Unfair Trade: Culprits and Victims

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Cogent justifications for continuing subsidies to U.S. crop farmers are difficult to find. Most analyses suggest that our farm programs lead to greater concentration, higher land prices and cash rents, increased production of supported commodities, and lower market prices. And as we have pointed out in recent *Iowa Ag Review* articles, current subsidy programs provide a quite inefficient safety net: overcompensating producers in low price–high production years and undercompensating them in high price–low production years. In addition, farm subsidies go predominantly to farm families that have higher wealth and income levels than the average U.S. family. And finally, there would be no major changes in aggregate food production or food prices in the United States if subsidies were ended tomorrow.

Most supporters of farm subsidies no longer attempt to justify them by appealing to any broad public purpose. Rather, many now argue that it would be unfair to eliminate them. It would be unfair to those farmers who are counting on continued high land prices and cash rents for their retirement. It would be unfair to farmers who paid high prices for land in the expectation that subsidies would continue to prop them up. It would be unfair to regions where production would decline dramatically if the subsidies were withdrawn. And finally, it would be unfair to U.S. farmers to have their subsidies taken away when farmers in other countries continue to enjoy production subsidies and protec-

tion from international competition through high import tariffs.

An "unfair" playing field in international competition is now the most common justification given for U.S. subsidies. A recent international example of an unfair trading practice is Argentina's decision to tax wheat exports but not flour exports. Not surprisingly, flour exports increased significantly. Millers in Chile suddenly found themselves at a competitive disadvantage because of this discriminatory export tax. To level the playing field, the Chilean government placed a countervailing duty on Argentina's flour exports. U.S. producer groups are quick to point out unfair trading practices. For example, the American Sugar Alliance argues that sugar import quotas are justifiable because otherwise U.S. consumers would be able to pay artificially low prices for their sugar. North Dakota wheat growers argue that they need subsidies to partially offset the damage they suffer from unfair Canadian wheat exports. And almost all agricultural groups argue that it would be foolish to "uni-

laterally disarm" until other countries agree to cut their subsidies. Given that the European Union has been the most egregious provider of domestic subsidies, this last argument really amounts to: "let's not cut ours until the E.U. cuts theirs."

Who Faces Unfair Competition?

A recent study by my FAPRI colleagues at CARD and the University of Missouri helps provide insight into when the argument of unfair competition holds water. (See the article by John Beghin in this issue for details.) The study estimated what would happen to U.S. and world agriculture (grain and oilseeds, livestock, sugar, and cotton) if the recent U.S. WTO proposal were fully implemented. The United States proposed significant cuts in both domestic subsidies and tariffs for most products. Commodity prices under the U.S. proposal would be higher than the status quo because the decrease in production from protected farmers is greater than the production increase from competitive farmers.

Regarding the fortunes of U.S. farmers under the proposal, we can measure the extent of damage from unfair competition by looking at the effects of the U.S. proposal on production and net exports (exports minus imports). Farmers who would respond to liberalization with increases in production and net exports are the farmers who are currently most damaged by foreign protectionism. Those farmers who would experience declines in production and net exports are the ones who are not justified in arguing for compensation because of unfair competition. This second set of farmers could be considered as providing unfair competition to foreign

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producers. A third set of farmers are those producers who would produce just about the same amount under liberalization as they produce now. For this group the impetus to produce more from liberalization is about equal to existing production incentives of farm programs. This last group may be justified in arguing for giving up their subsidies when others give up theirs.

The results of the FAPRI study indicate that U.S. livestock producers belong to the first group of producers. U.S. beef and pork exports would increase by about 25 percent under the U.S. proposal, while broiler exports would increase by about 8 percent. Cattle and hog prices would increase by between 4 and 5 percent while broiler prices would increase by approximately 2 percent. The livestock results indicate that E.U. production subsidies and high tariffs on meat imports around the world currently harm U.S. livestock producers. California rice producers also belong to this first group because they would find expanded demand for their product in Japan and South Korea.

