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Center for Agricultural and Rural Development

Agricultural Policy Update: Are FAIR's Payment Formulas Fair?

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Once again, Congress will provide U.S. farmers with emergency aid. On June 21, 2000, President Clinton signed a bill that authorizes $7.1 billion in farm assistance, most of which will be distributed according to existing payment formulas. The label *emergency* allows Congress to bypass its self-imposed budget restrictions on extra farm aid. In the Corn Belt this year's emergency will be a big crop and low prices—and not, as previously feared, a small crop and high prices.

The Administration and most members of Congress are clearly not satisfied with either the current method of distributing payments to farmers or with the lack of consensus about what role government should be playing in agriculture. Secretary of Agriculture Dan Glickman's statement at the signing of the assistance bill reveals the Administration's thoughts: "For three years in a row now, U.S. taxpayers have provided billions of dollars in emergency farm assistance… the way Congress has decided to pay out this emergency money is seriously flawed. We should not make payments to farmers who have not planted a crop and who don't need the help. Instead,… we should target assistance to family farmers who really are struggling. And assistance should be counter cyclical, with payments increasing as incomes decline, and vice versa."

The reason Congress has chosen to continue following the payment formulas outlined in the 1996 FAIR (Federal Agricultural Improvement and Reform) Act is that there is still no consensus about how payments should be distributed or even why the payments should be made. To try to find a consensus, the House Agriculture Committee held a series of field hearings across the nation last spring. Representative Larry Combest, chairman of the committee, summed up the results succinctly, "The value of these discussions with producers is that in the absence of giving us a consensus for any specific policy change, they have signaled their confidence in the Ag Committee members' efforts to work for a consensus."

"Under the FAIR Act, farmers have little incentive to cut production of program crops when market prices are low— because the loan deficiency payment (LDP) program puts a floor under the price."

That they could not find a consensus during the hearings is not surprising given the diverse set of issues facing agriculture today. And working toward a consensus will be made even more difficult when the interests of all nonfarm groups are considered. The prospects for achieving consensus are so dim—at least in the short run—that Congress is left distributing farmer assistance through the FAIR Act payment formulas, which are unacceptable to many.

Principles of the 1996 FAIR Act

The bedrock principle of the 1996 FAIR Act is that farmers should look to the marketplace for signals about what and how much to grow, with the government providing transitional help through fixed payments. If the market signals, via high prices, that not enough of a crop is available, then farmers should respond by increasing production of that crop by either reducing the production of other crops or by bringing idle land into production. Similarly, low prices would signal that too much was being produced, and farmers would respond by decreasing production. Livestock producers and most other farmers in the United States use market prices as signals about what to produce; and Congress, in 1996, thought that this principle should be extended to producers of the government program crops.

But, in fact, this principle never really was implemented. Under the FAIR Act, farmers have little incentive to cut production of program crops when market prices are low—because the loan deficiency payment (LDP) program puts a floor under the price. Thus, unlike the hog market, which tends to self-correct (the quickest cure for low hog prices is low hog prices), crop prices do not readily rebound in response to low prices because farmers do not feel the full impact of market signals. They are sheltered

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both by LDPs and emergency assistance (which seems to kick in whenever LDPs do). Thus, while the market is signaling them to cut production of program crops, the government is signaling farmers to continue producing. It is no wonder that the policy is in shambles.

Have We Reached Some Consensus?

The growing intervention of government in agriculture does suggest that one political consensus has been achieved: the principle of allowing market mechanisms to determine farmers' cropping decisions should be rejected. In addition, there is a mounting sense that the existing payment formulas need to be revised. After all, these formulas were developed to direct transition aid to those farmers who were receiving payments in 1995. It makes no sense to continue to use these formulas to direct new aid to agriculture that is motivated by current emergencies.

If indeed consensus has been reached on these two issues, the obvious next question is: How is future aid going to be distributed? Most feel that aid should reflect, at least in part, an updating of crops currently being produced. After all, FAIR Act payments are based largely on what was grown by a farmer in the early to mid-1980s and on crop yields that existed more than 20 years ago. In addition, many advocate strict payment limits so that large farms do not continue to receive the largest amount of aid.

But, clearly, Congress does not agree that payment limits constitute good policy. Indeed, Congress relaxed existing restrictions last fall because many large farmers would have felt the impact of payment limits.

Impact of New Payment Formulas

The difficulty with devising new payment formulas is that, inevitably, some farmers and some regions will be hurt by a revision, and some will be helped. To illustrate this point, CARD constructed a benefit index to show how each state's farmers would fare under a recalibration of payment formulas to reflect current crop yields and acreage. Per-bushel payment rates were held constant in the index.

Figure 1 shows the impact if only acreage planted to corn, wheat, cotton, rice, barley, oats, and sorghum in 1999 is eligible for recalibrated payments and if only the fixed transition payments are updated. The index shown is the state's share of recalibrated program benefits divided by the state's share of program benefits actually received in 1999. Thus, an index value of less than one means that the state would be relatively worse off under a recalibration than under existing payment formulas.

As shown, Iowa farmers would fare relatively poorly under recalibrated payments, with the other major Corn Belt states of Illinois, Indiana, Minnesota, and Nebraska not far behind. Iowa's share of program payments would decline by one third. This decline results from Iowa and the other Corn Belt states having moved substantial acreage out of corn and into soybeans. Thus, they would be harmed by a payment formula that was recalibrated and paid only on corn acreage. Figure 1 shows that the Great Plains states, the Pacific Northwest, and the Middle Atlantic states would receive a greater share of program benefits if the payment formulas were revised.

