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# Center for Agricultural and Rural Development

# **Rural America and Modern Agriculture: What Kind of Future?**

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armers and food manufacturers • continue to evolve toward a business model that emphasizes financial efficiency and lower consumer prices. American consumers are driving this movement by spending an increasing proportion of their food dollar at fast food restaurants and at mammoth food retailers such as WalMart, Albertsons, and Krogers. What these restaurants and retailers have in common is the need for predictable, uniform, low-cost supplies. They find that they can best meet their needs by conducting their business with large, innovative food manufacturers, such as Hormel, ConAgra, Kraft, Nestle, and Smithfield, or by working directly with the largest farmers, such as the company founded by J.R. Simplot.

The push for low-cost and uniform agricultural products, combined with the tremendous increases in agricultural productivity from new technologies, has created an economic incentive for farmers to specialize and has given them the means to do it. Commercial fertilizer substitutes for livestock manure. Pesticides substitute for crop rotation. And machinery continues to reduce the need for labor. We now have specialized grain producers and specialized livestock producers. This specialization has resulted in lower production costs and the ability to significantly increase the size of farming operations. It is no accident that American consumers pay so little for their food compared to consumers in other countries. Our national policy has been to fund



agricultural research that increases yields, decreases labor requirements, and enables farmers to rely more on biotechnology and chemical inputs than on traditional farming practices. The result of this national policy has been lower prices, ever fewer farmers, and, as shown in the map on page 4, widespread population losses in major U.S. agricultural production regions.

To a large degree, this policy has been a national and international success story. Most Americans do not have to worry about whether they will have enough to eat, and U.S. agricultural surpluses help hold down prices paid by consumers around the world. The loss of population in many rural U.S. counties simply reflects the better economic opportunities that urban areas have to offer individuals and their families.

However, there are some drawbacks. A policy of increasing agricultural research and the subsidization of commodity production inevitably leads to lower farm prices over time. But Congress is unwilling to allow price supports to decrease. With this

increased reliance on government subsidies, crop farmers have developed a culture of dependency. This culture is most evident at farm bill time when, it seems, few farmers, or at least few who lobby on their behalf, are willing to consider whether agriculture would be better off without subsidies. With the significant exception of dairy. livestock producers have remained largely free of subsidies, so they are not dependent on the government for their livelihood. But they face their own problems. Increased size and integration of operations puts traditional producers at an economic disadvantage, either because of higher production costs, lower demand for their less uniform product, or limited market access. In addition, the gradual but seemingly inevitable migration of people out of the Plains States means fewer economic opportunities for remaining residents and less vibrant communities.

To the great majority of Americans, these drawbacks do not even register. Their involvement with the food system is limited to their

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immediate needs: "I want it convenient, I want it reasonably priced, and I want it to taste good." The demand for convenience and low prices has given an economic advantage to the McDonalds, WalMarts, and Krafts of the world and to their large suppliers. And, as author Eric Schlosser in his book *Fast Food Nation* points out, these companies have obtained good taste and aroma by turning to a series of large chemical plants off the New Jersey Turnpike.

#### IS THERE AN ALTERNATIVE?

The choices we make with our food dollar suggest that the interests of most Americans are well served by the current system of food production. After all, no one is forcing us to eat fast food or to shop for inexpensive food in mega-markets. Therefore, rural advocates who push for an alternative food production system that reverses the direction of market competition are not necessarily serving the broad public interest. Rather, they serve the interests of a minority of Americans who want to see a different system take shape. This minority includes people who will benefit from a reversal in the loss of small towns in agriculturally dependent counties. It also includes those who oppose on moral or ethical grounds the increased vertical coordination and consolidation that has accompanied the march toward lower costs and increased efficiencies in food production, and those who believe that American moral values and the teaching of the merits of hard work are at risk with the loss of small rural towns.

There are two ways that an alternative food production system can take shape. The first way is through government regulation or government subsidies. The ban on packer ownership of livestock passed by the U.S. Senate agriculture committee as part of its farm bill is such a regulation. The lowa legislative proposal that would favor

livestock facilities that have "family farm" or "good neighbor" characteristics is another. An effort to target farm subsidies to farmers with favored characteristics rather than to the largest farms is an example of a subsidy policy that would try to reverse the trend.

The difficulty with trying to regulate or subsidize a new system of agriculture is that it is likely to fail if it goes against the economic interests of the majority of Americans. Either innovative companies meeting consumer demands will circumvent the regulations or the regulations will not muster enough support to pass legislatures.

