

Iowa Ag Review

From the Center for Agricultural and Rural Development, Department of Economics, College of Agriculture

August 1997

Vol. 3 No. 3

What's Inside?

The Look of the "New" Conservation Reserve Program 1

World Trade Impacts of Foot and Mouth Disease in Taiwan 5

Emerging Issues

Agricultural Impacts of China's Accession to the WTO 9

Budget Cuts Continue to Pressure the Agricultural Sector 11

Meet the Staff

Judith Pim, Manager of Communication and Information at CARD 14

Recent CARD Publications 15

ISSN 1080-2193

<http://www.econ.iastate.edu/card/agreview>

The Look of the "New" Conservation Reserve Program

(Steven L. Elmore, 515-294-6175)

(Darnell B. Smith, 515-294-1184)

In recent years some prognosticators envisioned that the amount of acreage enrolled in the Conservation Reserve Program (CRP) would shift from west to east. This expectation is based on a perceived increase in the social valuation for water quality versus other CRP benefits. Some west-to-east shifts did occur after CRP rules were revised under the 1990 Farm Bill. However, the latest sign-up results reveal the opposite—an east-to-west movement.

The 1985 Farm Bill established the CRP and the 1990 and 1996 Farm Bills revised and continued the program. The CRP removes environmentally sensitive land from agricultural production for a minimum of 10 years. Landowners voluntarily bid their land into the program. The USDA accepts land through this bidding procedure, and the land is, in effect, leased to the federal government for either 10 or 15 years. As a provision of the contract, the landowner takes the land out of agricultural production and plants an approved vegetative cover, i.e., native or introduced grasses or trees.

The fifteenth sign-up to enroll land in the CRP was completed in late May 1997. The fifteenth sign-up was significant because it was the first under the 1996 Federal Agriculture Improvement and Reform (FAIR) Act, which provided the impetus for USDA to write new rules for CRP land eligibility. Also, the contracts on 21.4 million of the 32.9 million acres of land currently enrolled in CRP expire on September 30, 1997. If no new land were accepted into the CRP with the fifteenth sign-up or in the pending sixteenth sign-up (fall 1997), the program could potentially lose 65 percent of the currently enrolled land. Thus, this year's program developments will have an unprecedented agricultural impact.

Conservation Reserve Program contract bids in the fifteenth sign-up could not exceed the local cash rental rate of the area. If the bid passed that criteria, the Environmental Benefits Index (EBI) was used to rank the land. The EBI has been used to evaluate land bid into the CRP since the tenth sign-up. The

(continued on page 3)

Recent CARD Publications

Technical Reports

97-TR 36. Policy and Projection Model for the Meat Sector in the People's Republic of China. **Frank Fuller**. March 1997.

97-TR 37. Cost of Production System Budgets. **Paul D. Mitchell**. June 1997.

Working Papers

97-WP 178. Resource or Waste? The Economics of Swine Manure Storage and Management. **Ronald A. Fleming and Bruce A. Babcock**. May 1997.

97-WP 179. Government Intervention and Trends in the Indian Oilseeds Sector: An Analysis of Alternative Policy Scenarios. **Sudhir Chaudhary**. June 1997.

97-WP 180. The Budgetary and Producer Welfare Effects of Revenue Insurance. **David A. Hennessy, Bruce A. Babcock, and Dermot J. Hayes**. June 1997.

97-WP 181. Estimation of Demand for Wheat by Classes for the United States and the European Union. **Samarendu Mohanty, E. Wesley F. Peterson, and Darnell B. Smith**. July 1997.

GATT Papers

96-GATT 1. A Dynamic Comparative Advantage Analysis of Fresh Fruit and Vegetable Trade Between Latin America and the United States. Laurence Prescott, Gordon Rausser, and Mary Beth Sigler. AND Executive Summary: An Empirical Investigation into the Trade and Investment Effects of a Southern Hemisphere Free Trade Agreement. Jeremy Arnone and Gordon Rausser. May 1997.

96-GATT 3. Institutional Rules and Mechanisms for Western Hemisphere Trade. Mary Beth Sigler and Roger Hickey. AND Executive Summary: An Empirical Investigation into the Trade and Investment Effects of a Southern Hemisphere Free Trade Agreement. Jeremy Arnone and Gordon Rausser. May 1997.

Briefing Papers

97-BP 16. World Impacts of Foot and Mouth Disease in Taiwan. **Frank Fuller, Jacinto Fabiosa, and V. Premakumar**. [Contributing Authors: **Steve Elmore, James Rude, and Samarendu Mohanty**]. April 1997.

97-BP 17. The Cost of Regulating Hog Manure Storage Facilities and Land Application Techniques. **Bruce A. Babcock, Ronald Fleming, and Dwaine S. Bundy**. June 1997.