The implication of these results is that Corn Belt farmers would be interested in adding soybeans as a

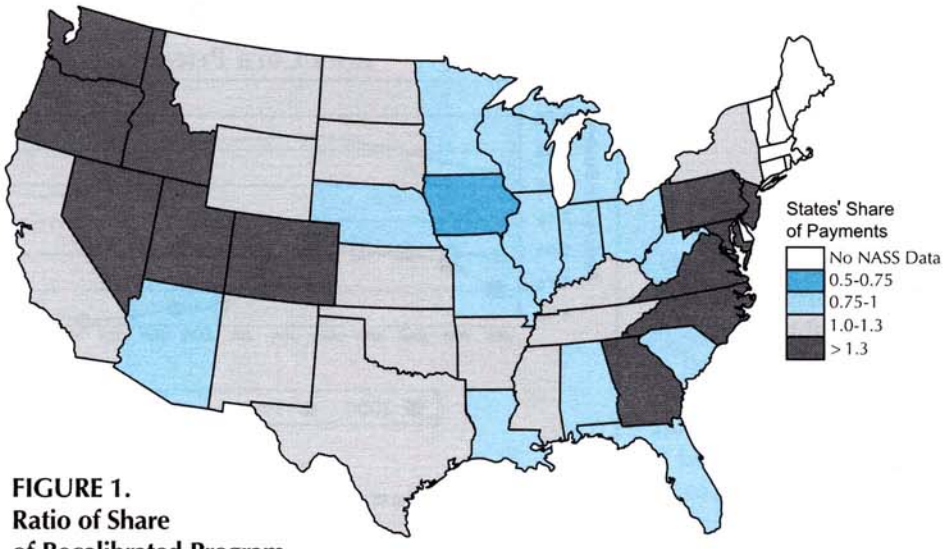

FIGURE 1.
Ratio of Share of Recalibrated Program Benefits to 1999 Program Benefits

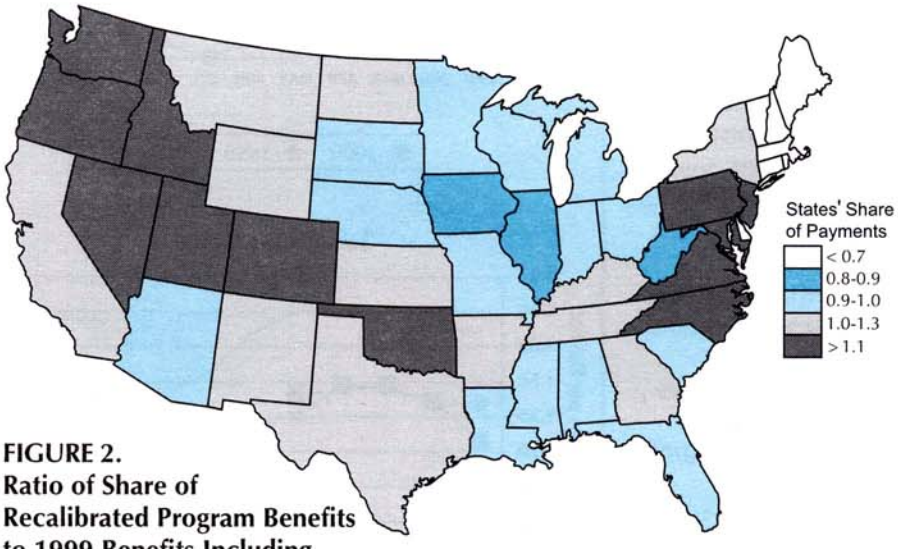

FIGURE 2.
Ratio of Share of Recalibrated Program Benefits to 1999 Benefits Including Marketing Loan Gains

new program crop. Precedents for the inclusion of soybeans are the large LDPs that have gone to soybean farmers in the past two years. Figure 2 shows the benefit index if LDP payments to program crops *and* soybeans are also included in the index. The general conclusions remain the same, although the differences between the winners and the losers are smaller. The dark blue states' share of program benefits would drop by more than 10 percent from a recalibration, and the dark grey states would gain by more 10 percent. Figure 2 shows that Iowa and Illinois are two large farm states that stand to lose from such a recalibration, but their losses would be much smaller than if soybean marketing loan payments were not included in the recalibration.

Where is Farm Policy Headed?

The emergency aid package and the new crop insurance legislation confirm that the long-term trend towards federal disengagement from management of farmers' decisions has reversed itself. With these actions, Congress has shown its willingness to transfer money to farmers directly via emergency aid and indirectly with expanded crop insurance premiums. And, in what many see as a sign of things to come, many farmers in 2001 will receive more aid through the crop insurance program than through price supports, conservation payments, or direct aid.

Support for Counter Cyclical Payments

As indicated by Secretary Glickman, there is growing support for counter cyclical payments, which are distributed only when income is low. The current set of revenue insurance products based both on area-wide revenue as well as individual farm revenue meet this criterion. And the federal government is encouraging their purchase by paying 50 to 75 percent of the premium that would be charged for the product by the private sector.

