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# ***A Farmer's Perspective: Producing Food and Fiber for an Unforgiving World***

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I had to come up with a title for the abstract, and this one might seem rather dramatic. But, considering the experiences of farmers, including their connection with biotechnology—its origins and where it may lead us—this title may be more fact than fiction. Many times in the past, producers were left holding the bag, so to speak, as new technologies ran into unforeseen problems.

I will start with a brief overview of our farming operations to provide background on how my thinking has developed and how we use technologies that are being discussed at this conference. We farm in a family corporation. That is a nasty word to some people, but our corporation involves my wife, Nancy, and myself. The board of directors of our corporation has two members, and all decisions are unanimous. “LAND” in LANDcorp stands for Leland, Ann, Nancy, and David, *i.e.* it originally included Nancy’s parents, who are now retired. We also manage farmland on a crop-share basis for absentee landowners in Illinois and, to a small extent, in flooded river valleys in Missouri.

## **OUR CURRENT FARMING PRACTICES**

For a corn-soybean farmer, nothing looks better than a weed-free field of beans as far as the eye can see. All of our soy is no-till planted; we drill directly into the standing corn stalks from the previous year. And the majority of our corn is grown with minimum till. For those unfamiliar with no-till, you can see the residue from the previous corn crop under the canopy of the soybean. Where the lie of the land allows it, some of our fields are in continuous no-till with a corn/soybean rotation. Although this practice definitely has benefits, we do not adopt it in every case.

We use a combination of different types of products. Corn and soybeans sound pretty straightforward, but there are variations. For example, different

varieties mature at different times in close proximity in the same field. We tailor-fit the management system for each field. We have some ground that is highly erodable, which means that it falls under a required conservation plan for government programs. But even on ground that is not highly erodable, we maintain grassed waterways to help improve the environment, not only on our farm but also downstream from it. Over the past several years, we have been adopting new types of seed. High-oil corn—quite prevalent in our area although not as much as in some others—is used mainly for livestock feed because of its higher energy content. And we grow Bt corn, but not strictly for prevention of corn-borer damage. Some varieties with the BT gene are healthier and produce more grain than the non-Bt counterpart. Although I cannot prove this to you scientifically, I know from personal experiences that it is the case. We use Roundup Ready® soybeans and Bt corn as part of a management program, but not across all of our acres. This year we are about 10% Bt corn and about 55% Roundup Ready® soybean. I have neighbors who are 100% Bt corn and Roundup Ready® soybean and I have neighbors who have never used either technology. Farmers should not be defined on the basis of national, regional, or even local averages.

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All of our grain is stored on-farm. We have a drying system at our corn facility. All of our grain, corn and soybean, goes to either terminal markets or processor markets. The vast majority of our corn goes to Peoria or Pekin on the Illinois River, most of which is made into ethanol. The corn-gluten feed is shipped out of Peoria, e.g. for export, depending on market dictates.

Some in the industry think that smaller storage units are needed to identity-preserve grain for niche markets. I agree, but only if it is economically viable. We have three smaller grain bins for soybean as well as a large bin. Last year, we raised high-pro soybean, soybean for seed, and we raised clear-hilum soybeans for tofu. But, in the end, the economics were unfavorable, and the smaller grain bins have sat empty. You have to be willing to make some adjustments in farming, and that is a good example.

Since 1993, we have employed a grid-based soil-sampling system on all of the farms that we own and manage. We sample the soil at least every 4 years, using a 2<sup>1</sup>/<sub>2</sub>-acre grid. One farm was soil-tested in 1993 and again in 1995. In 1993

we did not have complete global positioning satellite capability, so we tested again in 1995. Our goal for potassium is a reading of about 400 lb/acre, and the variability range was 316 to 1,037. We apply the fertilizer on the basis of the soil-test figures, therefore, many areas receive no potassium at all, otherwise it is applied in response to the measured shortfall. We realize that, in the long term, we have to be responsible and accountable for the fertilizer that we use, not only from a cost-savings standpoint, but also for environmental reasons. Of course we carry the soil-test and fertilizer-application information on to yield mapping: we collect second-by-second yield data that, hopefully, is correlative. In fact, our yields are pretty stable, including those zero-input areas.

### **BIOTECHNOLOGY: SILVER BULLET? . . .**

Nancy and I began farming in 1985, just ahead of the passage of the 1985 farm bill. With the 1990 farm bill, it was probably the most environmentally sensitive—or most restrictive, depending on your point of view—farm bills ever passed. We have been told by consumers to reduce pesticide use and to reduce soil run-off. And, as producers, we must be more efficient: use less, produce more, while spending less money. As the products of biotechnology came to the market place in the late 1980s and early 1990s, I thought that we had found the silver bullet. It was exciting.