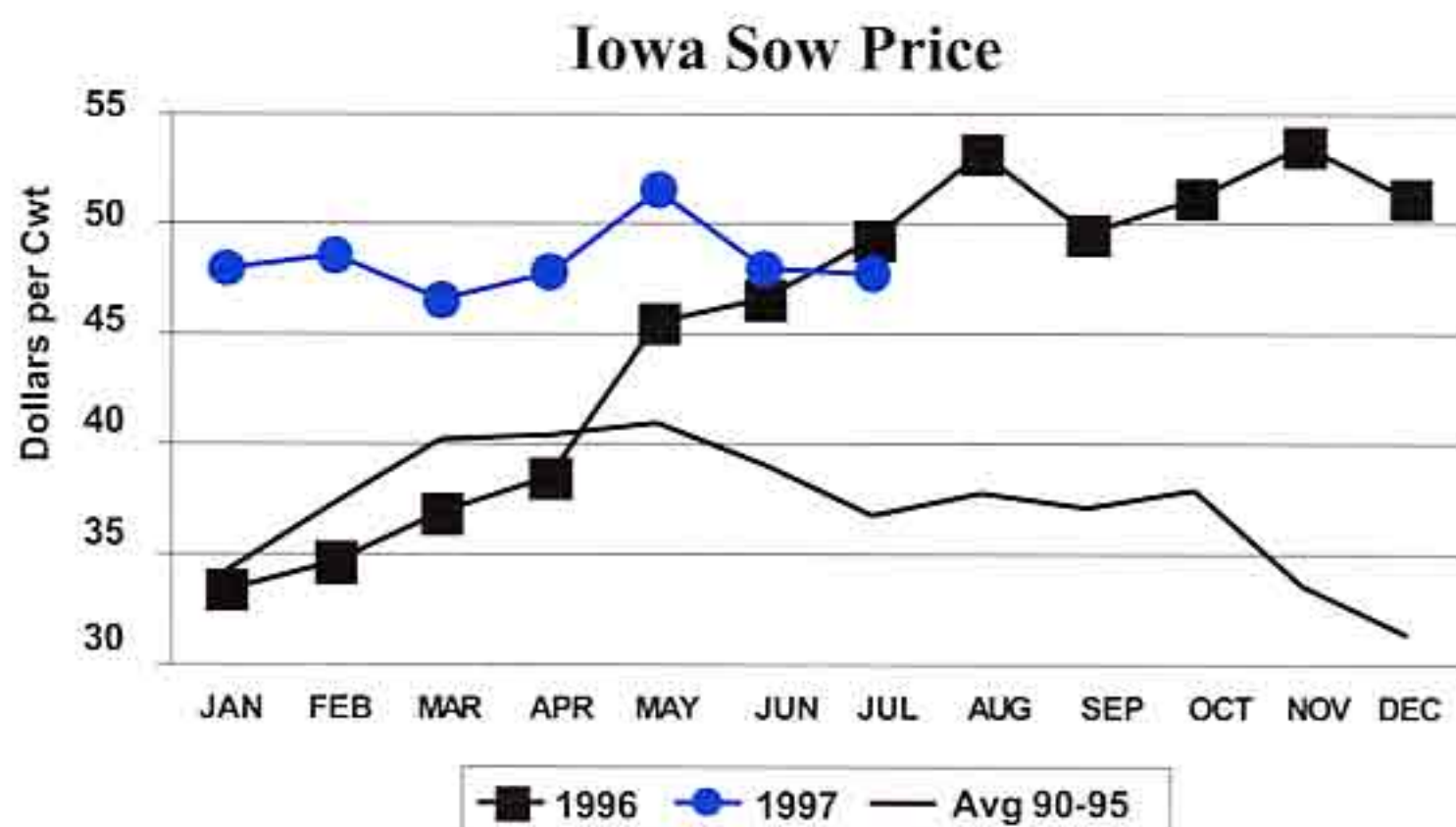
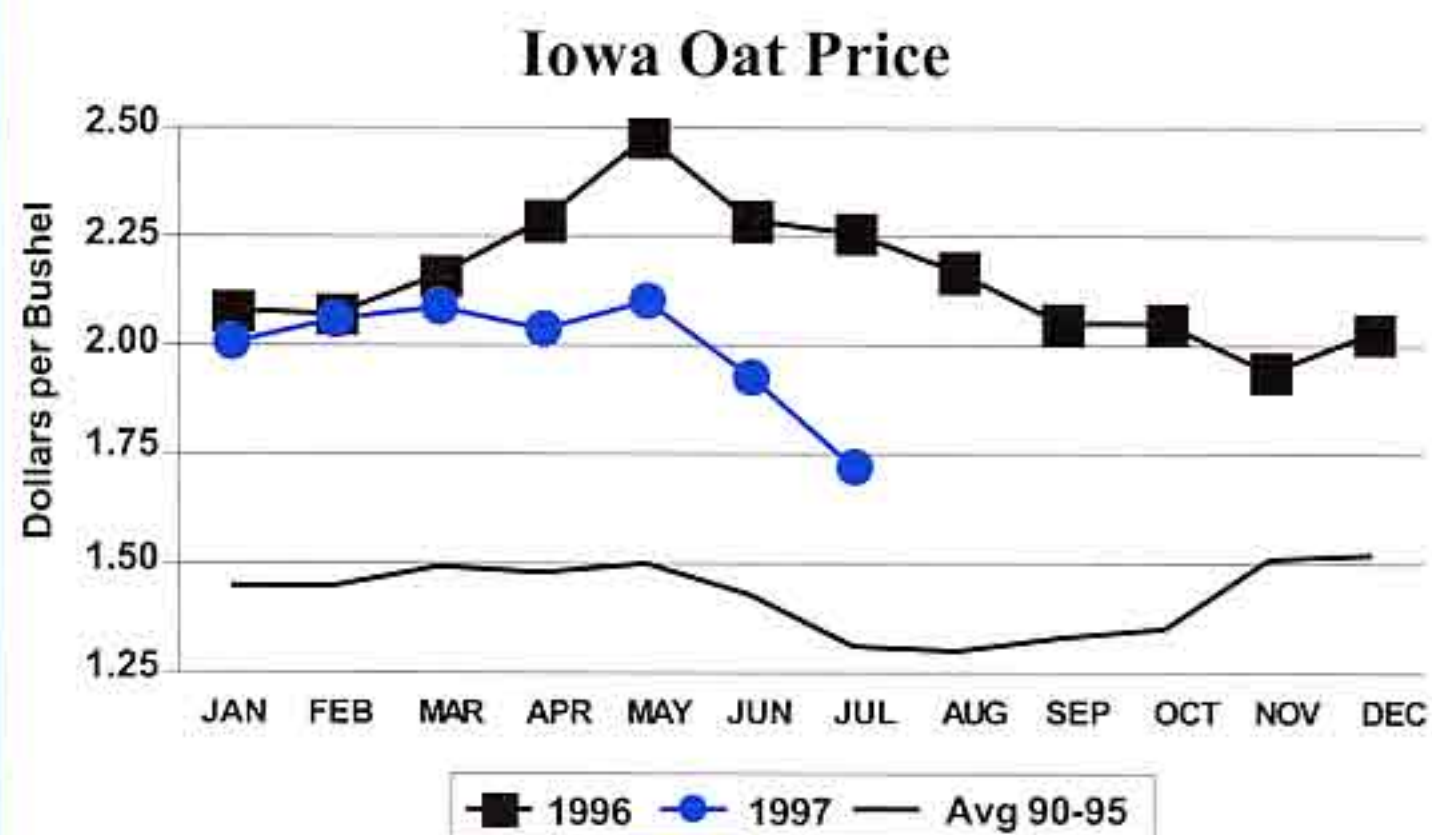
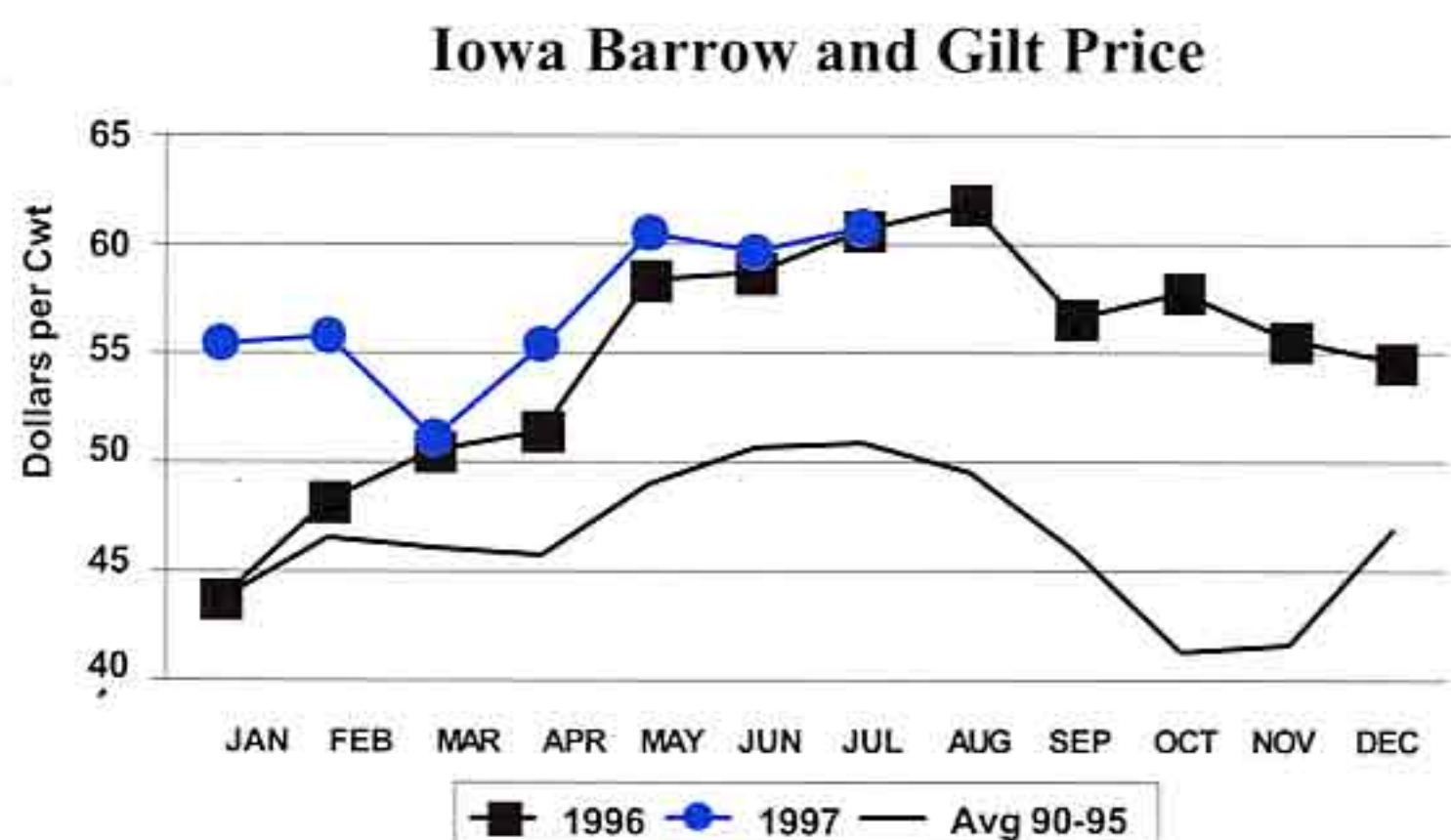
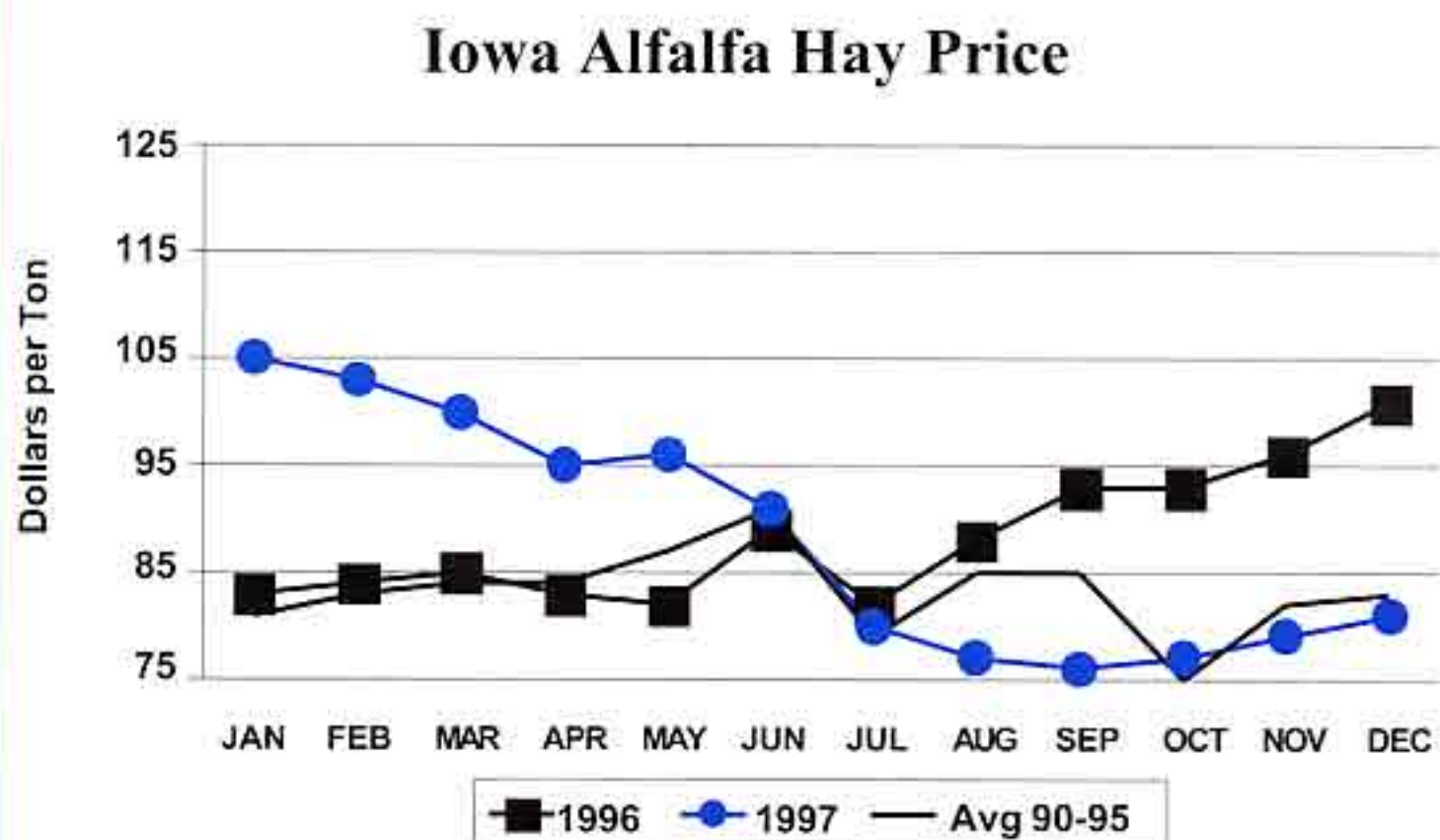
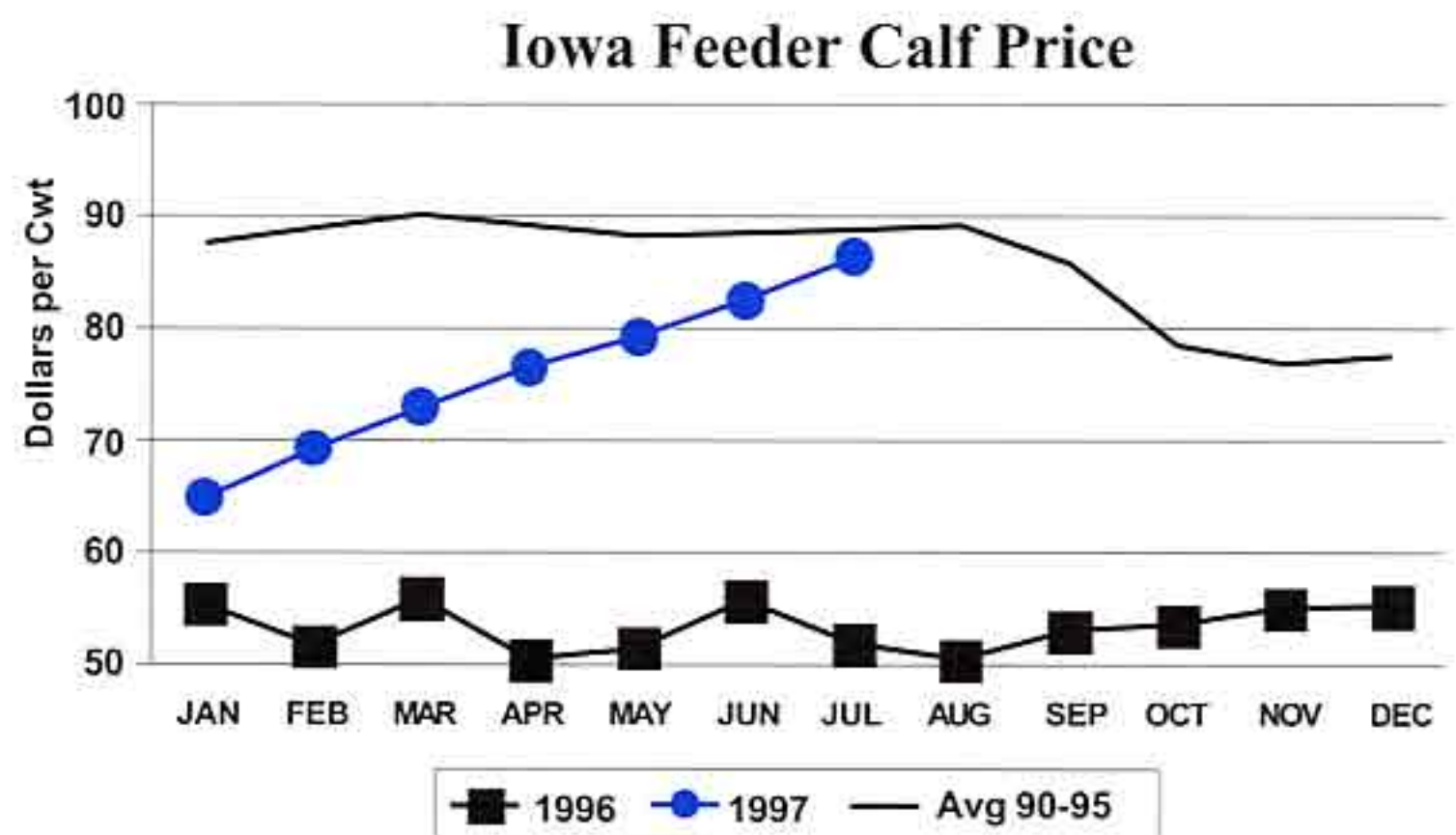
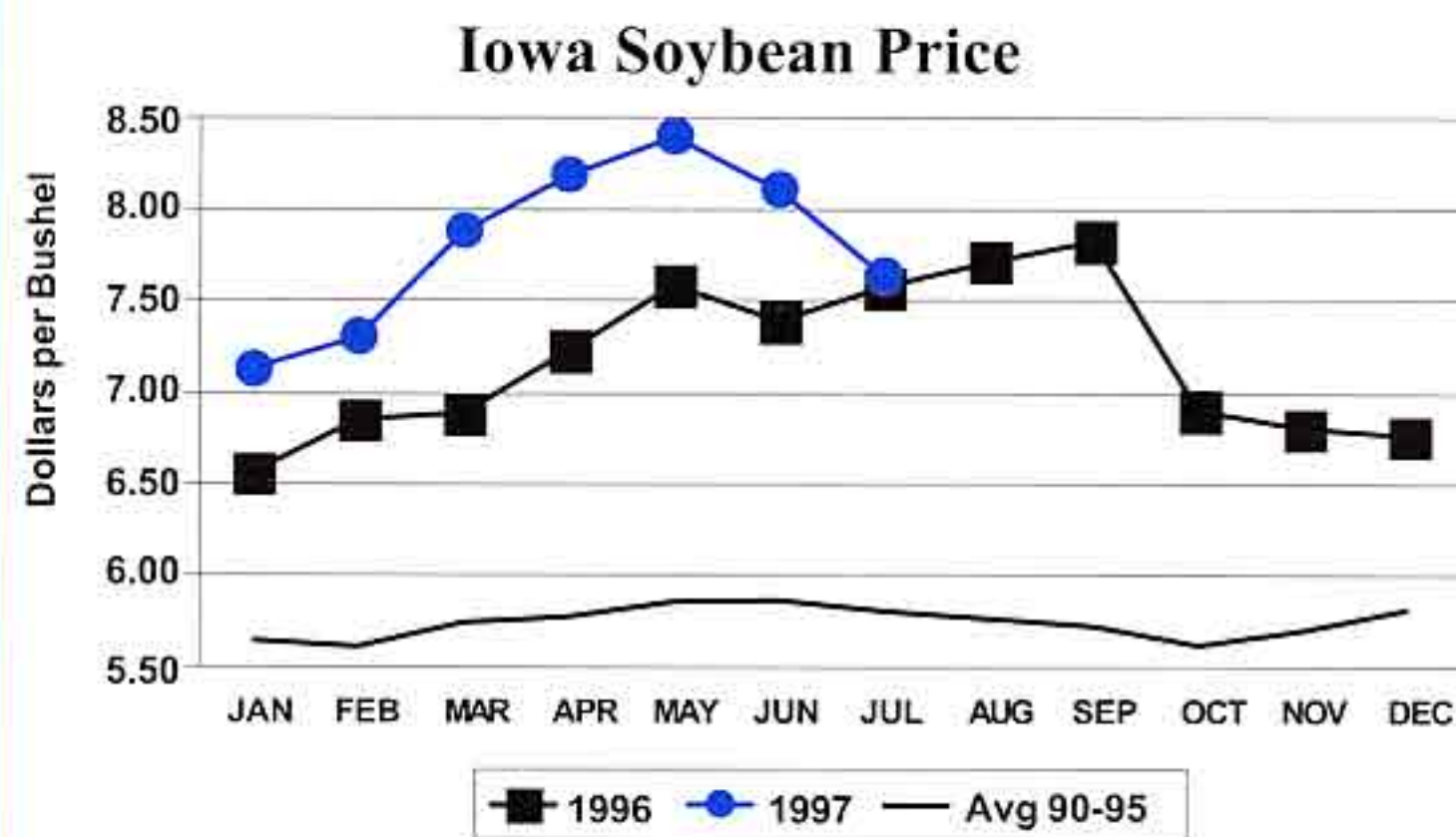
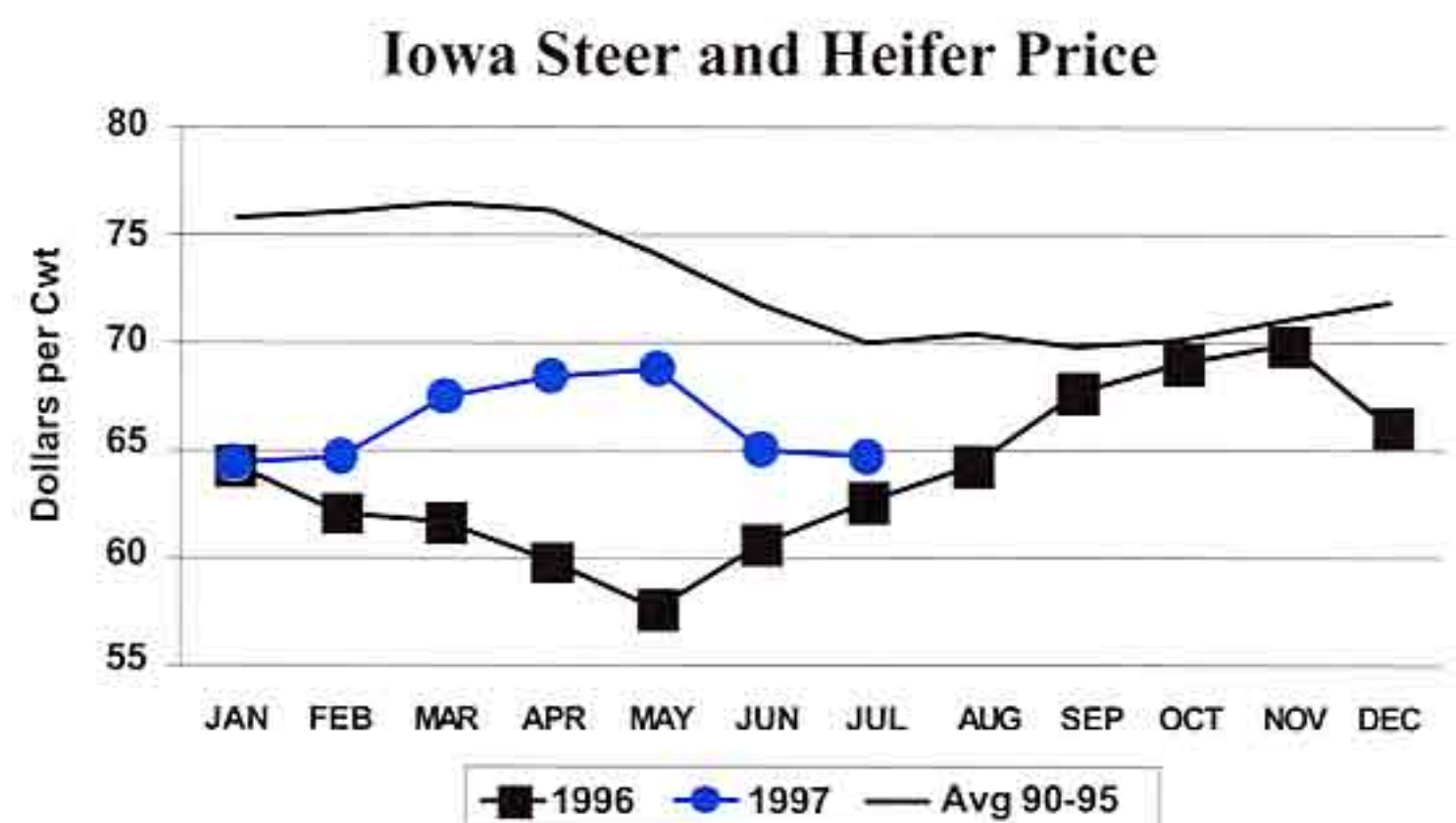
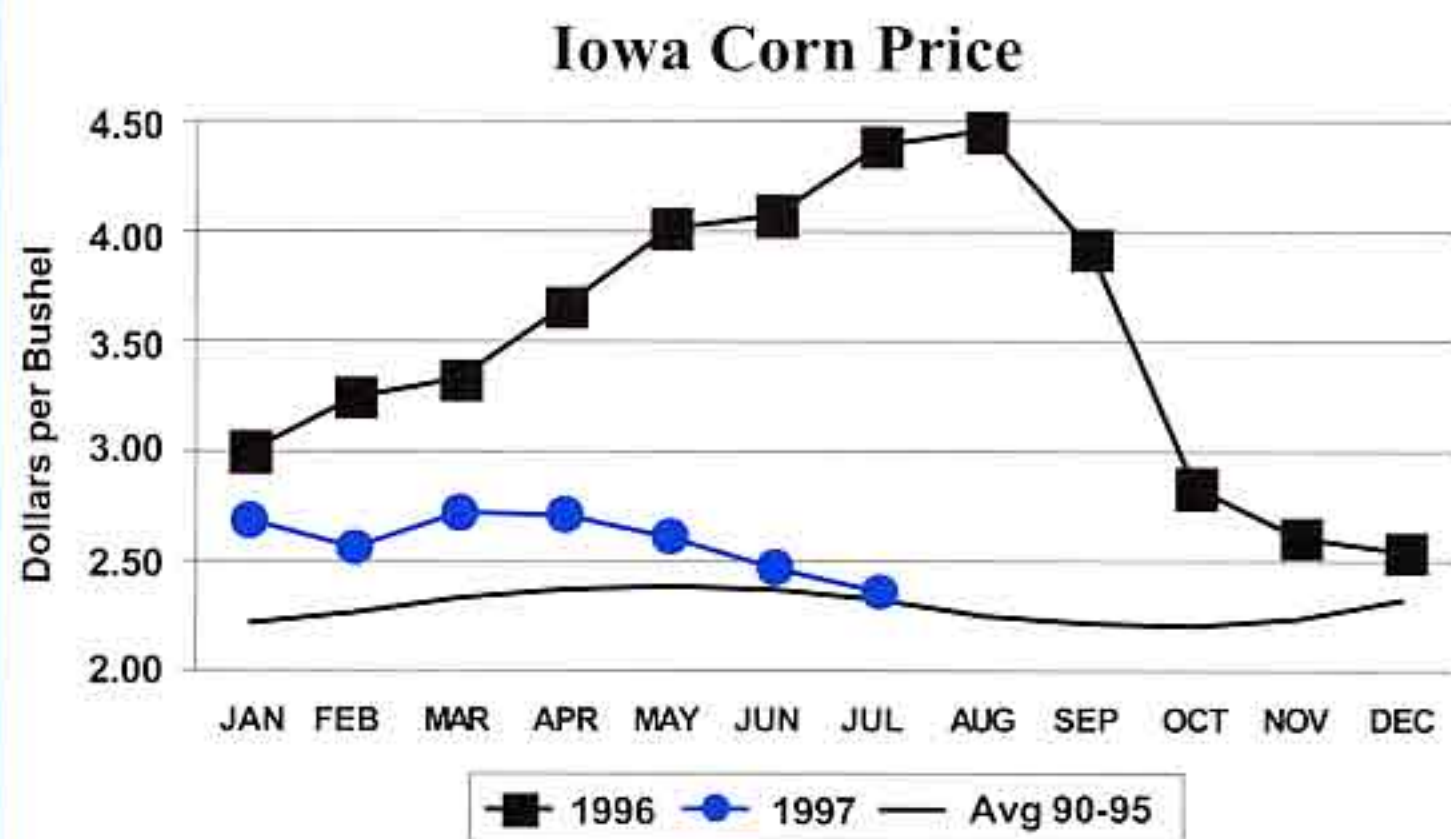
FAPRI Reports