One might think that a new president and Congress in 2001 might mean a new direction for farm policy. However, neither of the presidential candidates has, to date, offered new initiatives for farm policy; and, if recent trends continue, more than 90 percent of the members of the new Congress will have come from the old Congress. So there is no reason to think that we will have much more in the way of new farm programs than a reformulation of current payment schemes. ◆

Iowa's Agricultural Situation

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Drought concerns in the United States were the resounding cry throughout the Midwest last spring. The drought fears were so severe that on May 16 the U.S. Department of Agriculture (USDA) scheduled a press conference to unveil the findings of the National Drought Policy Commission. This coincided with the National Oceanic and Atmospheric Association's (NOAA) 90-day forecast calling for drought conditions to persist. There is no doubt that weather premiums exist in futures contracts for upcoming crops and will remain until the crop materilizes. The hard question to answer is: What is the size of a given weather permium?

Basically there are two sets of information that influence the market: fundamental information, which consists of basic supply and demand data and forecasts; and psychological information, which consists of recent price trends and more subjective market expectations coming from the trading pits. Both influence the current weather-driven markets.

We see that this year's harvest time corn (December 2000) and soybean (November 2000) futures were trading fairly flat until around January 10-12. At that point, we see the start of a nice bull run that has lasted five months and allows corn and soybeans to add about 12 and 17 percent to their prices, respectively. Even though the late summer and fall months of 1999 had been relatively mild and dry, there were no immediate drought worries, because we had winter and spring ahead of us.

Most of the initial market move coincides with the USDA's release of the January World Agricultural Supply and Demand Estimates (WASDE). From the previous month, the USDA lowered 1999/00 corn production by 100 million bushels and increased usage by 100 million bushels. The end result, of concern to the 2000/01 crop, is that ending stocks for 1999/00 were lowered 280 million bushels for corn.

For soybeans, the changes were not as large, with a 30 million-bushel reduction in ending stocks. These, of course, become 2000/01 beginning stocks. Through mid–March, the harvest time contracts trade in a range of $2.45 to $2.55 per bushel for corn and $5.20 to $5.50 per bushel for soybeans. The market's ability to hold at this price level further indicates that the move was more fundamentally based. The small market fluctuations at this time are more indicative of concern over the South American crop. These smaller peaks and valleys are primarily due to changing weather forecasts and production estimates as the South American crop moves from pollination in January to harvest of the first crop in late April.

During the last week of April into the first week of May the markets reflected a true weather rally. The only fundamental data available was the USDA's crop progress that showed

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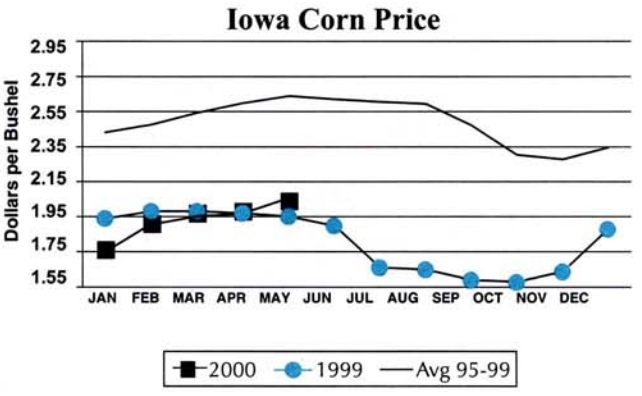

