

WILL BIOTECHNOLOGY BRING PROSPERITY TO RURAL AMERICA?

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In the past, farm technologies have resulted in increased commodity surpluses, reduced prices, and low profit margins for farmers. This situation could change with the development of a value-added grain production system. The impacts of such a system on farmers are discussed.

Key words: farmers; value-added crops; biotechnology; impacts; contract growers

At this point, I think it remains relatively uncertain what specific impact biotechnology will have on farmers, and on rural America, in general, for that matter. Although some are anticipating that farmers will benefit by seeing increased profits for their biotechnology crops, similar hopes for new farm technology have not materialized in the past. All one needs to do is to look at the ongoing farm failures, and historically low crop prices, to see how much impact new technology has had on farm profits. New farming technology of the past few decades has resulted mostly in increased surpluses and lower crop prices. When farmers actually do see more money for their crops, land prices and other farming costs quickly rise to eat up much of those profits.

A strong case can be made that in the past there have been primarily two major benefactors of new farm technology: the big companies that develop the technology (who are paid first in the production chain), and consumers who get cheap food, thanks to the farm surpluses created by the new technology. That old saying that "everyone makes money from farming except for the farmers" has a lot of truth to it. And for decades, much of this "high-tech treadmill" system has been supported, even perpetuated, by the Land Grant colleges and the extension system, which long ago jumped on the "produce more at any cost" bandwagon. These institutions have often totally ignored the surpluses and low prices that this kind of farming creates.

However, there is the chance this situation could change with the development of what may be the biggest revolution in the history of agriculture, that is, the development of a "value-added" grain production system. The big multinational agricultural chemical companies are spending billions to develop crops with enhanced characteristics. DuPont's high oil corn is the first example of these crops, and high oil corn is not even the tip of the iceberg. Crops of the future will be genetically engineered to contain a fantastic array of value-added components, including such things as protein/nutrient enhancement for livestock feeding and nutraceutical enhancement for human consumption. These crops will be genetically engineered to contain vaccines and products for the pharmaceutical industry. In addition, industrial enzymes will be developed for the manufacturing sector, as well as alternative fuels. And much of the billions of dollars that processors and end-users

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now pay to have those ingredients manufactured for them will be diverted into agriculture causing a wave of new cash unlike anything ever seen in the history of production agriculture.

Industry-watchers are starting to predict that this change from a commodity to a value-added production system will arrive sooner than we thought; some are predicting that within 10 years more than half of all crops produced will be value-added. Because of the high additional value that it is possible to place on these crops, and the increased cash flow they will bring into agriculture, farmers and other agribusinesses may well start seeing substantially increased profits, at long last.

But be forewarned, this new prosperity (if it materializes) will come at a price -- a major sacrifice of independence. For in a value-added world, most of the technology will be owned and patented by the big companies. They will own and control the crops all the way through the entire production system, from the initial plant breeding, to the planting and growing in the fields, to harvesting and storage, and even on through processing, and maybe final delivery to end users. Farmers will have to plant, grow, harvest, store, and deliver according to their specifications and instructions. The large companies will own the crop, it will not be the farmer's. Thanks to the power of their patents, big companies will be "taking over" much of agriculture, in somewhat similar fashion to the way Microsoft and Intel pretty much control the personal computer industry. As a result, both seed companies and farmers will become increasingly "contract growers" for these giants.

And it is going to happen, whether we like it or not, because that is simply the way our capitalistic, patent-driven system works. Big-company technology "takeover" has occurred in every other industry I can think of. It is finally agriculture's turn to join the crowd. But if you want new technology to keep up with the rest of the world, that is probably the only way it will work. It costs \$100 million, even more, to bring a new biotechnology product to the marketplace. No one can afford that cost, and associated risk, except for the biggest of international corporate giants. But, hopefully, farmers will finally get their share of this huge new cash flow. I can envision a prosperous, re-vitalized future for rural America as billions of new dollars flood into this value-added system. Small towns may start booming again, as pharmaceutical companies set up factories and testing and storage facilities in order to process the valuable ingredients in all those hot new value-added crops. And I can even envision a strong, renewed future for the Land Grant universities and extension specialists as they help educate farmers, and set them up with farming systems so that they can profit from a value-added agriculture. But, first, the Land Grant universities and extension specialists will need to switch gears, and start teaching "farming for bottom-line profits" instead of "farming for surpluses." There is a danger here, however, for if rural America and its farmers simply wait for big business to beat a path paved with dollars to their door, they may get left behind. However, if they can figure out how to actively participate in this revolution, and go out and entrepreneurially grab their share of the pie, farming could become a very profitable business in the future. Perhaps, in this capitalistic system the choice is the farmer's. Maybe it has always been that way.