The second—and more sustainable—way to develop an alternative food production system is to induce American consumers to change the way that they spend their food dollar. For example, if enough consumers start demanding pork that comes from pigs raised in pasture instead of in confinement, then farmers that have a competitive advantage at producing pasture-raised pigs would have an economic advantage. It is likely that a different set of resources and skills is required to raise pasture pigs than to raise confinement pigs; therefore, market competition would change the very nature of our food production system. If American consumers were to demand traceable ground beef because of concerns about *E. coli*, then the price of hamburger would increase, a typical pound of hamburger likely would not come from many different cows, and we would have a different beef production system than we now have.

This path may be more sustainable, but it is much more difficult and expensive. Changing consumer demands that would lead to a significant change in the business of feeding Americans would involve a massive education and marketing campaign. The education part of the campaign would involve making American consumers aware of how

their food is produced, from the biotech and chemical labs that produce the seed, feed, embryos, and chemical inputs, to the farm, to the food manufacturers, and to the retail outlet. A prime example of such education is Michael Pollan's article in the New York Times Magazine (March 31, 2002) titled "This Steer's Life," which documents what a typical steer goes through in today's food system. Education alone may lead some Americans to change their food buying decisions. For example, anecdotal evidence suggests that some readers of Fast Food Nation have sworn off hamburger chains.

But it is unlikely that education alone would lead enough Americans to change their food consumption patterns to bring about a significant change in most of the U.S. agricultural system. After all, convenience, low cost, and good taste are powerful attributes of the food produced in the current system. Thus, the free-market approach to large-scale change in the food production system would also require a large marketing campaign aimed at convincing Americans that an alternative food production system would be in their best interest. This alternative production system would involve farmers growing and perhaps processing products that have some attribute that differentiates them in the consumer's mind. That is, this system would move away from low-cost, high-volume production of undifferentiated commodities toward production of higher-value, differentiated products. Suppose consumer demands were changed in this way. Would rural vitality necessarily increase?

# THE LINK BETWEEN PRODUCT DIFFERENTIATION AND RURAL VITALITY

Many in Congress justify subsidizing commodity production in terms of propping up rural America. But the evidence suggests it has not worked. The December 15 issue of *The Economist* showed that the counties

that received the most farm subsidies from 1950 to 2000 were the counties that suffered the greatest decreases in population. While one cannot say that the subsidies necessarily caused the population decreases, it is clear that encouraging commodity production with price subsidies has not kept people in rural areas.

Rural regions,
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Can movement away from subsidies to differentiated, valueadded products reverse the population loss? First, we must recognize that people are more mobile today than ever before. People will choose to live where they think they can have the best life. This involves judgments about types of jobs, associated income, recreational amenities, and other family considerations. All things being equal, businesses and entrepreneurs will locate in areas where they can make money, where they can find workers, or where they can induce workers to live.

Would an increased demand for differentiated agricultural products reverse the population decline in agriculturally dependent regions in the Central United States? At first glance, the answer would seem to be yes. Any movement away from a system that encourages consolidation, uniformity, and large-scale commodity production would increase the payoff from entrepreneurship. So it is likely that such movement would increase the income and job opportunities in

rural areas. But would this attract a significant number of people to rural areas? The evidence here is mixed. For example, in Iowa, many people who work in rural areas choose to live in urban areas, such as Cedar Rapids, West Des Moines, and Council Bluffs. They make this choice for a variety of reasons, including access to better education and recreation opportunities. Rural areas have an inherent disadvantage: most Americans simply do not want to live in relative isolation without the amenities that a rich country can provide. But any increase in economic opportunity in rural areas is bound to at least slow the loss of population, and perhaps that is the most that advocates of a new food production system can hope for.

In our free-market, capitalistic society, the type of food production system that we will have is largely out of the control of policymakers and local residents. Rather, it is driven by the choices U.S. and world consumers make with their food dollar and the response of profitdriven firms and entrepreneurs to meet these choices. The firms and individuals who can best meet these choices at the lowest per-unit cost will prosper. Those that cannot will fade away. Despite increased calls for government regulation to change the relationships between parties in the food production system, such regulations will likely have, at most, a small impact in the long run. Filling market needs efficiently and, for niche markets, quickly is the key to long-term success. Rural regions, communities, and residents who want to build a brighter economic future should take stock of what they do best, what they can potentially offer the world, and then invest their time and money to strategically position themselves to meet the future, whether that be in commodity production, niche market food products, or expanded provision of recreational amenities. There is room for all. •

# By the Numbers: County Population Trends Chad E. Hart chart@card.iastate.edu 515-294-9911 In the map above, the counties shaded in blue have lost population since 1970. Most of these counties are located in the upper Midwest and Great Plains and represent the bulk of the area that receives federal farm subsidies. While the population of

those with population losses?