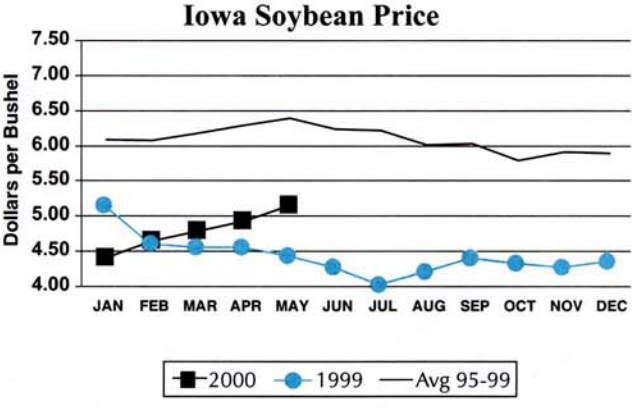

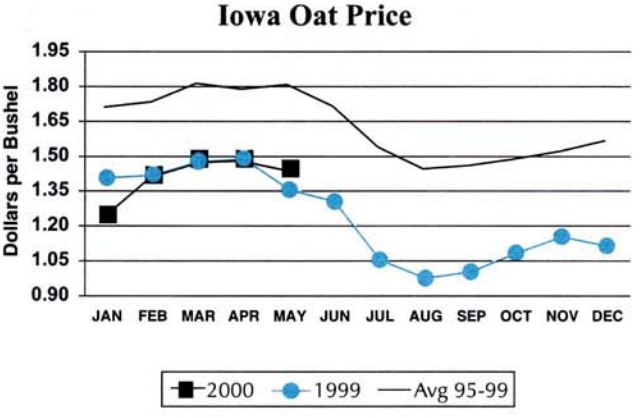

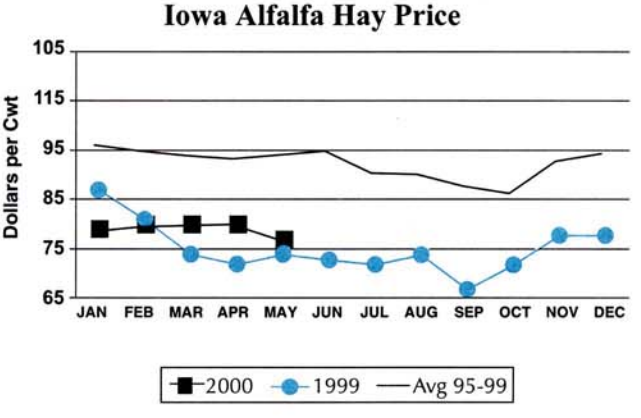

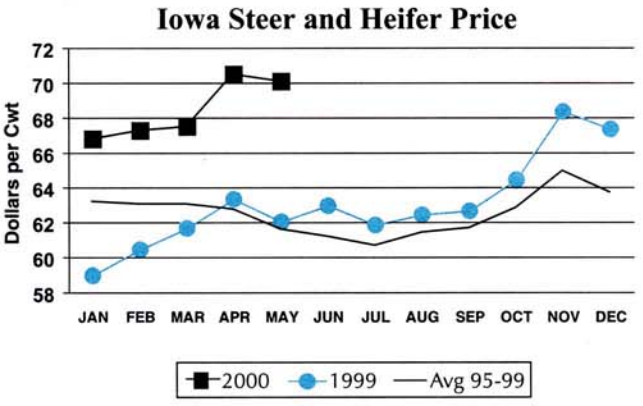

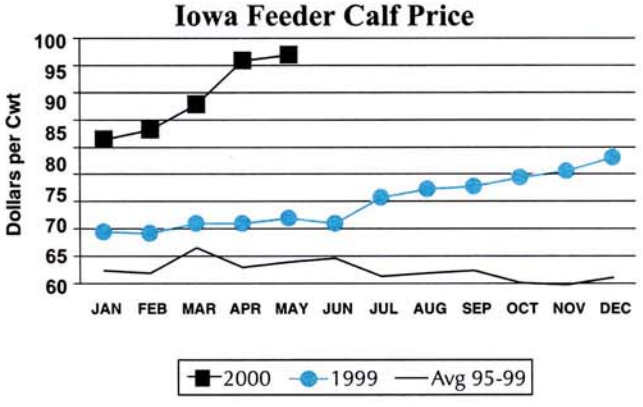

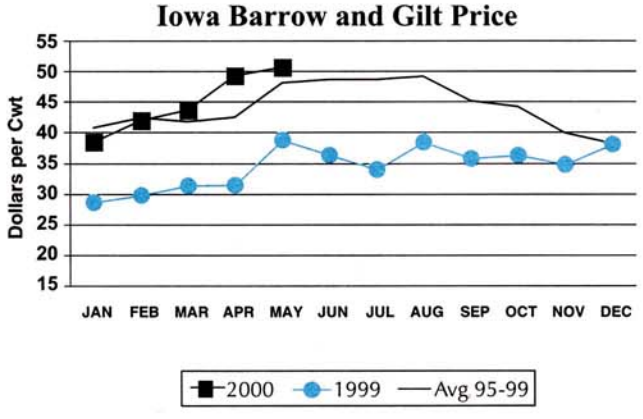

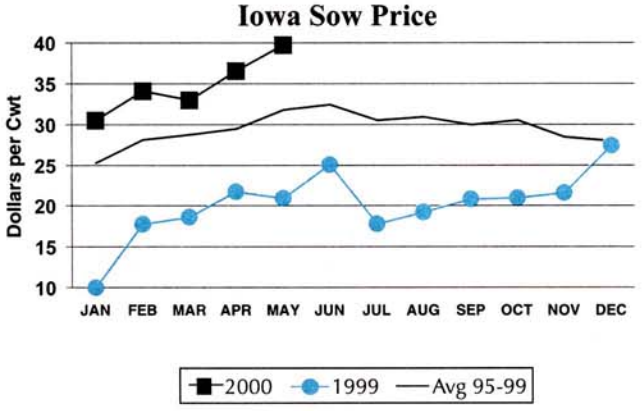

Iowa Cash Receipts Jan. – Feb. 2000

	2000	1999	1998
		(Million Dollars)	
Crops	899	974	1,380
Livestock	902	685	784
Total	1,801	1,659	2,164

World Stocks-to-Use Ratios

	Crop Year (April Projection) 2000/01	(Estimate) 1999/00	1998/99
		(Percent)	
Corn	18.94	18.62	19.03
Soybeans	12.53	15.45	14.56
Wheat	17.84	21.07	23.11

Average Farm Prices Received by Iowa Farmers

	May* 2000	April 2000	May 1999
		($/Bushel)	
Corn	2.04	1.98	1.95
Soybeans	5.17	4.95	4.45
Oats	1.45	1.49	1.36
		($/Ton)	
Alfalfa	77.00	80.00	74.00
All Hay	77.00	79.00	73.00
		($/Cwt.)	
Steers & Heifers	72.10	72.50	64.10
Feeder Calves	112.00	111.00	82.00
Cows	43.40	43.00	38.20
Barrows & Gilts	50.60	49.30	38.90
Sows	44.80	41.60	26.00
Sheep†	0.00	33.50	34.50
Lambs†	0.00	78.00	61.00
		($/Lb.)	
Turkeys	0.39	0.38	0.37
		($/Dozen)	
Eggs	0.20	0.39	0.29
		($/Cwt.)	
All Milk	11.10	11.10	12.90

*Mid-month †Estimate

Iowa's Wetlands: Who Will Pay for Preservation?

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Editor's note: This article by the principal investigators summarizes "Iowa Wetlands: Perceptions and Values," CARD Staff Report 00-SR 91, March 2000. The report is available online at www.card.iastate.edu.

