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Abstract

A major concern as we move into the Twenty-first Century is the structure of the agricultural sector. By structure, is meant considerations of size and scale as well as who is to manage, control and finance farming and agribusiness operations.

Disciplines

Agricultural and Resource Economics | Agricultural Economics | Agriculture Law | Industrial Organization

The Structural Transformation of the Agricultural Sector*

Neil E. Harl**

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Structure of the Agricultural Sector

With the proportion of slaughter hogs sold under some type of marketing or production contract approaching 70 percent, and with feedlot marketings on a similar basis at high levels and rising, it is important to assess the implications for producers. Such a structural transformation of a subsector is not unknown—the broiler industry went that direction several decades ago—but it is a first for the Middle West.

The critical question: is it important to farmers—and to society—whether agriculture is populated by independent entrepreneurs or serfs? The structural change now occurring will determine which direction agriculture takes. A producer without meaningful competitive options is a relatively powerless pawn in the production process.

The evidence is overwhelming that the agricultural sector is undergoing the greatest structural transformation in the history of the sector. *Without much doubt, low commodity prices are contributing to the structural transformation of the sector.* A low risk, low return choice looks attractive if the alternative is bankruptcy.

Competition is the most critical element of a price oriented, market economy. Without competition, firms become complacent, are less likely to innovate, tend to become arrogant and indifferent and are inclined to produce less and obtain a higher price for their output.

To a considerable extent, structure will be driven by economic considerations. This country has been committed for some time to the notion that if someone can develop ways to produce goods or services at a lower cost, barriers are unlikely to be erected to prevent that from happening. In large part, the consumer is king and generally rewards the best value with purchases. However, for the economic system to function properly, it is critical to have—

- Policies in place to deal with cost externalities such as odors and stream and groundwater pollution, and
- A system of market protection (or antitrust) to penalize collusion and to prevent undue concentrations of economic power.

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The Era of Contract Agriculture

The signs of increasing use of contracts are commonplace—especially on the production side of agriculture.¹ Specialty grains, feeder livestock, milk production, even fruits and vegetables, are being produced under contract and have for some time. So what's the concern about the rising tide of contract agriculture? Basically, the concern is a tilt in market power with a possible shift in bargaining power as input suppliers and output processors (and first purchasers otherwise) gain greater economic power, undoubtedly at the expense of producers.²

Concentration in input supply and output processing companies. Mergers, alliances and various other types of arrangements are reducing the number of players in input supply and output processing and handling and increasing the level of concentration. While the level of mergers, alliances and consolidations is not a completely reliable indicator of competition, the fact that nearly \$15 billion of such amalgamations has occurred over the past five years in the seed business, some at price levels difficult to justify under present economic conditions, suggests that—(1) some are discounting revenue from a pot at the end of some unknown rainbow; (2) irrational behavior is being displayed; or (3) some acquiring firms are assuming that a greater share of the world's food bill can be claimed by those who control the germ plasm involved in food production.

Increasing levels of concentration among firms do not tell the entire story. The revolution in ownership of germ plasm, the feature of cells that determines the characteristics of offspring, also is moving rapidly toward concentration in a few hands. The high-profile alliance (and now merger) between DuPont and Pioneer Hi-Bred International, the Monsanto acquisition of DeKalb, the Monsanto acquisition of Delta and Pine Land Company (since terminated) and the formation of Syngenta by Novartis and Astrazeneca are recent examples of how the ownership and control of genetic material in crops are falling into the hands of a few, economically powerful players. Increased concentration is also leading to control by a few firms over the major processes by which genetic manipulation occurs, thus enabling those controlling the technologies to block use by other firms.

This development is partly related to the changing role of the land grant universities, partly to the ability in recent years to manipulate germ plasm through genetic engineering, and partly to the consequences of the ability to obtain a monopoly-like position over unique life forms and over the process of genetic manipulation.

- For decades the land grant universities developed the basic genetic lines and made those lines available to the seed industry. Because of limitations on university funding and the near-revolution in genetic engineering, the private sector several years ago began pouring more money into basic research. Developments have progressed to the point that the payoff from research and development funding can no longer be used to compare the present with prior periods. Payoffs are expected to flow more readily than when biotechnology was in its infancy.

¹ See, e.g., Harl and Lawrence, "Long-term Marketing Contracts with Packers...A Journey Through the Downside," *Iowa Pork Producer*, Sept., 1998, pp. 5-7.

