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**INDUSTRIALIZATION:**

**TRANSFORMING THE FARM  
AND FOOD INDUSTRY**

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**ABSTRACT**

*An increase in farm size plus vertical integration of several food industries stand on the verge of changing the structure of agriculture. This potential is greatest in more developed countries.*

*The broiler industry was the first to be vertically integrated. This has been followed by many of the specialty crops and is currently spreading to livestock.*

*As consumer demand for food in many countries is limited to a slow population growth, food processors are establishing market position by introducing a stream of new and specialized products. They compete by competitive pricing, which is achieved by controlling the entire production process from the farm to the consumer.*

*These firms and the fast food industry put foods on the market that are tasty, quality consistent, and price competitive. They add value to basic farm commodities which in many instances provides more profit than that made from commodity production.*

## INTRODUCTION

It is a fact that farming provides food for the masses. But more and more the industry is becoming less prominent, especially in the more developed countries.

Residents in these countries take a stable, inexpensive supply of nutritious food for granted.

To illustrate: A recent poll by the newspaper, USA Today, showed major concerns of U.S. citizens to be, in descending order: Crime; Cost and Availability Of Health Care; Quality Of Public Schools; The Environment; and The Economy. Nowhere did we see a concern for an adequate supply of safe, nutritious, low-cost food.

And we suspect the folks in most of the countries represented here would reflect some of the same concerns as those voiced in the U.S. But some societies would probably list the need for adequate food as one of their top five concerns.

## WHERE ARE WE? HOW DID WE GET HERE?

Food in many countries is a good buy. Most industrialized nations spend less than one-fourth of their disposable income on food. In the U.S., about 12% is spent on food.

This has occurred as farms have gotten larger and more efficient. Capital in the forms of machinery, fertilizers and chemicals, has been substituted for labor. Further, new varieties of plants and improved feed efficiency of livestock and poultry have lowered the cost of production per unit. And government subsidies have provided an added incentive to produce.

Given these larger farms, concern is often voiced that agricultural production is getting too concentrated. In the U.S., one-half the agricultural output is produced by only 3.6% of all farms.

So while agricultural efficiency is attributed to larger farms and to substitution of capital for labor, another structural change has facilitated the movement of commodities from the farm to the consumer; that of industrialization.

It has occurred quietly. It is responsible for much of the increasing choices of food items, and will likely change the way many future farm management decisions will be made.

#### WHAT IS INDUSTRIALIZATION?

Some define it as bigness, but it goes further. It involves more extensive contract production (integration) among the many stages of the food and fiber system.

In effect, it facilitates a shift from food commodities to food products. It moves toward more direct market channels, such as production contracts.

Today production contracts or direct ownership in the U.S. accounts for more than one-half all production of broilers, vegetables, citrus fruit, potatoes, sugar, seed crops, eggs, fluid milk and turkeys.

#### WHY HAS IT OCCURRED?

It is most prevalent in countries with an adequate supply of basic farm commodities.

Population growth is relatively slow in these countries. The domestic demand for food grows only as fast as the population.

At the same time food processors and retailers are facing a better informed domestic and international customer with buying power. These customers are demanding products that are of higher and more uniform quality, more convenient to prepare, and safe; all at reasonable cost.

So the market for food is getting more competitive. And intense competition usually brings lower profit margins for suppliers. Given this competition, these firms try to gain an advantage by cutting costs, having higher volume sales, and having control over handling, processing and distribution. They create a system of vertical integration.

#### WHY WILL IT CONTINUE?

The major winner in this shift is the consumer. More unique products, at competitive prices, are put on the grocery shelf.

And life-style shifts are promoting the movement.

Three-fourths of the women of childbearing age in the U.S. hold jobs away from home. Many adults head-up single parent households. These folks want food products that are partially or fully processed so meals can be prepared in a short time. It is estimated that most meals today are prepared in a span of 20-30 minutes.

Also, there are forecasts that three-fourths of the women of childbearing age in all developed countries will be in the workforce by the year 2000. Consumers more-and-more are hiring companies to prepare food for them.

#### SIZE HAS ADVANTAGES

Most large firms are better positioned financially to discover and adopt new methods, ideas, and tasks. Many contend that large integrated hog farms can produce pork for one-third less than traditional family operations. In addition, they can achieve uniform quality standards through breeding and feeds used.

An integrated structure helps firms minimize risks by assuring, 1) A steady flow of uniform food inputs, and 2) The production of a consistent quality food. In effect, this provides a steady supply of final food products.

And this change is not limited to any one country. The value of U.S. international trade (exports) in processed foods and beverages exceeds trade in agricultural commodities by a 2 to 1 margin. This means other countries are demanding these products.

This demand is further reflected by U.S. food processing firms currently selling seven times as much food through foreign markets as they do through domestic markets.

#### FAST FOODS CONTRIBUTE TO CHANGE

What began as a handful of companies in 1950 selling hamburgers, hot dogs and french fries has grown into an international industry offering a multitude of common and regional products. It is common to see a set of McDonalds archs or Pizza Hut logos in most countries.

Fast food sales in the U.S. amount to \$60+ billion annually at over 200,000 locations. An estimated one-fourth of the money spent on food is in fast food outlets. Of the thirty pounds per capita of hamburger eaten annually, 45% is in fast food restaurants. And 40% of the chicken consumed is served by Colonel Sanders and his rivals.

This industry has also made contributions to the consolidation of markets. Frozen potato products were developed in concert with fast food groups. It also fostered the demand for shredded lettuce and diced onions. And it has been intertwined with the dairy and broiler industries.