#1-97 FAPRI 1997 U.S. Agricultural Outlook. FAPRI Staff.

#2-97 FAPRI 1997 World Agricultural Outlook. FAPRI Staff.

Baltic Reports

96-BR25 The Baltic Free Trade Agreement in Agriculture: Issues and Potential Impacts. **Natalija Kazlauskiene and William H. Meyers**. August 1997.



Iowa Cash Receipts

| | 1997 | Jan - Apr. 1996 | 1995 |
|-----------|-------------------|--------------------|-------|
| | (million dollars) | | |
| Crops | 2,736 | 2,702 | 1,750 |
| Livestock | 1,784 | 1,733 | 1,588 |
| Total | 4,521 | 4,436 | 3,339 |

Average Farm Prices Received by Iowa Farmers

| | June 1997 | May 1997 | June 1996 |
|-----------------|----------------------|----------|-----------|
| | (dollars per bushel) | | |
| Corn | 2.47 | 2.61 | 4.14 |
| Soybeans | 8.10 | 8.40 | 7.39 |
| Oats | 1.93 | 2.10 | 2.26 |
| | (dollars per ton) | | |
| Alfalfa | 117.00 | 119.00 | 103.00 |
| All Hay | 112.00 | 115.00 | 100.00 |
| | (dollars per cwt.) | | |
| Steer & Heifers | 65.00 | 68.70 | 60.70 |
| Feeder Calves | 82.40 | 79.10 | 55.70 |
| Cows | 40.00 | 40.30 | 30.30 |
| Barrows & Gilts | 59.70 | 60.50 | 58.70 |
| Sows | 48.00 | 51.20 | 46.60 |
| Sheep | 32.80 | 31.30 | 23.30 |
| Lambs | 83.30 | 89.30 | 97.90 |
| | (dollars per lb.) | | |
| Turkeys | 0.45 | 0.46 | 0.47 |
| | (dollars per dozen) | | |
| Eggs | 0.35 | 0.41 | 0.48 |
| | (dollars per cwt.) | | |
| All Milk | 13.50 | 13.30 | 14.00 |

World Stocks-to-Use Ratios

| | 1997/98 | Crop Year | |
|----------|-----------|-----------|---------|
| | | 1996/97 | 1995/96 |
| | (percent) | | |
| Corn | 14.83 | 14.84 | 12.15 |
| Soybeans | 13.55 | 9.64 | 12.71 |
| Wheat | 20.94 | 18.97 | 18.97 |

The Look of the "New" Conservation Reserve Program *(continued from page 1)*

EBI was redesigned to meet the new stipulations applied to the fifteenth sign-up. The index is now comprised of the following six environmental factors:

1. wildlife habitat
2. water quality
3. reduced erosion
4. long-term agricultural benefits
5. air quality
6. conservation priority benefits

Each piece of land that was offered was measured against these factors and given an EBI value. These values were used to rank the land against all other land bid into the program, and the USDA accepted land for enrollment from this ranking.

