

Insights from Illinois' Front Lines

By Kathy O. Brozek

Excerpt from "The Transformation of American Agriculture – Farming, Eating, and Investing Amid Upheaval."

These shifts in farm demographics are tightly connected to the social and environmental challenges that Illinois and other farm states are facing. As we explored in the discussion of the history of corn, issues of genetically modified crops and pesticide resistance loom large in Illinois right now, and are only likely to grow in the coming years.

Michael Gray is a professor of agricultural entomology at the University of Illinois at Urbana-Champaign. In addition to conducting research, Professor Gray serves as assistant dean for the agriculture and natural resources group within the university's crop science department. His responsibilities include advising producers throughout Illinois of potential economic impacts of insect infestations to field and forage crops. I spoke with Gray about his work and his view of resistance issues related to genetically engineered crops.

Brozek: How do you balance the increasing concern over the environmental impacts of herbicide and insecticide resistance with the fact that crop yields have risen, and presumably this helps the farmers be more profitable? Can you describe some of the key issues facing commodity farmers in Illinois today?

Gray: *There are misconceptions that the general public has about farmers [in the Midwest]. For example, that they are primarily small farms, but there are far fewer small family farms as compared with several decades ago, and now wealthy businessmen or business interests may own the land and it is often managed by growers—renting land is competitive and costly. Land managers want to ensure they are profitable and minimize their risk and liability...and they are moving away from IPM, integrated pest management, now doing insurance pest management, the overuse of pesticides irrespective of the potential harmful environmental effects.*

In many cases, the landowner or business interest may have no knowledge what is needed. And farmers are often challenged because many farms are so large there is no time to scout fields for a given pest and use thresholds and then come in with rescue treatments. The idea is to reduce risk of any infestation...most large-scale corn and soybean growers are not scouting. They just want to minimize their exposure. Look at all the costs per acre, now up to \$850 per acre for corn production in central Illinois. So if input costs of corn production are up, yields have to be quite high to ultimately generate a profit. There are lots of inputs into the crop....A much broader issue is that the agricultural landscape has changed in last 50 years. Now there are fewer farmers, fewer families...there are sociological consequences as well.

Brozek: There seems to be an imbalance between the economic versus ecological concerns. As a professor, your role is to assist the growers and make their job efficient while also being environmentally prudent. But if there's no economic force behind you, how do you get the growers to change their behavior?

Gray: *This gets to an important question: Who do we serve? No question, when you look at funding streams for applied research, federal and state funding has declined in the last several decades and increasingly, collaborations with the private sector have been encouraged. In my program, I definitely have been engaged with the private sector in finding support for some research projects—there is a balance to strike in wanting to provide growers with unbiased research-based information on Bt hybrid protection for corn rootworms, for example.*

The only way I can do that is to get financial support from the private sector for those kinds of studies. And at any point the private companies can pull support not just for my program, but for other land-grant programs. So growers at conferences ask: How does this product compare to this one, or to that one? As a public sector scientist I have a responsibility to provide this information...but other information is also vitally important. What are the long-term consequences if we move away from an IPM-focused program? Ultimately I don't just serve the agricultural community but the broader needs of the community of the citizens of this state. Also, I am very alert to the potential long-term environmental consequences of moving away from IPM. It's a delicate balancing act. It's not easy....It's a difficult challenge.

Brozek: There is concern that everything is happening so fast and there has not been enough rigorous investigation to understand the consequences of the current practices used in large-scale row crop production. Yet the EPA has its own process with panels and committees. Also, there were weed resistance issues for many years though Monsanto was saying, "No, there are no issues." It's all very contradictory and confusing.

