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What's Inside?

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Summary of the 1996 Farm Bill: The Federal Agriculture Improvement and Reform (FAIR) Act of 1996

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The Farm Bill passed by the House and Senate in late March and signed by President Clinton on April 4, 1996, contains many of the same provisions as the Agricultural Reconciliation Act of 1995 (ARA-95, evaluated in our last issue). The 1996 bill, the Federal Agriculture Improvement and Reform (FAIR) Act, also has some significant differences. Most notably, "permanent law" provisions for price support authority and the Farmer Owned Reserve were only suspended, and were not eliminated. Soybean loan rate provisions were changed, implying an approximate 34 cents/bushel increase in the loan rate over the near term. Also, important conservation and environmental provisions that were not in ARA-95, were included in the FAIR Act.

The lead article of the last issue of this publication discusses possible results of ARA-95, and also provides pertinent background analysis for what might happen under the FAIR Act. In this column we further define the agricultural policy situation by pointing out key changes from current law, and delineating some of the new provisions that were added to existing legislation.

Here are some highlights of the provisions of the new Farm Bill (P.L. 104-127) or the FAIR Act. The FAIR Act would establish seven-year fixed payment contracts with farmers and ranchers to be signed in 1996. Payments would not be influenced by current crop planting, production, or prices. The payment

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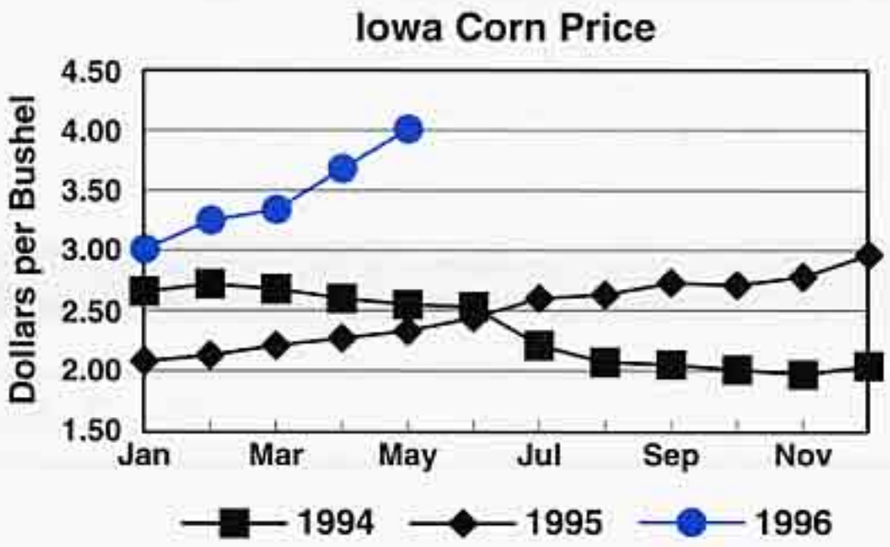

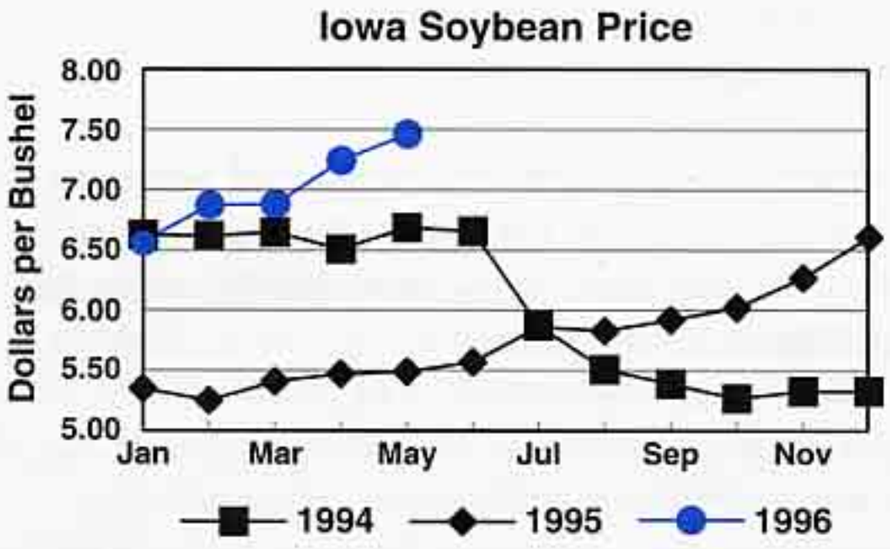

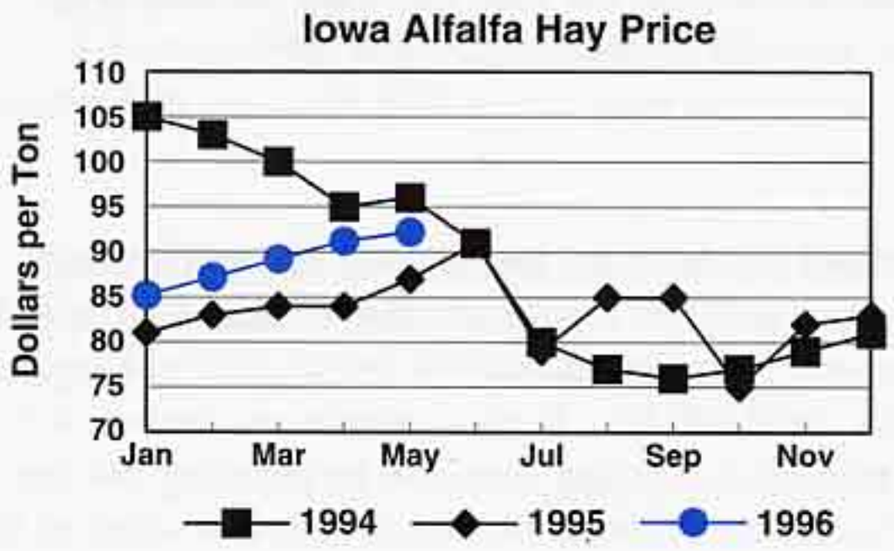

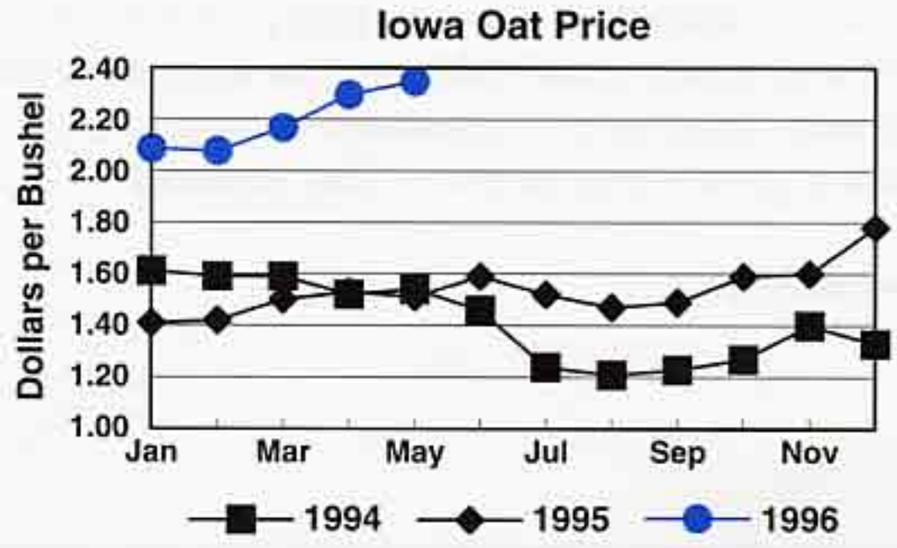

The Current Situation In Iowa

Outlook for U.S. Corn and Soybeans in 1996

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The outlook for U.S. corn and soybeans in the coming crop year, although optimistic, is filled with many uncertainties. The weather and operating conditions under the new Farm Bill are two of many factors that will influence U.S. crop supply. This year's high market prices and low beginning stock situation will influence planted area in the United States, and will affect the dynamics of next year's markets.

The United States Department of Agriculture (USDA) is projecting that if this is an average year, corn planted area will be above 80 million acres for the first time since the 1985/86 crop year, a year before the Conservation Reserve Program (CRP) was established; but will fall short of the record 84.6 million corn acres planted in the 1976/77 crop year. The reason for the projected increase in acres rests not only in new Farm Bill planting flexibility, but also on the high relative returns of corn over other crops vying for the same production area.

If a bad weather situation occurs during planting season, a likely estimate of corn acres planted is 76 million, which is 5 million acres fewer than the area under the current FAPRI baseline scenario (see the Baseline article in this issue). But this is still about 13 percent higher than the planted area last year, primarily due to last year's 7.5 percent ARP and this year's higher market returns, as well as planting flexibility under the new Farm Bill.

Harvested area under normal weather would be 74.4 million acres, the highest since the record of 75.2 million acres in the 1985/86 crop year, and would produce a trend yield of 126 bushels per acre. Very favorable weather during the growing season would bring harvested area up to 74.7 million acres and yield to 140 bushels per acre. Bad weather during the growing season coupled with bad weather during planting could bring harvested area down to 68.5 million acres with a yield of 110 bushels per acre.