Over 23.3 million acres were offered and 16.1 million acres were accepted in the latest sign-up. The acceptance rates varied significantly by region (Figure 1). In the Northern Plains, Northeast, and Delta States regions over 80 percent of the land offered for the program was accepted. Every region will have some decline in enrolled land because the acreage in the new land contracts will not equal the total acreage enrolled in expiring land contracts. The lowest acceptance rate was in the Lake States region (43 percent). The enrolled land in the Northern Plains region will increase to nearly one half of the CRP land by October 1, 1997 (Table 1). The Corn Belt share will drop from 14.6 to just under 13.9 percent of the CRP land. The Lake States and the Far West regions will lose almost 2 percent of their current shares of CRP land. A modest east-to-west shift can be observed. The Northern Plains, Southern Plains, and Far West acreage currently totals 66.1 percent of the CRP-enrolled land. As of October 1, 1997, these regions will contain 69.4 percent of the enrolled land.

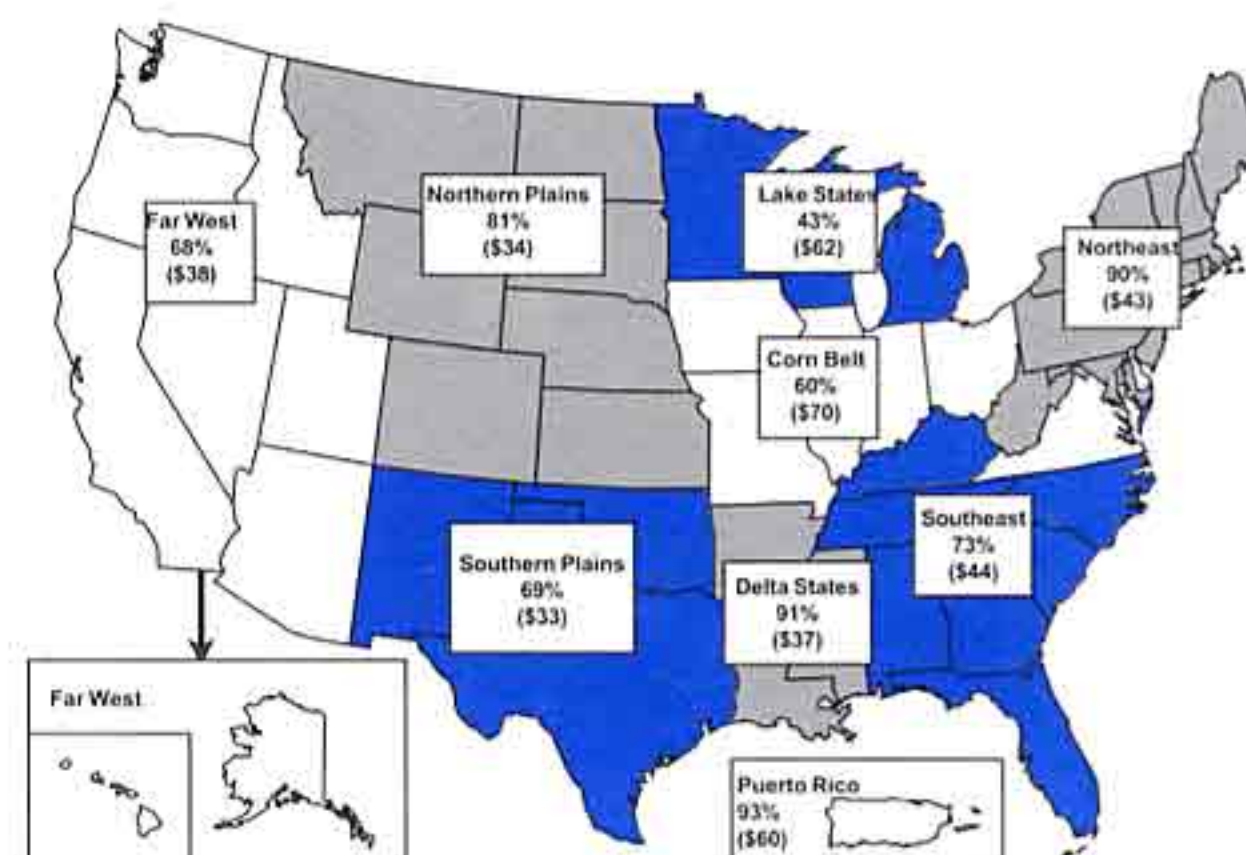


Figure 1. CRP sign-up 15 - percent accepted (average rental rate).

Table 1: Percent of CRP acres in each region.

| Region | March 1 | October 1 | Change in Enrolled Ac. |
|-----------------|---------|-----------|------------------------|
| Northeast | 0.59% | 0.65% | -14,802 |
| Southeast | 7.35% | 6.24% | -693,474 |
| Delta States | 3.57% | 4.04% | -58,395 |
| Corn Belt | 14.61% | 13.89% | -967,853 |
| Lake States | 7.76% | 5.81% | -945,958 |
| Northern Plains | 41.10% | 47.54% | -379,790 |
| Southern Plains | 16.79% | 15.47% | -1,246,573 |
| Far West | 8.22% | 6.36% | -946,980 |
| Total | 100.00% | 100.00% | -5,253,767 |

Program costs currently average \$50 per acre per year, and the average rental rate under the fifteenth sign-up is \$39 per acre, bringing the new average to under \$44 per acre per year. Regional rental rate differences still exist in the new CRP contracts (Figure 1). The Corn Belt region has the highest average rental rate of \$70 per acre. The Northern and Southern Plains regions have the lowest average rates at \$34 and \$33 per acre per year, respectively. The regional differences are due to the differences in productivity across regions.

Iowa had the highest average rental rate for new contracts at \$80 per acre, but the state rental rates varied widely (Figure 2). Within Iowa, the highest average country rental rate was in Hardin County (\$115 per acre) and the lowest was in Decatur County (\$61 per acre). Conservation Reserve Program land tends to be concentrated in the southern and eastern portions of the state (Figure 3).

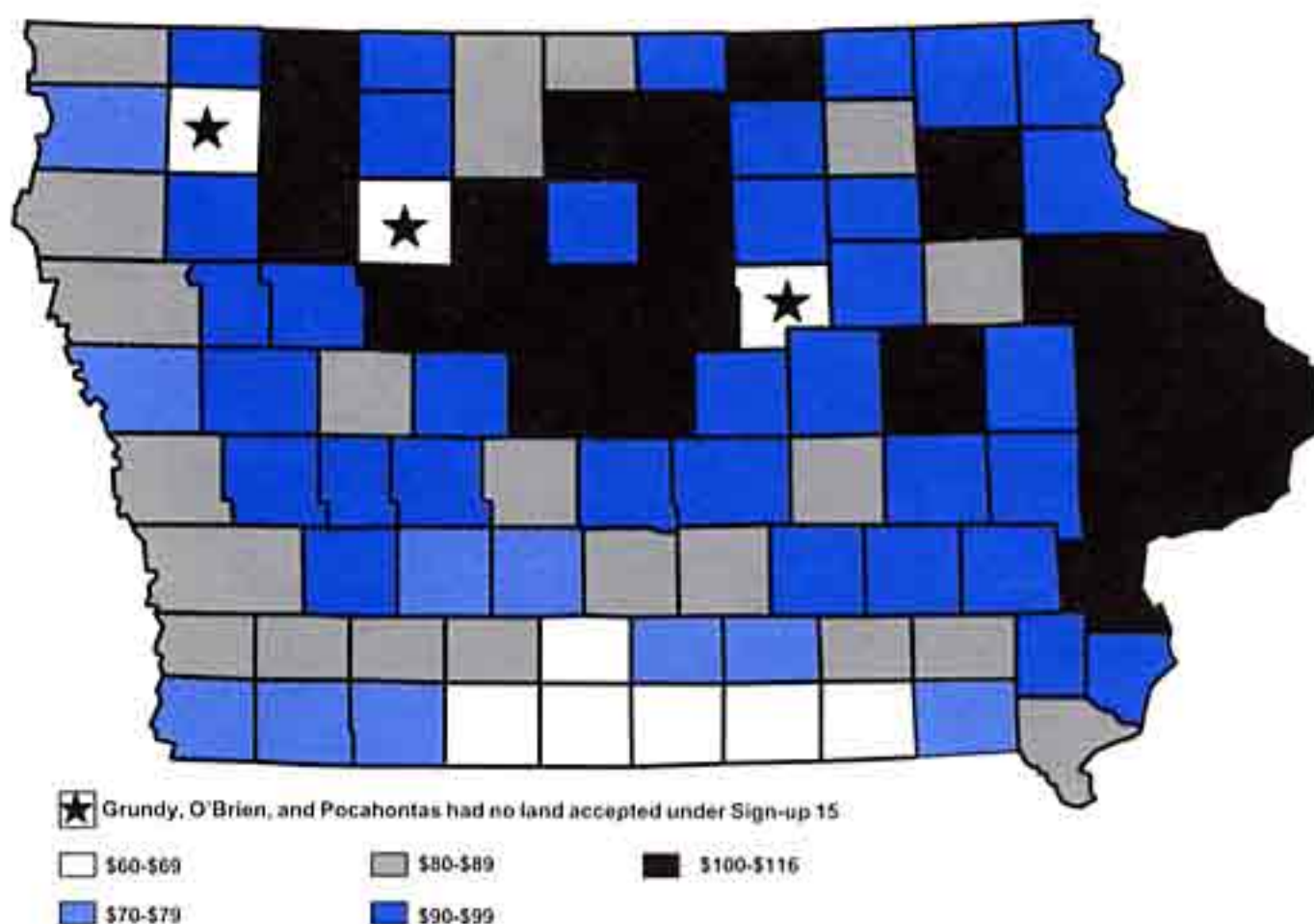


Figure 2. Average Iowa CRP rental rates under the fifteenth CRP sign-up.