Gray: *You raise very valid points. Unfortunately when the new tools are developed...the tools are overused, particularly if the tools work. This is where I've been on record saying for many years we need to prolong the usefulness of these tools and need to use them in a responsible manner—the history of entomology is laced with example after example of insects, like western corn rootworm, developing resistance. Producers over-rely on technologies that are easy, effective, economical to use rather than looking long-term...they look [for new solutions] almost on a year-to-year basis. It is very difficult for somebody in the academic environment to convince producers to look long-term at potential unwanted consequences of an insurance approach to pest management—yet that remains an important challenge for the academic community. I still continue to do this, to remind producers that they are repeating mistakes made in the past.*

Again, with large-scale mega-farms, it's easy, convenient [to focus on what is] in front of me now...there is a pervasive idea among many producers that if resistance develops, so be it—there will always be a new technology. To date, industry has had a very good track record of

bringing new products into the marketplace. I had a producer [who did not own the farmland] years ago...when I was saying preserve the technology and think long-term he stopped me short and said, "How many paychecks a year do you get?" He said, "I get one a year—I have bills to pay and have one chance to make it."

Brozek: Is there anything that can incentivize these large-scale commercial farmers, or businesspeople who own the land, to take a long-term perspective and think about soil and land quality?

Gray: *When you look at the overall American agricultural enterprise, the power of marketing, money, personnel—it's a big challenge. We will continue our role and constantly think of the broader, long-term interests of the general public—that must be first and foremost. [We need to] appeal to them in an economic way to change practices—they want to minimize exposure and risk. So growers say, "I'm willing to do that if the society as a whole is willing to subsidize my losses as a farmer, then I could consider that. Now, I assume the risk for crop loss...it is not inexpensive."*

Brozek: But isn't commodity farming already receiving large subsidies from federal policies?

Gray: *Yes. If we ask them to assume increased levels of [financial] risk, they may be justified in asking the risk be more evenly spread out.*

Illinois' Shifting Farm Community: Sociological Effects

Conducting research to understand the sociological effects of the changing Illinois farm landscape is no easy task, given the economic and political forces at work as well as the dearth of research funding outside of the private sector.

However, the College of Agricultural, Consumer, and Environmental Science at the University of Illinois received a significant endowment in 1996 from Dudley Smith Jr., a landowner with family roots in central Illinois' Christian County, just south of the capital of Springfield. Specifically, Smith was concerned about the long-term challenges facing agriculture in Illinois, especially the social impacts on the state's rural areas. Smith advocated "adoption of technological advancements and the concentration on long-term stewardship and sustainability of agricultural practices."

One study funded by Smith's gift is especially relevant to this discussion: "Community Impacts of the Restructured Farmland Market." The author, Daniela Manhani Mattos, conducted research from 2005 to 2007, creating an ethnographic study with this objective: "To examine the impacts on farm families and a Christian County community of the regional restructuring of agriculture, specifically the rapid concentration of farms, and local land market participants (farmers, landlords, farm managers) acting according to the convention that 'bigger is better.'"

Through in-person interviews, weekly observational visits, and a document review, Mattos identified four critical factors driving transformation: perceived need for continual growth in the farmland market; shift to cash rents from crop rents; more competition from bigger, new players; and decrease in trust among farmers and others in the community.

The study showed that the sense of community woven into the fabric of small farming towns is in decline, evidenced in the county where Mattos conducted her research by: 1) less loyalty in terms of supporting local businesses, 2) less social and civic engagement (residents who do engage are mostly over 65 years old), and 3) a severe deficit of trust. Mattos states: “The diminished trust and sense of obligation for neighbors contribute to farmers distancing themselves from the obligations of community life.”

Bottom line: The emerging marketplace benefits large farms and landlords—at the expense of midsize operators—who focus solely on financial gain, to the exclusion of quality-of-life factors. For decades, farmland transactions occurred in the context of the larger community—families, small businesses, informal networks, personal reputations, and social norms. With the onset of megafarms, the transactions are devoid of such considerations. Mattos cites the increased stress that midsize operators face from “fierce competition,” especially with short-term cash rents. This stress among many others has forced families, many whose ancestors had farmed the land for generations, to sell and leave the farming community altogether.

Although this study was completed in 2007, the data discussed above showing the shifting numbers and size of farms per sales class run through 2012, so the author’s admonishment is playing out in the present day.