² See generally Harl, "Contract Agriculture: Will It Tip the Balance?" 10 *Leopold Letter* No. 4 (1998); Harl, "Agriculture in the Twenty-First Century," <http://www.econ.iastate.edu/faculty/harl/papers>.

- The advent of genetic engineering meant that scientists could manipulate genetic composition—not through conventional crop breeding techniques but through laboratory procedures—to change the genetic makeup of plant and animal life. That has produced herbicide-resistant crops, for example.

- Finally, the U.S. Supreme Court in a 1980 landmark case determined that life forms could be patented.³ In addition to federal Plant Variety Protection (PVP)⁴ and simply shrouding research efforts with secrecy, the ability to patent life forms provides a powerful tool to keep competitors at bay.

While a major concern is over concentration in seeds and chemicals, there is also concern over concentration in livestock slaughter, grain handling and shipping, farm equipment manufacture and food retailing. Indeed, rapidly rising concentration in food retailing may be the most worrisome development in recent years.

Driving forces to consolidate. One of the drivers in the trend toward greater concentration in almost all sectors of the U.S. economy is increasing concentration in markets *into which products are being sold*. Thus, the rising tide of concentration in food retailing leads to consolidation by suppliers to match the buying power of the retailers. The driving force is an increase in negotiating power, not necessarily an increase in efficiency.

Example: In late July, 2000, the merger announcement by Pillsbury and General Mills noted that a major reason for the merger was to position the resulting firm to better do battle with the major players in food retailing. The importance of getting shelf space at the retail level is another critical factor in food production and distribution. Concentration in food retailing leads to concentration among those who sell to the big food retailers which leads to concentration among those to sell to those who sell to the big food retailers and so on down the scale to the powerless producer. In early 2001, the president of Tyson Foods was quoted as saying that the proposed merger with IBP “should give us 100 feet of shelf space at Wal-Mart.”

Just how concentrated is food retailing? In 1992, the five leading food retail chains controlled 19 percent of U.S. grocery sales. By 1998, the five largest chains (Safeway, Albertson’s, Kroger, Ahold and Wal-Mart) controlled about 33 percent of U.S. grocery sales with that figure at an estimated 42 percent in 2000. Unless mergers are curbed, that figure is expected to reach 60 percent within three years.

Effect of contracts. An important question is the effect concentration will likely have on contract negotiations with producers. It depends on the options open to producers who don't like the terms of contracts offered to them. With numerous contract possibilities available from input suppliers, each offering inputs of roughly equal productivity and cost, the answer is perhaps "not much."

³ *Diamond v. Chakrabarty*, 447 U.S. 303 (1980) (bacterium having unique genetic characteristics is patentable subject matter under the general patent statute). The scope of plant patenting is back before the U.S. Supreme Court in the case of *Pioneer Hi-Bred International, Inc. v. J.E.M. Ag Supply*.

⁴ Pub. L. No. 91-577, 84 Stat. 1542 (1970), 7 U.S.C. §§ 2321-2581. See generally 12 Harl, *Agricultural Law Ch.* 110 (2000).

But if there are just a few options, with the next best offering a much less attractive set of inputs in terms of cost and productivity, such as when a variety of seed is developed with significant yield premium over otherwise competitive varieties, the answer is "take what you're offered." A greater proportion of the value of the yield premium is expected to be captured by the seed supplier under those conditions than has historically been the case. The outcome is likely to be a tilting in the terms of contracts in favor of the input supplier. The division of revenue from production would be expected to shift over time in favor of the party with the monopoly or near-monopoly position. Input suppliers can be expected to drive the best possible bargain which means, in the case of seed, capturing the greatest possible percentage of the value from any yield premium.

- The outcome would be a smaller share of the revenue from production going to the producer, resulting in less compensation to the producer and less to capitalize into land values.
- Seed companies, for example, would end up with a larger share of the pie with more to capitalize into the stock of the input supply firms. Even if unique corn derivatives produce revenue of \$2 million per acre, it's fairly clear that whomever holds the rights to the technology involved will capture the lion's share of the revenue, not the producer.

A good argument can be made that this perception of potential profits in the future is part of what was driving the intense push toward concentration in control over germ plasm.

Thus, a major issue is whether a shift in market power occurs between input suppliers and producers, whether that shift in market power is translated into enhanced bargaining power and whether the enhanced bargaining power is employed to siphon a greater proportion of the economic return generated by the sector into the hands of input suppliers.