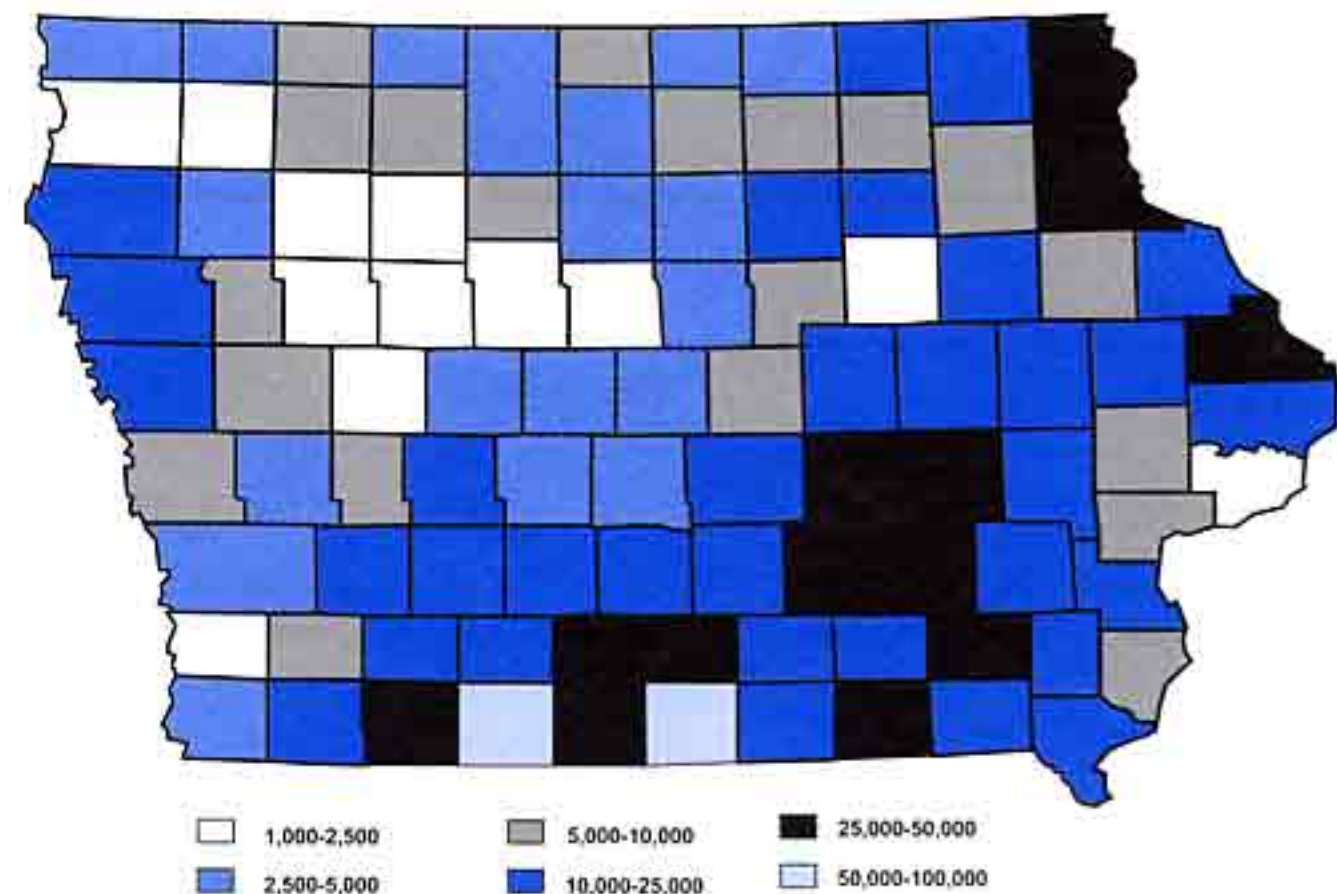


Figure 3. Iowa CRP acreage by county as of October 1, 1997.

As might be expected from the drop in average rental rate and the east-to-west shift, there have also been shifts between individual states (Figure 4). There is a perceptible western, south-to-north movement as enrollment in Texas shifts to North Dakota and a corresponding north-to-south movement in eastern states as Corn Belt/Lake States enrollment shifts to the Delta States. North Dakota gains CRP-enrolled land while South Dakota and Montana hold their own. All other states lose CRP-enrolled land.

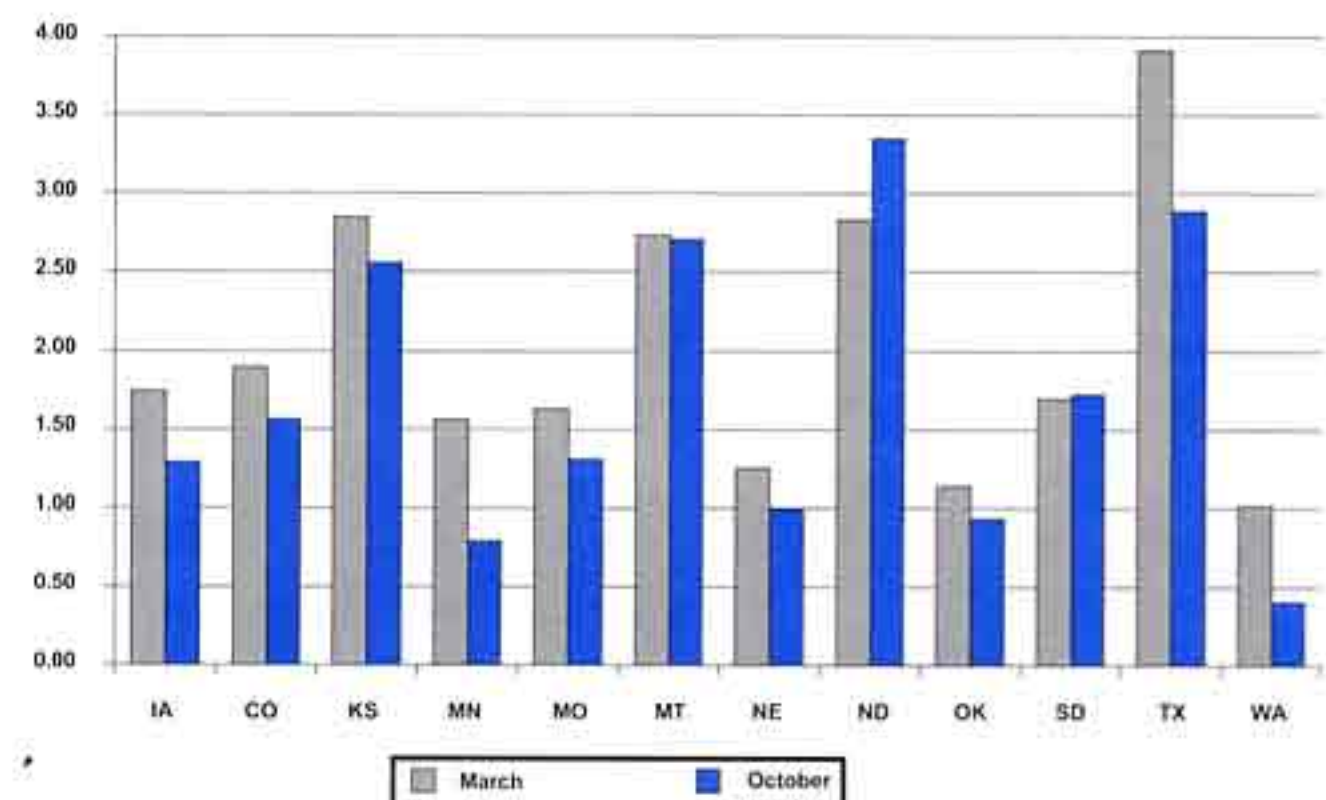


Figure 4. Selected states' land enrolled in CRP - March 1, 1997 and October 1, 1997

Iowa had 1.7 million acres in CRP on March 1, 1997. Contract expirations and the enrollment of new acres under the new rules will leave Iowa with 1.3 million acres in CRP on October 1, 1997. Of the states that have over 1 million acres in CRP, North Dakota will add 522,076 acres and South Dakota will add just under 24,000 acres. Washington will have less than 40 percent of the acres previously enrolled in CRP; Minnesota will have 50 percent; Texas and Iowa, 74 percent; Colorado, Nebraska, and Missouri will have approximately 80 percent; and Montana will have 99 percent of previous enrollment.

In sum, after October 1, 1997, the traditional corn and soybean states (Corn Belt region) will likely have another 1 million acres available for crop production (although this does not necessarily imply that all the former CRP acreage will go into row crops). This acreage will be added to the over 68 million acres planted to corn and soybeans in the Corn Belt alone. The northern wheat region of the United States (North Dakota, South Dakota, and Montana) will have 500,000 fewer acres available for planting. It is uncertain how these changes will affect future crop prices due to the planting and production flexibility under the FAIR Act and the relative crop and livestock prices. Regardless, the fraction of land that will come back into production from CRP is small in relation to what is already in production. ■

World Trade Impacts of Foot-and-Mouth Disease in Taiwan

(FAPRI Staff, 515-294-1183)

On March 21, 1997, Taiwan imposed an indefinite ban on pork exports following an outbreak of foot-and-mouth disease (FMD).¹ Taiwan's major markets, including Japan, Korea, and Singapore, followed suit by banning imports of all pork and pork products originating in Taiwan. Pork is Taiwan's main agricultural commodity, both in value of production and in export earnings, and Taiwanese pork exports account for over 15 percent of the world total. Taiwan is also Japan's predominant supplier of exported pork. Thus, Taiwan's export ban will have a significant impact on trade patterns and world pork prices. Using the Food and Agricultural Policy Research Institute (FAPRI) modeling system, researchers examined the interaction among pork, other meats, feed grains, and protein meal feeds (see CARD Briefing Paper 97-BP 16 for more detailed analysis).

Taiwan will need to leap several hurdles to reenter the pork export market. Japan, which traditionally imports almost all of Taiwan's pork exports, will likely be extremely careful to avoid exposing its large domestic swine herd to FMD. Taiwan's reentry into the Japanese market will be further complicated by the anticipated declaration of Japan as a swine-fever-free country in 1999. Market prospects

for Taiwanese pork outside of Japan are not promising due to Taiwan's high cost of production. In the last four years Taiwan's farm price for barrows and gilts has been 1.86 times higher than the world price.

Due to this uncertainty about Taiwan's future pork exports, two scenarios were evaluated. Scenario 1 is a worst-case scenario with no Taiwanese reentry in the export market over the 10-year projection period. Scenario 2 projects partial Taiwanese exports after three years. Both scenarios were simulated using the FAPRI models by imposing appropriate reductions in Taiwan's pork production. New equilibrium levels for supply, demand, prices, and trade volumes were then solved.

This article focuses on the results of the worst-case scenario in order to indicate the largest impact that could occur.

Table 1 summarizes results of the analysis indicating that the shortfall of 337 thousand metric tons (tmt) in world export supplies will increase the U.S. barrow and gilts price by 5 percent in the first year (1997). The demand side adjustment in response to higher prices is a reduction of world imports by 70 tmt. Of this quantity, the decline in Japanese imports is only 6 tmt, as the Japanese market is buffered from world price fluctuations by their gate price policy.² Import reductions in other importing countries—including Mexico, South Korea, the Former Soviet Union (FSU), Hong Kong, and smaller countries in the rest of the world (ROW)—account for the other 64 tmt.³

Of the net importers, Mexico is the most responsive to U.S. prices, in both production and consumption. In response to the 5 percent price increase in 1997, Mexican pork consumption falls by 21 tmt (a 2.2 percent decline). The higher prices also promote hog inventory buildup in Mexico, leading to a marginal loss of 2 tmt in production in 1997 but increasing productive capacity for the future. The net result is a 19 tmt reduction in imports from the 73 tmt projected in the 1997 baseline. The other major import reduction is the 18.4 tmt reduction in the FSU. This 3 percent reduction in imports results from a mere 0.5 percent decline in consumption. The rest of the world reduces imports by 20, 13, and 10 percent, respectively, in the first three years of the projection period. In 1997 this amounts to a 21 tmt decline in pork imports.

2. Under a Safe Guard (SG) measure termed the snap-back provision, the gate price is automatically raised 24 percent to discourage rapid imports when the total imports in each cumulative quarter within a fiscal year exceeds 119 percent of the corresponding period average of the previous three years (the trigger level). The gate price is held at that level until the beginning of the next fiscal year.

3. FAPRI Staff Report #2-97, FAPRI 1997 *World Agricultural Outlook*, provides a list of the countries included in the ROW.

1. The World Organization of Animal Health (Also known as Office International des Epizooties, OIE), an independent international organization that monitors and disseminates information about animal diseases throughout the world, suspended Taiwan's FMD-free status due to the recent outbreak.

With the 70 tmt reduction in imports, 267 tmt deficit remains to be supplied by pork-exporting countries. In 1996, Taiwan captured 44.42 percent of the market share of fresh and chilled pork imports in Japan and 35.69 percent of frozen pork imports. The other major suppliers of pork were the United States (with a fresh and chilled meat market share of 42.12 percent and frozen meat market share of 13.19 percent), Denmark (0.04 and 24.42 percent), and Canada (4.25 and 6.57 percent). In the short-run, pork suppliers with more elastic excess supply functions will be favored to capture the market share released by Taiwan. In the long run, however, cost advantage and availability of processing capacity will determine whether the additional market share is substantial and stable.

The United States is well positioned to take advantage of this market opportunity. Pork exports are projected to increase by 210 tmt, representing nearly 78 percent of the export opportunities made available in 1997.⁴ Canadian exports, limited by processing capacity, grow by 37 tmt. European Union exports increase a modest 7 tmt because Denmark is the only EU country with significant exports to Japan. Furthermore, the current swine fever problem in the Netherlands may further affect export growth in the European Union.

Pork exports from the United States are projected to continue to grow relative to the baseline until 2001. In the long run, the United States will gain just over 300 tmt of additional pork export sales annually, representing an average annual increase of 26 percent. Higher pork export levels, however, do not equate with higher pork production. In 1997 and 1998, respectively, only 5 percent and 28 percent of the additional pork exports are supplied by production increases; the remainder come from a decline in U.S. consumption. In the longer run, additional U.S. pork bound for world markets is the result of greater pork production.