Milk producers and most grain and oilseed producers belong to the third set of producers who would find that their production levels and net exports would largely be unchanged under the U.S. proposal. For dairy, currently high E.U. support prices create surplus dairy products that have to be exported with subsidies. Elimination of these surplus exports would significantly raise world prices. This price increase would

just about compensate U.S. dairy producers for cuts in the U.S. dairy program. For grains and oilseeds increased liberalization under the U.S. proposal has a small impact on demand. Thus U.S. dairy, grain, and oilseed producers could legitimately argue that they would be willing to give up their subsidies if the E.U. and other countries gave up theirs.

Cotton and sugar producers belong to the second group of producers because under the U.S. WTO proposal, production and net exports would decline. One can conclude from this study that for cotton and sugar, U.S. farm programs create an unfair playing field for the rest of the world. For sugar, the situation is complicated because the net effect of trade barriers and subsidies around the world is a depression in world prices, which would seem to provide an argument in favor of continued U.S. support. However, it is clear that a move to lower production subsidies and trade barriers would result in a sharp increase in U.S. sugar imports and significantly lower prices for U.S. sugar buyers.

Not All Our Competitors Are Subsidized

Enough examples of unfair trading practices and production subsidies exist around the world to give some credence to the common portrayal of U.S. farmers under siege from unfair competition. High Japanese import tariffs, large E.U. export subsidies, and seemingly endless E.U. production subsidies certainly exist and depress demand for U.S.

products. However, there are many examples of competing countries that provide very little support for their agricultural sectors, and some competitors are actually placed at a competitive disadvantage by their governments' policies.

New Zealand and Chile are perhaps the two best examples of countries that have found agricultural success without subsidies. Their consumers have easy access to imported food products so their producers must compete with foreign producers for sales in their domestic markets, and export-oriented producers must export at world prices. New Zealand farmers export dairy products, lamb, fruit, wine, and produce grains and vegetables for their domestic market. Chile is best known for exporting fruit and wine, but Chile is looking at export markets for pork, beef, and dairy products also.

Brazil and Australia are two agricultural powerhouses that have thrived with minimal production subsidies. According to the Organization for Economic Cooperation and Development, government support accounts for 3 percent of farm receipts in Brazil and for 4 percent in Australia. But farm groups often complain about the unfair competition from these two countries. For example, the American Sugar Alliance—the lobbying organization for the U.S. sugar industry—has complained about the $82 million in sugar subsidies Australia provided in 2002. But this amounts to less than 0.7¢ per pound of Australian sugar. Complaints about Brazil range from infrastructure investments, to currency devaluations, to subsidized credit. But infrastructure investments are a proper function of government, and Brazilian monetary policy is not determined by how it helps or hurts the agricultural sector. Credit subsidies for purchasing machinery provide much less production stimulus than do U.S. loan rates.

Argentina provides a near-perfect example of a major agricultural com-

petitor that actually reduces the competitiveness of its farmers through both official and unofficial policy interventions. Besides the damage caused by Argentina's macroeconomic policies, official Argentine agricultural policy levies a 20 percent tax on beef, dairy, soybean, and grain exports. The purpose of the tax is to raise revenue for the government and to help hold down food prices for Argentine consumers. The impact on agriculture is lower investment, productivity, production, exports, and farmer income. Unofficial policy in Argentina can be equally damaging. Argentina is tied for 97th place on Transparency International's global Corruption Perceptions Index (see http://www.transparency.org/policy_and_research/surveys_indices/cpi/2005). This low ranking compares to 17th place for the United States, 21st place for Chile, and 62nd place for Brazil. One example of Argentine corruption involves the recent campaign to hold down inflation by pressuring companies to reduce prices. Some food companies were told that their expansion plans were not going to be permitted unless they agreed to reduce their prices. In contrast to the positive attitude in Chile and Brazil about agriculture's future, Argentine farmers and food companies have a fatalistic view of the future. Despite enormous potential for productivity gains in Argentine agriculture, the attitude of the people who would have to do the hard work and investments to achieve the gains is that the government will never allow them to reap the profits from such endeavors.