It is estimated that before the 1750s, Iowa had around 2.3 million acres of wetlands. Today, Iowa has about 35,000 acres, with over 98 percent of the original wetlands converted to other uses—primarily agricultural production.

In the past several decades, scientists, policymakers, and landowners have begun to realize that wetlands provide numerous environmental benefits that were lost by conversion and that there may be reason to restore some of the lost areas to their wetland state. Wetlands are known to:

- Provide habitat for a variety of flora and fauna, thus sustaining biological diversity.
- Play an important role for spring migratory ducks and geese in the Midwest.
- Reduce the frequency and severity of flooding and reduce the dissemination of various groundwater and topically transmitted pollutants.
- Provide a significant source of recreational activities, including hunting, fishing, hiking, and bird watching.

The Iowa Wetlands Survey

In the foreseeable future, conservation budgets will be tight and there will likely be more projects than money to fund them. Thus, society must decide where to focus the available sources of private and public funding. Against this backdrop and the facts cited previously, we developed and administered a survey to help decision makers understand how Iowans view the benefits and costs associated with the existence of wetlands. The Iowa Wetlands Survey was mailed in February of 1998 to the general public and to hunters and anglers (hunting/fishing license holders).

Our goal as researchers was to estimate the value that Iowans place on the preservation and/or restoration of wetlands in the state. We asked these critical questions: What attributes of wetlands do Iowans care about when they visit an area? What attributes of wetlands do they view as drawbacks? What is the general support for existing restoration efforts of wetlands in the state? Who should be responsible for wetlands protection in the state?

We used standard methods to measure the value people place on environmental goods as measured by their willingness to pay for those goods. We used two such techniques in this study. The first method was based on observing the public use of a natural resource (visits to wetlands) and inferring willingness to pay from their behavior. The second method was based on directly asking people whether they were willing to pay various sums of money to support a particular project.

Survey Results

On average, Iowans report a high usage of the wetland areas in the state. The most popular activity (undertaken during over one-half of reported wetland visits) is wildlife viewing.

Iowans perceive a wide variety of benefits associated with wetlands in the state. The first and second most highly recognized benefits of wetlands for both the general population and hunters and anglers are wildlife habitat (about 90 percent) and recreation (70 to 75 percent).

When choosing to visit a wetland area, the most important attributes reported were water quality, variety of wildlife, and lack of congestion.

Iowans are less unified concerning funding issues. Many Iowans support voluntary donation and lottery revenue (nearly 80 percent for the general population and 70 percent for hunters and anglers), but almost none support local or state tax increases.

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plantings and emergence well ahead of schedule. During this rally, the corn market added about 16 cents and the beans shot up 32 cents. The FAPRI (Food and Agricultural Policy Research Institute) U.S. Crop model has a price response of approximately – 4 to 5 cents per bushel for a 100 million-bushel increase in corn production and around – 35 to 40 cents per bushel for a 100 million-bushel increase in soybean production. Since the crop was in the ground and needed moisture, assuming traders have a similar price response, the market was assuming the conditions were decreasing production by 300 to 400 million bushels, and soybean production by around 100 million bushels. This was also well ahead of the USDA's first look at the 2000/01 crop, which did not come out until after the National Drought Commission Report on May 20. It is interesting to note that the markets have been in a downward trend since before the report and NOAA's announcement on May 16. Adequate rains have helped this crop limp along. For example, because of rains early in the week of May 14-20, corn futures shed 10 cents and soybean futures lost about 23 cents. The USDA Weekly Weather and Crop Bulletin indicated for the week that rain in the northern Corn Belt significantly eased long-term drought. Later in the week, when it may have appeared the rains were not as widespread, corn and bean futures rallied 6 and 11 cents, respectively, indicating the market was putting around 100 million bushels of corn and 100 million bushels of beans back in the picture.

It appears as of this writing that most of the weather premium has eroded and the markets are settling in on the expectation of a 9.7 billion-bushel corn crop and a 2.99 billion-bushel soybean crop.

Even though recent precipitation in the Corn Belt has reduced drought worries for the short-term, this crop is still a long way from the bin. Given the dismally dry soil conditions at planting time, this crop will need timely rains through out the growing season. We still have the pollination period to get through. If hot, dry conditions dominate in late June and in July the stage could be set for another weather rally. ◆

Iowa's Wetlands
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> When asked who should be responsible for wetland protection in the state over one-third (38 percent) felt that the state should have primary responsibility for this function, and 28 percent felt that everyone should have such a responsibility. A relatively small number (10 percent of the general population and 9 percent of anglers) felt that the county and federal governments should have primary responsibility.

In preparation for the survey, our team conducted intensive research into wetlands, in general, and Iowa's wetlands, in particular. Because we share this information in the text and appendix (CARD Staff Report 00-SR 91), the report has added value as an educational tool about wetlands.

Defining Wetlands

For the purpose of the study, wetlands are defined as transition areas between dry land and open waters. They are not always wet. Most scientists, in fact, define wetlands not only in terms of the amount of standing water, but also in terms of the types of soil and plants found in the region. Some of the plants found in wetlands include duckweed, water lilies, cattail, pondweed, reeds, sedges, and bulrushes.

