

OHIO STATE

AGRICULTURE

FALL / WINTER 1998 - 99

Farming in the future



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**Forecasted policy,
legislation could affect farmland
preservation efforts**
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By Susan Mantey

Since 1848, the Howell family has cultivated and harvested crops from the same piece of land in Clark County. Through the Depression, World War II, the invention of television to the technological boom of the '90s, livestock and grain have been the only commodities on the 450-acre plot. This land will never succumb to the pressures of urban expansion; in fact, the family can

couple of years ago, Libby said.

Backers of policy changes now include organizations who want to see redevelopment of inner cities and brownfields, because people need to be drawn back into the inner city—or stay there in the first place—to protect farmland from excessive suburban development. Graphs of Ohio's demographics over the past 10 years clearly show migration out from the urban centers to the surrounding counties, without a subsequent increase in population inside the city. Columbus is one of the few exceptions; while out-migration has been extensive, the population has also continued to rise inside the city limits.

The language of interest groups is changing also, Libby said. People never used to even mention things

such as the Howell family's, can be an effective tool for farmland preservation. But it's not available to all farmers. Under current law, state and local governments cannot buy or accept gifts of agricultural conservation easements. Only private organizations like the Tecumseh Land Trust have that ability. That might change, though.

Senate Bill 223, known as the Drake bill, would give local governments and the Ohio Department of Agriculture the authority to purchase development rights from farmers, using taxpayer dollars. Sen. Grace Drake, a member of the Ohio Farmland Preservation Task force, introduced the bill last year. The task force, appointed by Gov. George V. Voinovich in 1996, outlined several ways to preserve the state's

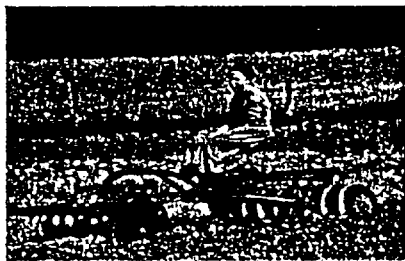
To look at a farm and see the whole

What makes some Amish farms work so well—cooperation, flexibility and holistic management—may be key to the future of many small and mid-size farms

By Kurt Knebusch

"A successful Amish farm earns a profit, provides food for the family and animals, but in addition, it protects the land, keeps the family strong, contributes to the welfare of the community and ensures the place of future generations."

— David Kline, Fredericksburg



Amish farmers farm the way our grandparents and great-grandparents farmed. They also might hold the key to modern farming's future, at least on troubled smaller-size farms.

In the Killbuck watershed in Holmes County, two Ohio State University scientists are studying three Amish family farms. They're trying to understand what makes these farms tick and to see what can be applied to conventional farming.

The project is a case study, which means the findings can't be generalized to all Amish farms. Instead, the work is being done to gain insight. Mainstream farmers are being squeezed by low commodity prices, environmental regulations, land costs and the push to expand. Some are going under. Amish farmers face many of these pressures, yet many of their farms and communities are thriving. What can they teach us?

So far, Richard Moore and Debbie Stinner have found the study farms to be productive, profitable, and nutrient-efficient. Furthermore, they report all three families maintain a high quality of life on extremely low expenses.

"It's shown me how possible it is to have a very high quality of life on very little income," said Stinner, an agroecologist on OARDC's Wooster campus and a member of Ohio State's Agroecosystems Management Program. "In one month, two of the families spend as much on household expenses as I can easily spend with my two teenage children at the grocery store in just one week. That was a real eye opener."

But the lessons to be learned apply to more than household frugality. They also relate to cooperation, flexibility and holistic management—weighing environmental, economic, and social factors when making farm decisions.

'Two heads are better than one'

"It's not something independent farmers want to hear, but we're really seeing the economic value of shared equipment and labor," said Moore, an anthropologist in Columbus and also a member of the agroecosystems program. "It's the shared labor aspect of Amish culture that allows them to keep their costs down."

For example, most Amish farmers participate in threshing and silo-filling rings—cooperative work groups.

"It gives them an economic efficiency that is much higher than what we see on other farms," Moore said.

Among the findings:

— In 1995-96, the three Amish farms in the study kept an average of 47 percent of their gross income as profit, compared to about 12 percent for three non-Amish dairies.

— In some years, the one New Order Amish farm in the study, which used a milking machine instead of hand milking, netted as much cash profit from 27 cows as non-Amish farms with up to 179 cows.