The most obviously common characteristic among counties that gained population is their location near urban centers. In the upper Midwest, the counties surrounding Des Moines, the Quad Cities, Omaha, Sioux Falls, Minneapolis/St. Paul, and Fargo grew. As the suburbs around these cities have grown, they have spilled over county lines and expanded the population base for neighboring counties.

the United States has grown from 203 million in

1970 to 281 million in 2000, a 38.4 percent increase,

population growth in the upper Midwest over the same period ranges from 3.6 percent in Iowa to 29.3 percent

in Minnesota. Midwestern states have failed to keep up

with population growth in the rest of the country. And, within these states, population growth varies greatly

from county to county. For example, Iowa has had an overall population growth of 3.6 percent since 1970, but

distinguish the counties with population gains from

only 28 of the 99 counties have had positive population growth. In the upper Midwest, what characteristics

A second characteristic of county growth is location near transportation lanes. The corridors around Inter-

state 80 in Nebraska and Interstates 35 and 94 in Minnesota follow this pattern. Rural counties along interstate highways offer residents the opportunity to live in a rural setting but with quick access to urban areas and alternative transportation choices, such as air travel. Quicker and easier transportation, combined with changing economic opportunities, has made it more likely for people to move away from their birthplace. For the WWII generation and its predecessors, it was common for most of the extended family to live within the same geographic area (often in the same county). Now, it is more common for grandparents and grandchildren to live in different states. Thus, convenient access to transportation routes can play a crucial role in population growth patterns.

A third characteristic is location near tourist attractions. The Black Hills area of South Dakota and the Lake Okoboji region of Iowa are good examples of this. Population growth in these areas is not only spurred by the availability of the attractions but also by the tourist dollars brought into the areas. The tourist industry provides an economic incentive for population growth by providing an alternative source for jobs in the area. •

# **Patented Agriculture**

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n December 10, 2001, the U.S. Supreme Court issued an opinion that may have important long-run implications for U.S. agriculture. Ruling in J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred International, Inc., the Court held that plant seeds and plants themselves (both traditionally bred and produced by genetic engineering) are patentable under U.S. law. This opinion concerns a case that started when Pioneer Hi-Bred sued J.E.M. Agricultural Supply (doing business as Farm Advantage) for selling Pioneer hybrid corn seed without Pioneer's authorization. Pioneer alleged that the seed in question was protected by a number of patents and that, as the patent holder, it had the right to decide how, and by whom, the seed was to be sold and/or used. J.E.M. Ag Supply's defense, in a counter suit, argued that the patents claimed by Pioneer were invalid. Specifically, J.E.M. Ag Supply maintained that Congress had excluded plants from the subject matter of patents when it provided specialized protection for plants through the 1930 Plant Patent Act (for asexually reproduced plants) and the 1970 Plant Variety Protection Act for sexually reproduced plants. The Court disagreed with this line of defense and ruled in favor of Pioneer. Essentially, it held that the landmark 1980 U.S. Supreme Court decision in *Diamond v*. Chakrabarty (which established that biotechnology innovations could be patented) does in fact extend to plants. Whereas this interpretation has been standard at the U.S. Patent and Trademark Office since 1985, the explicit U.S. Supreme Court ruling removes any ambiguity and, as a result, the right to patent plants is now firmly entrenched in U.S. law. We can expect that patents increasingly will be used to assert intellectual property rights on plant varieties and cultivars, inbred lines and hybrids



alike. To understand what difference that might make, some background is in order.

#### WHAT IS A PATENT?

A patent gives an inventor the sole right to exclude others from economically exploiting the innovation for a limited time (20 years from the date of filing). To be patentable, an innovation must be novel in the sense of not constituting part of the prior art or more generally of not being already in the public domain. A patentable innovation also must involve an inventive step, meaning that it must be non-obvious to a person with ordinary skills in the particular field of application. The innovation also must be useful; that is, it must permit the solution of a particular problem in at least one application. A major element of a patent application is disclosure: the invention must be described in sufficient detail to enable those skilled in the particular field to practice it. The patent application also lays out specific claims as to the scope of the patent itself. Traditionally, patents were used for new machines, industrial processes, chemical and pharmaceutical compounds, and various manufactured articles, but more recently patents also have been used to assert ownership of computer software, information technology,

biotechnology innovations, and internet-based business methods.

Patents are special kinds of property rights secured over intangible assets associated with human inventiveness and creativity. Patents are perhaps the most important legal instruments for protecting intellectual property rights (trade secrets, copyrights, and trademarks are other common instruments). Patents are awarded by the U.S. Patent and Trademark Office upon successful review of an application (a process that can take years and entail considerable legal expenses).

