

**MULTI-NATIONAL CONCENTRATED  
FOOD PROCESSING AND MARKETING SYSTEMS  
AND  
THE FARM CRISIS**

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## **A Farm Crisis**

For most of the twentieth century, the number of farms in the United States has declined decade by decade. The major exception was during the Great Depression of the 1920's and 1930's. This decline in numbers resulted mainly from younger families not entering farming because their economic opportunities were greater if they pursued a non-farm occupation. As older farm families retired, they sold or rented their land to neighbors who added it to their existing farming operation. This process was identified as a "trend" and, for the most part, was not considered a farm crisis." A major characteristic of this trend was that a farm family began and ended their career as farmers.

On occasion, however, the movement of farm families from farming was so rapid that families were forced from farming mid-career because of major social, political, and economic events beyond their control. The individual, family, community, and societal costs of these shattered dreams were somewhat responsible for this being referred to as a farm crisis. Probably the best example of this occurred in the 1980's when modern farming methods required large amounts of capital. Most beginning farmers need to borrow large sums of money at the outset. Before borrowing, they make certain assumptions about the future, assumptions usually based on recent experiences. If major changes in the social, political, and/or economic conditions occur, the family's future can change within a year or two as they are forced into bankruptcy.

While the family might identify and experience such an event as a crisis, the individual or family crisis itself does not automatically lead to the event being considered a societal crisis. Although it is beyond the scope of this paper to discuss the social processes that define a societal crisis, most would agree there was an identifiable farm crisis in the 1980's. Some argue the farm crisis of the 1980's never really ended and others argue another farm crisis is about to begin. For purposes of this paper, we will define a farm crisis as a time when society acknowledges that there are significant social and economic costs associated with large numbers of farm families, especially mid-career farmers, moving out of farming.

### **PRECONDITIONS OF THE 1980'S FARM CRISIS**

Much has been written about the causes of the farm crisis of the 1980's. We will briefly touch on them because they provide background for framing the crisis some argue we are now facing. They also provide a context for the farm policy now in place that if changed dramatically would surely lead to another farm crisis.

The crisis of the 1980's had its beginning in the 1970's when a major change took place in the global movement of food. The "Russian wheat deal" of 1972 is often used as a starting point of the new "globalization." (Morgan, 1979.) Behind the new, world demand for food were "petro dollars" being generated from the increased price of oil sold on the world market by the Organization of Petroleum Exporting Countries (OPEC). (Flora, 1990). Many of these dollars ended up in financial institutions that were eager to profit from the interest on them. This followed on the heels of international development policy of the 1960's that suggested developing countries should focus their efforts on

developing their industrial economy and not worry about their agricultural sector (McMicheal, 2000). The belief was that if the industrial sector developed, they could then buy the food they needed from other countries.

With optimism that industrialization would lift the economies of many developing countries, banks began loaning them funds to buy food on the world market. Suddenly the unmet food needs in these countries turned into what economists call demand. The global demand for food soared, as did the global price of commodities.

U. S. farmers were quick to increase production to capture the economic benefits. Because the high cost of imported petroleum was having a significant negative affect on the U.S. balance of trade, the positive impact of exporting agricultural products quickly attracted national attention. This potential for increasing the export of agricultural products resulted in farmers being encouraged to plant “fence row to fence row.” Farmers began to feel it was their patriotic duty to help their country by producing for the export market. Later, many farm families would report that their lenders almost forced them to borrow additional money to expand their operations. Most agricultural experts in the late 1970’s urged farmers to leverage their operations and expand. Articles in the farm press at the close of 1979 and early 1980 predicted a glorious decade for U.S. agriculture.

The optimism was short-lived. On the domestic side, the double-digit inflation of the early 1980’s led to a political decision to raise interest rates in an effort to lower inflation. Suddenly highly leveraged farms accustomed to negative real interest rates<sup>1</sup> were faced with interest rates approaching 20 percent. In addition, financial institutions began to question some of the loans they had made to developing countries they had earlier predicted were on their way to economic prosperity. The global need for food was still there, but without funds from global financial institutions, many countries could not transform the need into demand.

As interest rates rose and commodity prices declined, the value of farmland dropped by more than half and farm bankruptcies surged. As quickly as social, political and economic events turned in favor of farmers in the 1970’s, they turned against them in the 1980’s. Farmers did not foresee the drastic change of events in either decade, but more significantly, neither did the agricultural experts on whom the farmers depended for advice. Modern farming, with its great demand for capital, requires a long-term planning horizon to make rational capital investments. Sudden social, political and economic changes totally disrupted long-term investments and led to economic ruin for many farm families, especially those who had only recently invested and lacked sufficient time to recover their economic investment.

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<sup>1</sup> The real interest rate is the difference between the rate of inflation and the interest rate. With relatively high inflation rates in the 1970’s and lower interest rates, it was economically logical for farmers to borrow money that would be worth less when paid back. Federal Reserve policy that raised interest rates to control inflation exactly reversed the situation for farmers, and real interest climbed to unprecedented levels.

## **THE 1990'S: RESTRUCTURING PICKS UP SPEED**

The farm crisis of the 1980's subsided by the end of the decade, but the dramatic changes in the global food system did not. Quite the contrary, the food system continued becoming more like other sectors of the global economy. The movement away from a competitive economic system -- a characteristic of early capitalism, and toward the control of various sectors by a few firms -- a characteristic of late or mature capitalism, moved into high gear. Ironically, this did not occur because of failures of the competitive economic system; the competitive system had shown its ability to be adaptive, particularly when laws support that competitiveness. The reason these changes accelerated was that some corporations recognized an opportunity to enhance their profits by restructuring the sector.