When you look at biotechnology as a whole—how it has affected our lives—it makes a lot of sense. In some cases, it has helped improve crop productivity. It probably has reduced pesticide usage; if you think of it in terms of active ingredient, it certainly has. And possibly most importantly, it has affected us in terms of health-care. Our 14-year-old son was stricken with juvenile diabetes when he was 9 months old. The new type of insulin is so close to what his body would produce, if it were able to produce it, that it may add 10 to 15 years to his life. It's a “no-brainer!” It works and he is healthy. In a room with other 14-year olds, you cannot tell the difference. And I have a brother with a congenital heart condition. I am convinced that research in human genetics has helped improve the care that he has received. New treatments have resulted from knowledge created from gene mapping. For me, the results of biotechnology have been incredible, from the medical standpoint as well as from the production-agriculture standpoint.

When I joined the American Soybean Association, I had the opportunity to travel to abroad, and spoke with consumers, officials in government, and farmers in Mexico, Canada, Germany, Austria, France, Belgium, Japan, and China. Many times, when they talked about the United States food supply, their first two questions had nothing to do with technology. In an importing country, they asked, “Do you have food that we can buy?” And their second question was, “Is it a stable supply?” They are interested in those two aspects first, and then come other questions. My experience tells me that, while we do need to educate consumers and give them information on a world-side basis of what

we are doing, we also have to be aware that their interests, at least initially, are basic. There is trust—regardless of what you might see in the media—in the American system of developing and testing new technologies, and removing them or their products from the marketplace when they fail to perform as expected. We have proven it time and again: hamburger recalled from the marketplace, pesticides removed from sale after further review, for example. I do not believe that there is a system better than ours. For one thing, it is not political, and that is important. You may not like the systems that are in place, but, at least they are not political.

If farmers knew 5 years ago what they know today about biotechnology, would they still be using it? I would say, one hundred percent. Growers will use a technology when it makes sense from the business standpoint. They believe in a system that requires testing and approval up-front, from the companies that bring them to the marketplace plus from third parties—university testing in many cases.

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### **. . . OR MANAGEMENT TOOL?**

Ask farmers what percentage of the corn crop planted last year was genetically modified, and they would probably have to think about it. They can tell you exactly, maybe to a tenth of an acre, what area of corn or soybean they planted, or wheat or alfalfa, or the number of cattle or hogs they have on feed. But if you ask them what percentage of their corn crop is genetically modified, they would not necessarily know because to them it is still corn. They view genetic modification as a management tool in the vast majority of cases, and not different from the norm. It as a tool to help make them more efficient as producers, and if it fits, it fits, and if it does not, then so be it. They do not make decisions based on that issue alone.

## GAINING GLOBAL ACCEPTANCE

Is there a solution to the controversy? One thing that I learned a long time ago, through organizational work, is that the process is every bit as important as the end product. If the biotech companies have been guilty of anything, it is that the process was not all that it should have been. They failed to make the system transparent, and failed to get all of the “stakeholders” involved. From the farmer’s point of view, the key ingredient is predictability in the products that he buys. Predictability in being able to buy and in being able to sell. In my opinion, global acceptance of the processes that review and regulate the products of biotechnology is necessary. I do not know how that will be achieved, but I believe it is possible if those involved are of the mindset to do so. With that process in place, then let it work. If they keep changing the rules, no one knows if they are still on the “A” set or if the “B” set now applies.

So, with the process in place and allowed to work, the third aspect—possibly a bitter pill for some—is to make stakeholders accountable. Farmers should sign agreements knowing that the harvested crops cannot be put into the normal marketing channels. If they do, they ought to be held accountable, because they are hurting my credibility. The same applies to companies that develop such varieties, if they do not fully disclose to farmers that the crop probably cannot be sold in the market-stream, that it does not have all of the approvals. I have heard and seen commercials on radio and television about how you can channel these through normal marketing processes if you just look for them. But, in my area, they cannot be sold within thirty miles. Therefore, people must be held accountable. After the agreement is made, there should be no turning back unless there is new evidence that supports a change in the process for developing approvals. In my mind, it is not so very difficult; with the system in place, you have to get people to believe that it can work, you have to let it work, and then you hold people accountable. If we do not, we run the risk of being what the “nay” sayers say that we are: interested solely in our own well-being and not in the well-being of the consumer.

*Q:* Thank you for the farmer perspective. For me it was the first. I have three questions.