These figures imply that a likely 1996 range for U.S. corn production would be 7,535 million bushels with a small crop, 9,375 million bushels with an average crop, and 10,455 million bushels with a large crop

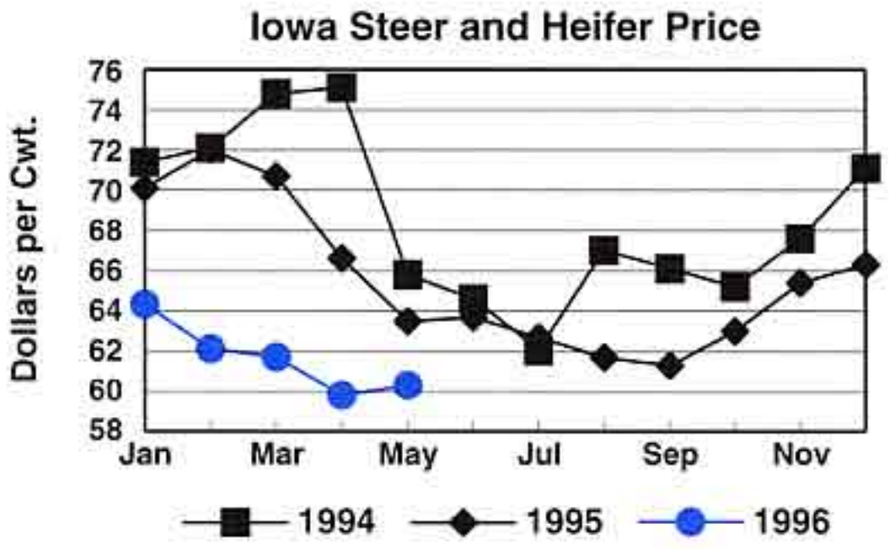
(Table 1). The small and large figures are realistic extremes, but the actual realized production should be nearer to the average.

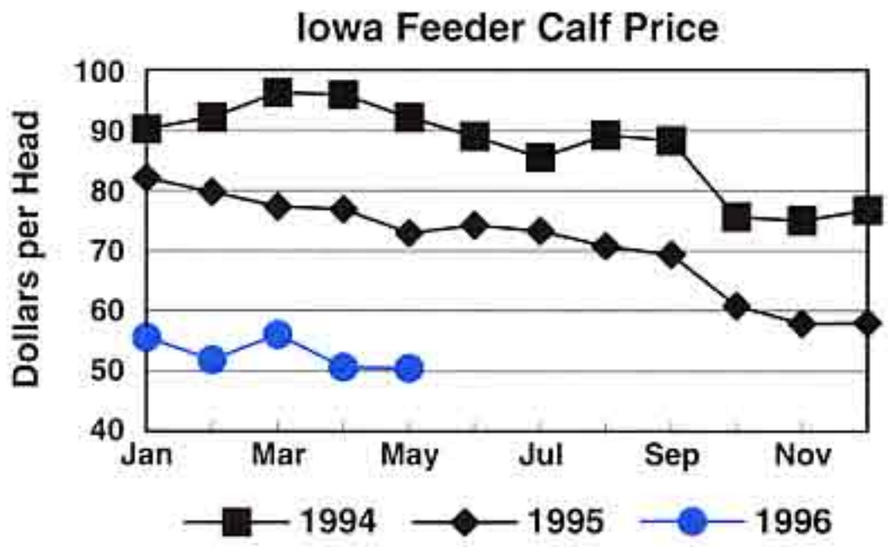
The 3 million bushel potential swing in corn production has significant implications for corn use and market prices, especially given the current market conditions. Table 1 shows alternative production, use, and price scenarios, based on the previous calculations. Given today's market prices, the price figures may seem low, but note that these are average farm level prices over the crop marketing year.

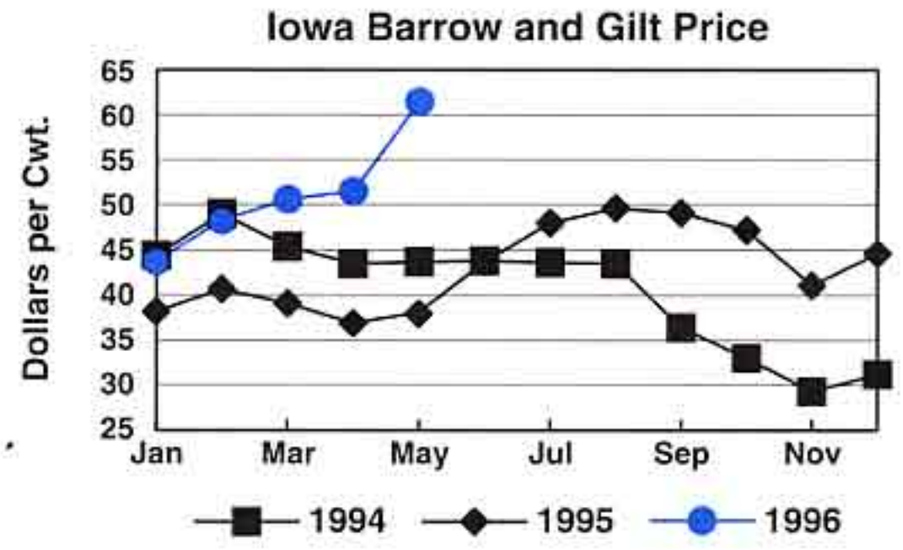
Table 1: U. S. corn outlook for crop year 1996/97 under small, average, and large crop situations

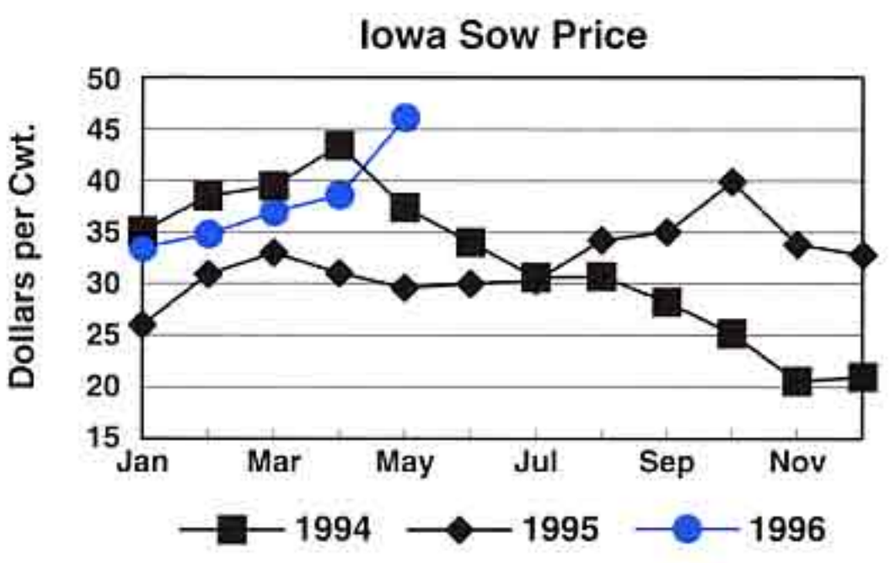
	1995/96	1996/97		
		Small	Average	Large
Area		*(Million Acres)*		
Planted	71.2	76.0	81.0	81.0
Harvested	65.0	68.5	74.4	74.7
		(Bushels per Acre)		
Yield	113.5	110.0	126.0	140.0
		(Million Bushels)		
Supply	8,947	7,872	9,702	10,777
Production	7,374	7,535	9,375	10,455
Use	8,630	7,850	8,940	9,500
Ending Stocks	317	22	762	1,277
		(Dollars per Bushel)		
Farm Price	3.20	3.46	2.90	2.64

The average of the range of farm prices USDA projects for corn is $2.90 per bushel. That is down from the expected 1995/96 marketing year average of $3.20 per bushel. Given the higher production, use will not increase at the same rate, and some stock building would occur. Under a small crop scenario, an additional degree of "rationing" would have to take place, as U.S. stockholdings of corn, for all practical purposes, would have been depleted. With higher corn and feed costs, feed use would decline and livestock production would, to some extent, be curtailed. Currently some livestock producers have corn that was contracted at last summer's low prices. After these contracts are used, new purchases of grain would be at higher rates, especially under a small crop scenario.









The same general statements about rationing of feed also apply to industrial uses of corn, which would decline more in a second year of high prices. If, however, a large crop scenario occurred, prices could fall to an estimated marketing year average of $2.64 per bushel. Total use would increase, mainly due to an increase in feeding and exports.

As with corn, the current soybean situation is one of low stocks and high prices. Farm price next year could average from $6.19 per bushel for a large crop, to $6.60 per bushel for an average crop, to $8.06 per bushel for a small crop. The estimated price spread for beans is $1.80 per bushel as opposed to $0.82 per bushel for corn.

Due to the better relative prices of corn, soybean planted area is not expected to increase greatly this year from the 1995/96 total. The soybean/corn price ratio has averaged 2.43 over the last five years. This year the ratio is 2.13, and for next year, an average soybean and corn crop would result in a ratio of 2.28.