Restructuring agriculture in the direction of concentration and consolidation is not a particularly new idea. Consolidation on the part of railroads and stockyards in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries led to populist-inspired anti-trust laws and alternatives such as cooperatives. General anti-trust laws were put in place early in the twentieth century, while agriculturally specific laws, such as the Packers and Stockyards Act, were enacted in the 1920's. By mid-century however, restructuring, in the form of concentration of ownership and control of the food system, was already beginning with little regard for the rationale behind the early legislation.

The concerns about this kind of agricultural restructuring in the late 19th century and early 20th century that led to the above mentioned anti-trust laws had dissipated after the Great Depression and World War II. Thus, we see restructuring quietly beginning in the 1950's with the broiler (chicken meat) industry. The emergence of vertical integration in the broiler sector began when the production and processing stages came under the control of the same firms. Soon, the number of firms declined as statewide, national and even international firms such as Imperial Food of England replaced local feed stores, farmers and poultry processors.

In beef processing the public's attention was drawn to the concentration issue in 1983 when the Department of Justice allowed Cargill to purchase Spencer Beef. Ken Monfort, then the owner and CEO of Monfort of Colorado, the largest so-called "independent processor," said that if this merger were allowed to take place, he could no longer compete. Shortly after the Excel-Spencer acquisition was finally approved in 1985, ConAgra acquired Monfort of Colorado and named Ken Monfort head of their beef division. At that time, the major meat producing and processing firms operating in the United States were U.S.-based firms. The grain sector was somewhat different. Of the five giant grain firms that had developed in the last half of the nineteenth century, only Cargill and Continental were based in the United States. However, some of the major farmer cooperatives that developed as countervailing forces to the global firms operating in this country were very successful until the new globalization of the 1980's and 1990's.

Despite the restructuring that had already occurred by the end of the 1980's, the 1990's would be a decade of qualitative change in the economic structure of the food system as the global food system

came under the control of a handful of firms. The restructuring of agriculture that began taking shape in the middle of the 20th century continues to evolve. In essence, it is a process that replaces a decentralized agro/food system best characterized in the United States by the family farm structure and the accompanying decentralized infrastructure needed to support it, with a centralized system of ownership and control best described as an industrialized system. In the 1970's there was some degree of consensus among economists that a family farm could be defined as a farm production unit in which the farm family provided most of the labor, management and capital. Today there is little agreement on what constitutes a family farm even though the term gets used very often, especially to justify a wide range of agricultural legislation, much of which is not necessarily friendly to family farms. However, the concept still appears to have great appeal to farm, rural and even urban groups.

Food system restructuring continues as we begin the 21st century. Both the speed with which the social, political and economic changes are occurring here and around the globe, as well as the worldwide implications of these changes bring with them the possibility of another crisis. We are not suggesting a major food shortage is imminent in the United States, but major food shortages may occur in other countries including those that are exporting food to the United States. If journalists, politicians and others draw the connections between farmers and consumers in this country, and more importantly draw the focus to the relationship between farmers in this country and farmers and consumers around the world, this time it is possible that it will be called a "food crisis."

### **THREE PROCESSES IN RESTRUCTURING**

#### **Vertical Integration**

We suggest that the restructuring of the food system is the combination of three processes: horizontal integration, vertical integration and globalization. Our research began in the late 1960's as we examined the relationship between agricultural structure and the social, political and economic life of those involved in production agriculture. (Heffernan, 1972.) We were especially interested in a new structural arrangement based on production contracts. This structural arrangement – referred to as "corporate integratee" or "vertical integration" – was just developing in the broiler sector at that time (Rhodes and Kyle, 1973). The social process behind this structural arrangement separated labor from management, and was starkly articulated by the change from the term "farmer" to the term "grower." In this case, language makes all the difference. The grower usually provides the land, buildings, equipment, and labor. The integrating firm provides the birds, feed and the veterinarian supplies. In addition, the integrating firm makes all the major management decisions involved in producing broilers. The firm decides the genetics of the birds, the feed ration, the timing of the production schedule, the weight of the birds at processing, and the standard operating procedures of the growers. Because the grower must construct and equip buildings to the integrating firm's specification before getting a contract, the integrating firm makes all decisions regarding the building.

In the 1950s, the integrating firms mostly began as feed companies, and in some cases as hatcheries or as broiler processors. Whatever the starting point, the whole process linking the hatching, with the feed processing, and with the growing and processing of birds in the food chain was controlled by a single firm. This system, which began in the mid-Atlantic states and moved south, then to the west and back north, marked a major departure from the decentralized farming of the past. The family residing on their “farm” became hired workers paid on a piece-rate basis rather than on an hourly rate. This was a major step in the deskilling of what had been called farmers. We contrasted this to “cottage industry” production that was the link between the guild system and the industrialized system. (Heffernan, 1972.)

Although cottage industry still took place in the worker’s home area and the worker could determine some aspects of the work – such as the way a particular task was performed – the major decisions were made by the merchant. Personal specialization was giving way to task specialization, a characteristic of industrialization.