Our survey was divided into five sections. The first section solicited information on household wetland visitation patterns during the previous year, which was 1997. The second section asked questions concerning knowledge of and attitudes toward both existing wetlands and possible wetland restoration efforts. The third and fourth sections focused attention on Iowans' willingness to pay for two specific wetland programs in Iowa: The Iowa River Corridor Project and the Prairie Pothole Joint Venture. The fifth section comprised a series of socio-economic questions concerning characteristics such as gender, age, income, free time, and money spent on recreation activities. Each section yielded significant findings.

Wetland Visitation

We found that, on average, Iowans report a high usage of the wetland areas in the state. The most popular activity (undertaken during over half of reported wetland visits) is wildlife viewing. Biking, hiking, and fishing are the next most popular activities. Hunting makes up a relatively small proportion of the wetland activities.

Attitudes about Wetlands

To get a better understanding of Iowans' perceptions concerning what has actually been happening to the acres of wetlands in the state over the past decade, respondents were asked to indicate whether they believe total wetland acres in Iowa have been declining, stable, increasing, or to indicate that they did not know. Although 38 percent believe the number of acres to be declining,

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16 percent believed them to be stable, and 18 percent thought they were increasing.

Iowans perceive a wide variety of benefits associated with wetlands in the state. The first and second most highly recognized benefits of wetlands for both the general population and hunters and anglers are wildlife habitat (about 90 percent) and recreation (70 to 75 percent). The next most commonly perceived benefits are biodiversity and flood control, with groundwater recharge being the least identified benefit of wetlands by both groups.

The most commonly perceived negative aspect of wetlands is mosquitoes. About one-quarter to one-third of the respondents felt that difficulty in using the land to farm was a drawback. Relatively few people viewed disease or obstacle to development as a drawback.

When choosing to visit a wetland area, the most important quality attributes reported were water quality, variety of wildlife, and lack of congestion—with ease of access, public ownership, and facilities also identified as important. Interestingly, the size of the wetland is not identified as being of particular importance.

Willingness to Pay for Wetlands Conservation

Iowans are less unified on funding issues. They support voluntary donation and lottery revenue (nearly 80 percent of the general population and 70 percent of hunters and anglers), but almost no one supports local or state tax increases. Less than 50 percent of Iowans support private restoration efforts, increased license fees, user fees, and/or redistribution of state taxes. When asked who should be responsible for wetland protection in the state, more than one-third (38 percent) felt that the state should have primary responsibility for this function, and 28 percent felt that everyone should have such a responsibility. A relatively small number, 10 percent of the general population and 9 percent of anglers, felt that the county and federal governments should have primary responsibility. About the same number (9 percent) felt that private conservation groups should shoulder the responsibility. Few felt that private landowners or municipalities should be primarily responsible for the protection of Iowa's wetlands.

The Iowa River Corridor Project is an area of saturated soils that floods frequently and encompasses roughly a 50-mile stretch along the Iowa River between Tama and the Amana Colonies. Through this project, initiated by the Natural Resource Conservation Service, interested landowners can enroll their land in the Emergency Wetlands Reserve Program and receive a one-time payment in exchange for retiring their land from agricultural production and restoring it to a wetland state. Survey questions about what Iowans themselves would be willing to pay for this program yielded an answer of about $5 per year for five years.

The Prairie Pothole Joint Venture is part of a larger organization, the North American Waterfowl Management Plan. In Iowa, about 27,000 acres have been placed under public protection. The program has restored wetlands both by purchasing land outright from willing sellers and by developing a variety of easements where landowners agree to restore the land to its original prairie pothole wetland state. As part of the Prairie Pothole Joint Venture there is a goal for Iowa to acquire a total of 40,000 acres of land at a rate of about 2,000 to 3,000 acres per year for the next 15 years. Roughly 35 percent of our survey respondents would be willing to pay $100 towards this project ($20 annually for five years), but only about 20 percent would be willing to pay $200. It is estimated that 50 percent of Iowans would be willing to pay approximately $25 in support of this project.

Socioeconomic Information

To help readers assess the survey results, it may be helpful to know that the average income level reported in the general population survey was about $43,500 per year, the average household size was about 2.5 people, and 72 percent of the respondents were male. The average income reported in the license holders (hunters and anglers) survey was about $45,500 annually, the average household was about 3.0 people, and 81 percent of the respondents were male.

About the Survey

This research was funded, in part, by Iowa State University's Agricultural Experiment Station and a grant from the U.S. Environmental Protection Agency. We would be glad to provide additional information concerning the data, survey results, or statistical methods. ◆

What Would Happen if Over-the-Counter Antibiotics Were Banned in Swine Rations?

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Editor's note: This executive summary from the CARD Staff Report, "The Economic Impact of a Ban on the Use of Over-the-Counter Antibiotics in U.S. Swine Rations," introduces research on the likely effects of a ban on antibiotics in livestock feed. The report, #99-SR 90, is available online at www.card.iastate.edu.

A ban on over-the-counter feed antibiotics was implemented in Sweden in 1986. Similar bans were enacted in Norway in 1992, in Finland in 1996 (for grower-finishing hogs), in Denmark in 1998, and in Poland and Switzerland in 1999. In a study we conducted in 1999, we explored what would happen if a ban on the use of over-the-counter antibiotics in swine rations were to be implemented in the United States. Specifically, our purpose was to estimate the likely economic effects of such a ban on the U.S. pork industry and pork market.

Why has the use of antibiotics in livestock feeds come under scrutiny here and abroad? The concern, raised by scientists and the general public is whether antibiotic resistance developed in food animals might be transferred to humans.