If, however, adverse weather should hamper planting, total area planted could fall to 60.1 million acres. Harvested area would also be impacted by the weather conditions and could range from 57.3 to 62.5 million acres; yield could range from 33 to 40 bushels per acre, resulting in a production range from 1,891 to 2,503 million bushels (Table 2).

Table 2: U. S. soybean outlook for crop year 1996/97 under small, average, and large crop situations

	1995/96	1996/97		
		Small	Average	Large
Area		*(Million Acres)*		
Planted	62.6	60.1	63.0	63.0
Harvested	61.6	57.3	62.3	62.5
		(Bushels per Acre)		
Yield	34.9	33.0	37.0	40.0
		(Million Bushels)		
Supply	2,492	2,086	2,531	2,698
Production	2,152	1,891	2,336	2,503
Use	2,302	2,080	2,300	2,375
Ending Stocks	190	6	231	323
		(Dollars per Bushel)		
Farm Price	6.80	8.06	6.60	6.19

Agricultural Economic Indicators

Iowa Cash Receipts

	January and February		
	1996	1995	1994
		(Million Dollars)	
Crops	1,146	1,018	667
Livestock	995	943	963
Total	2,141	1,961	1,630

Average Farm Prices Received By Iowa Farmers

	May 1996	April 1996	May 1995
		($/Bushel)	
Corn	4.00	3.67	2.33
Soybeans	7.45	7.23	5.49
Oats	2.34	2.29	1.51
		($/Ton)	
Alfalfa	92.00	91.00	87.00
All Hay	90.00	87.00	83.00
		($/Cwt.)	
Steers & Heifers	60.30	59.80	63.50
Feeder Calves	50.30	50.50	73.00
Cows	31.80	29.50	37.70
Barrows & Gilts	61.40	51.40	38.10
Sows	46.00	38.50	29.60
Sheep	22.90	29.20	26.40
Lambs	86.40	87.00	80.40
		($/Lb.)	
Turkeys	0.47	0.46	0.39
		($/Dozen)	
Eggs	0.47	0.54	0.30
		($/Cwt.)	
All Milk	13.70	13.40	12.30

World Stocks-to-Use Ratios

	Crop Year		
	1996/97 May Projection	1995/96 May Estimate	1994/95
		(Percent)	
Corn	11.8	10.5	17.2
Soybeans	*	17.6	14.2
Wheat	20.3	18.4	21.4

** USDA does not release projections of the new crop world soybean supply and use until July.*

Use of soybeans would, of course, also be impacted by production and price swings, with exports and crushings being affected the most under small and large crops. Ending stocks would increase in the large crop scenario, but remain low under the small crop scenario. While it may not seem feasible to have stocks so low for two years in a row, essentially depleted, some users would find it difficult to find substitutes for soybeans due to the low stocks of other commodities.

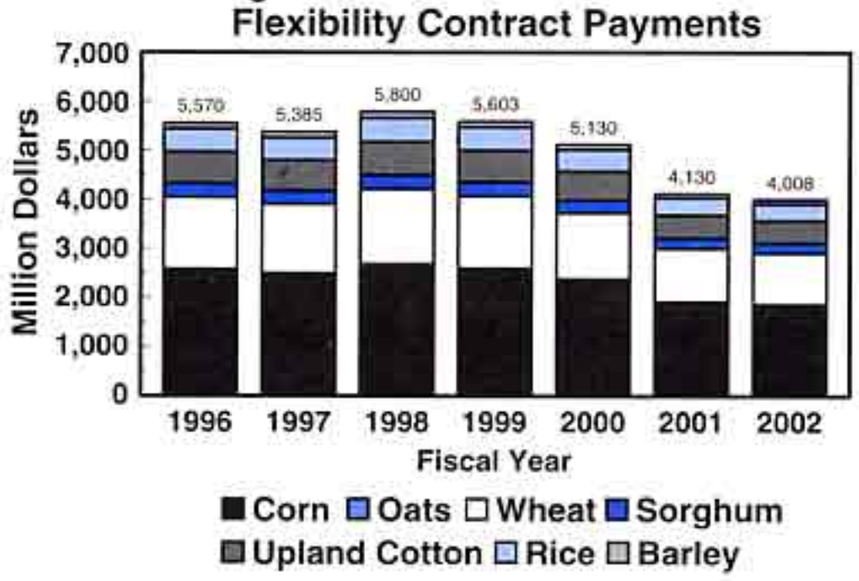
In summary, tables 1 and 2 present possible ranges for U.S. corn and soybean production and farm prices for the coming marketing year. If bad weather occurs, either during the planting or growing seasons, prices may rise to even higher levels than they are at this year. However, if excellent growing conditions occur, prices, naturally, will fall. These scenarios are not the best and worst possible outcomes, but the calculations presented here provide a reasonable range across possible outcomes.

Summary of the 1996 Farm Bill: The Federal Agriculture Improvement and Reform (FAIR) Act of 1996

(continued from page 1)

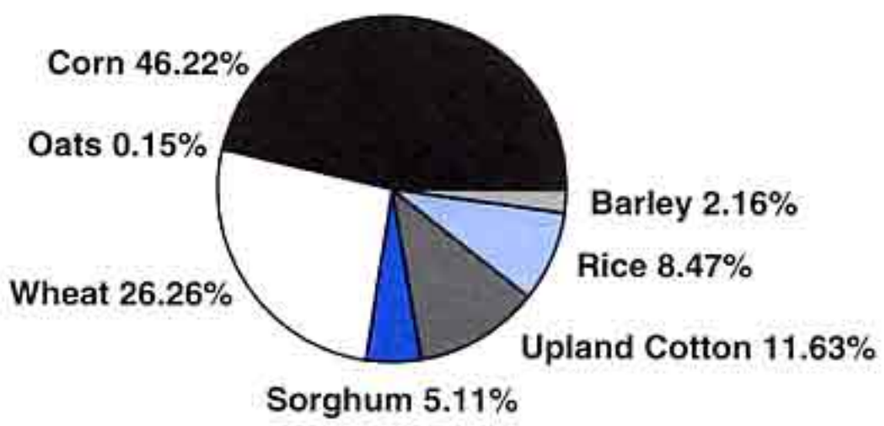
stream is a declining fiscal allocation over the seven-year duration of the FAIR Act (Figure 1).

Figure 1: Total U.S. Production Flexibility Contract Payments



The proportion that is allocated to each crop is held constant over the period (Figure 2).

Figure 2: Individual Crop's Share of PFC Allocation



These payments would be allocated among farmers by making payment on 85 percent of a calculated base acreage times program yields. Estimated contract payments per unit of output are shown in Table 1. Assumptions were made on eligible contracting acres, so per unit payments would vary from these estimates according to actual crop base acres enrolled.

Table 1: Estimated contract payments by crop for the duration of the FAIR Act of 1996

	Crop Year Payments*						
	96/97	97/98	98/99	99/00	00/01	01/02	02/03
	(Cents per Bushel)						
Corn	26.54	50.88	39.72	38.32	35.06	28.23	27.39
Wheat	91.36	65.01	68.83	66.49	60.88	49.01	47.56
Sorghum	32.13	53.27	44.06	42.40	38.74	31.19	30.27
Barley	34.20	28.15	29.06	27.90	25.42	20.46	19.86
Oats	4.19	3.98	4.19	4.05	3.71	2.98	2.89
	(Dollars per Hundredweight)						
Cotton	9.29	7.64	8.13	7.85	7.19	5.78	5.61
Rice	2.79	2.75	2.95	2.85	2.62	2.12	2.06

* Estimated by FAPRI

It may appear odd that payments per bushel are so erratic during the first two years. The reason is that adjustments are made in the first two years for the remaining 1994/95 deficiency payments and for the payback of 1995/96 advanced deficiency payments.

In the case of corn, roughly $2.5 billion is allocated to payments for the 1996/97 and 1997/98 crops. Keep in mind that one objective of the new payment system was to make budget expenditures more predictable. Thus, remaining deficiency payments of about $800 million for the 1994/95 crop are subtracted from the budget allocation in 1996, reducing the contract payment by about $0.12/bushel. The opposite happens in 1997. The payback of advanced deficiency payments adds about $900 million to the budget pool for 1997/98, so the contract payment can increase by about $0.14/bushel. Without these adjustments, estimated contract payments would stay between $0.40 and $0.37 during the first four years.

All loans are marketing loans. The loan rate levels would continue to be calculated by the current formula (85 percent of the five-year "Olympic" average), but would be capped at the current rates. Wheat and feed-grain loan rates could still be reduced based on stock-to-use triggers as in current law, but the seldom-used discretionary reduction for "market competitiveness" has been eliminated. The maximum corn loan rate would be $1.89/bushel, while wheat

would have a $2.58/bushel maximum. The soybean loan rate would range from $4.92/bushel to $5.26/bushel, using 85 percent of the five-year "Olympic" average. For the current year, the calculated rate would be close to $4.96. (The rate would likely rise to the $5.26 cap by 1997 based on strong futures market prices and projections).