Vertical integration soon moved to other sectors of poultry production such as turkeys and eggs. In the 1980’s it began to emerge in hog production, but the major change was in the 1990’s with Smithfield becoming the largest producer and processor of hogs in the United States and around the world. Representatives of the beef processing firms, agricultural economists and the National Cattlemen’s Beef Association often use the broiler example as a model the beef sector should emulate. They suggest the beef sector may not be structured in quite the same way, but the alliance or “seamless system” they advocate will share many similarities with the production contract. In a recent newsletter, an Iowa cattle finisher was quoted as saying, “. . . I m working closely with a packer on a production contract and would hate to lose it.” (*ProFarmer*, Feb.2, 2002.) Today the beef sector relies most heavily on marketing contracts, but if beef producers have access to only one processor, the question arises whether their situation is greatly different from someone with a production contract.

### **Horizontal Integration**

A second process that developed simultaneously with vertical integration was horizontal integration. Although anti-trust legislation was designed to reduce concentration in the beef and pork sectors, concentration began to reemerge in these sectors by the middle of the century. With regard to the grain complex, at the global level we noted that five firms had major control of the international market. But until the 1970’s, the export of grain from the United States had only minor impact on the price of grain in this country. Within the United States, wheat milling firms were more important in setting the price of grain. Equally important were the farmers’ cooperatives such as Harvest States, Cenex and Farmland that combined had more control of the wheat market than any private firm. The corn sector was a bit different from wheat in that most corn was consumed locally by animals and moved through local cooperatives and small community-based private firms. Soybeans had not yet become a major commodity. As a consequence, the concentration of the global grain trade was not a major issue in this country and did not become highlighted until after the Russian wheat deal in 1972.

By the 1980’s it was becoming clear that market access, especially access to a competitive set of

markets, was disappearing in most major agricultural commodities. In the late 1980's we began gathering and reporting data on the proportion of the total market share that was held by the four largest firms. We used the four firm concentration ratio because there was a degree of consensus among economists that if four firms had 40 percent or more of the market, it was losing its competitive character. At that time, the market share held by the largest four processing firms for the various grains and oilseeds was already over 40 percent.

Sociological research has shown that when only four social units interact, they can observe the behavior of others and adjust their own behavior without the need to directly communicate (Thibaut and Kelley, 1959). Thus, we suggest that as the number of firms controlling 40 percent of the market approaches four, they can act in concert without direct communication.

In the past ten to fifteen years, the four firm concentration ratio has increased substantially. Today the four largest beef processors slaughter 81 percent of the cattle, up from 72 percent a decade ago (see Table 1). In pork processing, the concentration ratio is 59 percent, up from 37 percent in 1997. Today four firms own and process 50 percent of the broilers, up 15 percent from 1987. A recent report from the USDA shows that 32 percent of the cattle slaughtered in the United States in 1999 were owned and controlled by the processors and never sold in a competitive market – 28 percent higher than what packers reported (GIPSA, 2002). To underscore the vertical integration in pork, we note that Smithfield, the largest processor of pork, now owns 710,000 sows. (This issue of captive supply is one of the contentious issues in the current debate in Congress on the next farm bill.)

Grain processing in the United States has also become very concentrated (see Table 2). The largest four processors of wheat have 61 percent of the market compared with 40 percent in 1982. In soybean processing, the largest four firms have 80 percent of market share compared with 61 percent in 1982 and only 54 percent in 1977.

When firms such as Cargill and ConAgra are among the leading processors of both animals and crops, it is a further indication that the vertical integration has taken place.

**Table 1: The Protein Industry****Beef Packing****Concentration ratio of top 4 firms = 81%**

1. Tyson (IBP Inc.)	Historical CR4		
2. ConAgra Beef Companies	1990	1995	1998
3. Cargill (Excel Corporation)	72%	76%	79%
4. Farmland National Beef Pkg. Co.			

Source: \*USDA Assessment of the Cattle and Hog Industries, 2000.

Note: Smithfield Foods is the 5<sup>th</sup> largest beef packer after a series of recent acquisitions.

**Pork Packers****Concentration ratio of top 4 firms = 50%\***

	Historical CR4			
	1987	1989	1990	1992**
1. Smithfield	37%	34%	40%	44%
2. Tyson (IBP Inc.)				
3. ConAgra (Swift)				
4. Cargill (Excel)				

\*\*Packers & Stockyards Programs, CIPSA USDA, February 1996

Source: \*Feedstuffs Reference Issue (2001) and Tyson Annual Report (2001)

Note: Including Farmland Industries and Hormel foods creates a CR6=75%. (New York Times, 1/7/99)

**Pork Production****Concentration ratio of top 4 firms = 50%\***

	Number of Sows In 2001**	
1. Smithfield Foods	Smithfield Foods	710,000
2. Premium Standard Farms (ContiGroup)	PSF	211,100
3. Seaboard Corporation	Seaboard	185,000
4. Triumph Pork Group***	Triumph	140,000

Source: \*USDA Hog and Pig Report (October, 2001) \*\*Successful Farming (October 2001)

\*\*\* Farmland provides management and genetics.

**Broilers****Concentration ratio of top 4 firms = 50%\***

	Historical CR4			
	1986	1990	1994	1998
1. Tyson Foods	35%	44%	46%	49%
2. Gold Kist				
3. Pilgrim's Pride				
4. ConAgra				

This is nation-wide data. However, because of shipping expenses and limited information, farmers do not realistically have access to all the markets. In most local markets, the concentration is much higher. Increasingly, farmers report that they have access to only one market. In broiler production for example there are about forty broiler-integrating firms in the country. In total they have about 240 processing centers where they process the feed and the birds. The integrating firms will travel up to 25 to 30 miles from the centers to secure growers. There are very few places in the country where two 30-mile radius circles overlap and even in those areas a norm has evolved between integrating firms to not raid the other firm's growers. (Heffernan and Lind, 2000.) Thus, most all broiler growers operate in a monopolistic market.