#### WHY PATENTS?

The rationale for the existence of patents stems from the presumption that, without patents, not enough resources would be devoted to research and development activities required to bring about new products and other innovations. This perspective can be appreciated by viewing the product of research as new information. Information is a peculiar kind of good in that it is typically very cheap to reproduce, regardless of how costly it was to produce in the first place, and therefore innovations are vulnerable to copying and imitation. Thus, in economic terms, knowledge can be considered a "public good." Absent patents, private producers of knowledge will not be able to acquire fully (or even measurably) the value of their work, and this failure to reap the benefits of their knowledge would lead to underproduction of new ideas and new technologies in the economy. A well-defined (and enforceable) allocation of property rights on new discoveries-such as that afforded by the patent system—can address this problem by restoring sufficient private incentive to invest in research and development.

Thus, patents can be considered a system of incentives: they stimulate and bring forth innovations that otherwise would not take place. In fact, this seems to be the motivation for patents envisioned in the U.S.

Continued on page 8

# **Iowa's Agricultural Situation**

# Analysts expect a shift from soybeans to corn and more biotech plantings

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#### PLANTING INTENTIONS

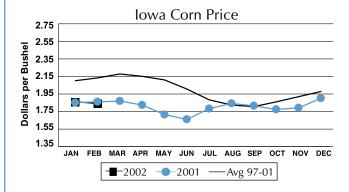
As Iowa farmers decide on what to plant this year, market prices are quick to respond to any news about supply side and international trade developments. The March 28 U.S. Department of Agriculture (USDA) Prospective Plantings report confirmed analysts' expectations of an overall shift from soybeans into corn compared to last year. According to the report, U.S. growers plan to sow 79 million acres of corn in 2002, up 4 percent from 2001 but only slightly above the fiveyear average. Most of the growing regions reported an increase in the expected corn acreage except for a few states with concerns about dry conditions. However, unlike last year's wet planting season, so far this year's weather appears to be favorable to corn growers. U.S. soybean producers are projected to plant 73 million acres, down 2 percent from the previous year but on a par with the five-year average. The markets largely anticipated the results of the report and, as expected, responded with lower corn and higher soybean prices. However, in subsequent trading days, corn prices have rebounded somewhat with the news of steady exports and potential delays in planting in some midwestern states, while soybean prices have slipped because of imminent South American supply.

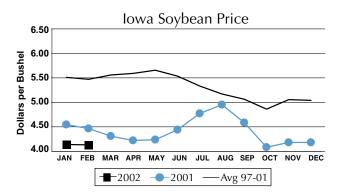
On the positive side for both crops, corn and soybean stocks were recorded at 5.8 and 1.3 million bushels as of March 1, down, respectively, 4 and 5 percent from last year's levels. The report suggests that, in addition to prices, crop rotations and farm bill uncertainty played a role in producers' intended acreage allocations. Along with the uncertainty surrounding the federal farm program, USDA intentions to adjust loan rates for corn and soybeans to reflect the current market price conditions and the timeliness of rains for soil across the nation will factor into growers' planting decisions. In Iowa, with the nation's largest acreages of both corn and soybeans, intended corn acreage for 2002 is 12 million acres, up 3 percent from the 2001 level. Intended soybean acreage is 10.8 million acres, down 2 percent from a year ago.

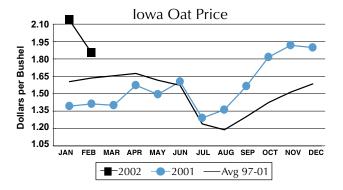
#### **BIOTECH ACRES**

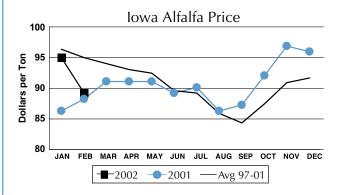
According to the report, crop varieties developed using biotechnology continue to gain momentum and amount to 32 percent of the national corn acreage, up 6 percent from 2001 but still 1 percent below the highest estimated share attained in 1999.