There would be no provisions for annual acreage idling. Farmers could plant any crop on 85 percent of base acres, except that this land could not be used for fruits and vegetables. The remaining 15 percent of base could be used even for fruits and vegetables. Eligibility for a contract would require program participation in at least one of the last five years — one year of participation is enough to establish eligibility. Conservation plan and wetland protection compliance would continue to be required for participants. Purchase of federal crop insurance would not be required, but agricultural disaster assistance would be waived by those not purchasing catastrophic coverage insurance.

Changes From Current Law

Omnibus farm bills deal with many aspects other than the grain commodity program provisions listed above. The Food Security Act of 1985 (FSA) and Food, Agriculture, Conservation, and Trade Act of 1990 (FACTA), the farm bills that agricultural producers operated under for the last ten years, encompassed many agricultural issues. While some of the programs remain intact in the FAIR Act, changes were made in other programs and these alterations are listed below:

- EEP expenditures would be capped at levels below those specified in the GATT agreement. Expenditures would be: FY1996/97, $350 million; FY1997/98, $250 million; FY1998/99, $500 million; FY1999/2000, $550 million; FY2000/01, $579 million; FY2001/02, $478 million; FY2002/03, $478 million. The Market Promotion Program would continue under current regulations but with 10 percent less funding.
- The cost of interest on CCC loans to producers would be one percentage point higher than the cost to borrow from the U.S. Treasury (one-year T Bills). Under the 1990 Farm Bill, the interest equaled the cost of borrowing from the U.S. Treasury.
- The authorization for the Farmer-Owned Reserve (FOR) program was suspended. Thus, the FOR would be restored after 2002, unless other action is taken.
- CRP would be reauthorized under both programs, although the FAIR Act explicitly approved new enrollments. The new enrollments would be funded through the CCC charter and not by special allocations from Congress. This change will give the Secretary of Agriculture more discretion in conservation spending. Under FACTA, enrollment was supposed to be between 40 and 45 million acres, but this goal was never reached. The cap for the Conservation Reserve Program would be set at 36.4 million acres, which is the current level. The Secretary of Agriculture is able to enroll new acreage equal to the quantity of land under any CRP contract that terminates.
- To receive PFC (Production Flexibility Contract) payments, participants must continue to comply with their conservation plans.
- Payment limitations are $40,000 per person for Production Flexibility Contract payments ($50,000 for deficiency payments under FACTA), marketing loan gains and loan deficiency payments are maintained at $75,000 per year, and under the three-entity rule maximum payments are $230,000 per person ($250,000 under FACTA).
- Under both the 1990 and 1996 Farm Bills, Price Support Authority from the 1938 and 1949 bills was not eliminated, only suspended. Since "permanent law" provisions would remain in place, Congress would be forced to reevaluate farm programs at the bill's expiration.

New Provisions Under the FAIR Act

The FAIR Act contains many additional provisions and some major program changes from FACTA mandates. Some highlights include:

- New commodity program provisions are the ones getting the most press attention and were spelled out above.
- Expands the Environmental Conservation Acreage Reserve Program (ECARP); combines several programs and specifies the purchase of easements on 170,000 to 340,000 acres, and allocates $35 million a year for that purpose. ECARP continues the Conservation and Wetlands Reserve Program, but now contains a new program called EQIP.
- Creates Environmental Quality Incentives Program (EQIP), a new cost-share program to help livestock and crop producers improve the enviroment. The program is targeted to priority regions as declared by the NRCS, local landowners, and the state governors. This program will allocate $130 million

for FY1996 and $200 million annually thereafter to assist crop and livestock producers with conservation improvements on farms (At least half of the funding must go to livestock producers.). These five or ten-year contracts allow a 75 percent cost-share program, but the payments are limited to $10,000 per year and $50,000 over the life of the contract. Large operations, as defined by the Secretary of Agriculture, will be ineligible for cost-share assistance to construct animal waste facilities. But, these large producers would be eligible for technical and educational assistance, as well as cost shares on other approved practices.

- Conservation Farm Option combines Production Flexibility Contract, CRP, WRP, and EQIP payments or any combination of the four. The producer would receive the payments in return for pursuing conservation practices that protect soil, water, and wildlife in environmentally sensitive areas.
- Flood Risk Reduction contracts—producers on frequently flooded farms could get 95 percent of PFC payments and agree to forego other commodity programs, not apply for crop insurance, comply with conservation requirements, and not apply for disaster payments.
- The "Fund for Rural America" is established to provide additional funding to rural development and research. Total funding of $300 million was authorized over the first three years.
- Budget assessment of about $0.11 per hundredweight on milk production is eliminated immediately. Dairy programs are only extended through 1999, and the support price for milk is phased down 15 cents each year from $10.35 per hundredweight in 1996 to $9.90 by 1999. This is to be achieved by appropriately adjusting the support prices for butter, nonfat dry milk (NFD), and cheese. Beginning in 2000, the price support system is replaced with a recourse loan program for butter, NFD, and cheese at the 1999 price support level. Continued support will be provided for exports of dairy products under the Dairy Export Incentive Program up to the maximum levels allowable under GATT. In addition, the Secretary of Agriculture is required to consolidate the 33 milk marketing orders to 10 to 14 over the next three years.
- Establishes a new Office for Risk Management as a separate agency for adminstration of crop insurance programs. Also requires USDA to provide research and education about risk, insurance, and risk management.

CARD/FAPRI Analysis

FAPRI 1996 Baseline: Projections under the FAIR Act

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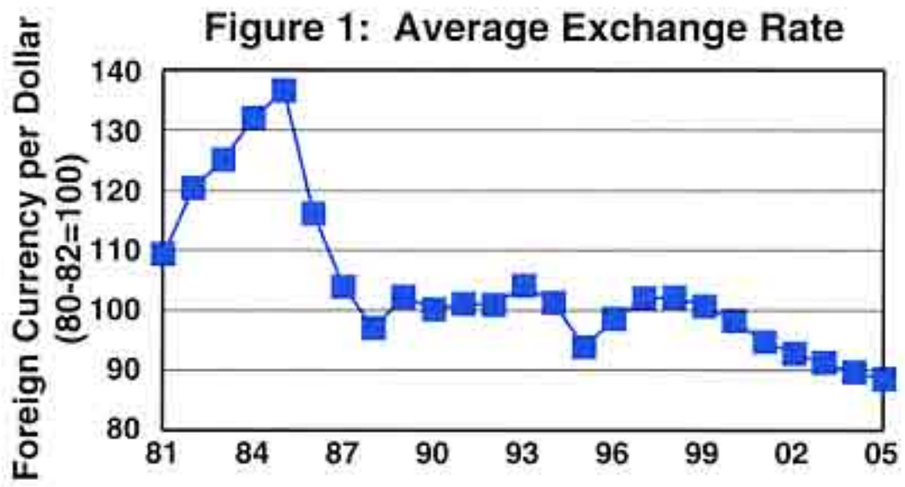
The 1996 FAPRI baseline results, a subset of which are discussed in this article, are the first to incorporate full planting flexibility between major crops. Essentially, this represents a decoupled income support program, assumed to decline slightly over the projection period (1996-2005). Some of the more important U.S. policy provisions used as a basis for this baseline came from the Federal Agriculture Improvement and Reform (FAIR) Act of 1996 (see the article on page 1 for specifics on the 1996 Farm Bill).

This article presents a summary of the baseline results, but more complete details and projection tables are available on the FAPRI web site: http://www.ag.iastate.edu/card/fapri. Note that this annual baseline, normally completed in January, was delayed this year until the 1996 Farm Bill was finalized.

Macroeconomic assumptions that went into this baseline include modest worldwide economic growth. Asia continues to be a high-growth region with an assumed growth rate of approximately 7 percent. Growth rates for the developed countries are more moderate with the U.S. assumed growth rate averaging 2.5 percent over the projection period. The U.S. prime rate is expected to decline by almost 100 points in 1996 and shows slight but continued declines in most of the remaining years of the baseline period. After 1998, the dollar is expected to decline relative to the weighted market basket of the other world currencies (Figure 1).

Figure 1: Average Exchange Rate

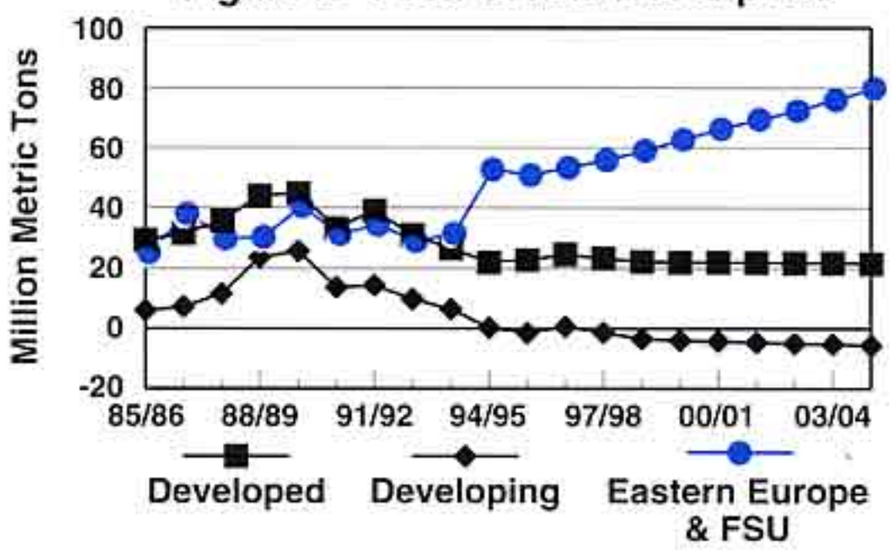


World Crops

The United States gains market share in the world feed grain trade, increasing its share by approximately 5

percent over the ten-year period (Figure 2). Income growth in the Pacific Rim fuels an increase in the demand for meat that translates into increased feed grain imports required for meat production. Eastern Europe remains a net exporter, and Russia is still a small net importer of feed grains. World wheat trade increases, but U.S. exports remain relatively unchanged, due to increased competition from Argentina, Australia, Canada, and the European Union (EU). World rice net exports increase, but the U.S. share in world exports continues to fall from 17.4 percent in 1995 to 9.5 percent by 2004.