In the retail stage of the food system, the horizontal integration has increased substantially in the past few years. In 1997 the five largest retail supermarkets controlled 24 percent of the market and today they have about 38 percent of the market. (Hendrickson and Heffernan, 2002.) This is the most conservative level of concentration we have found reported.<sup>2</sup>

**Table 3: Food Retailing**

1997	2000	2001
Kroger Co.	Kroger Co.	Kroger Co.
Safeway	Wal-Mart	Albertson's
American Stores	Albertson's	Safeway
Albertson's	Safeway	Wal-Mart
Ahold USA	Ahold USA	Ahold USA
<b>CR5 = 24%*</b>	<b>CR5 = 42%**</b>	<b>CR5 = 38%***</b>

CR 5 refers to percent of market share held by the top 5 retailers.

\* *Pacific Crest Securities*, 1/8/99

\*\* *Supermarket News*, 1/24/00

\*\*\* *Progressive Grocer Annual Report of the Grocery Industry*, April 2001. This is not a decrease in market share among the top five; rather *Progressive Grocer* uses a different method of calculating sales. Sales figures used by them include only traditional supermarket items, which accounts for the different ranking given to Wal-Mart. We are using the more conservative estimate from *Progressive Grocer* but continue to believe Wal-Mart's claims that 30% of SuperCenter sales are food sales.

Although the mergers in the food system have progressed rapidly for a couple of decades, the number of mergers has not declined. In a recent issue, *Milling and Baking News* (Jan. 29, 2002) reported that there were \$73 billion worth of acquisitions in the food industry in 2001. They noted that Moody's Investor Service of New York described 2001 as "the peak of significant food industry acquisitions." Most of those firms were based in the United States, but there are billions of dollars worth of mergers in other countries of the world as well. Clearly the process of horizontal concentration of ownership and control continues.

Concentration has also been taking place in those agribusiness firms providing inputs for the production stage. As biotechnology began to look like the future in the seed industry, many of those seed firms that did not have access to biotechnology felt they could not compete and were eager to be merged into seed firms with such access. Monsanto, for example, acquired many seed firms in the late 1990's, including such well-known brands as Asgrow, Holden Foundation Seeds, Jacob Hartz Seeds (Pioneer Hi-Bred International, 2000). Today Monsanto, DuPont, Syngenta, Dow AgroSciences and Bayer

<sup>2</sup> The head of Tyson Foods, John Tyson, was quoted saying that the largest five retailer firms had 48 percent of the market. (*The New York Times*, 3/4/01.) Some of the confusion is the result of the difficulty in separating food items from other retail sales in firms like Wal-Mart and the French firm Carrefour.

**Table 2: The Grain Complex****Terminal Grain Handling Facilities Concentration ratio of the top 4 firms = 60%**

	Facility Capacity in bushels	
1. Cargill	Cargill	40,054,000
2. Cenex Harvest States	Cenex Harvest States	31,359,000
3. ADM	ADM	30,000,000
4. General Mills	General Mills	17,369,000

Source: 2002 Grain and Milling Annual and www.admworld.com

Note: When #5 (Louis Dreyfus) and #6 (ConAgra: Peavey) are included, CR6 = 74%

**Corn Exports Concentration ratio of the top 3 firms = 81%**

1. Cargill-Continental Grain
2. ADM
3. Zen Noh

Source: farministrynews.com, March 2001

**Soybean Exports Concentration ratio of the top 3 firms = 65%**

1. Cargill-Continental Grain
2. ADM
3. Zen Noh

Source: farministrynews.com, March 2001

**Flour Milling Concentration ratio of the top 4 firms = 61%**

	Historical CR4		
	1982	1987	1990
1. ConAgra			
2. Cargill	40%	44%	61%
3. General Mills			

Source: 2002 Grain and Milling Annual

**Soybean Crushing Concentration ratio of the top 4 firms = 80%**

1. ADM
2. Cargill
3. Bunge
4. AGP

have access to the intellectual property rights for biotechnology in the crop seed market (*Farm Journal*, February 2002). All of these firms, plus BASF, have over \$2 billion worth of agrochemical sales. Reporting the ongoing research of a retired agronomist, *Farm Journal* (February 2002) reported that six firms are the major producers of agricultural chemicals today.

As in the seed and chemical sectors, the concentration was also occurring in the farm machinery sector. From dozens of farm equipment manufacturers a couple of decades ago, there are now three major farm machinery firms worldwide – John Deere, Case International/ New Holland and AGCO.

## Globalization

Historically, the people of the thirteen original colonies were involved in exporting farm products to other countries even before the United States became an independent nation. Undoubtedly, some in England saw such exports as a major benefit of colonization. As the dependence of the young United States on England declined, and U.S. industrialization began to need most of the agricultural products for domestic use, agricultural exports became less important in determining the price of farm products. While prices were not determined by exports, U.S. farmers were very much part of the first international food regime that lasted from the 1870's to the 1930's (Friedman and McMichael, 1989).

With the renewed emphasis in the 1970's on international markets for U.S. grain and the development of a market for the rapidly expanding oilseed crops, international markets once again became very important to crop producers. Because farmers have continued to produce more grains and oilseed crops than needed for domestic purposes since the 1970's, the price of the product on the international market tends to set the domestic price. Today the government farm program is totally formed around the assumption that farmers must have access to global markets if they are to remain viable.