The literature suggests a tendency for scientists in Europe to favor a ban and for scientists in the United States to oppose such a measure. However, there are also strongly opposing opinions on both sides of the Atlantic, which demonstrates a continued intense debate about the antibiotics issue. Current European Union (EU) regulations state that antimicrobials used in either human or in veterinary therapeutic medicine are prohibited from use as feed-additive growth promoters in livestock.

In the United States, antibiotic drugs are currently used in 90 percent of starter feeds, 75 percent of grower feeds, more than 50 percent of finishing feeds, and at least 20 percent of sow feeds, according to the U.S. Department of Agriculture's Animal and Plant Health Inspection Service (USDA/APHIS). A ban on the use of feed-grade antibiotics would lead to changes in processes and practices in the production of pork, and hence is likely to have an economic impact on the U.S. pork industry and pork market. On average, the cost of feed-grade antibiotic use for all animal producers has been estimated to be about 3.75 percent of total ration costs, or about 50 percent of the value of the compounds to animal producers.

To anticipate the potential effect of a ban on antibiotics in feed on U.S. pork production, our study uses a set of technical impacts that are based in large part on a historical analysis of how the ban in Sweden affected the Swedish pork industry. The economic model upon which the results are based incorporates both biological and economic processes that govern production and consumption. The processes include:

- binding biological limits (e.g., weight gain rates, length of gestation),
- lags of variables to capture time periods required in production, and accounting identities to ensure consistency in the stock (e.g., animal inventory), and
- flow variables (e.g., number of animals slaughtered, pig crop, and mortality).

The model also includes technical parameters such as feed efficiency, weight and weight gain, mortality, and sow efficiency. Economic data include information on fixed costs (buildings), veterinary costs, and any new investments required for buildings.

The analysis of the impacts of a ban on feed-grade antibiotics was conducted by comparing the results obtained using baseline values and assumptions to results obtained by using assumptions about the changes that would be required to raise hogs under conditions implied by the ban. Technological changes are introduced by respecifying some of the biological and technical parameters of the model to reflect changes in the new production technology. Simulations were conducted by using the revised technical parameters in the model. To account for increased weight variability due to the ban, alternative distributions of weights were characterized and then applied to a price grid with penalties for "sort loss."

Based on information that we gathered during a visit to Sweden and Denmark, and from other sources, the technical assumptions for the most-likely case scenario (one of three cases studied) are summarized as follows: age at weaning would increase by one week; days from weaning to reach 25 kg would increase by 5 days; feed efficiency (from 50 pounds to 250 pounds) would decrease by 1.5 percent; piglet mortality would increase 1.5 percentage points; mortality at the fattening-finish stage would increase by 0.49 percent; piglets per sow per year would decrease by 4.82 percent and veterinary and therapeutic costs per pig (net of costs for feed grade antibiotics) would increase by $.25.

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Over-the-Counter Antibiotics
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In addition to the technical assumptions, additional space would be required for the nursery and finishing periods if restricted feeding and longer time in the nursery become necessary. This new construction would cost $115 per head of nursery space and $165 per head of finishing space, or an estimated cost of additional space required of about $1.42 billion. Additional farrowing space for sows, required under two of the other scenarios, would also add costs. The *most-likely case* implements these changes. (Refer to the full report for a discussion of the best-case and worst-case scenarios).

With reservations for all uncertainties about the assumptions made, the estimated effect of a ban on the use of over-the-counter antibiotics on production costs would increase costs per head by $6.05 initially, and by $5.24 at the end of the 10-year period considered. However, with the higher prices, net profit would decline by $0.79 per head by the end of the period. The figure shows change in cost and net profit. The net present value of foregone profit to the industry over 10 years would be $1.039 billion (with a range over the alternative cases from $1.135 to $0.429 billion). These estimates include the costs of adding troughs and space to allow restricted feeding, costs totaling $960 million, or $1.20 per hog, about 20 percent of the increased costs. If the assumption on the need for restricted feeding capacity is incorrect, then the estimated values overstate the impact estimate. This is obviously an area where additional research is needed.

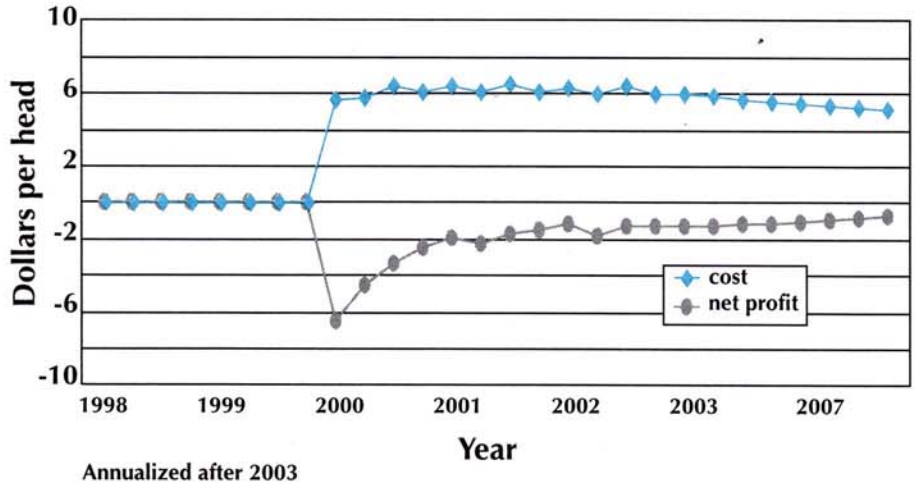
On the consumer side, retail prices would increase by $0.05 per pound. The effect of the change in retail price on cost per U.S. family (of four) would be approximately $11 per year in additional costs, or $748 million per year in total. This estimate considers only the change in pork, with no change in other meats.