Figure 2: Feed Grains Net Imports

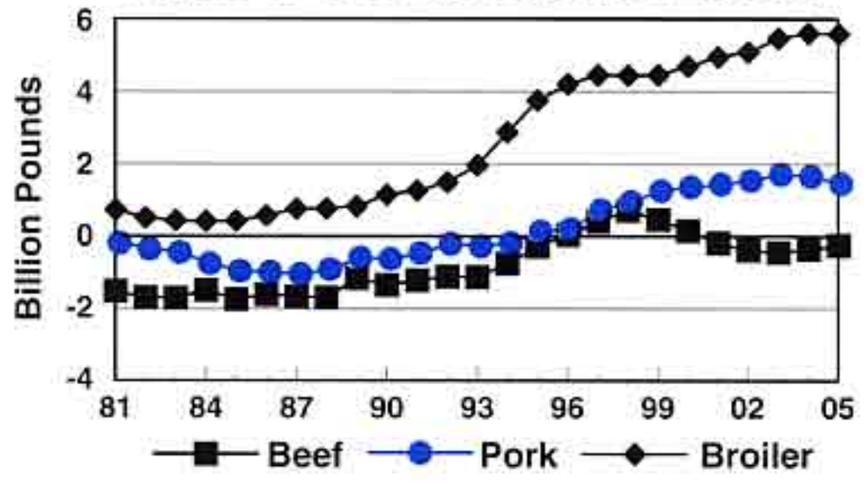


The U.S. share of the world soybean sector is expected to remain relatively flat as increased production moves into domestic markets. Argentina continues to expand soybean, meal, and oil exports. Brazil has stable exports of soybeans, but meal and oil exports continue to increase.

World Livestock and Dairy

Japan and South Korea continue to be the dominant meat importers, with continued strong growth in imports over the entire projection period. Mexico and the Former Soviet Union (FSU) also remain significant net importers of meat. Beef net exports by major exporters, led by Australia, increase by 17 percent over the period. The United States becomes a small net exporter of beef in the early years and reverts to a small net importer in the later years. Pork net exports by the major exporters increase by 33 percent from 1995-2005. The United States, which moved from being a net importer of 500,000 metric tons in 1987 to becoming a net exporter in 1995, has continued strong export growth over the entire period. Japan accounts for much of the total increase with imports rising by 200,000 metric tons over the baseline. U.S. broiler exports increase 49 percent or 830,000 metric tons from 1995-2005, fueled primarily by strong import growth in the Pacific Rim (Figure 3).

Figure 3: U.S. Livestock Net Exports

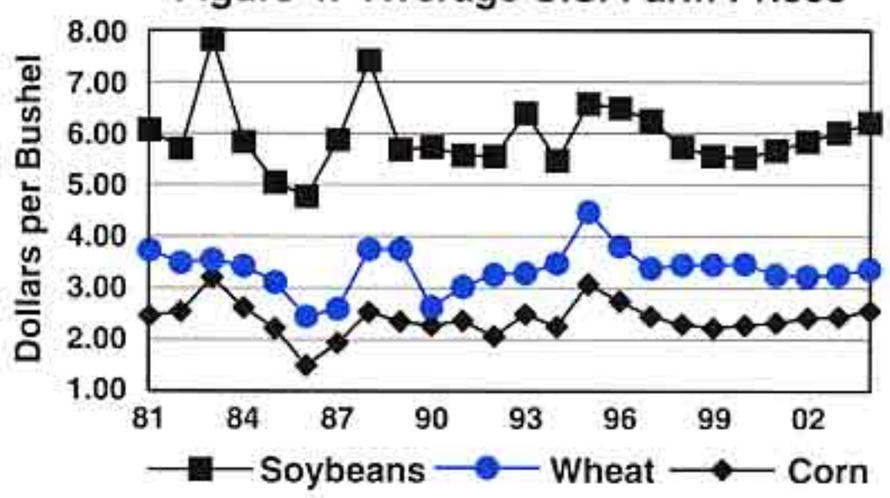


World dairy trade continues to grow, with the EU and Oceania dominating international exports while the United States plays only a small role.

U.S. Crops

The corn planted area in the U.S. increases to 80.8 million acres in 1996/97 and then remains between 79 and 82 million over the projection period. Soybean area remains constant for the next two crop years and then increases due to stronger relative net returns between soybeans and corn, and increased crop rotation under the FAIR Act. Farm price for corn drops to $2.75 per bushel in 1996/97 and then averages $2.38 per bushel over the rest of the decade. U.S. soybean farm price is projected at $6.50 per bushel in 1996/97 and then averages $5.86 per bushel from 1997/98 to 2004/05 (Figure 4).

Figure 4: Average U.S. Farm Prices



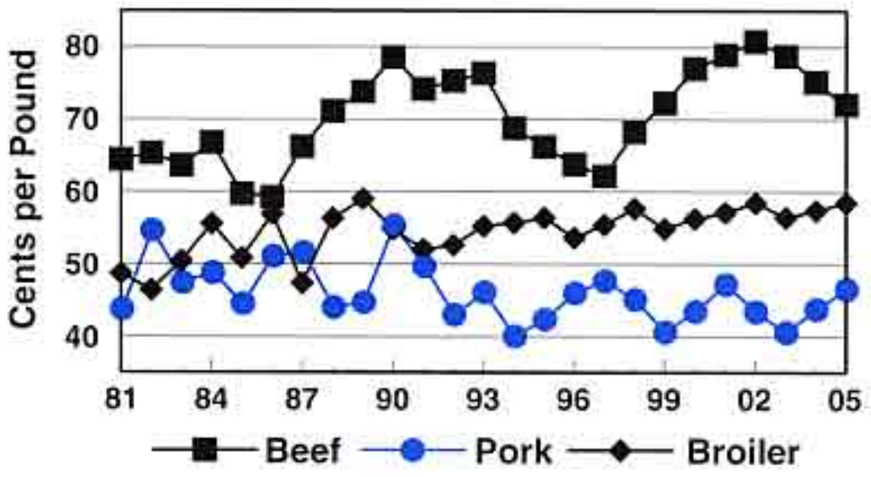
U.S. wheat area is expected to exceed 72 million acres in 1996/97 and peak at 74.4 million acres in 2000/01. Total use of wheat also increases to 2000/01 and then decreases as EU wheat exports expand. Prices fall accordingly after 2000/01 and average $3.26 per bushel in the last four years of the baseline compared to an average of $3.49 per bushel over the five years prior to 2000/01.

U.S. Livestock and Dairy

Total meat production, led by broiler production, in the United States expands over the period. Beef production increases 1 million pounds, pork production rises 2.2 million pounds, but broiler production

increases 9.7 million pounds. Steer price continues to decrease to $62.18 in 1997 and then rebounds and peaks at $80.76 per hundredweight in 2000. Barrow and gilt price peaks in 1997 at $47.70 per hundredweight, but never falls below the $40.00 mark over the projection period. Broiler prices remain relatively stable between 54 and 58 cents per pound (Figure 5).

Figure 5: U.S. Livestock Prices

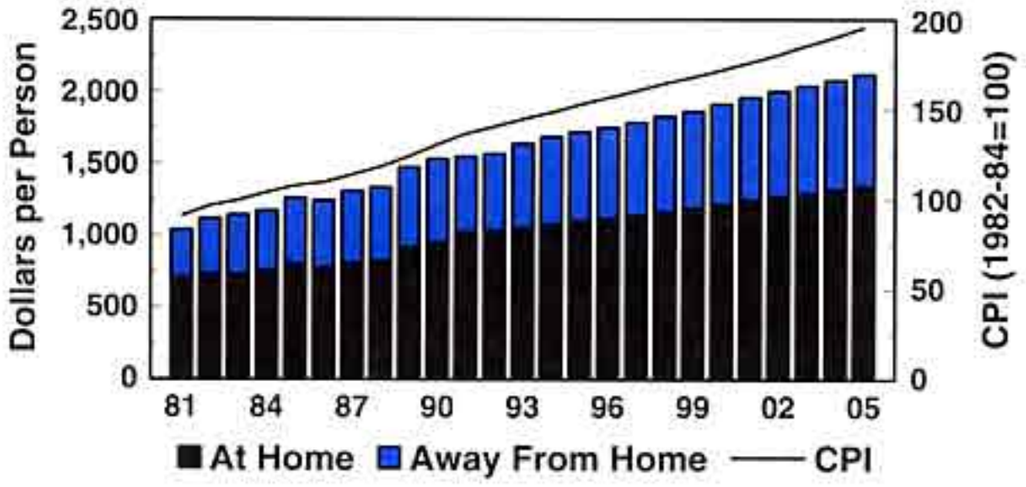


Milk prices range from $12.78 to $12.89 per hundredweight from 1995 to 1999. After the milk price support program is ended under the FAIR Act in 1999, milk prices drop by $0.40 per hundredweight in 2000. Then prices ease back up into the previous range in 2003 and continue to increase to the end of the period and reach $12.92 per hundredweight by 2005.