In this context, the structure and restructuring of global grain trading firms suddenly became more important to farmers in this country. Three years ago when Cargill – one of the original five global grain traders – acquired Continental Grain, Inc – still another of the original five, we estimated that Cargill would handle about half of the grain and oilseeds that move between nations. Furthermore, our best information suggests that Archer Daniels Midland Co. (ADM) controls approximately another 25 percent of the grain moving between nations.<sup>3</sup> This number is compatible with the information that 81 percent of the corn exported from United States is handled by the largest three firms, Cargill, ADM and Zen Noh (the latter a very minor player). (See Table 2) These same three firms export about two-thirds of the soybeans from the United States. Another measure of export capabilities is the capacity of terminal (port) grain handling facilities the firms have in the United States. Data in Table 2 indicate the largest four firms control 60 percent of the terminal grain handling facilities in the United States. However, the recent joint venture (called Horizon Milling) between Cenex Harvest States, a cooperative, and Cargill effectively combines two of these four organizations.

The meat sector is in the early stages of global concentration. For example, the three largest beef processors that are processing about three-fourths of the beef in this country are the dominant players in Canada, where they have a slightly higher percentage of the market. Cargill and ConAgra team up with Mitsubishi to be the dominant beef processors in Australia. They also have beef processing facilities in many other countries.

In the hog sector, Smithfield is the largest hog producer and processor both in the United States and in

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<sup>3</sup> This is a different measure than the international trade measure usually used that takes into account grain movement within and between countries.

the world having operations in Mexico, Brazil, Poland and China. Smithfield officials have commented that they do not see much opportunity for further expanding their U.S. operations, but they are looking across the globe for strategic options. (*Feedstuffs*, 12/31/01)

Another approach to looking at the global concentration of the food system is to examine the list of the world's largest food and beverage companies. This list includes Nestle SA and Philip Morris, which recently had a public offering on their subsidiary, Kraft Foods – but they still retained 80% of the shares. (See Table 4) Other food and beverage firms include: ConAgra Inc., PepsiCo, Inc., Unilever, The Coca-Cola Co., and Cargill.

**Table 4: World's Top Food and Beverage Companies 1999**

1. Nestle SA	\$41,422 million annual sales
2. Philip Morris Companies, Inc.	\$31,139 million
3. ConAgra Inc.	\$24,594 million
4. PepsiCo, Inc.	\$20,367 million
5. Unilever	\$20,310 million
6. The Coca-Cola Co.	\$19,805 million
7. Cargill, Inc.	\$17,143 million
8. Diageo PLC	\$16,419 million
9. Mars, Inc.	\$14,500 million
10. ADM	\$14,283 million

The global concentration and control at the retail stage of the food system is in the early phase, but a few global firms are becoming evident. Wal-Mart is a key player on the global level. Wal-Mart has operations in Germany (Wertkauf and Spar Handels) and the United Kingdom (Asda, the third largest supermarket there) (*New York Times*, 8/31/99). Wal-Mart also operates in Argentina, Brazil, Canada, and Mexico, and is involved in joint ventures in China and Korea (*PR Newswire*, 3/3/00). In 1998, \$12.4 billion worth of mergers in the European food-retailing sector happened. Moreover, “. . . almost half were acquisitions or alliances outside domestic markets, against 20 percent five years ago” (*Financial Times*, 5/5/99).

The perception of the threat Wal-Mart poses on a global level is so dramatic that two French retailers, Carrefour and Promodes, announced their merger as a way to cope with Wal-Mart on a global scale (*New York Times*, 8/31/99). Carrefour's merger with Promodes created the second largest retailer in the world with a strong presence in food retailing. It operates in Latin America, where the merged entity is the number one supermarket retailer in Brazil and Argentina. It is also the leading retailer in Taiwan, France, Spain, Portugal, Greece and Belgium (*Business Week*, 9/13/99; *New York Times*,

8/31/99). Another major global player is Ahold, which has about 28% of the Netherlands' food retail market and stores in Brazil, Argentina, Chile, Peru, Paraguay and Ecuador, Portugal, Spain, Poland and the Czech Republic. Ahold also has a 50% stake in the ICA group, the number one food retailer in Sweden, with 35% market share, and number two in Norway, with almost 28% of the market (*Nutrition Today*, May 2000). Ahold is also the largest foreign retailer in China, with a 50/50 joint venture with Yaohan Liancheng Co. (*Supermarket News*, 1/12/98). Some analysts predict there will be only six or so global food retailers in the near future – Wal-Mart and the European firms of Carrefour, Ahold and Tesco (UK) are likely contenders (*Financial Times*, 12/22/99; *Grocer*, 1/9/99; *Supermarket News* 9/18/00).

One of the major points to be made with regard to globalization is that these transnational firms travel the globe sourcing their inputs from wherever they can get them the cheapest and then sell them in countries where their products will bring the most.

### **FOOD SYSTEM CLUSTERS**

In the early phases of horizontal and vertical integration, much of the concentration and control resulted from acquisitions, but over time a host of new relationships began to develop in which control is not directly linked to ownership. These new relationships range from formalized, carefully spelled-out rights and responsibilities to more informal arrangements. They range from mergers and joint ventures to partnerships, long-term agreements and other close relationships (non-competitive arrangements) among firms engaged in the food system. In agricultural circles these horizontal and vertical relationships are often referred to as alliances or seamless systems, terms that imply rather loose-knit arrangements linking one stage of the food system with another. In fact, many of these relationships are formalized and lead to non-competitive behavior between some of the largest transnational firms.