— Machinery costs on the three Amish farms were at least 50 percent lower than for three non-Amish dairies studied.

"It says that small scale can work," Stinner said.

Working together can help solve problems, too, Moore said. Consider a piece of broken machinery, or a leafhopper infestation, and a group of farmers mulling it over.

"They bring to the table all the diverse knowledge that each individual has, as well as their various networks of friends and relatives and people they know," Moore explained. "Two heads are better than one. The value of shared labor is not as simple as looking at how many hours a job takes."

The spirit of cooperation among Amish farmers is striking, Stinner said: "There's competition for land and resources, but it's natural for them to share information on the best ways to do something."

It pays to be flexible

At the same time, Amish farmers have tremendous flexibility thanks to many small fields and environmental zones on their farms. A 75-acre farm may have 20 different parcels.

"You can micromanage these things almost on a daily basis and maneuver around a lot of environmental problems," Moore said.

Conventional farmers can do this, too, Stinner said, but most are locked in to larger fields and fewer crops. The potential returns are much greater, but so are the risks.

Traditional Amish farms, on the other hand, are diversified and usually include dairy cows and other livestock. The backbone is a four- to five-year rotation of hay, corn, oats and wheat or spelt. The rotation can be altered in case of bad weather. The flexibility reduces risk.

Indeed, Amish farmers tend to make decisions based on getting a reliable yield year after year, not necessarily the highest yield possible. A corn variety may be chosen that yields less than others but sprouts quicker, reducing problems with fickle spring weather. Risk is reduced, and the faster-sprouting corn also outcompetes weeds.

In addition, Amish farmers weigh social factors when making decisions—choosing a lower-yielding corn variety that's easier to hand pick, or foregoing equipment that would eliminate the communal chore of threshing. Their choice of horses over tractors and cars is another example; for the Amish, horsepower keeps things at the right scale for family and community life.

While few conventional farmers are likely to trade their John Deere for a team of Belgians, Stinner said there's still a lesson to be learned—about the social context of farming decisions.

"The Amish won't do things that violate strong core social values or that may hurt their community or the integrity of their families," she said. "They'll sacrifice the quick gain."

'Tending the garden'

That big-picture view is a key. The Amish farms studied support a strong social fabric, and also a strong ecological one. Barn swallows nest in eaves and gobble up flying insects. Butterflies come to flower gardens, rabbits hide in fence rows, and woodlots support spring wildflowers and tasty morel mushrooms.

"The farmers we've worked with tend to have a relationship with the natural environment," Moore said. "They tend to be aware of more birds, more insects, they tend to have riparian zones. A lot of it has to do with their idea of farming being tied in with their religious concept of 'tending the garden.'"

But the biggest environmental benefit may be due to nutrient efficiency, a special interest of Stinner's. By measuring the nutrients that come into a farm (as fertilizer, feed and the like), and comparing this to what leaves (in milk, runoff and more), she can see how efficiently the nutrients are being processed.

For example, conventional dairy farms bring in about three and a half times more nitrogen than they get rid of, she said. The excess, if not handled properly, can build up in the soil, leach out as nitrate, or run off into streams and cause damage.

"What we think we want to see is as close to a 1:1 ratio as possible," Stinner said. On one of the study farms, the ratio is 1.35:1—the most efficient she's seen. The farmer can produce most of what his cows need while making a profit and protecting the environment.

Into the future

So who should pay attention to this? Candidates for change, said Stinner and Moore, are small and mid-size farms that can't or don't want to expand and might not be making a go of it. These farms face many of the pressures that Amish farms face—low commodity prices, competition for land, competition from large-scale producers—and can learn from how the Amish are facing these challenges.

Indeed, Stinner said there's hope for these farms in forming cooperatives, filling niche markets (such as organics) and direct marketing their products—areas some Amish are already exploring. The organic market is growing 20 percent a year, while Stinner and Moore are trying to establish a new "green" label for some Ohio farmers. The designation would be for food produced using certain environmentally friendly practices and would likely command higher prices. It would benefit farmers who are in transition to becoming certified organic, or who don't want to be fully organic but need higher prices. Consumers would gain a way to know how their food was produced, albeit at a higher price.

One group of Amish farmers is in the process of becoming certified organic so they can provide premium-priced milk for organic cheese. In making their plans, they met with marketers, cheesemakers and other organic farmers. Another group identified a need—a wholesale market for locally grown vegetables—and came together to fill it.

