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## CONSERVATION AGRICULTURE: Feeding the World without Consuming Natural Resources

*Conservation agriculture would seem like a natural choice for subsistence farmers in developing countries, but few practice it. What's holding them back?*



### Bucking Tradition

“We’re not talking about small changes. Conservation agriculture represents a total departure from conventional farming,” says Patrick Wall, agronomist and coordinator of CIMMYT’s global program on conservation agriculture.

Conservation agriculture can be described as the retention of crop residues and use of rotations and, sometimes, green manure cover crops.

The learning curve for conservation agriculture can be steep, especially for farmers with limited access to information outside their own communities. Subsistence farmers will not risk using a new practice unless they are sure it addresses their problems. CIMMYT agronomist Peter Hobbs, who has worked with resource-conserving technologies in South Asia, understands farmers’ skepticism. “At a site in Haryana State, India,” he recalls, “a neighbor who saw his friend using zero-tillage brought a bag of wheat to his house, saying, ‘You have destroyed your land. Here is some food you will be needing to feed your family.’ But once the neighbor saw the harvest, he also wanted to experiment with zero-tillage.”

This story illustrates that farmers who buy into a conservation practice also become its most convincing advocates. In Bolivia, where Wall and his colleagues promoted conservation agriculture, farmer-to-farmer interactions were crucial. “We didn’t convince farmers to go into zero-tillage — other farmers did that. We brought in farmers from around the region to tell local farmers about their experiences and success,” he says. “Later, once the local farmers had acquired experience, we worked with them to develop a manual called *By Farmers for Farmers*.”

### Participatory Routes to Success

For conservation agriculture to work, a diverse group—researchers, farmers, input supply companies, extensionists, and farm implement manufacturers—must share ideas and products. “Many public research and extension institutions were not set up to participate in such innovation networks,” says CIMMYT economist Javier Ekboir. “They want to follow the traditional process of testing all aspects of a technology before passing it to extension and farmers.”

“Rather than being the prime movers of change, researchers must come in behind it and solve the problems that emerge, supporting continuous adaptation and follow-up,” says Wall.

Successful promotion of conservation agriculture has also depended on individuals or organizations who ensure that farmers receive the information and support to assess conservation agriculture and adopt it, if they desire. “These catalytic agents sometimes are local scientists or extension workers who move forward without support from their own organizations. They bring participatory research methods, promote the exchange of information, provide access to products from advanced research institutes, and mobilize funding,” says Ekboir.

Finally, Hobbs observes that access to affordable, suitable, locally manufactured equipment for seeding directly into residues is crucial for conservation agriculture to spread. “Without it, farmers can’t even begin to experiment,” he says.

For more information on adapting zero-tillage to the needs of smallholders in developing countries, see **CIMMYT’s 2000-2001 World Wheat Overview and Outlook**.

See also:

**CIMMYT’s Work in Conservation Agriculture**