In 1999, we attempted to demonstrate these relationships among major firms in the food system by describing what we termed “food system clusters.” We began by documenting three of them. One cluster involved Cargill and Monsanto – the two firms have a joint venture that connects the seed stage with Cargill's processing of grain and oil crops and their global movement of grain and oil seed. In fact it starts with the genetics behind the seed. This vertical integration proceeds through Cargill's production of fed cattle and hogs produced under producer contracts to their processing of beef and hogs. More recently, we have traced their long-term agreement to provide beef to Kroger.

A second example is ConAgra's joint ventures with DuPont to obtain the genetics and seed. Like Cargill, they are involved in processing crops, feeding beef cattle, and producing hogs, turkeys and broilers under production contracts. They further process many of these products and have high brand recognition in supermarkets with names such as Healthy Choice, Hunt, Swiss Miss, Wesson Oil, Armour, and Swift and among many others.

The structural arrangement that involve three or four dominant firms that can control the food product

from genetics to retail shelf, and the host of other firms related to the dominant firms in a variety of arrangements are best exemplified by a food system cluster that starts with Syngenta. Syngenta was formed in 2000 through a joint venture between Novartis and Astra Zeneca. Syngenta has some direct ties with ADM, but also works closely with a number of farmer cooperatives that have ties (in some cases they appear to almost be subsidiaries) with ADM. Like Cargill, ADM is one of the major processors of grain and oil crops and has a dominant position in the global grain trade. In 1999 ADM owned over ten percent of IBP's stock to give it a connection into animal production and processing.<sup>4</sup>

There are still several transnational corporations that we have not yet identified with a food system cluster suggesting that the process is still ongoing. Some of these major firms include Aventis, recently acquired by Bayer, and Dow, both of which have access to crop biotechnology. There are other smaller grain processors and global grain traders such as Bunge, Seaboard, Louis Dreyfus and Zen Noh. We have not tied some of the animal producers and processors such as Smithfield, Farmland, Gold Kist and Pilgrim's Pride and some major firms based in other countries into a food system clusters. But we know Tyson and Farmland have long-term agreements to provide broilers, beef and pork to Wal-Mart. Obviously, our information does not begin to include all the relationships in existence. These relationships are changing very rapidly. It is still a very dynamic system. While some old relationships are severed, others are formed. But the trend toward more concentration of control seems to continue unabated.

### **WHAT IS A FARM?**

The restructuring of the food system raises many questions about the future of agriculture and the food system in the United States. A relevant question to ask when discussing the farm crisis is how many farms and farmers there are now in order to determine how many we might lose. The answer is not as simple as one might think. Using the census definition of selling at least \$1000 worth of agriculture products per year, the number of farms is about two million. However, much of the information coming from the USDA uses different numbers. Secretary of Agriculture Ann Veneman suggests the number of farms is between 300,000 and 500,000. They have written off the smaller farms. When identifying and discussing many of the smaller farms, USDA has shifted the focus from the farm to the farmer. USDA now characterizes small farms according to such characteristics of farmers as "hobby" farms, "retirement" farms, and "part-time" farms.

Webster's Dictionary defines a farm as a piece of land (house, barns, etc.) on which crops and animals are raised. This definition puts the emphasis on land, but the inclusion of house and barn implies a particular type of farming system, a dispersed farming system. This is the dominant system in the United States, but the village system is more common in many countries of the world. The emphasis on a house and barn also suggests a bias toward what is called a family farm. On an industrial farm,

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<sup>4</sup> ADM owned 13% of IBP's shares. However, when Smithfield proposed purchasing IBP, some of these shares were swapped. We are not clear on what happened to ADM's shares of IBP when Tyson took over the company.

those providing the labor and management do not usually live on the farm and the large confinement buildings are not usually called barns. This definition is probably more compatible with the census definition than that currently being used by USDA.

Returning to the characteristics of those on the farm, the dictionary defines a farmer as a person who manages or operates a farm. Placing the emphasis on management eliminates those mainly providing labor from being called farmers, especially on farms in which the major managerial decisions are made by persons who provide neither labor nor capital. Thus, a farm does not need a farmer. This is a characteristic of an industrialized agricultural structure.

As farmers and growers acknowledged in the 1960's in Union Parish, Louisiana, those producing under production contracts are not farmers. (Heffernan, 1972.) The question is how far down the road of alliances and seamless systems can a farmer go before he/she is no longer a farmer? In some geographic areas farmers effectively have access to only one market, and their closest agribusiness supplier, from whom they get most of their seed, chemicals and fertilizer, is in the same food system cluster. At what point do we conclude farmers are no longer making the major managerial decisions regarding the production of the crops or animals on their farms? These farmers use the genetic material, chemicals and fertilizers available from their supplier and they produce what their only market will buy. The managers of the markets make many of the decisions about how the product will be produced. It probably does not make any difference whether the commodity is marketed using marketing contracts or spot markets. We can now ask: how many of those 300,000 to 500,000 farms are operated by farmers today?

In the corporate world, management is also the key indicator of the definition of a firm. Although divisions such as Excel, IBP, and Pioneer are well-known to farmers, because in the past they were management units, today they are divisions of Cargill, Tyson and DuPont. Using "management unit" to define a farm or a farmer, our food system clusters raise interesting questions regarding how many farms we have today and what the trend portrays.