Increasing U.S. pork exports by an average of 36 percent of the baseline in the next five years will raise hog prices roughly 5 percent in 1997 and 1998; however, once additional hog inventories are built, pressure on prices drops significantly. Figure 1 shows the path of U.S. hog prices over the projection period. U.S. barrow and gilt prices average 1.7 percent higher than the FAPRI baseline price projections in 1999 and beyond. Higher hog prices are passed on to U.S. consumers, causing domestic pork consumption to drop an average of 1.8 percent. Slightly higher pork prices also ripple through other U.S. meat

markets, increasing the domestic demand for beef and poultry, but long-run price and quantity changes are generally less than 0.3 percent.

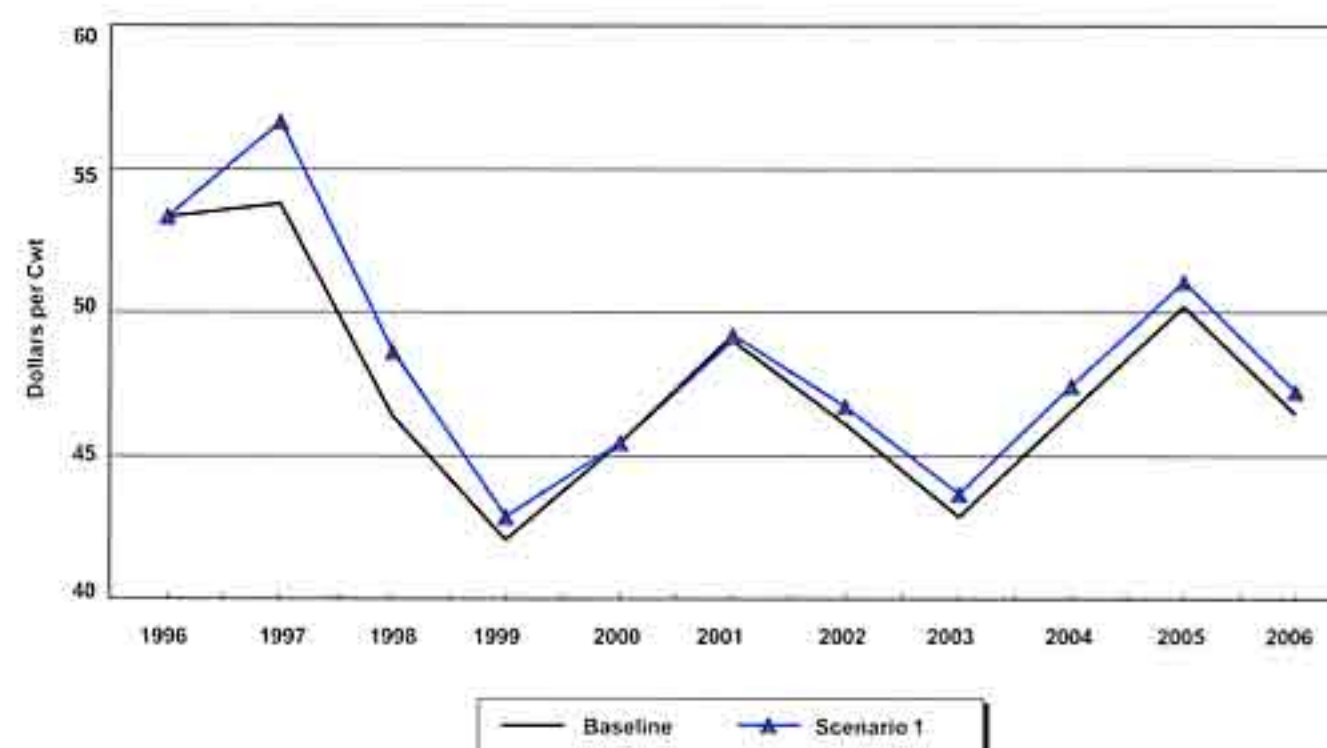


Figure 1. U.S. barrow and gilt prices

Greater pork production in the United States and declining pork production in Taiwan will have a small net impact on U.S. corn and soybean markets (see Table 2).⁵ Domestic corn consumption increases an average of 762 tmt relative to baseline projections, less than a 0.5 percent change. At the same time, corn exports decline an average of 965 tmt, causing the FOB Gulf price to fall roughly \$.67 per metric ton below the baseline price. In 1997 the corn price at Gulf ports is \$1.65 below the baseline projection of \$122.61/mt. Similar changes occur in the U.S. soybean market. Soybean crush is up an average of 134.6 tmt annually relative to the baseline, but soybean exports are down 198 tmt. The U.S. soybean price at the Gulf is projected to average \$1.66 per mt below the baseline, with declines closer to \$2.00/mt in 1997 and 1998. The impact on grain prices is the greatest in the first two years of the projection period because foreign import demand for feed drops off more rapidly than U.S. hog production is able to increase. The negative net effect on corn and meal prices is the combined result of lower world pork production and a shift in production from less efficient to more efficient producer countries.

Scenario 2 is also analyzed under the assumption that Taiwan resumes exports at 8 percent of the baseline level in the year 2000, increasing to 53 percent of the baseline by 2004. This additional supply, over and above the increase due to adjustments initiated in other exporting countries during the previous 3 years, causes world prices to fall marginally below the baseline levels in 2000, 2001, and 2002.⁶

5. Pork and poultry feed in Taiwan make up 45 to 47 percent of total commercial and farm processed feeds. Most feed ingredients are imported (95.5 percent of corn is imported from the U.S.). Soybean meal is crushed locally, but the soybeans are all imported from the United States.

6. It is also argued that the absence of Taiwan from the Japanese pork market is likely to have a moderating influence on the within-year trade fluctuations experienced in the recent past due to the Japanese gate price mechanism. However, no attempt is made to quantify the possible implications of reduced trade volatility.

4. Wholesale carcass = weight price of pork in the United States was \$1,390 per ton compared to \$1,690 in Denmark and \$4,484 in Japan.

Table 1. Scenario 1: Pork trade redistribution with no reentry of Taiwanese exports

| | Year | | | | | | | | | |
|--|-------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
| U.S. Barrows and Gilts Price | | | | | | | | | | |
| | <i>(dollars per mt)</i> | | | | | | | | | |
| Scenario | 1,249 | 1,071 | 944 | 1,001 | 1,085 | 1,029 | 962 | 1,046 | 1,125 | 1,041 |
| Change from Baseline | 62 | 49 | 17 | -1 | 4 | 13 | 18 | 19 | 19 | 18 |
| Change as percent | 5.2% | 4.8% | 1.8% | -0.1% | 0.4% | 1.3% | 1.9% | 1.8% | 1.7% | 1.8% |
| Loss in Exports by Taiwan | | | | | | | | | | |
| | <i>(thousand mt)</i> | | | | | | | | | |
| Scenario | 337 | 360 | 348 | 347 | 354 | 355 | 349 | 349 | 357 | 357 |
| World Imports | | | | | | | | | | |
| Scenario | 1,791 | 1,910 | 2,031 | 2,126 | 2,218 | 2,345 | 2,459 | 2,471 | 2,480 | 2,571 |
| Change from Baseline | -70 | -57 | -35 | -16 | -12 | -15 | -22 | -25 | -27 | -31 |
| Change as percent | -3.9% | -3.0% | -1.7% | -0.8% | -0.5% | -0.6% | -0.9% | -1.0% | -1.1% | -1.2% |
| Import Reductions from | | | | | | | | | | |
| Former Soviet Union | -19 | -15 | -1 | 8 | 7 | 3 | 0 | -0 | -1 | -1 |
| Hong Kong | -3 | -2 | -1 | 0 | -0 | -1 | -1 | -1 | -1 | -1 |
| Japan | -6 | -7 | -4 | -1 | -2 | -3 | -4 | -3 | -3 | -3 |
| Mexico | -19 | -16 | -16 | -14 | -9 | -5 | -6 | -8 | -10 | -10 |
| South Korea | -3 | -4 | -2 | -1 | -1 | -3 | -4 | -4 | -4 | -8 |
| Rest of World | -21 | -13 | -11 | -8 | -7 | -7 | -8 | -8 | -9 | -9 |
| Total | -70 | -57 | -35 | -16 | -12 | -15 | -22 | -25 | -27 | -31 |
| Added Export Opportunities | | | | | | | | | | |
| As percent of export reduction in Taiwan | 79% | 84% | 90% | 95% | 97% | 96% | 94% | 93% | 92% | 91% |
| United States | 210 | 252 | 293 | 325 | 335 | 324 | 310 | 304 | 308 | 306 |
| European Union (15) | 7 | 8 | 4 | 0 | 1 | 2 | 4 | 3 | 3 | 3 |
| Canada | 37 | 30 | 14 | 5 | 6 | 9 | 11 | 12 | 13 | 13 |
| U.S. Share | | | | | | | | | | |
| | 78% | 83% | 93% | 98% | 98% | 95% | 95% | 94% | 93% | 94% |

Exports from the United States are affected most by Taiwan's reentry into the pork export market. The United States reduces its exports by 167 tmt in 2006 compared to scenario 1, while Taiwan increases its exports to nearly 280 tmt.

A cautionary note is in order on the interpretations of these additional volumes and shares. The nature of net trade models with no specific reference to source-destination relationships can obscure the interpretation of these share changes. For example, the 210 tmt additional exports from

Table 2. Scenario 1: Results for U.S. corn and soybean use, trade, and prices

| | Year | | | | | | | | | |
|---------------------------|-------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
| Corn | <i>(million mt)</i> | | | | | | | | | |
| Domestic feed use | | | | | | | | | | |
| Scenario | 132.6 | 133.9 | 135.1 | 137.9 | 139.9 | 140.6 | 142.0 | 143.6 | 144.8 | 147.7 |
| Change from Baseline | 0.7 | 0.4 | 0.7 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.9 |
| Change as percent | 0.6% | 0.3% | 0.5% | 0.5% | 0.5% | 0.6% | 0.6% | 0.6% | 0.6% | 0.6% |
| Exports | | | | | | | | | | |
| Scenario | 46.8 | 52.1 | 59.6 | 63.4 | 65.0 | 67.9 | 70.3 | 72.2 | 75.1 | 76.1 |
| Change from Baseline | -1.4 | -0.8 | -0.8 | -0.9 | -0.9 | -0.9 | -0.9 | -1.0 | -1.0 | -1.0 |
| Change as percent | -2.9% | -1.6% | -1.3% | -1.4% | -1.4% | -1.3% | -1.3% | -1.3% | -1.3% | -1.3% |
| Soybeans | | | | | | | | | | |
| Domestic crush | | | | | | | | | | |
| Scenario | 38.1 | 38.4 | 39.3 | 40.0 | 40.8 | 41.5 | 42.1 | 42.7 | 43.4 | 44.0 |
| Change from Baseline | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Change as percent | 0.3% | 0.1% | 0.3% | 0.3% | 0.4% | 0.4% | 0.4% | 0.4% | 0.4% | 0.5% |
| Exports | | | | | | | | | | |
| Scenario | 24.1 | 24.0 | 23.8 | 23.9 | 24.0 | 24.2 | 24.4 | 24.6 | 24.9 | 25.4 |
| Change from Baseline | -0.2 | -0.1 | -0.1 | -0.2 | -0.2 | -0.2 | -0.3 | -0.3 | -0.3 | -0.3 |
| Change as percent | -0.9% | -0.2% | -0.6% | -0.7% | -0.9% | -1.0% | -1.0% | -1.1% | -1.1% | -1.1% |
| Prices | <i>(dollars per mt)</i> | | | | | | | | | |
| Corn f.o.b. gulf price | | | | | | | | | | |
| Scenario | 120.96 | 106.77 | 106.26 | 108.74 | 109.96 | 114.37 | 116.96 | 119.17 | 123.42 | 126.19 |
| Change from Baseline | -1.62 | -0.59 | -0.44 | -0.59 | -0.53 | -0.55 | -0.56 | -0.62 | -0.69 | -0.45 |
| Change as percent | -1.3% | -0.6% | -0.4% | -0.5% | -0.5% | -0.5% | -0.5% | -0.5% | -0.6% | -0.4% |
| Soybean f.o.b. gulf price | | | | | | | | | | |
| Scenario | 268.33 | 244.70 | 230.42 | 229.07 | 233.58 | 235.66 | 239.54 | 243.18 | 247.97 | 256.04 |
| Change from Baseline | -1.93 | -2.06 | -1.22 | -1.49 | -1.66 | -1.74 | -1.53 | -1.68 | -1.66 | -1.54 |
| Change as percent | -0.7% | -0.8% | -0.5% | -0.7% | -0.7% | -0.7% | -0.6% | -0.7% | -0.7% | -0.6% |

the United States to meet the 267 tmt of export opportunities in scenario 1 does not suggest that the United States will capture 78 percent of the Japanese market opened up by Taiwan's export ban. Japanese imports declined by only 6 tmt. Thus the additional opportunities in Japan are 331 tmt: 64 tmt export opportunities were closed in the rest of the world in response to higher world prices. Second, the added 210 tmt from the United States may not all go to the Japanese market. Given the Japanese preference for some Danish pork products, it is possible that more frozen Danish

products will be diverted from other export markets to Japan. Thus, the 7 tmt added net exports for the European Union may understate the actual additional exports to Japan from Denmark. The United States may export to countries other than Japan to partially offset the supply reductions in those countries. Similarly, the expanding South Korean export sector may supply a much larger volume to Japan than the projected 3 tmt of premium pork by diverting product from its domestic market and satisfying domestic demand through less expensive imports from the United States.