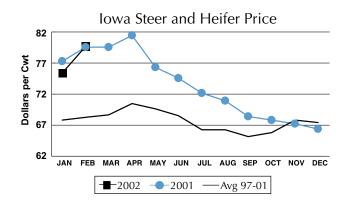
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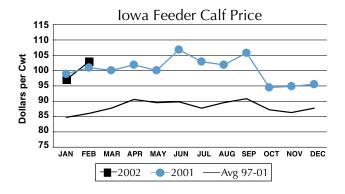


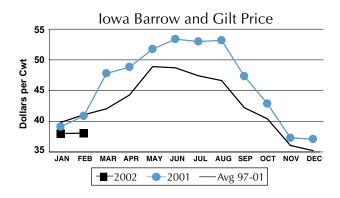


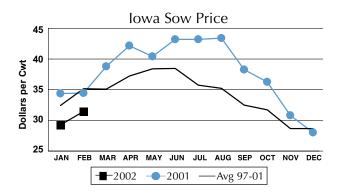












## Iowa Cash Receipts Jan. - Dec.

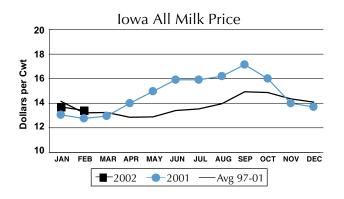
	2001	2000	1999	
	(Million Dollars)			
Crops	5,361	4,979	5,004	
Livestock	6,035	5,912	4,712	
Total	11,397	10,892	9,716	

## **World Stocks-to-Use Ratios**

	Crop Year			
	2001/02	2000/01	1999/00	
	(March Projection)	(Estimate)	(Actual)	
		(Percent)		
Corn	20.95	25.30	28.36	
Soybeans	15.59	16.62	16.84	
Wheat	26.20	27.86	28.75	

# **Average Farm Prices Received by Iowa Farmers**

	Feb.* 2002	Jan. 2002	Feb. 2001
		(\$/Bushel)	
Corn	1.85	1.87	1.87
Soybeans	4.10	4.11	4.45
Oats	1.85	2.13	1.41
		(\$/Ton)	
Alfalfa	89.00	95.00	88.00
All Hay	86.00	93.00	86.00
		(\$/Cwt.)	
Steers & Heifers	79.90	75.50	79.80
Feeder Calves	103.00	96.90	101.00
Cows	41.20	37.70	42.70
Barrows & Gilts	38.10	38.00	41.00
Sows	31.40	29.10	34.50
Sheep	35.40	37.40	46.00
Lambs	63.10	60.00	78.00
		(\$/Dozen)	
Eggs	0.26	0.35	0.41
		(\$/Cwt.)	
All Milk	13.30	13.60	12.60

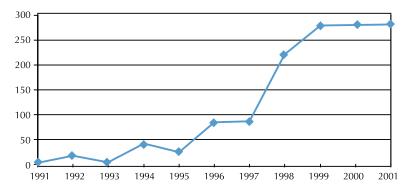


Patented Agriculture continued from page 5

Constitution: "The Congress shall have power ... to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries." An additional benefit often attributed to patents is related to the disclosure requirement. By bringing knowledge of the innovation to the general public, patents contribute to a desirable dissemination of scientific and technical information, allowing other inventors to avoid duplicating existing discoveries and making it easier to develop further innovations that build on the known state of the art (possibly by "inventing around" a patent as well).

#### DRAWBACKS OF THE PATENT SYSTEM

The fact that patents affect the incentive to innovate, and are likely to increase the flow of innovations, clearly is desirable from an economic point of view. But by giving the patentee exclusive rights on the exploitation of a new product or process, patents can adversely affect the efficient use of new knowledge after it is generated. In effect, a patent creates a legalized monopoly, a market setting that is notoriously inefficient because it brings about lower quantities and higher prices than are socially optimal. Consider, for example, the case of Roundup Ready soybeans and YieldGuard Bt corn. Monsanto invested heavily in the development of these technologies. Without the prospect of obtaining patents on its discoveries, the development of these efficiencyenhancing technologies in all likelihood would not have taken place. But now that Monsanto owns crucial patents to these technologies, it has considerable market power, as reflected in the price premium of the seed of these improved crops. This extra seed cost limits the adoption of these new technologies below what is socially desirable. The fact that patents necessarily restrict use of innovations actually carries even



NEW U.S. PATENTS FOR CORN AND SOYBEANS

more importance when the patented product is used primarily in research to develop further innovations. It is now commonplace to hear, especially among university researchers, that patents in biotechnology seriously affect researchers' freedom to operate, which could reduce the future flow of innovations.

#### MORE ON PATENTS AND PLANTS

The strengthening of intellectual property rights for plants, which culminated with the U.S. Supreme Court opinion discussed earlier, can be expected to have important consequences for the U.S. seed industry and for U.S. farmers. Patents give stronger protection than do the patent-like "certificates" that breeders can obtain under the Plant Variety Protection Act (PVPA). Specifically, PVPA certificates and patents have somewhat different requirements. To obtain a PVPA certificate, a plant breeder need only have a variety exhibiting distinctiveness, uniformity, and stability (as compared to the standard of novelty and non-obviousness required to obtain a patent). But, more importantly, patents and PVPA certificates differ in the protection they provide for two important attributes. First, harvest from seed protected by PVPA certificates legally can be saved by farmers for use in replanting. Second, varieties protected by PVPA certificates legally can be used by others for research purposes to develop new crop varieties. Patents do not allow these "farmer" and "research" exemptions. The patent holder has exclusive control over the use of the patented innovation.