Other shifts may follow. The negotiating power of seed firms could well have other impacts.

- In an effort to control the germ plasm more completely, seed companies are likely to negotiate for ownership of the product with the producer under contract having only a contract right to payment, short of ownership of the crop or livestock involved.
- Similarly, the contract may contain what would appear at first glance to be an attractive feature—the input supplier bearing the price risks.

These seemingly innocent shifts would mean, however, that the economic position of the producer would be transformed from that of a risk-taking entrepreneur into a relatively riskless world of fixed compensation. Thus, a shift not only of compensation would occur in favor of the input supplier but also a shift of management functions in the same direction. The outcome would be reminiscent of the limited role played by growers under broiler contracts.

Vertical integration. The moves made by the major players, both input suppliers and output processors and handlers, could lead one to conclude that the objective is to vertically integrate the sector. Such an objective could be pursued for several reasons—(1) to gain and maintain greater control over patented products or products subject to intellectual property protection otherwise; (2) to apply economic pressure on producers to relinquish functions in

favor of the integrator (such as risk management) or to merely provide an opportunity for risk to be off loaded onto the integrator; (3) to reduce costs (particularly acquisition costs for raw materials) of the integrating firm; (4) to achieve greater market share on an assured basis; or (5) to deliver with greater precision what consumers want. The latter point is debatable. In an early example, seed/chemical companies misjudged consumer acceptance of genetically engineered foods and stumbled badly in the process.

Although vertically integrating a sector or subsector may produce economies—including reduced costs for acquisition of raw materials—vertical integration by powerful integrators can have decidedly negative consequences. Among those negative outcomes is the demolition of open, transparent, competitive markets and replacement of those markets with negotiated prices. With a huge difference in bargaining power, as between the parties, the outcome is predictable. The party with the weaker market power tends to be the loser. Unless producers act collectively, producers tend to be the weaker party.

Are economies from vertical integration likely to be passed on to consumers? With a high level of concentration, that's doubtful. Actually, several possible outcomes could be occurring in the merger/vertical integration movement.

- If the structural transformation now being observed reflects efficiencies, lower costs could be passed to consumers if competition is present and the competitive system is functioning well.
- In the event gains from efficiency are not passed to consumers, but are passed to shareholders or used to pad costs within the firm, the trend is objectionable even though some would argue that system-wide gains in efficiency should be permitted even in the face of anti-competitive conditions.
- The third scenario, which is concerned with the distributional effects of competition policy, does not recognize gains from efficiency as a positive offset to an otherwise anti-competitive merger unless the gains are passed on to consumers.

Clearly, the higher the level of concentration and vertical integration, the greater the risk of unacceptable market conduct.

The “deadly combination.” Without much doubt, the greatest economic threat to farmers as independent entrepreneurs is the deadly combination of concentration and vertical integration. Producers are vulnerable to a combination of high levels of concentration in input supply and output processing and high levels of vertical integration from the top down.

Example: let's assume concentration in hog slaughter continues to increase (the four largest firms now control about 60 percent of hog slaughter compared to more than 80 percent for steer and heifer slaughter, as shown in Table 1.) and the hog slaughtering firms vertically integrate in the manner pioneered by Smithfield. Before dropping the Tyson merger, Smithfield would have controlled about 68 percent of its hog slaughter. Let's say we're down to two huge firms and each is 90 percent integrated. A producer with a five year contract with one of the two major firms comes to the end of the contract. The new contract is considerably less attractive

Table 1. Four Firm Packer Concentration Ratios (in percent)

| <u>Year</u> | <u>Cattle</u> | <u>Steer & Heifers</u> | <u>Cows/Bulls</u> | <u>Hogs</u> |
|-------------|---------------|----------------------------|-------------------|-------------|
| 1980 | 28 | 36 | 10 | 34 |
| 1985 | 39 | 50 | 17 | 32 |
| 1990 | 42 | 55 | 18 | 33 |
| 1995 | 69 | 81 | 28 | 46 |
| 1996 | 66 | 79 | 29 | 55 |
| 1997 | 68 | 80 | 31 | 54 |
| 1998 | 70 | 81 | 33 | 56 |
| 1999 | 70 | 81 | 32 | 56 |

Source: International Agricultural Trade and Development Center, University of Florida.

than the expiring contract. The producer is told—take it or leave it. If the closest competitive option is 900 miles away—and is also heavily integrated—the producer seeking another option for hogs is highly vulnerable. If the producer had made a heavy commitment to facilities, the vulnerability is greater yet with significant barriers to exit. Clearly, a producer in that situation is likely to be squeezed.