With these cautions in mind, the U.S. pork industry appears to have more to gain from the recent events in Taiwan than do the pork industries in other nations, but the net impact of a reduction in feed sales to Taiwan on U.S. corn and soybean markets will be small. The removal of Taiwanese pork from the Japanese market will not substantially affect pork consumption levels in Japan. However, significant adjustments will occur in the market shares of nations exporting pork to Japan. Modest increases in the world pork price will cause other pork-importing countries to reduce their import quantities, facilitating world market clearing until greater pork production is generated. ■

EMERGING ISSUES

Agricultural Impacts of China's Accession to the WTO

(Frank Fuller, 515-294-0470)

The People's Republic of China has requested—and will likely soon be granted—membership in the World Trade Organization (WTO). Given the size and importance of China's economy to the international market, both U.S. agricultural and nonagricultural markets will undoubtedly be affected significantly.

This article addresses important issues in China's accession to the WTO that relate to agricultural trade. Consideration is also given on how the nature of the accession agreement could affect U.S. agricultural interests.

In 1948 China signed the original agreement that established the General Agreement on Tariffs and Trade (GATT). Following the communist revolution, however, the new Chinese government withdrew from the GATT in 1950. In 1986, China applied to rejoin the international trade agreement, but negotiations to date have not resulted in satisfactory terms for reentry. China's absence from multilateral trade negotiations has resulted in a large gap between average tariff rates in China and the rates of most members of the WTO (established in 1995 as a formal organization of all nations participating in the GATT). Furthermore, decades of state control over the domestic economy and international trade promoted domestic marketing structures and restrictive, discretionary trading practices that are inconsistent with the rules negotiated

under GATT. Before China will be allowed to enter the WTO, changes in Chinese domestic and trade policies must occur to ensure that the country enters on commercially viable terms.

Market reforms in the late 1970s and early 1980s stimulated broad-based economic growth that has increased the incomes of both rural and urban populations in China and, as a result, both the quantity and quality of Chinese food consumption has increased. Moreover, economic growth has induced demographic changes that significantly increased the demand for land, water, labor, and other resources for nonagricultural purposes. Consequently, resources remaining in the agricultural sector are forced to become more productive.

To slow the migration of productive factors out of the agricultural sector, the government of China limits the movement of labor from rural to urban areas, restricts the use of land for nonagricultural purposes, places priority on the distribution of water for irrigation in agricultural areas, imposes minimum production quotas for important grain crops, and restricts imports of agricultural commodities. Despite a high degree of government control, domestic and trade policies are not applied uniformly across all provinces and all commodities. Chinese agricultural trade policy thus frustrates agricultural exporting nations trying to create a market for their commodities in China.

Consequently, the agricultural component of the accession negotiations has focused on creating *transparency* in Chinese domestic and trade policies. In general, creating transparency involves codifying current nontariff trade barriers that are administered in a discretionary fashion into tariffs and tariff rate quotas that can be uniformly applied and more easily liberalized over time. To facilitate discussions, negotiators have divided China's trade restrictions into a number of broad categories. The five that are the most important to agriculture are trading rights, state trading, nontariff measures, import and export licensing, and sanitary and phytosanitary measures.

Trading rights, state trading, and import and export licensing are similar issues in the sense that all three address the question of who is allowed to trade agricultural products. Currently, only selected government and private agents are allowed to engage in international trade, and transactions made by these agents require an import or export license issued by the central government. Thus, regardless of any tariff barriers to trade, the binding trade restriction is most often the inability to trade because the agent either lacks the right to trade or the appropriate trade license.

World Trade Organization member nations are stipulating that China extend the right to trade to all enterprises within the nation over a specified period of time (most likely 3 years). Certain restrictions will apply to sensitive commodities and particular enterprises. In addition, China will be asked to follow explicit rules for granting trade licenses. Finally, state trading organizations will be asked to provide information about their pricing mechanisms, procurement prices, and contract terms of delivery and financing. China will also be expected to comply with the GATT principle of nondiscrimination and the stipulations in Article XVII that trade be motivated by "commercial considerations." Unfortunately, the current GATT restrictions on state trading behavior are not stringent enough to have a significant impact on state trading organizations in China.

Transparency in Chinese trade policy will directly benefit U.S. agricultural commodity exporters.

First, expanding trading rights to a wider range of Chinese enterprises will open new opportunities for U.S. agricultural exports. Agents previously barred from trade will be able to purchase the agricultural products they need from international markets when imported products are competitive with domestically produced goods. Second, establishing clear guidelines for the granting of import licenses will greatly reduce the uncertainty that currently plagues commodity exchange with China. Likewise, making information about state trading practices available may help U.S. exporters understand and adapt to the rules of trade with China.

Nontariff barriers to trade can encompass a variety of measures, including import quotas, domestic content requirements, import licensing requirements, trade related investment requirements, etc. Many nontariff barriers are dealt with in the conditions creating policy transparency. Others, such as import quotas and export subsidies, must conform with the agreements negotiated in the Uruguay Round. Import quotas must be converted to tariff-rate quotas (TRQs), which are a combination of tariffs and quantity restrictions. TRQs allow imports into the country at a low tariff rate up to a specified quantity (usually between 1 and 5 percent of consumption or trade during some base period). However, once the quota amount of

imports has been reached, goods may continue to be imported but are subject to a higher tariff rate. The advantage of a TRQ is that imports may occur even after the quota level has been reached, and the reduction of tariff rates makes over-quota imports more likely.

In anticipation of WTO accession, China announced a system of TRQs for grain and oilseed products in 1996; however, quota levels were not specified. Thus, China retains discretionary control over the implementation of the higher tariff rates. Such discretionary control will not be acceptable to WTO members, and China must eventually agree to fixed quota amounts that may be expanded over the accession's period of implementation.

Although China also has tariffs on meat imports, the real barriers to meat trade are structured as phytosanitary restrictions. Sanitary and phytosanitary measures are laws, decrees, regulations, requirements,

and procedures that govern any phase of food, beverage or feedstuff production processes. Such measures aim to protect of protecting plant, animal, or human life from damage caused by the spread of pests, diseases, additives, contaminants, or toxins.

The Uruguay Round agreement addresses the use of phytosanitary measures as a barrier to trade. China's measures must be brought in line with the stipulations of the GATT agreement. Of particular interest to the United States is opening China's pork market to imports. Pork is by far the most important meat in the Chinese diet, and pork presently may not be imported into China for general consumption. If the United States can successfully negotiate an exemption to these restrictions for U.S. pork products and if a TRQ is established, U.S. pork exporters may find China to be a lucrative market for export of both muscle and variety meats. Other livestock products are not as important to Chinese consumers. Nevertheless, relaxation of current phytosanitary measures can only improve the opportunities for U.S. meat exporters.

Figure 1 demonstrates the pork export potential to China using the FAPRI 1997 baseline projection for China's net imports of pork. Since the baseline does not incorporate changes in import policies, pork imports are assumed to be

"Of particular interest to the United States is opening China's pork market to imports. Pork is by far the most important meat in the Chinese diet..."

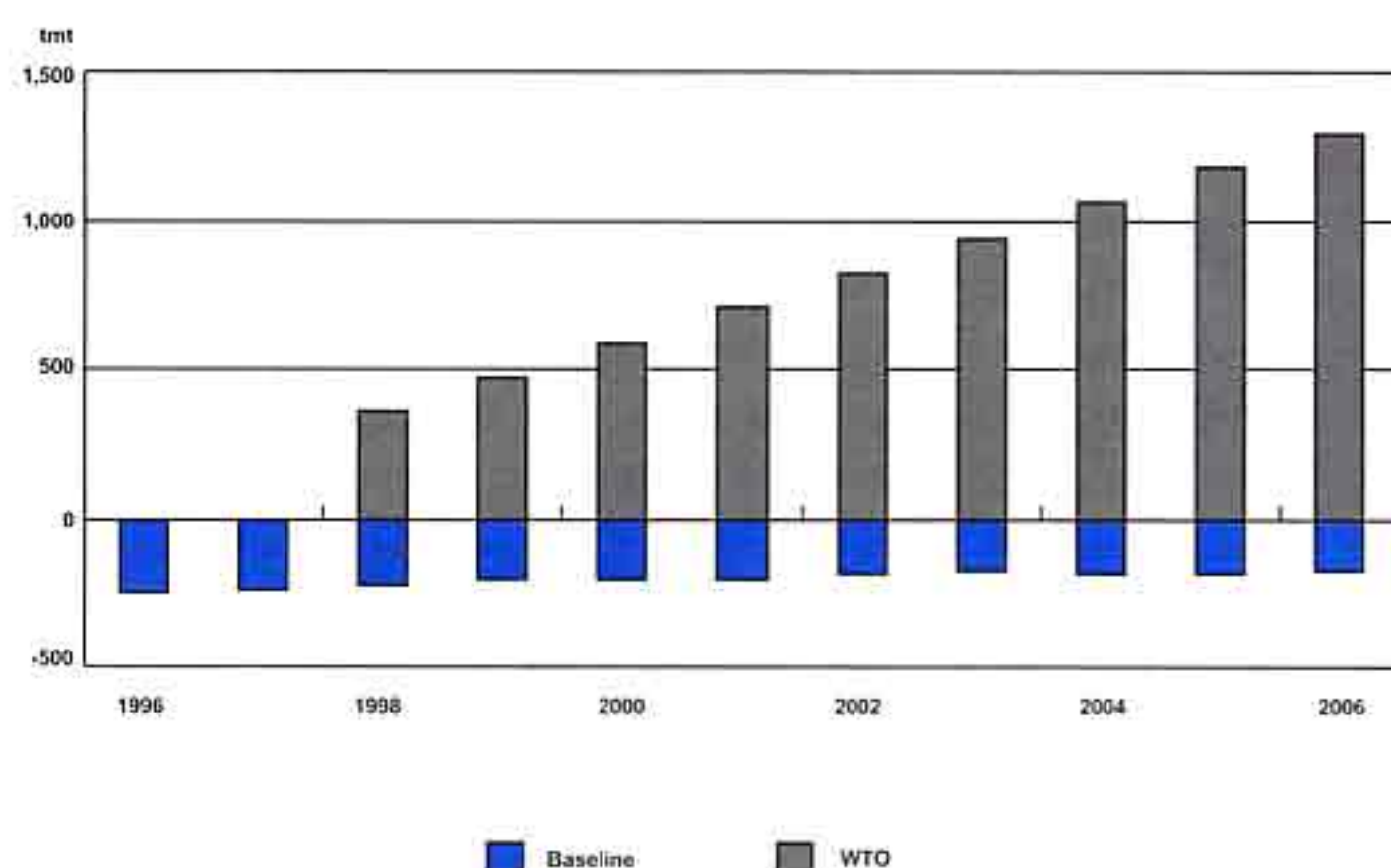


Figure 1. China's net pork import trade with and without market access

prohibited for health reasons. In the baseline China is projected to export approximately 200 tmt of pork annually. Net exports are indicated in figure 1 by negative unumbers. According to the Uruguay Agreement on Agriculture, if China attains WTO membership in 1998 and the phytosanitary restrictions are relaxed, China could be required to establish a TRQ for pork products.

Although the specifics of the TRQ are negotiable, Annex 5, Section B, of the Agreement on Agriculture outlines the standard schedule for a developing country as 1.0 percent of consumption over some base period growing to 4.0 percent over 10 years. Using this schedule and 1994 to 1996 as the base period, Figure 1 shows China's potential net pork imports given market access requirements. Figure 1 displays China's net imports of pork, but total import levels following WTO accession are calculated as the difference between the WTO and baseline net import numbers. Following accession, China could import approximately 350 tmt of pork in 1998. By 2006, total pork imports could grow as large as 1.2 mmt, roughly ten times U.S. net exports of pork in 1996.