Our research supports those who argue that farmers will be a part of an alliance or seamless system. The evolving system will be eliminating small farms as it closes its markets to them. But small is a relative term and, as the smallest fall out, there will still be small farms. It is just that the small farms will be larger. Today, small farms are defined as those producing less than \$250,000 in gross farm sales. Larger farmers than this will be integrated into the food system clusters, but their farms will no longer meet the definition of a farm. They are not autonomous firms because the major managerial decisions are made by executives located far from the geographic location of the production unit. Perhaps these units are best seen as subsidiaries like Excel, Pioneer and IBP. The relationships that these production units have with the top executives of the firm will undoubtedly be quite different from that of the executives of the processing subsidiaries. Final approval on all major decisions for production and processing are the responsibilities of the executives of the dominant firms in the food system clusters.

We conclude that we do not know how many farms or farmers there are in the United States today. It is a matter of definition. We could follow the lead of USDA and define most of them out of existence. Interestingly, there appears to be little disagreement on the number of hired farm laborers, unless some of what we now call farmers fall into this category rather than the category of growers. A recent article citing USDA sources says there are now about one million farm laborers on the job at any one time.<sup>5</sup> (*New York Times*, December 2, 2001) Forty percent of them are undocumented workers. So, are there twice as many farm workers as farmers, or are there one-half as many farm workers as farmers in the country? It depends on whose definition is used.

### **FARM SIZE AND STRUCTURE SET CONTEXT FOR FARM CRISIS**

What does farm size and structure mean for a farm crisis? The answer largely depends on whether the current farm programs continue. It will not be called a crisis if only the small and medium-size farms go bankrupt. It will be seen as a century-long trend. The transition is well underway in which large farms are becoming something other than farms. But this long-term transition masks the implications of these changes and, combined with the belief that small farms are not efficient, society may well accept the explanation that the food system clusters are efficient and acceptable. Families directly impacted in the transition will find that in the early years of the transition, their economic situation will probably improve. The longer-term implications will not be considered.

In 1969 we interviewed all of the broiler growers in Union Parish, Louisiana, the parish with the largest number of growers at that time. We returned to interview all the growers in 1981 and again in 1999. In 1969 there were four integrating firms operating in the parish; that was reduced to two by 1981, and those two merged in 1982. This was a very poor parish in 1969 with little agricultural sales. It was also listed as a persistent poverty county. By 1981 it was clear that the broiler-producing families were in better financial condition than most people living in the parish regardless of the measure of financial well-being used. By 1999 the parish had the highest gross farm sales of any parish in the state. However, it was still a persistent poverty county even though the number of broiler growers had more than doubled and a processing facility had been built in the parish. Most of the broilers producers were still in debt and 92 percent of those without debt said they would not recommend a young family get involved in contract broiler production.

The consequences of the transition for the community are evident early in the process. When family businesses subtract their expenses from the sales they call the difference a profit if it is positive. Economists call this their return to management, capital and labor. From a community point of view, it

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<sup>5</sup> The article also notes that forty percent of the farm laborers are undocumented. This means there are about 400,000 undocumented laborers, a number that falls about in the center of the range USDA uses for the number of farms. The conclusion one draws is that there are as many undocumented farm laborers as there are farms and, given our previous discussion, probably more farm laborers than farmers.



makes little difference to which of the factors of production the profit is attributed because most of it is still spent in the community leading to what is called a “multiplier effect.” When an outside firm takes over the production (and processing and retailing), the firm treats labor like any other input and attempts to purchase it as cheaply as possible. The profit is then attributed to return to management and capital and immediately leaves the community. Why did farm and ranch-based rural communities develop locally prosperous economies that led to a large middle class while mining-based rural economies develop local economies best described as poverty-ridden? We suggest it was the result of the difference in the economic structure.

There is growing recognition that there is a crisis in agriculturally-based rural communities, but few are willing to relate it to the economic structure.

### **DO WE NEED U.S. FARMERS ?**

An even more pressing issue than the decreasing number of farms and restructuring of the food system in the United States is the global restructuring and the issue raised by Stephen Blank in his book, *The End of Agriculture in the American Portfolio*. Much of the book is devoted to providing an economic justification for the evolving global food system that does not need U.S. farmers. Behind the justification he raises the question of whether there will be U.S. farmers in the future. His basic position is that U.S. farmers are high cost producers compared to other farmers in the world. For too long we have believed that U.S. farmers were the most efficient in the world. Over the past decades the conceptualization and measurement of efficiency have led to so much misunderstanding that it has blinded us to the fact that U.S. farmers may not be able to compete in the global market. Regardless of the efficiency of U.S. farmers, Blank argues they are not the low cost producers in the world. In fact, they are some of the highest cost producers. He notes that part of the reason for the high cost is the high land and labor costs. In addition, some of our higher costs result from U. S. environmental and health requirements and enforcement which many countries neither have nor enforce. Of course international exchange rates also contribute to U.S. farmers being high cost producers.

From a neo-classical economic perspective Blank argues that if we can import our food cheaper from poorer countries than we can produce it, we should import our food and use our land for the higher value the market dictates such as urban expansion and recreation.