In short, whoever controls the limiting factor in any process is in a position to exert influence over the entire process and, if the level of concentration is high, exact a hefty charge against the fruits of production. In hogs the limiting factor is not capital or labor or buildings; the limiting factor is slaughter capacity or “shacklespace.” In food generally, an important limiting factor is shelf space.

Another dimension of concern in terms of the “deadly combination of concentration and vertical integration” is captive supplies of livestock. These are arrangements used by packers to obtain livestock two or more weeks prior to slaughter by way of forward contracting, marketing agreements and packer-fed cattle. It has been estimated that a one percent increase in a packer’s inventory of forward contracted cattle on any given day is associated with lower prices (3 to 5 cents per hundredweight) paid for cattle in the cash market. With captive supplies running as high as 70 percent in some weeks, the economic impact could be as high as \$25 to \$50 per head of cattle sold.⁵

Is this any different from vertical integration in the automobile industry, for example? The answer is yes. Producers of farm products are so numerous, even yet, that a vertically integrated packer can terminate one or even several with no concern about an adequate supply of animals. That is not the case with most suppliers in other vertically integrated sectors of the economy.

What all of this adds up to is this—*if farming is to be made up of independent entrepreneurs as producers, it is absolutely essential for producers to be assured of meaningful*

⁵ See Grain Inspection, Packers and Stockyards Administration, U.S. Department of Agriculture, “Concentration in the Red Meat Packing Industry,” February, 1996.

competitive options. To assure that outcome, it is necessary to—(1) limit concentration in input supply and output processing or handling and (2) possibly limit the extent of vertical integration.

Barriers to entry. In general, one would expect high handed economic behavior by near monopolists to be met by entry of new competitors attracted by the generous terms of contracts in favor of the input suppliers. And that would likely occur if entry were possible. However, barriers to entry may be fairly high.

- One barrier is capital needed to mount the kind of research effort needed to maintain a product flow similar to that of the firms pressing for monopoly-like concentration levels. The capital needed is very substantial.

- Also, in the seed/chemical industry, existing patent and plant variety protection may mean that potential competitors are frozen out of competition as a practical matter for the duration of the patent or PVP certificates or the duration of a patent over processes by which genetic manipulation occurs.

Reform of contract practices. The great disparity in market power tends to lead to contracts with oppressive features (as viewed by the weaker party), retaliatory practices by the stronger party and vulnerability of the weaker party in terms of securing payment. The Producer Protection Act, which has been proposed and endorsed by 17 State Attorneys General, would take several steps as a matter of state law towards providing full information to the producer and lien protection to the producer to secure payment of amounts due and reducing the probabilities of economic retaliation in producer-processor contract relationships.

The proposed legislation contains six parts—

- Require contracts to be stated in plain language and disclose material risks;
- Provide contract producers with a right to review and a three-day cancellation period;
- Prohibit confidentiality clauses;
- Provide producers with a first priority lien for payments due under the contract;
- Prevent capricious or retaliatory termination of the contract; and
- Prevent retaliation against producers who participate in producer organizations.

Although the proposal has been criticized,⁶ the provisions all have precedent in other areas of the law, such as consumer protection legislation and trade regulation, and all are based on basic principles of fairness, full information and equity which are common throughout the law.⁷

The Family Farmer Cooperative Marketing Amendments Act of 2001, which has been introduced in the U.S. House of Representatives, would address some of the same issues at the federal level.⁸

⁶ See Boehlje, Schrader, Hurt, Foster and Pritchett, “The Producer Protection Act—Will It Protect Producers?” 18 *Agric. Law Update* No. 2, pp. 4-6 (2001).

⁷ See Harl, Stumo, McEowen, Heffernan and O’Brien, “The Producer Protection Act—Will It Protect Producers? A Rejoinder,” 18 *Agric. Law Update* No. 3, pp. 1-7 (2001).

⁸ H.R. 230, 107th Cong., 1st Sess. (2001).