In an effort to lower costs and insure product quality and availability, the fast food industry is active in all aspects of the food production process. It sets rigid specifications and is actively involved in setting planting, production and distribution schedules. Often, new mechanisms have been developed to bypass the traditional market.

Not only have markets been consolidated, but the industry has contributed to grower-manufacturer partners, increasing dependency on technology, the increasing size of farms, and the increasing specialization of products to satisfy the demand for nutritious, safe, different and cheap food.

#### NOW WHAT?

Making predictions about agriculture is a notoriously risky business. Thomas Malthus was one of the first in a long line of futurists to get it wrong. Those who said the world could not produce enough food for a growing population have not yet been proven correct.

And the "plant fencerow-to-fencerow crowd" of the 70's who said that demand would never stop increasing have had to retreat.

Looking ahead is difficult when we have seen food trade develop into a world market that was unthinkable just a few years back. Adding new technology and new political systems, and we see the continuing radical changes taking place.

#### WHO WILL COMPETE?

Traditional basic commodities agriculture will not disappear. After all, two-thirds of the world's food is embodied in the form of three major grains; rice, wheat and corn.

But there will be a continuing development of specialized production outside of traditional markets. Processors of these commodities will operate in a low-cost, high-volume environment. Commodity agriculture will evolve toward a low margin, as processors add more value to these commodities, which is where most of the profit is generated.

Currently the U.S. swine industry is on the way to being vertically integrated, and beef will probably follow to some extent.

But the cattle industry will retain some of its individual structure. There are large amounts of privately owned pasture that have no other use. And many small ranchers look on the profession as a way of life and will continue to operate as in the past. The same goes for crop farmers.

Small operators and those producing basic commodities can compete, but they will become more efficient. As processors become more specific for their inputs, farmers may have to modify production practices to meet these changed requirements. The purpose will be to produce some form of what the consumer wants rather than merely utilizing available resources.

Not all farms will sell in an integrated market. But they will have to use exact applications of inputs on the best land to be most efficient. Use of futures markets and/or contracts, when feasible, will be used to assure a profit.

It can be argued that many crop producers currently operate in a market of contract pricing; that of government programs. These programs for many years have established a minimum price for most crops. Given the current atmosphere of farm programs phase-out, we may well see crop farmers move from "program crops" to an emphasis on individuality of marketing expertise.

#### AGGREGATE EFFECTS

Profits from industrialization may be more directed toward non-local owners rather than the traditional patterns. And these firms frequently purchase production inputs away from the points of processing. The industry profits may be scattered.

Also, these firms provide both production expertise and inputs to their contract producers of raw commodities. This lessens the demand for operating funds to individual farmers.

But it creates a demand for funds by the total industry. And, it creates a demand for a better understanding of the industry and the market by farm lenders. Instead of a lender knowing the financial structure of a farm and the costs of production, they now have to know why and how an industry will use borrowed funds.

The key to any industry is profits. The goal is no longer to sell what is produced, but to produce what can be sold. Will the industrialized U.S. agriculture stand for the long-run 2-4% annual return to investment that has been common in the industry? This has been tolerated because a historical increase in land values has contributed to net worth.

The question here is how will the profits of this type industry be divided? As with changes in any industry, there will be losers and gainers. Gainers are the consumers. Losers will be producers who do not become more efficient. Agriculture of the future will be:

- \*\* More efficient.
- \*\* More responsive to consumer demand,
- \*\* Highly competitive in global markets,
- \*\* Able to move rapidly to adopt new technologies, and
- \*\* Less dependent on government assistance.

#### COMMODITY DEMAND CHANGES, '95

##### Higher Milk Demand

U.S. milk prices in 1995 were projected to be lower due to an imbalance of supply and demand.

This held true during January and February. But March milk prices jumped without warning.

The Cause?: Several of the major fast food chains had a nationwide promotion for cheeseburgers at a reduced price. This created an added demand for cheese, which translated into a \$0.30 - \$0.40 per cwt. increase for milk price. This was temporary, but illustrates how quickly a change in final product demand affects the price of commodity inputs. And in this instance, the change was caused by actions of the fast food industry.

##### Cotton Demand

A decline in cotton production in 1994 in some of the major producing countries plus a strong worldwide demand for cotton fabrics pushed U.S. cotton prices above \$1.00 per pound in February and March; we think the first time of this magnitude.

Farmers in the Southern U.S. immediately began plans to increase cotton acreage.

Demand for rental land suitable for growing cotton caused rental prices to go beyond seemingly reasonable rates. In addition, farm equipment dealers reported record sales of cotton pickers. Some took orders for equipment only if the item was paid in advance. Cotton gins began to be erected at a record pace.

This is not an example of industrialization but illustrates the instability of commodity markets with a reduced supply/increased demand. Sometime in the future cotton prices will decline. Some less efficient producers (and lenders) will be left holding debt that will be difficult to repay.

This individual debt and attempt to realize unusual profits is in contrast to single producers growing a commodity for a vertically integrated firm where larger profits are more kept by the firm where most risk occurs.



## CONCLUSIONS

Expect change to be the norm.

Should agricultural programs be scaled back, producers will be even more affected by the market. Currently much of the commodities are produced under contract for government supports.

Fundamental economic forces will push the industry toward more vertical integration. This will make it more difficult to define the farm sector. The lines between farms, processors, and retailers will become less distinct. Farm profits and the need for capital will be more elusive. Larger firms will gain advantages in minimizing risks, obtaining capital, and producing products for an ever changing consumer tastes.

Small farms can compete, but they will have to be more efficient.

The new consumer is more demanding and has humbled corporate giants in recent years such as General Motors and Sears Roebuck. Why should the food industry be treated any different?

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