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# INDUSTRIALIZATION: A VIEW FROM AGRIBUSINESS

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## Introduction

Today's large commercial farm—anywhere in the world—would be almost unrecognizable to the average farmer of the last century. At the same time, the success and growth of these large farms is not due to inherited land, capital or status but, rather, is the product of judicious use of publicly available technology. In short, today's farmer has been able to select and use new products and new technologies to “industrialize” production, capitalizing on economies of scale to improve production, management and marketing systems.

Yet, there are several fundamental differences between the apparent “industrialization” of agriculture and the industrialization associated with manufacturing methods of mass production. These fundamental differences arise from the heart of the same factors that drive the use of industrialized production practices. What are these drivers of change? How will they form and inform the very unique type of industrialization we are likely to see in agriculture?

## Drivers of Change

The global expansion of population and improved standard of living in developing countries will result in increased demand for both agricultural commodities and processed food products. Countries such as India have shown that the “green revolution” is not enough to overcome starvation. Production must be supported by a free-market economy, consumer earnings and a food distribution and marketing infrastructure.

Thus, “industrialization” of agriculture should include the infrastructures needed for input delivery, financing, commodity marketing, processing and food distribution. When people's living standard improves, they improve their diet: fruits and vegetables, eggs and milk products, fish and poultry, and red meat. As the standard of living improves further, they quickly differentiate quality of food products. In Romania, for example, much fruit, vegetables and meat are currently imported, although Romania until the 1980s had a highly industrialized state-farming system that provided these products for national consumption and for export within the Eastern Bloc. Because this “industrialization” of production had quantity—not quality—as its primary goal, many farms and processing facilities, even if privately owned, could not produce food products of comparable quality to Western imports.

“Industrialization” should, therefore, include quality specifications and quality control.

U.S. access to global markets is improving through fairer trade policies, world trade agreements and relatively stable currency markets. There are markets hungry for the production quality and quantity provided by our unique brand of entrepreneurial industrialization—and “fast track” legislation would help us cultivate them.

Technology innovation has begun to result in a rapid stream of new products, most of which are not scale-neutral. For example, new transgenic crop protection technologies allow fewer trips across the field for cultivation or insect control. New genetic technologies are beginning to allow the production of more and more consistent quality pork, beef and poultry. These technologies encourage the growth of traditional farms, contracting and vertical coordination of production.

The government has shifted its role from an *in loco parentis* support of the family farm to systematizing and regulating input safety, patent protection for new technology, and encouragement of free market dynamics through global trade and tariff agreements. As a result, the most efficient will thrive—the less efficient will retire.

The idea of “designer crops” now seems to be a workable concept. Such identity-preserved crops offer both opportunities and challenges.

## **Implications of Change**

Over the long term, industrialized methods of production will increasingly relocate food and fiber productions. Traditionally, food and fiber were produced close to the source of inputs (i.e., feed grains or cotton fiber) or close to consumers. When you go home tonight, look at the label of the shirt you are wearing—are any of you wearing cotton shirts made in the United States? Yet, we are one of the largest producers of high quality cotton fiber in the world. Our textile processing has not kept pace with textile quality demands—a factor exacerbated by the wide availability of cheap labor for textile and clothing mills in many developing countries. Corn may always be grown in Iowa, but it is not all fed there any more. Because of the reduced environmental impact, one of the largest new hog operations in the world is in a remote valley in Utah, far from corn and far from people. Some of the largest new dairies are being built in New Mexico, again far from markets and far from feed input sources. What if this trend expanded to a global scale? Do we want to be the supplier to the world of *quantity* commodities? How long can that advantage last?

Industrialized production methods have allowed us to grow more beans/acre than a slash-and-burn Brazilian farmer—surely we can refine these methods to grow

different beans, with defined quality characteristics, and process them here in our own food and feed industry.

Companies investing in technology today, such as Monsanto, ADM, Pioneer Hi-Bred, etc., all play in a world marketplace. They must recoup the maximum return on today's research in order to fund tomorrow's discoveries. Thus, the technology that fuels our own increased productivity will be exported—often along with the industrialized production and processing systems that transform technology into profit. We still have two critical advantages: the entrepreneurial spirit of the farmer, and the technology transfer systems that support him. We must find ways to strengthen these advantages.

Developing countries are increasingly able to feed their population. Yet, they use feed grains to generate hard currency rather than increase the standard of living. Commodities have become a political tool. As production increases from these countries, they can decrease stability in the world market.

Today's successful farmer is often involved in all aspects of his business—production, management, financing, labor sourcing and marketing. The growth made possible by industrialized production will stretch their time and skills as managers, not just producers. Although information technology holds the promise of providing systems and decision-making support, that support is not yet there for most producers. They will increasingly be faced with producing quantity and quality efficiently, be challenged to find qualified labor and develop managerial skills that allow timely execution of every aspect of the operation.

One of the sources of management support will be contractors and professional farm managers. Buying groups, production cooperatives and expanded family corporations will all grow as the producers search for people, production, technology and information management functions to complement their own. Increased coordination, from production through processing to food merchandising, will grow as much from the farmer's need for expanded services as from the processor's need for quality and efficiency.

## **Issues**

Industrialization of agriculture will pursue a unique path—a path charted by the founding spirit of entrepreneurial agriculture and shaped by the adoption of technology and our response, as an industry, to the increased demands for quality and consumer orientation from a world marketplace. As we meet these challenges together, we will face a variety of issues.

We must increase yield to meet demand and efficiency to meet profit goals—yet, we must do so in environmentally sustainable ways. We will indeed have to

produce a better end product more cheaply than farmers in parts of the world where production quantity is more important than environmental quality.

We must approach the funding of new technology and technology transfer strategically. These technologies increasingly come from the private sector. We need unbiased and expert information and decision-making support to evaluate, select and implement new technologies. If public institutions abdicate this responsibility or it is removed from them, we are in danger of losing our most valuable asset—an educated producer.

We must begin to study, encourage and develop brand identity markets within commodities. We are in the remarkable position of creating a market we will live by or suffer from for several generations. It behooves us to make sure that the concept of “branded” agricultural products always includes the concepts of productivity, sustainability, stewardship and quality.

As leaders and consultants to agribusiness, we must encourage the evaluation and upgrading of our market infrastructure. Any farmer worth his salt could raise an identity-preserved crop to processor specifications today, but could he or she ship it? Store it? The “industrialization” of agriculture has worked because it rests on the shoulders of a highly entrepreneurial producer. Technology will help him—will our infrastructure limit him?

## **Summary**

The industrialization of American farming is not a landscape of corporations, employees, time clocks and management control. We have ample evidence from Eastern Europe that this brand of industrialization produces as many inefficiencies as efficiencies, and quantity only at the cost of quality. We have an opportunity to lead the world in the adoption of technology for increased quality, productivity and profitability—farm by farm, product by product. We must cherry-pick the best in systems and efficiencies from traditional industrialization. Our creative energies can then be channeled to uncover models of coordinated production and marketing; models that diffuse information and technology.