Food Expenditures

While total U.S. food expenditures increase from $453 billion to $613 billion from 1995 to 2005, food expenditures only increase by an average of 2.4 percent per annum, which is less than the general inflation rate of 2.8 percent annually over that period (Figure 6). Per capita food expenditures are expected to increase from $1,719 to $2,120 (or 23.4 percent) from 1995 to 2005. While both increase, dollars spent at home for food increase 22.0 percent and dollars spent away from home increase 25.5 percent.

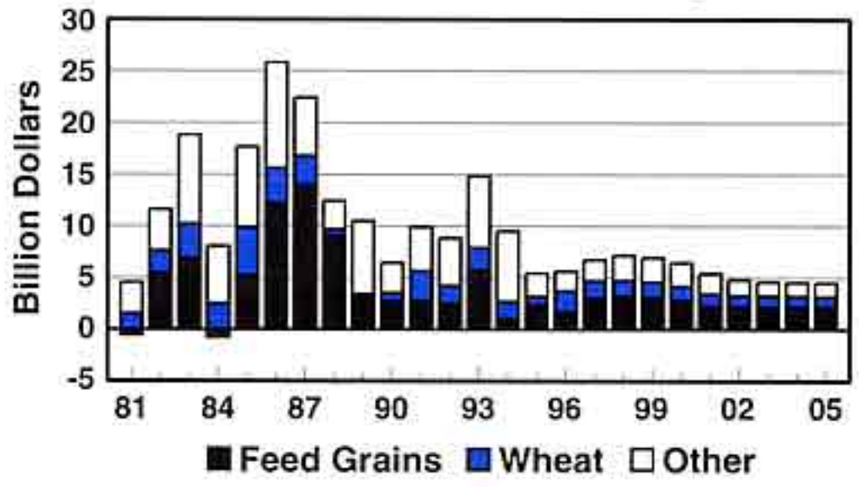
Figure 6: Food Expenditure per Capita and CPI



Government Costs and Farm Income

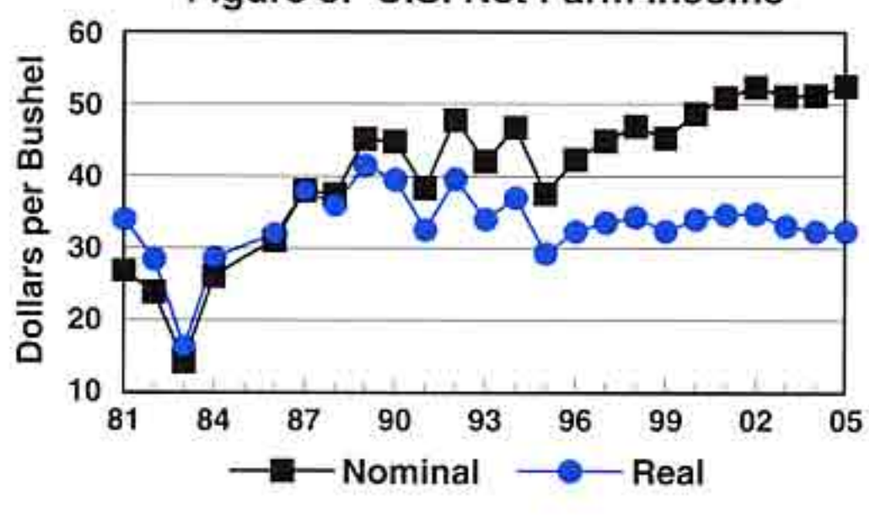
Net CCC outlays in FY1996 rise to $5.64 billion from $5.45 billion in FY1995. Contract payments rise in FY1997and FY1998, raising CCC outlays to a peak of $7.19 billion, coinciding with the contract payment peak of $5.80 billion. Net CCC outlays fall to $4.53 billion by the end of the period when contract payments are just over $4 billion (Figure 7). CRP contract payments fall from $1.8 to $1.53 billion over the period.

Figure 7: Net CCC Outlays



High crop prices this year and increasing production in later years allow crop receipts to grow to almost $100 billion in 1996, remain relatively flat through 2001, and expand again to $113 billion by 2005. Livestock receipts decline in 1996 fueled by losses in the beef sector. Receipts have steady growth from 1997 to 2002 and then stabilize thereafter. Production expenses rise in 1996 due to increased acres planted. They fall back in 1997, but then grow by an average of 1.5 percent until the end of the period. Farm income growth mirrors the growth in the livestock sector. Real net farm income remains stable in the $32 to $34 billion dollar range from 1996 to 2004 (Figure 8).

Figure 8: U.S. Net Farm Income



In summary, the 1996 FAPRI Baseline results indicate an optimistic scenario with real net farm income relatively stable over the entire ten-year period. As stated elsewhere, we do, however, expect markets to be extremely volatile for a number of years, given the critically low levels of world stockholdings today. Thus, marketing of row crops will be more difficult over these volatile years, and will require more management expertise.

Special Article

A Review of the New Corn Yield Insurance Futures and Options

(Chad Hart, 515/294-6307)

On June 2, 1995, the Chicago Board of Trade (CBOT) expanded the spectrum of agricultural futures and options to cover financial risks due to crop yield fluctuations. Yield insurance contracts for corn in the state of Iowa were offered in 1995. Starting on January 19, 1996, corn yield insurance contracts for the entire United States and the states of Illinois, Indiana, Nebraska, and Ohio were established on the CBOT. This article explains what the yield insurance contracts are and how the contracts work.

Corn yield insurance futures and options contracts allow the hedging of yield risk by producers and agribusinesses. Such instruments have been available for price risk for several years. To explain how risk is hedged through these contracts, we must first define futures and options contracts. A futures contract is a contract to buy or sell a financial instrument or a commodity sometime in the future. Contract specifics, such as item quantity, quality, and delivery location and time, are detailed in the contract. An option is a contract that gives the buyer the right to buy (call option) or sell (put option) futures contracts at a certain price during a specified time period.

The underlying instrument (or the key variable of interest) in the corn yield insurance contract is the set of U.S. Department of Agriculture (USDA) corn yield estimates for individual states and the entire nation. These estimates represent the ratio of total corn-for-grain production and total corn-for-grain acres harvested. The contract months are September, October, November, and January. The trading unit (or contract size) is $100 times the state or national yield estimate in bushels per acre (bu/ac). For example, if the Iowa corn yield estimate is 130 bu/ac, then the contract size of an Iowa corn yield insurance futures contract is $13,000.

The smallest allowable price movement (or tick size) is 0.1 bu/ac or $10 per contract. The largest allowable price movement (or daily trading limit) is 15 bu/ac or $1,500 per contract. Contracts are traded up to the last business day of the month prior to the USDA's release of the contract month's yield estimate. The contract is settled in cash after the yield estimate announcement. Trading is conducted at the CBOT Monday through Friday, 10:30 am to 12:45 pm Central Time.

Put and call options are available on the corn yield insurance futures. Strike yield intervals for the options are given in multiples of 5 bu/ac for 20 strikes above and below the trading futures yield. On April 22, 1996 (the day this article was written), the January 1997 Iowa corn yield insurance futures contract was trading at 127 bu/ac or $12,700 per contract. A put option for a 125 bu/ac January 1997 Iowa corn yield insurance futures contract was available for 9.0 bu/ac or $900 per contract.

The yield insurance futures and options can be viewed like their price counterparts. When a corn price futures contract is sold, it guarantees a price for corn. Likewise, selling a yield insurance futures contract guarantees a yield (both guarantees, however, are subject to basis variation). Put options can provide floors (or minimum levels) for the underlying instrument. You can establish a minimum yield through the purchase of a yield insurance put option.

Suppose you were to sell one Iowa corn yield insurance futures contract on April 22, 1996. It had a value of $12,700 (127 x $100). You would have to leave part of the money with the CBOT as a margin deposit (a security deposit for futures and options trading). If the contract drops to 120 bu/ac later, you could buy the futures contract back and see a $700 profit (ignoring transactions costs). If, however, the contract rose to 134 bu/ac, you would incur a $700 loss (again ignoring transaction costs) at settlement time.

The key to how these yield insurance futures and options contracts hedge against yield risk is the relationship between the state or national yield and your farm yield. The more closely your farm's yield moves with the state or national yield, the more successful the yield insurance contracts will be at hedging yield risk. It is not the level of the yields that counts. The yield contract can serve as a good hedging instrument even if your farm's yield and the state or national average yield differ substantially. For the yield futures and options contracts to serve as a good hedging instrument for yield risk on your farm, the movements in the state or national yield should closely parallel the movements in your farm's corn yield.