"It's this spirit of cooperation that I feel farmers in our culture need," Stinner said. "The independent spirit is hurting us. We'll have a few farms that succeed, and they'll be huge."

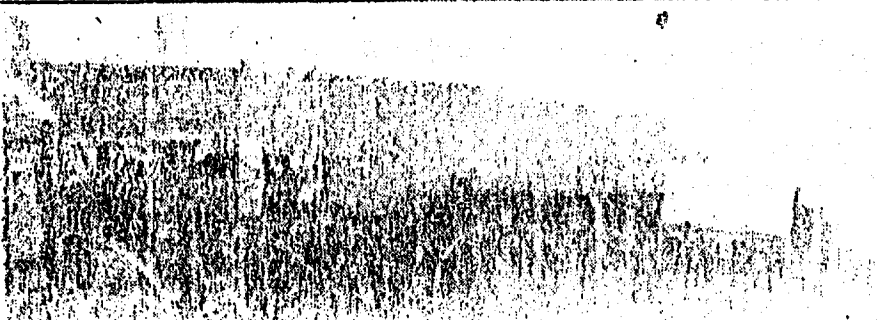
Still, "We're not fixated on small farms," Stinner cautioned. While the Amish choose to remain small, "We've seen some very large farms that are holistically managed," she said. "The ideas depend more on the management approach than the size of the farm."

So size doesn't matter in holistic management. It's also about more than money.

"The nonmaterialistic aspect of Amish culture really attracted me," Stinner said. "They can go for a walk in the woods and be happy seeing a bird they've never seen before. That's where they get their joy. It's been really refreshing to me."

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About the Amish

The Amish people are a traditional agrarian Christian subculture that originated in Switzerland and Alsace in 1693 as an offshoot of the Anabaptist branch of the Protestant Reformation. Contemporary Amish communities are located primarily in Ohio, Pennsylvania, Iowa and Indiana, with Holmes County, Ohio, having the largest settlement. Today's Amish preserve their Germanic heritage in language and culture and have evolved a highly interconnected social system of cooperative and mutualistic interactions based on an agrarian lifestyle. This has made them one of the most successful subcultures in the United States. Many Amish communities are thriving in the same market economy that is driving out so many other farm families.

—Source: Debbie Stinner, from "Innovation Guided by Culture," presented at the University of Nebraska, October 1998.

Why the Amish use horses

Animal power is a keystone of Amish agriculture. One reason given by farmers: Tractors don't produce manure or baby tractors. Farming with horses creates a manageable scale in Amish agriculture ideally suited to family and community life. "With horses, you unhitch at noon to water and feed the teams and then the family eats," explains one farmer. "While the horses rest there is usually time for a short nap. And because God didn't create horses with headlights, we don't work nights." Farming with horses also has economic advantages. Even a good team of horses plus field equipment is a fraction of the cost of conventional machinery, and good horses and horse-drawn equipment can actually appreciate in value. All these reasons notwithstanding, love of draft horses is one of the main reasons the Amish farm with them.

—Source: Debbie Stinner, from "Innovation Guided by Culture," presented at the University of Nebraska, October 1998.

Back to the past? Far from it

Members of Ohio State's Agroecosystems Management Program are quick to point out that they're not trying to return agriculture to earlier, less-productive days. Indeed, Richard Moore and Debbie Stinner's study of Amish farms, which might prompt such a criticism, is just one of many projects aimed at securing and improving the future of modern agriculture. While Moore and Stinner glean wisdom from the Amish, who farm as our ancestors did, other program scientists are using geographic information systems—which rely on computers and satellites—to map entire watersheds. For the first time, they're combining a wide range of information about a region's agriculture and developing holistic management plans. Throughout the program, production remains a focus, but the scope is expanded to include economic, environmental and social factors. And that, say program scientists, is a step forward, not back.

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Cropland use can help prevent

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age farmers to adopt those practices."
U.S. cropland has the potential to return 120 to 270 million metric tons (132 to 297 million tons) of carbon per year from the air to the soil for the next 25 to 50 years, assuming conservation tillage is used on 90 percent of U.S. cropland by the year 2020 and other

ass per acre. The deep roots deposit carbon so far into the soil that it is hard for microorganisms to degrade and release it back into the atmosphere, Lal said.
Planting trees, applying appropriate rates and types of fertilizers, using organic materials and composts, growing high-yielding crop varieties, planting idle land to