Whereas PVPA certificates may continue to be used by public and private breeders, seed companies likely will rely more heavily on patents for their crucial germplasm and biotechnology innovations, putting far less importance on the use of PVPA certificates. This trend is illustrated in the figure, which reports the number of new patents for maize and soybeans issued over the period 1991-2001. While an average of only eight such patents per year were issued in the period 1991-1993, an average of 281 patents per year were issued in the period 1999-2001. The increased importance of patents emphasizes a particular feature of the new environment that is characterizing American agriculture in the twenty-first century. Innovations, and the ability to keep up with innovations, matter more and more. But innovations are produced increasingly by a private sector that relies heavily on intellectual property rights protection. The possibility of "owning" the results of research and development activities undoubtedly fosters innovation, but the resulting ownership structure of knowledge also has important impacts on the size, and distribution, of the economic benefits that arise from agricultural innovations.

GianCarlo Moschini is professor of economics and Pioneer Hi-Bred International Chair in Science and Technology Policy. To learn more about the economics of patents, see CARD papers 01-WP 275 and 02-WP 293, available at www.card. iastate.edu.

# The EU-U.S. Hormone Dispute: The Negotiations Continue

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he European Union's ban on hormone-treated beef remains one of the United States's most contentious agricultural trade disputes. *Iowa Ag Review* last addressed this dispute in the Summer 1999 issue, just after the World Trade Organization (WTO) arbitrator had ruled that the EU ban was inconsistent with WTO sanitary/ phytosanitary principles relating to risk assessment. This article updates negotiating activities and issues regarding the hormone ban.

On July 29, 1999, the United States imposed retaliatory duties against imported EU products valued at \$116.8 million by placing 100 percent tariffs on a selected list of products. The list includes several categories of beef and pork as well as several other product categories such as Roquefort cheese, goose pate, Italian tomatoes, and French chocolate. A "carousel" provision allowing for scheduled changes in the dutiable product mix has never been implemented, and this is one of two common complaints against the current compensation system. The other is that compensation does not provide any direct benefit to the U.S. beef industry.

Table 1 compares the value and volume of trade for these products in 1998 (the last full year before the duties were implemented) with trade in 2001. As shown, Italy, France, Germany, and Denmark have been most affected by the tariffs, and last year's imports of the listed products were only 14 percent of the 1998 value.

In July 1999, the European Union discovered traces of growth-promoting hormones in U.S. beef shipments. After temporarily suspending exports of untreated beef to the European Union, the United States restarted exports in September 1999

under stricter controls, with the European Union testing 100 percent of U.S. shipments. In September 2000, mandatory testing was reduced to a 20 percent test-and-release system that allowed shipments to be released pending receipt of final testing results. In February 2002, the EU Standing Veterinary Committee cleared the way to repeal the 20 percent testing requirement for U.S. beef shipments and to return to random testing.

As negotiations over this issue continue, the three major areas now being addressed are the level of compensation for damages to the U.S. industry, type of compensation mechanism(s), and product testing.

TABLE 1. VALUE OF IMPORTED EU
PRODUCTS SUBJECTED TO 100
PERCENT DUTIES

	1998	2001			
	(	(\$1,000)			
Austria	99	40			
Belgium -					
Luxembourg	490	96			
Denmark	18,097	639			
Ireland	283	2			
Finland	295	0			
France	32,408	9,378			
Germany	17,795	1,566			
Greece	988	434			
Italy	27,845	548			
Netherlands	4,279	1,426			
Portugal	62	23			
Spain	824	597			
Sweden	576	25			
Total	104,041	14,774			

Source: USDA-FAS online.

Alternatives such as labeling are not currently on the table.

With regard to the level of compensation, EU imports of beef from Canada and the United States are limited by the Hilton quota for high-quality beef, which allows 11,500 metric tons of untreated beef at a 20 percent tariff. Table 2 shows U.S. beef exports to the European Union for the past ten years. Given that the quota has never been filled, it is unlikely that increasing the quota alone would offer any benefit to U.S. exporters.