Let us examine the futures transactions above to show how yield risk is addressed, supposing that your farm's yield moves with the Iowa average corn yield. As expectations of the average Iowa corn yield fell from

127 to 120 bu/ac, your farm's yield also fell below expectations. The $700 profit from the yield futures contract will offset at least part of the fall in your expected revenue from corn. In the second case, as expectations of average Iowa corn yield rose from 127 to 134 bu/ac, your farm's yield also exceeded expectations. The excess revenue from the higher yield will offset the $700 loss in the futures market. Thus, the yield insurance futures contract works to stabilize corn revenue by locking in corn yield.

To show how a yield put option effectively sets a minimum corn yield, let's construct a hypothetical example. Assume we have a 75-acre field with an expected corn yield of 140 bu/ac. We can forward contract harvest delivery of our corn for $3.00 per bushel at the local elevator. The January 1997 Iowa corn yield insurance futures contract is trading at 127 bu/ac. To find the number of put options needed to protect the field, multiply the forward price by the number of acres, divide by $100, and round to the nearest whole number. In our case, (75 x $3.00)/$100 = 2.25, two put options are suggested.

Assume we choose to purchase two January 1997 Iowa corn yield put options with a strike yield of 125 bu/ac (the closest option contract to the futures contract) at a premium of 9.0 bu/ac or $900 per option contract. We forward contract all expected production (10,500 bushels) at $3.00 per bushel.

We will analyze two possible scenarios:

1) Farm yield = 125 bu/ac Iowa yield = 117 bu/ac
   Corn price = $3.30 per bu.

2) Farm yield = 155 bu/ac Iowa yield = 137 bu/ac
   Corn price = $2.70 per bu.

In scenario 1, the farm's corn production is 9,375 bushels, 1,125 bushels below what was contracted at the elevator. We receive $28,125 ($3.00 x 9,375) for the delivered corn, but pay back $394 to make up the production shortage (market difference in price and cancellation fee times bushel shortage) for a total revenue of $27,731 from the elevator. The Iowa corn yield futures contract stands at 117 bu/ac. As the futures contract fell, the premium on the put option rose. Supposing the put option premium is now 15 bu/ac, we sell back the put options for $1,500 per option. Therefore, we gain $1,200 through the option transactions. Adding this to our elevator revenue gives us $28,931.

In scenario 2, the farm's corn production is 11,625 bushels of corn. The forward contract generates $31,500 in revenue. Selling the additional production at the cash price of $2.70 per bushel provides $304, for a total of $31,804 of corn revenue from the elevator. The Iowa corn yield futures contract stands at 137 bu/ac. Thus, the put option has lost value. Let's assume the put option has some time value left at harvest and has a premium of 3.0 bu/ac or $300 per contract. We sell back the put options and take a $1,200 loss on the options. Total revenue in scenario 2 is $30,604.

These scenarios show how the yield insurance put options help alleviate revenue shortfalls due to lower than expected yields. The average revenue under the two scenarios with or without the put options is the same. However, the use of the put options reduces the variability in the revenue stream. In scenario 2, the loss on the put options can be considered as an insurance cost to protect against low yields.

Following the introduction of Iowa corn yield insurance contracts in 1995, the CBOT expanded the yield contracts to cover corn yields in Illinois, Indiana, Nebraska, Ohio, and the United States as a whole. Over 6,600 Iowa corn yield contracts were traded in 1995. With the expansion in contract coverage and the experience gained with the Iowa yield contracts, the CBOT hopes for even greater success in meeting the farmer's needs in risk-sharing.

Emerging Issues

Iowa Crop Insurance: What is the Coverage Level?

(Darnell B. Smith, 515/294-1184)
(Chad Hart, 515/294-6307)

In light of changes in the agricultural "safety net" brought about by this year's Farm Bill, volatile market conditions, and the 1994 crop insurance reforms, questions arise concerning the extent that Iowa's row crop producers are purchasing additional insurance to facilitate risk management. Here we present preliminary coverage numbers for 1996 crop insurance purchases for Iowa and compare these to 1995 figures.

Table 1: FCIC 1996/97 Iowa crop year statistics as of June 3, 1996

Policy	1995/96	1996/97
	(Number of Policies)	
Corn		
MPCI	101,342	84,750
CRC	NA	30,780
GRP	2,008	2,116
IP	NA	22
Soybeans		
MPCI	94,132	84,405
CRC	NA	22,259
GRP	1,269	1,415
	(Percent)	
Corn & Soybean Policies as a Percent of Total Iowa Policies	93.6	95.6
Buy-Up Policies as a Percent of Total Iowa Policies	67.2	79.8

NA = Not applicable

The Crop Insurance Reform Act of 1994 redirected federal farm policy toward a more structured approach to agricultural risk management. It effectively made ad hoc agricultural disaster legislation more difficult to enact and established the Catastrophic Coverage (CAT) insurance program. Additionally, CAT coverage became mandatory for most farm program participants. (This requirement was removed in the FAIR Act.) These federal policy changes would tend to increase crop insurance program participation. Before this, average participation for Iowa was approximately 45 percent.

For the current crop year, two new revenue insurance products, Crop Revenue Coverage (CRC) and Income Protection (IP) were made available on a limited basis — see *Iowa Ag Review*, Vol. 2, No. 2 for details. As Table 1 illustrates, the 1996 sales for CRC were quite interesting. Even though the product was newly developed with little time for marketing, CRC was very well received in Iowa and Nebraska, the two states in which it was offered. The number of policies sold in Iowa for corn and soybeans for traditional Multiple Peril Crop Insurance (MPCI), Group Risk Plan (GRP), and CRC are shown in the table. For these two crops, preliminary numbers indicate that almost 25 percent of policies sold this year were for revenue insurance.

Sales were roughly five times greater than anticipated. The numbers indicate that, proportionately, Iowa producers are purchasing buy-up coverage in 1996 (additional insurance above minimum requirements) to a greater degree than before. As a percentage of total policies, buy-up policies accounted for 79.8 percent in 1996, an increase of 12.6 percent over 1995 levels.

In summary, preliminary numbers indicate that crop farmers in Iowa are actively using insurance to manage production risk. The popularity of CRC indicates that revenue insurance is a well-received risk management tool for Iowa agricultural producers.

The Future of the Conservation Reserve Program

(Michael Duffy, 515/294-6160)
(Darnell B. Smith, 515/294-1184)

The Conservation Reserve Program (CRP), enacted in 1985, was the largest single land retirement program in history with current enrollment above 36 million acres. When initially passed in the 1985 Food Security Act, the CRP was intended, primarily, to provide an incentive to remove highly erodible land from production for 10 years. In subsequent years its use was expanded to include, among other objectives, producer income support and the reduction of surplus commodities by restricting production.

The 1996 farm bill, the Federal Agriculture Improvement and Reform (FAIR) Act, contains several key provisions that will affect CRP administration and enrollments in the years ahead. This column discusses some of the key features of the FAIR Act with respect to CRP. To provide insights about potential Iowa enrollment, the results of a survey funded by the Leopold Center covering land use for early terminated CRP contracts are also presented below.

Changes in CRP Provisions of the FAIR Act

- The FAIR Act reauthorizes CRP allowing for contract extension and for new enrollments but limits the total number of acres that can be enrolled to the current level of 36.4 million acres. New sign-up procedures have not yet been announced but the Act states that the new payment rates can not be higher than the prevailing local market rates. Although there is uncertainty about future sign-up criteria and payment structure, new sign-ups will probably be based on the criterion established for the 13th sign-up. In other words, priority will be given to water quality protection.

The FAIR Act allows some participants to terminate contracts that have been in effect for more than five years. There are several restrictions on which contracts can be terminated, and not all contracts are eligible for

early termination. Contracts that were entered into after January 1, 1995, contracts on land with an erodibility index of greater than 15, lands close to a stream or enrolled under wetland criteria, and land devoted to windbreaks, grass waterways, filter strips and so forth are NOT eligible for the early out option. There are an estimated 33 million acres that have been enrolled for more than 5 years. Of these, approximately 12.3 million acres are not eligible for the early out, leaving a potential of approximately 20 million additional acres of crop production. How much of this potential area ultimately is returned to production depends on producer's perceptions of market conditions and on program administration, essentially, the payment incentive structure employed.

Market Conditions and Program Payments

The current tight wheat and feed grain supplies are, no doubt, impacting much of the Federal decision making process with respect to the CRP acres. One might surmise that, over the next few years, program incentives might shift towards fewer acres enrolled. It is generally thought that highly erodible acres and other fragile areas will, in general, continue to remain in the program while, at the same time, as many acres as possible return to production.

The tight supplies and resulting higher prices will influence participant's enrollment and production decisions as well. Exactly how producers will react to these prices and policies, how many contracts will be terminated early, and how many acres are returned to production is not known at this time. A clue to future behavior, however, is provided in evaluation of land use for the participants who chose the early-out option last year.