- You mentioned that you had neighboring farms that were GM or non-GM crops. What is your opinion about the lawsuit in Canada? Are you concerned over the possibility of similar lawsuits on pollen drifting into neighboring fields?
- You mentioned that you are using GM crops for pest or weed control, but as management tools. If genetic engineering were to stall, are there alternative technologies, techniques, or ways of accomplishing the environmentally sensitive goals of the 1985 and 1990 farm bills? Do you think that you could have accomplished those things without too much imposition?

- Assuming that we have the second and third generations of genetic modifications, and you have a variety of output traits—say vaccines and altered starch and protein traits—if I tell you here are ten seeds and there is a market for them somewhere, what kind of costs or flexibility would you have as a farmer to manage that kind of variety of crop; handling them in your silos and moving them to the elevator, *etc.* Do you think that it is practical?

A: I'll respond in reverse order.

- On your last point, farmers can handle new technologies when given the proper information, such as on handling and storage. There's a big difference between asking someone to store and keep a crop identity-preserved for a dollar per bushel more than for ten cents more. The problem in production agriculture right now is the people who are paying a dollar—their guidelines are not a whole lot more stringent than those who are paying five or ten cents. There are huge inequities, and farmers are the ones paying the difference.
- When looking at environmental concerns, yes, there would be products without biotechnology. The marketplace in general has its set of needs, which would be met even without biotechnology. Without making guesses as to whether it would have happened as quickly or as easily or as effectively, by the nature of private enterprise I think that alternative products would be available.
- I am not a plant breeder, but as a farmer I do understand that corn self-pollinates at about 90%. Yes, pollen will drift, as seen in seed fields or seed-corn production. But I do not believe that it will drift far enough to infect a neighbor's field beyond a tolerable level.

Q: I read in your bio that you farm about 3,000 acres, but you are also an administrator in the American Soybean Association. So you must deal with some smaller farmers as well. Do you think that they hold the same beliefs as you in terms of this technology?

A: Agriculture is having a hard time defining what is a small farm, a medium farm, and a large farm. Our operation may be a little above average in terms of the number of participants. We have one full-time employee besides ourselves, and some part-time workers. And we are in transition, going from one generation to the next, and not yet involving the next generation. My experience through the American Soybean Association was as an unpaid volunteer. Sure, there are differences of opinion among producers. That old adage, once you've met one farmer you've met one farmer, is very true. They have a broad range of opinions. Being forward in your thinking is not limited by farm size. I refuse to believe that you cannot be an active, progressive farmer with fewer acres than some others. You may do things differently. You may do

things with neighbors and you may hire out more services, but I think that farmers who are looking toward the growth and the future of the industry have to look at new technologies. I do not think that they *have* to use a new technology, but if they do not examine it they will never know if they are right or wrong in the decision-making process.

**Q:** Can you give us some sense of the economics of biotechnology vs. non-biotechnology? How much extra do you have to pay for GM soybean and corn seed, and how does that work out? And secondly, how much is the premium for non-biotech soybean or corn in your area?

**A:** From a cost stand-point, I think you have to look at the complete system of how a farmer would farm under Plan A and how she or he would farm under Plan B or C, to make a comparison. In our situation we have conventional soybeans, STS soybeans, and Roundup Ready® soybeans. Across the board, there is little difference in cost. But you need to include all of the costs, such as the seed, and whether or not that includes a technology fee. You need to look at additional trips across the field with one system over another. So, across the board, there isn't much price difference. That is why it comes down to a management decision as to what fits best for each field.

There isn't a lot of market premium for non-GM corn, because of where we are located, and the markets we have. You might get two or five cents for non-GM corn, but it might have to be delivered in a very short period of time, and it might have to be at 13% moisture instead of 15%. You're giving up maybe three cents per bushel in moisture that you are allowed under grain standards in order to get the premium. For soybeans, at Decatur Illinois, they may have the best thing going. They are probably in the range of fifteen to twenty cents, maybe eighteen cents for non-GM soybean. In that area it works well, because not a lot of Roundup Ready® soybean is grown there. The effort involved in keeping the crop separate is worth that eighteen or twenty cents.

**Q:** If you take off your grower hat for a minute and put on your farm-manager hat, what kind of discussions about biotechnology do you have with your absentee landlords?

**A:** As much as we can, we keep our absentee landowners apprised of current issues in the industry, such as biotechnology and the present farm bill debate. The only advice we have ever given absentee landowners and tenants about what to plant is that they should plant varieties that are approved for export to major markets for the United States. We will not take a crop that might not be marketable; we have told tenants that we won't accept the risk of them selecting such crops. Other than that, I tell them pretty much what I've said today. We try to keep them informed of the issues and give them a clear picture of where we think we are and where we're going.