China's accession to the WTO is likely to increase the market for U.S. exports of agricultural commodities. China already imports significant quantities of wheat and some rice and corn. However, the future growth in import demand is expected to be in feed grains to satisfy the needs of China's rapidly growing livestock sector and oilseeds to meet the growing demand for vegetable oils. If WTO accession opens up China's meat markets to significant levels of imported meat products, China's demand for grain imports may grow more slowly. On the surface it appears that U.S. livestock producers stand to gain the most from China's accession to the WTO. However, stronger meat exports will increase the domestic demand for feed grains,

raising prices and increasing returns to U.S. grain farmers. More thorough analysis is needed to assess the full impact of China's accession to the WTO on world grain and meat markets. ■

Budget Cuts Continue to Pressure the Agricultural Sector

(FAPRI Staff, 515-294-1183)

When Congress passed the 1996 Farm Bill, many agricultural reports gave the impression that U.S. agriculture would be spared further federal cutbacks. It is true that the ag producers have signed seven-year production flexibility contracts (PFCs) with the U.S. government. The contracts do stipulate a declining flow of income support payments. However, there is no guarantee that the agricultural sector will not suffer further budget reductions. Legislators and other policymakers from agricultural states are still defending agriculture from proposed budget cuts.

One example of current budgetary pressure on agriculture can be seen in the most recent CRP enrollment (see CRP article in this issue). The 1996 Federal Agriculture Improvement and Reform (FAIR) Act capped CRP enrollment at 36.4 million acres. With the recent sign-up, the CRP enrollment on October 1, 1997, will total 27.6 million acres. The Secretary of Agriculture wants flexibility to enroll acres over the duration of the FAIR Act, thus the 9 million acre difference between current enrollment and the cap. This is not a direct budget cut. However, the east-to-west movement of land enrolled in CRP does constitute a budget reduction because the average rental rate that accompanies this movement drops from \$50 per acre to \$44 per acre.

The current congressional debate over the elimination of the excise tax exemption for fuel ethanol is another example of budgetary pressure on the agricultural sector. Ethanol now receives a \$.54 per gallon federal tax exemption, which translates into a savings of \$.054 per gallon at the pump for 10-percent ethanol blend gasoline.

In the past, the Food and Agricultural Policy Institute (FAPRI) has been involved in several studies of the effectiveness of the ethanol tax exemption. However, these analyses were conducted under a very different underlying federal agricultural policy than is now in place. The FAIR

Act places the agricultural sector in a new situation. Under the 1990 Farm Bill, the ability to shift from one crop to another was severely limited. Additionally, any reduction in crop price translated directly into an increase in government farm program cost. The FAIR Act allows producers to move freely from crop to crop. Consequently, any price effects caused by reduced ethanol demand will result in alternative planting decisions by the producers but will have little impact on government costs. Further, the new law fixes the level of government expenditure. The removal of the ethanol tax exemption will not result in an associated increase in government farm program costs. "Effects on Agriculture of Elimination of the Excise Tax Exemption for Fuel Ethanol" is the first analysis on the tax exemption conducted by FAPRI under the new farm program.¹

The analysis assumes that the tax exemption will end with the start of the 1997/1998 crop marketing year and will take effect at the start of the 1998 fiscal year (October 1, 1997). It is assumed that the exemption will remain off through the remainder of the baseline. It is assumed that the use of corn for ethanol production will drop by 50 percent in the 1997/1998 crop year from the baseline levels of 504 million bushels to 252 million bushels. This level of decline is forced on the modeling system. It is further assumed that the level of demand continues to decline as processing plants shift to alternative uses for their starch stream, or that plants would work through cash reserves and other assets before finally halting production.

Before changes occur in the price of corn it is expected that ethanol demand drops to 180 million bushels in the 1998/1999 crop year and to 115 million bushels by 1999/2000, and that the base level of demand holds at 115 million bushels throughout the remainder the projection. It is important to note that these are absolute levels. The change from the baseline is much larger.

With the exemption still in place, demand for corn to produce ethanol is expected to reach 664 million bushels by the end of the baseline period (the 2005/2006 crop year). Given the present U.S. capacity to produce ethanol, such a growth in demand is not unreasonable. It is highly unlikely that further ethanol plant construction will occur in the future if the tax exemption is canceled. Consequently, the constant price difference in ethanol demand grows from 250 million bushels in the 1997/98 crop year to nearly 550 million bushels by the 2005/2006 crop year.

The loss in ethanol demand will be partially offset, but the overall effect will be a reduced level of corn utilization. With reduced demand will come price adjustments. The gross loss of 252 million bushels of corn to meet the ethanol demand in the first year of the analysis will result in a price decline that will increase utilization in other demand categories, over and above the adjustments discussed in this article. Corn prices are expected to fall by \$.10 per bushel in the 1997/1998 crop year. Prices for other feed grains, such as sorghum, also come under pressure with the lower corn price. Sorghum prices are expected to fall by \$.08 per bushel, with smaller adjustments in barley, oats, and wheat prices.

Under the 1990 Farm Bill, this price decline would have had a minimal effect on plantings in the subsequent crop year. To adjust for the reduction in utilization, it is likely that the Secretary of Agriculture would have elected to increase the rate of set-asides, for example. This policy adjustment would have moved acreage under the previous law more than the effect of price changes. However, under the 1996 FAIR Act, producers are able to shift freely from one crop to another. Consequently, the price decrease lowers corn production returns by \$12.49 per acre in the 1997/1998 crop year. Producers observe that decline and then shift from corn production to alternative crops. In the Corn Belt, such an alternative would likely be soybeans. Higher soybean exports and domestic meal utilization would help raise soybean prices marginally in 1997/1998, moving additional acreage for the 1998/1999 crop year into soybean production, rather than into corn and other feed grains. Some marginal acreage in other regions move land into wheat, cotton, and rice production.

The net effect of these shifts is lower prices for commodities across the board for the 1998/1999 crop year and beyond. In the 1998/1999 crop year, corn acreage falls by 1.2 million acres. With adjustments in the out years, corn acreage drops 1.1 to 1.2 million acres below baseline levels. Soybean plantings are expected to increase by 1.0 million acres with the 1998/1999 crop. After an adjustment period, soybean acreage will average 0.8 to 0.9 million acres higher than indicated on the baseline. Sorghum, barley, and oat acreages decrease marginally, while cotton and rice acreages increase even less. Overall, the planted area is expected to drop by 0.2 to 0.5 million acres. The net reduction in corn use caused by the elimination of the excise tax exemption is 174 million bushels, an amount that

1. FAPRI Policy Working Paper 01-97, Columbia, MO: CNFAP, and Ames, IA: CARD, April 1997.

requires 1.3 million acres to be planted in corn. It is expected that more than half of the corn acreage will be planted in other crops, but it is also expected that there will be a marginal reduction in overall crop planting due to the reduced demand for corn for ethanol production.

The demand for corn for other purposes changes with the reduction in the ethanol demand. Corn exports are expected to rise due to both the reduction in gluten supplies into Europe and the price decrease. Feed use is also expected to increase as the livestock sector adjusts to the reduced feed costs and changes in gluten feed available.

Soybean demand is slightly more complex. While meal utilization rises under the ethanol tax scenario, note that soybean export demand falls, even with adjustments to meal exports to account for the protein equivalent of the reduced gluten shipments. Meal prices decline less than 1 percent under the scenario. Oil prices decline by less than the fall in soybean prices as soybean demand also picks up with reduced corn oil supplies. This relative strength in meal and oil prices when compared to soybean prices makes importing and crushing soybeans somewhat more attractive than meal and oil importing. The net effect is increased exports for the soybean sector, but with a shift to more soybean exports and less product exports.

Lower feed costs provide incentives to increase livestock production. After the first year of the scenario, pork and broiler production rise slightly, leading to a reduction in prices for those products. Normally, the beef sector would

react similarly to the change in feed costs. However, the decline in retail prices of other meats overwhelms the change in feed costs. Consequently, beef production and prices are both lower in the scenario compared to the baseline. Milk production increases slightly, with prices off as well. In the last year of the analysis, feed costs for dairy production are down by \$0.11 per cwt, with milk prices down by \$0.08 per cwt.

Farm income declines under the scenario relative to the baseline. Crop receipts in particular are down by \$0.7 billion in 1998 and by \$1.9 billion by the end of the period. Livestock receipts are also down, but feed expenses are expected to decline somewhat more than receipts, indicating that the livestock sector is somewhat improved under the scenario. Production expenses for the sector as a whole are also expected to fall. Net cash income is off by \$300 million in 1998 and down by \$1.1 billion at the end of the period. After adjustments for inventory changes and other nonmoney effects, net farm income decreases by \$1.2 billion under the scenario at the end of the period.

The budgetary pressures on agriculture will continue to build. The agricultural community must continue to recognize and analyze the impacts of these changes. By determining net farm income under proposed policy changes, we can at least estimate whether the proposed changes will be positive or negative on the agricultural sector. Informed evaluation of policy alternatives will continue to support a healthy agricultural sector of the U.S. economy. ■

MEET THE STAFF

Judith Pim is manager of CARD's Communication and Information Division. She came to CARD in 1985 to edit research publications, write and edit newsletters, and provide organizational assistance for CARD's outreach activities. Initially she had a dual appointment as CARD editor and NCRCRD (North Central Regional Center for Rural Development) editor.

CARD's research broadened and faculty and staff grew under Director Stan Johnson's leadership, and when the CARD Communication and Information Division was established, Pim became its manager. (The NCRCRD then hired an editor to oversee its publications.) "In my early days in Heady Hall, I divided my time as equally as possible between the two centers; fairly quickly, however, it became obvious that I couldn't adequately cover all the bases, and so I elected to work solely with CARD." That decision, she says, has resulted in the opportunity to work with the brightest and the best in the field of agricultural policy research.



Judith Pim

Pim began a career in editing and publishing when she was appointed editor-in-chief of the *Annals of Iowa*, a historical journal published by the Iowa Department of History. "That's where I learned the technical ropes involved in putting out a publication," says Pim. "It was a 'soup-to-nuts' operation and I did everything from develop articles and research photo collections, to manually paste-up the issues (before the computer was in use for publications). I even stuffed envelopes and bundled them in U.S. mail bags!" The experience Pim gained in that position led to her next job as managing editor of the Iowa State University Press. "Book publishing has remained dear to my heart—it taught me volumes (no pun intended) about the intricate process of transforming an author's ideas and research into a final product for public and/or academic consumption."

Pim has B.A. and M.A. degrees from Drake University. A native of Michigan, she has made her home in Iowa for the past 30 years. For recreation and relaxation, Pim trains and rides her two Arabian and Quarter horses. She has competed in the Iowa Games, in local horse shows, and in competitive trail rides around the Midwest. Another favorite past-time is visiting her five grandchildren who live in Iowa, Illinois, and Wisconsin.

Iowa Ag Review is published by the Food and Agricultural Policy Research Institute (FAPRI) at Iowa State University, a program of the Center for Agricultural and Rural Development (CARD). FAPRI is organized cooperatively by CARD at Iowa State University and the Center for National Food and Agricultural Policy at the University of Missouri-Columbia. It provides economic analysis for policymakers and others interested in the agricultural economy. Analysis that has been conducted jointly with the University of Missouri is identified here as FAPRI analysis. This publication presents summarized results that emphasize the Iowa Implications of ongoing agricultural policy analysis, analysis of the near-term agricultural situation, and discussion of new agricultural policies currently under consideration.

Editor

William H. Meyers
Professor of Economics
Co-Director, FAPRI

Editorial Committee

Marvin L. Hayenga
Professor of Economics

Editorial Staff

Ellen Balm
Copy Editor and
Writer, CARD

Keith Heffernan
Assistant Director, CARD

Darnell B. Smith
Managing Director, FAPRI

Becky Olson
Karleen Gillen
Desktop Production, CARD

Steven L. Elmore
U.S. Analyst, FAPRI

Contact Betty Hempe for a free subscription, publication information, and address changes at: *Iowa Ag Review*, CARD Publications, Iowa State University, 578 Heady Hall, Ames, IA 50011-1070; Phone 515/294/7519; Fax 515/294/6336; e-mail CARD@card.iastate.edu, URL <http://www.ag.iastate.edu/card>