Land Use Survey Results

The ISU Extension CRP committee with funding from the Leopold Center surveyed participants who terminated contracts early last year. There were approximately 3,100 people who terminated contracts. A survey was sent to each one of them, and there were 936 usable responses (30 percent). The respondents represented approximately 97,000 acres of the total 143,000 in Iowa where the contracts were terminated. When examining the results of the survey it is important to remember that last May when the contracts could be removed, corn was $2.30 per bushel and soybeans were $5.25 per bushel. Early this year, prices averaged closer to $4.50 and $7.80 per bushel for corn and soybeans, respectively.

The survey respondents had an average of 468 acres in CRP and they removed on the average 106 acres. Slightly less than half of the respondents (46 percent) removed more than 75 percent of their total CRP land. Over three-fourths (78 percent) of the contracts removed were scheduled to terminate in 1996 or 1997. The land removed was fairly evenly scattered in the CRP areas around the state.

Just over half (52 percent) of the survey respondents reported using the land for corn or soybean production. Another 44 percent said the land would be used for livestock hay or grazing. Only 4 percent reported selling the land, and several respondents indicated that the land would be used for nonagricultural purposes.

Approximately half of the land removed for corn and soybeans was farmed by the owner. There were 45 percent of the respondents who said the land was rented, and the remainder was custom farmed. The average cash rent was $91 per acre.

Grassed waterways were the most common conservation practice on the land used for corn and soybeans. Almost half (46 percent) of the respondents reported using this practice.

There were soil tests on forty percent of the land used for crop production. Approximately two-thirds of this land tested adequate in phosphorous and potassium.

Soybeans were planted on almost two-thirds of the land used for crop production. The reported soybean yields were very close to the yield goals, 39 and 40.3 bushels per acre, respectively. Corn yields, however, were lower than expected. The average yield goal was 126 bushels, but the average reported yield was only 109 bushels per acre.

Weed management represented the most serious production problem. Weed management was listed as a major problem by 18 percent of the respondents and as a minor problem by 47 percent of the respondents. Only 12 percent of the respondents reported major problems with planting. Two-thirds of the respondents reported no problems with respect to insect or soil and fertility management.

As noted, 44 percent of the respondents indicated that the early terminated contract land would be used for haying or grazing. Over two-thirds of these respondents said they took the land out to meet feed needs, and almost a fourth said the land was removed to increase cattle numbers.

Conclusions

Numerous CRP decisions will be made by farmers and policy makers over the next several years. There have been many benefits to the CRP; the most obvious has been reduced soil erosion with consequent water quality effects, but there have also been other benefits, including an increase in wildlife populations. What the future holds for CRP land and the benefits from the program are an unknown at this time. Unfortunately, from a conservation perspective the program is ending with historically high grain prices and at the low point in the cattle cycle.

Strict monetary returns would seem to indicate that the majority of the land would be returned to production. However, analysis of last year's early out decisions indicates that there is a degree of reluctance to terminate CRP contracts (almost 80 percent of the contracts terminated were scheduled to end within two years), and not all of the land is returned to crop production (52 percent in corn and soybeans, 44 percent haying and grazing). As noted earlier, these contracts were terminated in May of 1995 when market returns were lower and before flexibility contracts. Thus, the economic incentives for early termination of CRP contracts, and to return that area to row crop production are much higher now. This implies that corresponding percentages likely represent lower bounds.

Again from a conservation perspective, much of the land that was returned to production was not soil tested and an insecticide was used. Insurance type treatments (broadbased herbicide and insecticide applications) have been shown to lead to overuse of inputs and decreased profits. Hopefully, as the CRP evolves, farmers will be better positioned to take advantage of market opportunities and follow sound production practices as well.

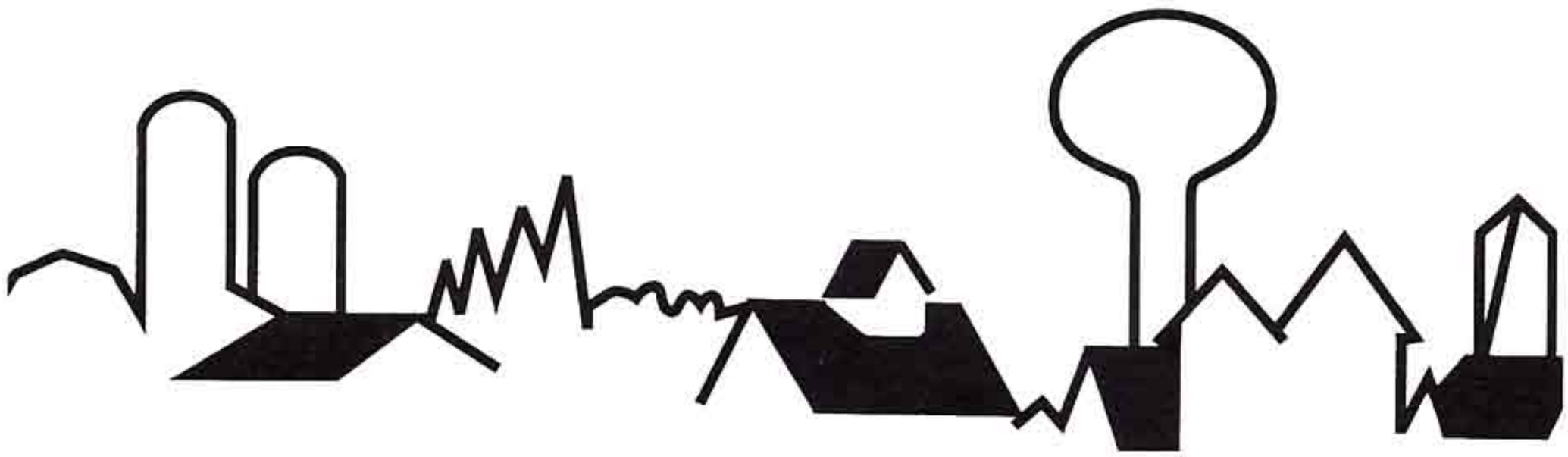
CARD Sets Fall Policy Conference Dates

CARD's 1996 Fall Policy Conference will be presented on two different days at opposite ends of the state. On September 12, 1996, Iowa Lakes Community College in Emmetsburg will host the program. On the following day, September 13, 1996, the program will move to Indian Hills Community College in Ottumwa.

"Market - Based Agriculture: Opportunities and Challenges" will feature several speakers from the CARD/FAPRI staff, including FAPRI co-director, William H. Meyers discussing the long- and short-term outlook for U.S. and international agriculture. CARD Director Stanley Johnson and research division head Bruce Babcock are also slated to participate in the program.

Sessions will run from 9:00 am to 4:15 pm. Sponsors of the conference are CARD, ISU Extension, and the two community colleges hosting the events.

The registration fee for the conference at either location is $35 before September 6, 1996, and $40 after September 6, 1996. Registration brochures with additional information on the program and how to sign up to attend are available from your local county Extension office or from Judith Pim at 515/294-6257.



Meet The Staff

Mary Adams, the CARD communication specialist who provides editorial assistance to the *Iowa Ag Review* and edits the *FAPRI U.S.* and *International Agricultural Outlook* books says, "The FAPRI researchers are my favorite group to work with at CARD and I enjoy collaborating on the publications they produce. They always have a lot of research in progress and most of it is up-to-the-minute, cutting edge information that needs to go out quickly." She also works with other FAPRI research papers and writes and distributes news releases on FAPRI research findings and analysis. Adams edits the GATT (General Agreement on Tariffs and Trade) research papers series; many of these papers are written by FAPRI personnel.

Mary Adams

Adams has considerable experience in working with materials about agriculture, particularly in translating research materials into layperson's language. She has worked in promotion/publicity for two scholarly publishers: the University of Illinois Press and the Iowa State University Press. For nearly six years, she was editor of the high school science teacher's magazine (*Science of Food and Agriculture*) published by the Council for Agricultural Science and Technology. And she was a communications specialist for the agricultural programs coordinated by the Office of Continuing Education at ISU.

At CARD, FAPRI takes up a good chunk of her time, but definitely not all of it. In addition to her work with FAPRI staffers, Adams writes and produces the CARD publications catalog and annual report, assists in staging CARD's annual Fall Policy conference, and prepares news releases and publicity materials on a variety of newsworthy CARD topics.

Adams is an Iowa native and dairy farmer's daughter who graduated from ISU's department of journalism and mass communication. She notes with wry amusement that after having six jobs in three states, she is now in a office less than a block from Hamilton Hall where she took many journalism classes (and retains a healthy respect for the education she received). An avid film buff, Adams keeps CARD up-to-date on the latest cinema offerings with the frequently changing movie ads posted on her door. This is good preparation for another FAPRI project she is tending: the making of a FAPRI promotion/informational video describing the unit's activities and showing what happens during the "meltdown" when FAPRI staff from ISU and other universities run the computer models to produce the year's baseline agricultural projections. Unfortunately, she says that the film short is not likely to appear in your local theater anytime soon!

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96-BP 10. Pork Production in Iowa: *An Industry at the Crossroads*. **Dermot Hayes, Daniel Otto,** and **John H. Lawrence**. January 1996

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