Leaving Ireland and returning through England in December 2000, then President Clinton addressed an audience at the University of Warwick. In his remarks he said

If the wealthiest countries ended our agricultural subsidies, leveling the playing field for the world's farmers, that alone could increase the income of developing countries by \$20 billion a year. Not as simple as it sounds. I come from a farming state, and I live in a country that basically has very low tariffs and protections on agriculture. But I see these beautiful fields in Great Britain, I have driven down the highways of France; I

know there is a cultural, social value to the fabric that has developed here over the centuries. But we cannot avoid the fact that if we say we want these people to have a decent life, and we know this is something they could do for the global economy more cheaply than we, we have to ask ourselves what our relative responsibilities are, and if there is some other way we can preserve the rural fabric of life here, the beauty of the fields, and the sustainability of the balanced society that is important for Great Britain, the United States, France and every other country. The point I wanted to make is a larger one. This is just one thing we could do that would put \$20 billion a year in income into developing countries. (*Federal News Service*, 12/14/00)

This is the direction U.S. food policy appears to be heading. It is behind our farm programs and the policy that we are advocating for other nations. As the transnational corporations travel the world “sourcing” their inputs from wherever they can get them the cheapest and selling them into the wealthiest nations, U.S. farmers will be left out.

Economists have already calculated the world price of milk if there were no dairy farmers in the United States. The price would be about \$1.50 per one hundred pounds, a price less than the cost of producing milk in Southern California, the geographic area with the lowest production cost in the country. A recent study at Iowa State University suggests that Brazil can deliver soybeans to Europe at a cost of \$1.50 less per bushel than can the United States. During harvest this past fall the loan deficiency payment (LDP) for soybean paid by the government reached \$1.39 per bushel in Boone County, Missouri. This, plus a special government payment for oil seed crops keeps soybean producers in this county competitive on the global market.

Despite our Western cowboy lore, ranching families in the western prairies cannot afford to compete with those who buy land for development and for recreational purposes. Consequently, the ranches are ceasing to operate. Today, the United States imports about four million head of cattle; and is a net importer of beef.

Do we need U.S. farmers? The answer is no if we use only the very narrow market definition that focuses on how cheaply U.S. consumers can purchase food at the retail level. Rarely is it noted that one of the reasons food can be sold relatively cheaply is that many of the true costs, what economists call “externalities,” are ignored. Corporations are experts at pushing their costs on to the public.

In the context of this profoundly changed structure of agriculture and emerging global food system, one of the big issues not being adequately addressed is how will the hungry of the world now be fed. The restructuring of the food system effectively means local, state, and national governments have less influence on the food system. As transnational corporations (TNCs) increasingly make more of the major decisions regarding where food products are produced, who produces them, and how they are produced, governments have been forced to relinquish their own rules and regulations. Often international economic rules heavily influenced by executives of the TNCs limit national governments

from controlling their own food system in a way that best provides adequate food for their own citizens.

These firms are in business to make a profit. Their decisions are based not on what is best for the people of any particular country, but what is best for their firm's profits. Where can they source their products the cheapest? Obviously, this can be done in nations with the lowest land and labor costs and in those nations that let the firms ignore environmental and health concerns. An excellent example of how this impacts the world's food supply is found in what is often referred to as "the circle of poison." Agricultural chemicals are produced in the United States that U.S. farmers are not allowed to use. The companies are allowed to export them to other nations where farmers are allowed to use them to produce food that can then be shipped back to the United States for consumption.

A major concern about this industrialized, globalized food system focuses on who will be left out. About 21 percent of the world's population earn a dollar or less per day. Almost one-half of the world's population does not make over two dollars a day. The "for profit" firms find little opportunity to maximize their profits selling food products to the economically deprived. If these people are going to be part of the global food system, it will most likely be as producers, not as consumers.

The cold reality is that the United States does not need U.S. farmers. This is such a prosperous country that it can and does import food from other countries where significant portions of their populations are nutritionally deficient and hungry. Most consumers in the United States are not in danger of having inadequate food as long as the global economic structure does not collapse. It is the poor, especially in other countries, that are endangered if we do not have U.S. farmers.

So what is keeping US agriculture competitive in the global market today? Large grain farmers receive large government subsidies. Large animal producing units are competitive because they can buy feed at prices below the cost of production. Smaller farms survive because they are subsidized with the farm family's non-farm income and the medium-size farms are in trouble. Is Steven Blank correct? Are all farms in trouble? Is this the basis of a secure and sustainable food system?

Perhaps the major difference between economists and other social scientists such as sociologists is that most economists see the evolving system as inevitable. They feel we can tweak government policy a bit, but the underlying economic forces are so strong they cannot be overcome. Sociologists believe the current system was put in place by humans and can be changed. The economic system is a social institution and its structure is a social design. David Korten, (1999) who has a Ph.D. in business administration and has spent most of his career involved in economic development in other countries says: "The triumph of global capitalism means that more than half of the world's one hundred largest economies are centrally planned for the primary benefit of the wealthiest one percent of the world's people! It is a triumph of privatized central planning over markets and democracy. Even more, it is the triumph of the extremely wealthy over the remainder of humanity."

Where is the hope? Social forces are developing in this country and around the world that are

challenging this new global economic system that they feel is not compatible with their view of what should be. This is already leading to new opportunities for small farmers through the use of direct marketing arrangements between themselves and consumers. Some of the emerging alternative food systems are connecting smaller farms, processors and retail stores that are being shut out of the global food system. As citizens become more aware of the evolving global system, especially the food system and its implications, more are joining a variety of interest groups in an effort to seek new alternatives. This view of the future, however, offers little hope for farm families and rural communities who say, “in the long term we will all be dead.”

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