Position of Small Firms

A major issue is whether smaller input (and processing and handling) firms are likely to be able to compete. Certainly the small seed firms have remained surprisingly healthy in recent decades as performance traits of the varieties and hybrids developed by the larger firms have tended to outdistance the performance of seed marketed by small firms.

But the era of transgenic hybrids produces both the incentive to maintain greater control over high performing germ plasm and the technology and resources to challenge those who manage to obtain the germ plasm in clandestine ways. The larger firms may acquire some smaller firms to complete their distribution network and licensing germ plasm for a fee may well occur. However, it is unlikely that the dominant firms will generate additional competition by licensing to smaller firms.

Indeed, with the smaller firms predictably unable to maintain access to higher performing germ plasm, the price of lower performing seed varieties and hybrids is expected to reflect the economic disadvantage inherent in the lower performing varieties. At some point, many if not most of the smaller seed firms that are unaligned with the dominant firms will be unable to survive economically.

Antitrust Surveillance

Another possible area of protection against a sharp tilt in the economic terms of contracts is vigilance by federal (or state) anti-trust agencies. Certainly the Federal Trade Commission and the U.S. Department of Justice should be sensitized to the potential for economic abuses down the road.

Further consolidation in any highly concentrated sector merits scrutiny under the Clayton Act rules that impose limits on mergers expected substantially to diminish competition. So-called horizontal mergers or mergers of competitors are the most likely to be challenged. Other areas of antitrust challenge involve production, including price fixing, agreements to divide markets and group economic boycotts. These are all per se offenses under federal antitrust law.

It's been well established for decades that firms with monopoly power over a product should not be able to "tie" other products to the transaction and extend the monopoly position.⁹ Such contracts are used to create "economic leverage" by using monopoly power in one market (the market for the tying good) to create monopoly power in a second market (the market for the tied good). Such arrangements, which involve tying products over which a firm does not have monopoly power (such as financing, insurance or risk management) to a product over which the firm does have monopoly power (such as a seed variety), are also illegal per se unless it can be demonstrated that the product in monopoly status wouldn't work as well with other firms' products. And, that is rarely the case.

⁹ See generally Neale, *The Antitrust Laws of the United States of America* Ch. XI (2d ed. 1970).

Some economists have criticized the antitrust treatment of tying contracts as not leading to economic leverage in all instances.¹⁰

If the objective is to maintain significant levels of competition, FTC and the Department of Justice should scrutinize all agri-business mergers carefully for anti-competitive consequences from the standpoint of producers (as well as consumers) and all practices by companies in tying credit, insurance, risk management or other needed inputs to potential items. One problem in relying on FTC or the Department of Justice is that both agencies seem to believe that the agriculture is the last bastion of perfect competition and is competitive by a comfortable margin. The problem is not one of diminished competition among producers but among those who supply inputs and process or handle products from the producing subsector.

The approaches used by the Antitrust Division of the Department of Justice and by the Federal Trade Commission (FTC) in analyzing mergers have traditionally focused on the probable impact on consumers. That has been the principal concern of the antitrust system. For agriculture, however, the concern is the impact on *producers*—assuring producers competitive options. Consumers may ultimately be affected but that is down the road. That's why a different approach is needed in the evaluation of agribusiness mergers if there is a shared vision of maintaining a sector of independent entrepreneurs as producers. Unless that vision is articulated by the Congress and the Administration, the chances of meaningful actions by the antitrust system are slight.

Solutions

If sufficient public interest and political will are generated, three solutions seem to lie within the feasible set.

Antitrust oversight. First, aggressive antitrust oversight at the federal level (and among the states) is the traditional way for proposed mergers and alliances, tying contracts and other anti-competitive practices to be evaluated on the basis of potential anti-competitive effects. The objective should be to insure that all sectors and subsectors have equal, and low, economic power. Because of the importance of food and the policy significance of maintaining a healthy producing sector, it may be necessary for the Department of Justice to be funded specifically to maintain a substantially higher level of oversight over structural shifts in food and agriculture.

Collective action by farmers. One possible strategy for farmers is to forge alliances among producers (which is specifically allowed by federal law so long as it does not "unduly enhance" price).¹¹ The push to achieve such countervailing power was the driving force behind the formation of labor unions a century ago. Historically, however, farmers have been unwilling to accept such a disciplined approach to achieving bargaining power.