Earlier talks for a larger quota broke down because there were no guarantees that the larger quota would be in place long enough to compensate producers and processors for the additional costs of raising and shipping untreated beef. In mid-2001, U.S. and EU negotiators continued to discuss increasing the annual quota for hormone-free beef, but the two sides have been unable to agree on the size of the increase and several related issues. At that time, however, European Agriculture Commissioner Franz Fischler noted that reduced consumption in the wake of the BSE and foot-and-mouth disease (FMD) crises had depressed the European market to the point that increased market access would make no difference to U.S. exporters. More recently, with FMD under control and many EU markets recovering to more normal patterns, EU beef consumption is gaining ground.

In January 2002, EU Trade Commissioner Pascal Lamy confirmed that the European Union is developing protocols for a set of industrial, shipping, and control processes that will support an acceptable system for segregating untreated beef. Any

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TABLE 2. U.S. BEEF EXPORTS TO THE EUROPEAN UNION

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
	(metric tons)									
	5,062	3,674	3,692	4,815	4,439	5,074	6,675	6,299	4,980	2,040
Source: U.S. Meat Export Federation										

Iowa's Agricultural Situation continued from page 6

Nationwide, the split of biotechnology varieties present in the 2001 corn crop was 18 percent *Bacillus thuringiensis* (Bt) insect-resistant corn, 7 percent herbicide-resistant corn, and 1 percent a stacked gene variety having both insect and herbicide resistance. The 2002 intentions survey shows nationwide that corn producers intend to grow 4 percent more Bt corn but only 1 percent more herbicide-resistant and stacked gene varieties.

Statewide, 32 percent of the 2001 Iowa corn crop was genetically modified: 25 percent was Bt corn, while 6 percent was herbicide resistant corn, and 1 percent was a stacked gene corn variety. Iowa appears to be ahead of the national trend of accelerating biotechnology adoption; in 2002, Iowa corn growers intend to sow 43 percent of their crop acreage to genetically modified varieties, increasing use of Bt, herbicide-resistant, and stacked gene corn by 30, 9, and 4 percent, respectively.

In 2001, a majority of the nation's soybean crop was genetically modified, with 68 percent of soybean acres planted to herbicideresistant varieties. In Iowa, the percentage was even higher, at 73 percent. The intentions for 2002 show continued growth for herbicide-resistant soybeans. Nationally, producers indicate that 74 percent of the soybean crop will be of a biotechnology variety. Iowa soybean producers indicate that 78 percent of the new crop will be herbicide resistant.

#### LIVESTOCK

The March 28 USDA Hogs and Pigs report raised the inventory on U.S. farms to 58.7 million head of hogs, up 2 percent from a year ago. While the breeding herd is similar to that of last year, the March inventory of market hogs is up 2.3 percent. Summer and fall pig crops are expected to stay within last year's levels, but the winter slaughter is projected to rise 3 percent. Analysts predict that winter slaughter may reach 1998 levels because of an increase in Canadian hogs and pigs in U.S. markets and larger-thanexpected increases in spring farrowing intentions. A slowing in the increase of domestic pork supply may occur later, as farrowing intentions for spring and summer are less than 1 percent higher than a year ago. In Iowa, the inventory of market hogs was estimated at 14.9 million head, up 3.5 percent from March 2001. However, the state's breeding herd is the same as last year, indicating a higher number of out-of-state feeder pigs.

According to one estimate, the United States exported a record 1.563 billion pounds of pork in 2001, which amounts to 8.17 percent of national production. Despite dedicated efforts to become more competitive in international markets, compared to last year, U.S. pork exports are not as strong because of the stabilization of the foot-and-mouth disease outbreaks in Europe and Japan.

Average hog prices fell from \$38.5 per hundredweight in February to \$36.3 in March, down 20 percent from a year ago. Falling prices can be blamed on large supplies of beef and poultry—pork's immediate competitors—along with pork stocks fixed at 505.3 million pounds as of February 28, up 7.9 percent from last year. Market analysts predict that prices will remain at marginally profitable levels this spring and summer but will likely take a dangerous dip during the winter season.

#### FARM INCOME

Statewide cash receipts rose in 2001. Total cash receipts of over \$11 billion exceeded 1998 levels but have not reached the \$12.8 billion received in 1997. Unlike last year, most of the increase came from the crop sector. Crop cash receipts rose by \$38 million between 2000 and 2001, while livestock accounted for only \$12 million of the total increase. The increase in crop cash receipts has been reflected, to a certain extent, in rising cropland cash rental rates that averaged \$117 per acre of Iowa cropland, up \$2 from last year. In addition, government payments continue to increase, as they've done every year since 1996. Fiscal year government payments for Iowa rose from \$2.062 billion in 1999 to \$2.302 billion in 2000.

Editor's Note: Beginning with this issue, we're adding a graph for Iowa milk prices (p.7) in response to a reader's suggestion.

