



Ohio State HCS News

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Organic Corn: Test Shows How Well It Can Yield in Ohio



The 2005 test compared 23 organic corn hybrids at OARDC's West Badger Farm and at the John E. Hirzel Sustainable Agriculture Research and Education Site.

Given the right conditions, organic farming can produce, on average, as much corn per acre in Ohio as conventional farming can, according to an Ohio State University study. Corn hybrids grown in last year's Ohio State Organic Corn Performance Test produced 13 percent more corn per acre than the statewide average yield - most of that conventional corn - and topped the record-high state average yield by four bushels per acre.

One hybrid tested did even better, beating last year's state average corn yield by nearly 50 percent. The results show "how well organic corn can perform under good management and weather conditions," said **Deb Stinner**, a scientist on the study and the head of Ohio State's Organic Food and Farming Education and Research (OFFER) program.



The Ohio Corn Performance Test evaluates hybrids based on performance characteristics, such as yield potential, percent moisture, stalk lodging, and test weights of the grain.

Until now, organic corn yields in Ohio "were thought to be considerably lower than conventional yields," Stinner said, though exceptions - Ohio organic farms with consistently high corn yields - have always existed. Organic farming uses no synthetic pesticides or fertilizers, instead employing manure, compost and cover crops to "feed" the soil and the crops that grow in it. Cultural practices such as cultivation and crop rotation limit weeds and pests.

"A constellation of factors" - including good weather, "good but not excessive" soil fertility

and especially good weed control - led to the test's high yields, Stinner said. The corn saw few problems from pests and diseases, added co-researcher **Dr. Peter Thomison** of Ohio State's Horticulture & Crop Science Department.

The test took place on certified organic farmland in Wood and Wayne counties, both sites in northern Ohio and both managed by the university's Ohio Agricultural Research and Development Center (OARDC), which OFFER belongs to. **Alan Sundermeier** of Ohio State University Extension's Wood County office and **Rich Minyo** and **Allen Geyer**, both of the Department of Horticulture and Crop Science, teamed with Stinner and Thomison on the study.



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The test compared 23 organic corn hybrids. It measured yield and other key traits, such as stalk lodging, grain moisture content at harvest and the percentage of seeds emerging after planting. It did so at two different seeding rates, 23,000 seeds per acre and 28,000 seeds per acre. The plots grew at OARDC's West Badger Farm near Apple Creek and at the John E. Hirzel Sustainable Agriculture Research and Education Site near Bowling Green, run by OARDC and OSU Extension in partnership with the Agricultural Incubator Foundation.

The West Badger Farm averaged 171.4 bushels per acre, the Hirzel Site 153.6 bushels per acre, for a combined average yield of 162 bushels per acre. Tops in the test: Doebler's N659, 212.2 bushels per acre, reached at West Badger at the lower seeding rate. To compare, the Ohio Department of Agriculture estimated last year's statewide average corn yield at 143 bushels per acre, while countywide yields in Wood and Wayne counties averaged 171.8 bushels per acre and 146.1 bushels per acre, respectively.

The weather in 2005 helped organic corn several ways. It enabled preparing a good, clean seed bed; allowed timely planting (typically later than for conventional corn) and timely weed control (five times by mechanical cultivation); and rained enough and at

the right time to keep the corn developing well.



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Especially important: Low weed pressure at the West Badger Farm, the result of five years of diligent management. A long-term war of attrition - started in 1999 when certain fields at the farm began the transition to organic production - reduced weed numbers and seed production and drew down the weed seed bank in the soil. The work paid off in higher yields.

Other differences between the two sites: West Badger got almost 31 inches of rain, Hirzel not quite 20. The West Badger corn followed red clover in the rotation; the Hirzel corn, alfalfa. And the West Badger plots received one ton of Daylay composted poultry manure; the Hirzel plots didn't. Though planted later than conventional corn (to allow additional weed control), the plots at both sites got planted in time to avoid a major pest, the European corn borer, Thomison said.



Diseases, too, caused few problems due to crop rotation. Rotating corn with other crops means the corn gets planted in a fairly clean slate: the soil harbors less corn-disease inoculum. (A common four-year



**Ohio State Extension
Agronomist Dr. Peter Thomison**

organic rotation in Ohio and the Midwest: Corn, food-grade soybeans, small grains, red-clover hay.) Generally speaking, organic farming takes more work than conventional farming but gets paid more per unit for what it grows. At Detroit the week of March 1, for instance, a bushel of organic corn earned more than twice as much as a bushel of conventional corn, \$5.50 versus \$2.10, according to The New Farm's online Organic Price Index.

Organic farmers can't grow corn as often as conventional farmers can; they rotate it with

other crops. In a given field in a four-year span, an organic farmer might plant corn once, a conventional farmer twice or even every year. The [Ohio State Organic Corn Performance Test](#) continues this summer, part of a long-term OFFER effort to evaluate organic corn hybrids. Plans call for testing at other sites and over many years. The goal: unbiased, science-based recommendations for Ohio organic farmers.

Story by Candace Pollock. Photos by Ken Chamberlain and Jodi Miller. Web publishing by [Victor van Buchem](#).

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