Section 1 of the Capper-Volstead Act of 1922¹² provides protection from antitrust challenge for producers who seek to bargain collectively with processors, handlers and input

¹⁰ See Warren, *Antitrust in Theory and Practice* 192-202 (1974).

¹¹ Capper-Volstead Act, 7 U.S.C. §§ 291, 292. See generally 14 Harl, *Agricultural Law* § 137.04 (2000).

¹² 7 U.S.C. §§ 291, 292.

suppliers.¹³ The Capper-Volstead Act provides that "persons engaged in the production of agricultural products as farmers, planters, ranchmen, dairymen, nut or fruit growers, may act together in associations, corporate or otherwise, with or without capital stock, in collectively processing, preparing for market, handling, and marketing in interstate and foreign commerce, such products of persons so engaged."¹⁴ The Act goes on to allow "Associations [to] have marketing agencies in common; and such associations and their members may make the necessary contracts and agreements to effect such purposes."¹⁵

To come within the protection of the Capper-Volstead Act, an organization must—(1) be operated for the mutual benefit of its members; (2) either limit each member to one vote regardless of the amount of stock or membership capital the member owns or, if dividends are paid on the basis of members' stock or membership capital, the dividends must be limited to a maximum of eight per cent per annum; (3) not handle a greater amount of products from nonmembers than from members; and (4) not be operated for profit.¹⁶

The grant of immunity from antitrust challenge was further limited by a provision that if the Secretary of Agriculture finds that an association "monopolizes or restrains trade in interstate or foreign commerce to such an extent that the price of any agricultural product is unduly enhanced thereby he shall issue...an order...directing such association to cease and desist from monopolization and restraint of trade."¹⁷

The key question is whether producers will be willing to sacrifice independence of action in order to bargain collectively for access to inputs and for greater market power in marketing their products. The most likely avenue for such collective action is through organizations specifically created for that purpose.

The time may be near when that will be the only practical alternative to vulnerability and serfdom.

A level playing field. The provisions in the Producer Protection Act, proposed by 17 State Attorneys General, would constitute a modest first step toward leveling the field of contracting. Indeed, serious consideration should be given to adding such provisions to federal antitrust law.

More germ plasm in the public domain. Another potential solution for concentration in seed supply is for the public to increase its support for crop breeding by land-grant universities and other public agencies with transgenic hybrids and varieties made available to smaller seed companies. This would restore the land grant universities to the role played before the advent of genetic manipulation and the dramatic increase in private sector funding for new varieties and

¹³ See generally 14 Harl, *Agricultural Law* § 137.04 (2000).

¹⁴ 7 U.S.C. § 291. See *Green v. Associated Milk Producers, Inc.*, 692 F.2d 1153 (8th Cir. 1982) (transportation of milk is handling activity protected by Capper-Volstead Act; employees of dairy cooperative acting within scope of their authority could not be guilty of conspiracy with cooperative because employees and cooperative are part of same entity; cooperative members and cooperative are considered one entity and incapable of conspiring with each other).

¹⁵ 7 U.S.C. § 291.

¹⁶ *Id.*

¹⁷ 7 U.S.C. § 292.

hybrids to the extent that public funds are used, however, the results should be in the public domain.

To a considerable extent, this possible outcome is dependent upon the perception in state legislatures and the Congress as to the public interest, long-term, in maintaining a greater degree of competition in seed supply. Legislative bodies are more likely to respond if convinced that dominance of seed supply by a few large firms, worldwide, could affect food costs by influencing the supply of food through contractual mechanisms.

Role of Institutions

Arguably what is likely to emerge over the next few years is a heightened awareness of the efficacy of institutions in limiting or constraining economic activity. To the extent that institutional intervention is successful, a major concern is how to keep institutions in adjustment with changing economic circumstances. Markets reflect changes day by day, minute by minute. Yet, institutions tend to remain in place, frequently producing economic rents for some, until sufficient momentum is generated to effect change. To a considerable degree, institutions limit (as well as facilitate) market operations but without the same self-adjusting features as markets.

In Conclusion

To a disturbing degree, what is happening involves market power and the exploitation of that power. The key issues, at the moment, are what type of producing sector is in the long-run best interests of consumers—and others, and whether U.S. agriculture is to be populated by producers who are independent entrepreneurs or serfs.

In the meantime, the prudent course would suggest careful evaluation of mergers and alliances now occurring in rapid succession and careful consideration of the level of resources flowing into the development of transgenic hybrids and varieties in the public domain.