# The EU-U.S. Hormone Dispute continued from page 9

agreement package will also need to address other barriers to U.S. beef such as the costs of testing for residues other than hormones and the high costs of gaining and retaining plant approval to process beef for export to the European Union. In the meantime, both U.S. and EU consumers will continue to bear the costs of "protecting" the EU consumer from beef produced with growth-promoting hormones. EU consumers have no choice but to pay higher prices for untreated beef at their supermarket

counters. U.S. consumers are the biggest losers in the dispute because the price they must pay for a wide variety of imported food products has increased dramatically due to the 100 percent tariffs. •

## Meet the Staff: Phil Gassman

Phil Gassman has the distinction of being one of the few scientists who comes to CARD from outside the economics discipline. Phil is a research agricultural engineer. He received his B.A. and M.S. degrees in agricultural engineering from Iowa State University, and joined CARD's Resource and Environmental Policy (REP) Division in 1987.

Phil's research efforts support the integration of environmental and economics models that are used to assess policy scenario impacts for watersheds and other regions. "My role within REP is to apply, or help others to apply, agricultural environmental models to a wide range of climatic, management, soil, livestock, and cropping system combinations," says Phil.

The modeling results have been in demand by such agencies as the U.S. Department of Agriculture and the U.S. Environmental Protection Agency, who make use of the input and data to evaluate agricultural policy. In his fourteen years with CARD, Phil's research has touched upon many of the most cantankerous issues in agriculture, including the risks and benefits of herbicide use, soil erosion and soil nitrogen loss studies, atrazine leaching in the Midwest, the impacts of alternative practices of livestock operations, and the nature of hog confinement odor.

The studies often involve assessment of water quality, an issue that

looms large for decisionmakers trying to strike a balance between the demands of agricultural productivity and the integrity of the surrounding environment. Phil is currently collaborating with ISU Extension and the Texas Institute for Applied Environmental Research (TIAER) on a modeling study for a watershed in the Maguoketa River Basin in eastern Iowa. He is also working with several REP researchers and others at ISU on a watershed study of the entire Upper Mississippi River Basin. These studies will assess both the environmental and the economic impacts of different management practices on the watersheds.

Phil and colleagues from TIAER are reporting the environmental and economic impacts of three other watershed studies (two in Texas and one in Iowa) in a forthcoming article in the *Journal of the American Water Resources Association*. "Most of the scenarios studied showed some environmental benefit [of altered management practices]," says Phil, "but often at an economic cost to producers."

"I find doing research on agricultural systems quite interesting and challenging," says Phil. "I really enjoy the interdisciplinary nature of the projects I am involved in, which include both CARD economists and other on- and offcampus researchers." He says the



Phil Gassman

variety of physical conditions and different crop, livestock, and management-system combinations also keep the work interesting.

Phil grew up in Waterloo, where his father worked for the John Deere company. He met his wife Brigitte while attending the same church service in Ames. She is originally from Düsseldorf, Germany. The couple has four children: three boys and a girl. "The boys all have German names," says Phil. "which tend to be very challenging for the typical American adult to pronounce, but the kids almost always get them right!" Phil conducts a monthly geography club for interested home schooled students and helps organize annual geographic and spelling bees for the Ames Home Based Education Program. Phil's avocation as a geography instructor will come as no surprise to co-workers who are used to seeing Phil's colorful, detailed maps of monitoring sites.

# **Recent CARD Publications**

#### WORKING PAPERS

Hart, Chad E., and Bruce A. Babcock. U.S. Farm Policy and the World Trade Organization: How Do They Match Up? Working Paper 02-WP 294, February 2002.

Huffman, Sonya Kostova, and Maureen Kilkenny. Regional Welfare Programs and Labor Force Participation. Working Paper 02-WP 296, March 2002.

Langinier, Corinne, and GianCarlo Moschini. The Economics of Patents: An Overview. Working Paper 02-WP 293, February 2002. Saak, Alexander E. Identity Preservation and False Labeling in the Food Supply Chain. Working Paper 02-WP 295, February 2002.

#### STAFF REPORT

Jensen, Helen H., Steven Garasky, Cory Wessman, and Sarah M. Nusser. A Study of Households in Iowa that Left the Food Stamp Program. Staff Report 02-SR 97, March 2002.

#### MATRIC WORKING PAPERS

Agarwal, Sanjeev. Assessment by Midwestern Agricultural Firms of Doing Business in China and India. MATRIC Working Paper 02-MWP 6, **On-line only**, February 2002.

Park, Hyesun S., and Charles R. Hurburgh, Jr. Improving the U.S. Position in World Soybean Meal Trade. MATRIC Working Paper 02-MWP 7, **On-line only**, February 2002.

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