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## Study claims conventional ag limits greenhouse gas

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Yahoo Finance- David Mercer, 2 August 2010

CHAMPAIGN, Ill. (AP) -- Advances in conventional agriculture have dramatically slowed the flow of greenhouse gases into the atmosphere, in part by allowing farmers to grow more food to meet world demand without plowing up vast tracts of land, a study by three Stanford University researchers has found.

The study, which has been embraced by many agricultural groups but criticized by some environmentalists, found that improvements in technology, plant varieties and other advances enabled farmers to grow more without a big increase in greenhouse gas releases. Much of the credit goes to eliminating the need to plow more land to plant additional crops.

The study's authors said they aren't claiming modern, high-production agriculture is without problems, including the potential for soil degradation through intense cultivation and fertilizer runoff that can contaminate fresh water.

"In this one way that we've looked at, which is the climate impact, its pretty obviously been a good thing," said Steven Davis, a geologist at the Carnegie Institution at Stanford who worked on the study. "There's very clearly other negative impacts of modern agriculture."

The study, published in June in the Proceedings of the National Academy of Sciences, has been embraced by the agriculture industry as proof that some of environmentalists' complaints are off the mark.

"It's actually something that I've been saying for quite some time," said Leon Corzine, 60, an Assumption, Ill., corn farmer and past president of the National Corn Growers Association. "We really need to talk more about the environmental benefits. The new practices that we do, the new tools in the tool box, whether it's seed or equipment -- our efficiency gains are really kind of dramatic."

But some environmentalists said the study is flawed, arguing it's based on unrealistic scenarios of what would have happened if yields hadn't increased during the study period. The yield is the amount of a crop grown per acre.

Bill Freese, a chemist with the Washington, D.C.-based Center For Food Safety, questioned the researchers' motives.

"I get the sense that, just reading this, that their purpose here is to provide some kind of justification for industrial agriculture," said Freese, whose group promotes organic agriculture.

The study, Davis said, began with conversations between the authors about whether organic agriculture could feed the world and whether traditional agriculture deserved the "black eye" it often gets from advocates of green farming.

The other authors are Jennifer Burney, a physicist who focuses on energy and food security research at Stanford's Program on Food Security and the Environment, and David Lobell, an assistant professor of environmental earth science at Stanford who has studied the effects of food and biofuel production on the environment.

The three decided to look at the impact of agriculture on greenhouse gases -- carbon dioxide, methane and nitrous oxide. Agriculture accounts for about 12 percent of greenhouse gas emissions generated by human activity.

The cost of their research was covered by Stanford and NASA.

The researchers set up hypothetical models in which the world's growing population was fed by cultivating ever more land. Those models were then compared with actual agricultural production between 1961 and 2005.

Yields for major crops like corn and soybeans have increased dramatically over the study period. Midwestern corn farmers, for instance, now average well over 160 bushels an acre. That's roughly double what they produced in the early 1960s, according to U.S. Department of Agriculture statistics.

Without those increases, it would have taken an additional 4.35 billion acres to feed the world, according to the study.

The cultivation of that land -- including the release of carbon in the soil and burning of brush and trees that covered it -- would have released an additional 317 billion to 590 billion tons of greenhouse gases, the authors wrote.

The study concluded that those who fund agricultural research need to focus on improving crop yields -- an area in which none of the authors work -- to limit greenhouse gas emissions.

Although he supports increasing yields, Freese argued that the study overlooked organic agriculture and its ability to compete with traditional farming.

"When you convert from a conventional system, the first few years you do have lower yields because you need to build the soil up," he said. "After three to five years, when you build up the organic content, you see yields going up."

Craig Cox, of the Washington, D.C.-based Environmental Working Group, said he was disappointed the study didn't offer more recommendations.

"Of course higher yields are a good thing," Cox said. "The real question is, how do we get higher yields without a lot of other serious consequences that our agricultural intensification has produced?"

Corzine, the Illinois farmer, acknowledged the limits of the study's claims but said it could be a useful tool for farmers like himself to help teach Americans a little bit about how their food is produced.

"They don't understand or don't really know what goes on the farm," he said. "Rather than just me tell my story, to have it backed up by someone at Stanford is really helpful."

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