While certain general patterns stand out, the Swedish experience must be regarded very cautiously as an exact indicator of what might happen in the United States (please see the full report). First, if the lactation period has to be increased, more farrowing space will be needed and pigs per sow per year will decrease. Also, if restricted feeding is necessary, almost all U.S. producers will be forced to make some adjustments. All these assumptions will have to be researched under U.S. conditions before final cost conclusions can be made.

The estimated impact of a ban on an "average" or "representative" farm masks very wide differences across farms. The Swedish experience suggests that those who follow good hygienic and health practices will see the smallest impact. The greatest impact may be on densely populated farms in areas with large numbers of hog farms who have older buildings and who do not follow sound management practices. The social impacts of the changes may be very different than the economic impacts.

In the assumptions for the different cases, consumers respond only to changes in the price of pork. We have not altered the prices of poultry or beef, which are likely to be affected similarly by a ban. Nor have we factored in any positive effect of such a ban on consumer willingness to pay for pork produced without the use of feed-grade antibiotics. Consumer pressure and responses have been shown to be important in the Swedish and other European experiences, but they are difficult to estimate with the lack of reliable data in the United States. However, one very important consumer response should be mentioned, and that is the one that may occur on export markets. So far there is very little evidence to suggest that these export customers are concerned about the use of antibiotics among suppliers. However, once the European Union (EU) or Danish industry can guarantee reliable supplies of antibiotic-free pork, this situation may change. Losses to the U.S. pork industry associated with a loss of an important export customer, such as Japan, would dwarf the losses associated with the ban described above. ◆

Absolute change in cost and net profit per head



Annualized after 2003

Meet the Staff: Cheng Fang

Cheng Fang

"It is important for me to help U.S. policymakers and farmers understand what is happening in China and the implications for U.S. and world commodity markets," Cheng Fang says.

Cheng, who was born in China, considers himself a bridge between cultures. He has been at Iowa State since June 1998 as an assistant scientist with the Food and Agricultural Policy Research Institute (FAPRI), part of CARD's Trade and Agricultural Policy Division.

As an international market analyst for FAPRI, he assesses alternative policies and external factors in the oilseeds sector for implications on U.S. and world agriculture, and prepares baseline projections for the next 10 years. He is currently doing a scenario analysis on European Union (EU) enlargement and is ready to do research on Chinese accession to the World Trade Organization.

"China is a major player in the international commodity market," he says. "It has experienced significant changes in its economy since 1978, but is still uncertain on many of its policies. I enjoy the challenge of working at CARD as a member of a group looking at world agricultural markets today and projecting their future."

Cheng's current research projects are cutting edge. At the annual meeting of the American Agricultural Economics Association in Tampa (July 30-Aug. 2), he presented a paper, co-written with John Beghin, titled "Urban Household Oil and Fats Demand in China: Evidence from Urban Household Survey Data." In August, he will present a paper, also co-written with John Beghin, titled "The Impact of Exchange Rates on Chinese Agricultural Comparative Advantage," at the annual meeting of the International Agricultural Economics Association in Berlin, Germany. In the fall, he will meet with a colleague in Nanjing, China, to gather data for a research project: "Assessing the Impact of China's WTO Accession on U.S. Cotton Exports in China." He and Bruce Babcock are co-principal investigators on the project.

Just prior to coming to ISU, Cheng was a post-doctoral research associate at the University of Arkansas, Fayetteville. He received a doctorate in agricultural economics from the University of Guelph in Ontario, Canada, and a master of science degree in agricultural economics from Nanjing Agricultural University.

His wife Pan, who was a pharmacist in China, works as a Certified Medication Aide (CMA) at a care center in Ames; she hopes to be a pharmacist in the United States in the near future. Their children are Penny, 12, and Tommy, 5. At home, Cheng spends many hours with Penny, already an accomplished piano and violin player; he helps her practice and attends recitals and concerts. With his family, he also enjoys working in the garden and riding bicycles.◆

Recent CARD Publications

FAPRI Staff Report

Bruce A. Babcock, John Beghin, Samarendu Mohanty, Frank Fuller, Jay Fabiosa, Phillip Kaus, Cheng Fang, Chad Hart, Karen Kovarik, and FAPRI Staff, University of Missouri-Columbia. "FAPRI 2000 World Agricultural Outlook." Food and Agricultural Policy Research Institute at CARD, Iowa State University and the University of Missouri, Columbia. Staff Report 2-00, January 2000.

CARD Working Papers

Bruce A. Babcock, Chad E. Hart, Gary M. Adams, Patrick C. Westhoff. "Farm-Level Analysis of Risk Management Proposals." CARD Working Paper Series 00-WP 238, February 2000.

Paul D. Mitchell, Terrance M. Hurley, Richard L. Hellmich. "Economic Evaluation of Bt Corn Refuge Insurance." CARD Working Paper Series 00-WP 243, June 2000.

Journal Article

Frank Fuller, John Beghin, Samarendu Mohanty, Jay Fabiosa, Cheng Fang, Phil Kaus. "The Impact of the Berlin Accord and European Enlargement on Dairy Markets." Canadian Journal of Agricultural Economics 47 (1999):117-30.

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