly knocked yields back for sustainably-raised crops.

However, research at land grant universities, on farms and in places like the Rodale Institute is helping farmers deal with weed problems in organic systems more consistently. For example, Rodale has developed a system that uses cover crops and a roller to create a weed-suppressing, soil-saving mulch

in organic systems. Field trials as well as on-farm use shows the system can help organic row-crops match and even exceed yields of their conventional counterparts.

Another important point to keep in mind is that purveyors of the “organics will starve us” myth often lay the scenario out in stark, all-or-nothing terms. One popular polemic goes something like this: which two billion people will be chosen to die when pesticides are banned tomorrow? Scientists who study organic farming systems say in reality the sustainable agriculture of the future may in some cases be a mix of systems: a farmer may use rotations, cover crops and steel to control weeds during the two-thirds of the time that weather conditions allow, for example. Otherwise, they can use spot spraying of herbicides to deal with weeds that take advantage of inclement weather.

Blending organic and conventional systems can pay off. For example, multi-year research by the University of Minnesota shows that one typical four-year organic rotation—corn, soybeans, alfalfa and oats—can produce 3 percent to 6 percent higher yields for conventional farmers who are sticking with at least some chemicals for the time being.

### **More information**

- The WICST’s *Agronomy Journal* article is at <http://agron.scijournals.org/cgi/reprint/100/2/253>.
- *World Watch* magazine’s article, “Can Organic Farming Feed Us All?” is at [www.worldwatch.org/node/3918](http://www.worldwatch.org/node/3918).