Two Paths

U.S. agriculture faces two possible future paths. One follows the direction laid out by the recent U.S. WTO proposal. This path would involve less direct government management of prices and production through guaranteed prices, a gradual rationalization of U.S. agriculture that would emphasize production of

those products that U.S. farmers are relatively good at producing, and a gradual lowering of barriers to trade around the world. This path would require gradual investment adjustment by processors, acreage adjustment by farmers, and, depending on the willingness of Congress to support land prices, some financial adjustment by farmers in some regions.

An alternative path is gaining momentum among some U.S. farm groups. This path would increase government control over the direction of U.S. agriculture. Export markets would not be seen as growth opportunities. Trade agreements would be de-emphasized or ignored. Imports would be restricted. Prices would be set by a combination of paid land diversions, loan rates, and biofuels subsidies. At a recent Iowa Corn Growers Association crop fair, one corn grower, seemingly an advocate of this second path, stated that expanded U.S. exports only damage the farmers in the importing countries, and imports only damage U.S. producers; so why, he wondered, should we ever allow trade in food?

Given the current lack of support for trade liberalization in Congress, and in key E.U. countries such as France, it is not clear that a new WTO agreement will be achieved. If not, U.S. farm programs will continue to be vulnerable to WTO cases under the current agreement. Advocates of the second path for U.S. agriculture could then find themselves in a stronger position, arguing that the U.S. Congress should write farm policy, not the WTO. The large difference in direction represented by these two paths means that all of us with an interest in the future of U.S. agriculture should closely follow what happens in the next six months of WTO negotiations. ◆

Agricultural Situation
Spotlight

When Is GRIP the Right Choice for Crop Insurance?

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The Risk Management Agency has greatly expanded availability of Group Risk Income Protection (GRIP) for 2006. Covered crops now include corn, soybeans, grain sorghum, wheat, and cotton in most major production regions. Now that GRIP is widely available, many farmers and their crop insurance agents are considering whether GRIP could be the right crop insurance choice for 2006. As we will show, the answer varies by farm and production region.

What Is GRIP and How Does It Work?

GRIP provides protection against unexpected declines in county revenue. This contrasts with Revenue Assurance (RA) and Crop Revenue Coverage (CRC), which provide protection against declines in revenue at the farm level. Thus, a farmer who buys GRIP could suffer a loss and not receive an insurance payment. This would occur if his or her farm yield is low but the county yield is not. However, many farmers find that their farm yield is rarely low unless the county yield is low. These are the farmers who are most likely to find GRIP beneficial.

First, a few program details and definitions will help in understanding how GRIP works. GRIP pays an indemnity whenever actual county revenue falls below a trigger revenue level. Actual county revenue equals the product of the harvest price and the county average yield. The trigger revenue equals the product of se-

lected coverage level (90, 85, 80, 75, or 70 percent) and expected county revenue. Expected county revenue equals the product of expected county yield and expected price. Expected county yield is simply the trend yield for a county. The expected price is based on the futures price before sales closing date for crop insurance.

An often-confusing aspect of GRIP is that, unlike RA and CRC, the amount of insurance that a farmer buys is not equal to the trigger revenue. Rather, farmers select an amount of insurance between 90 and 150 percent of expected county revenue.

When actual county revenue falls below the trigger revenue, an indemnity is paid. The amount of the indemnity equals the product of the amount of insurance and the percent loss, where the percent loss is computed as the difference between the trigger revenue and the

actual county revenue divided by the trigger revenue.

Finally, just as RA and CRC offer farmers extra protection when the harvest price climbs above the expected price, so too does an optional endorsement to GRIP. The endorsement is called the Harvest Revenue Option (HRO). If a farmer selects this endorsement (and pays the addition premium), then if the actual harvest price is greater than the expected harvest price, the amount of protection and the trigger revenue are multiplied by the ratio of the actual price to the expected price.

Comparing GRIP to Other Products

To illustrate how GRIP is likely to perform in the future relative to RA and CRC, we calculated what GRIP would have cost and what it would have paid out from 1980 to 2004 had it been available during that
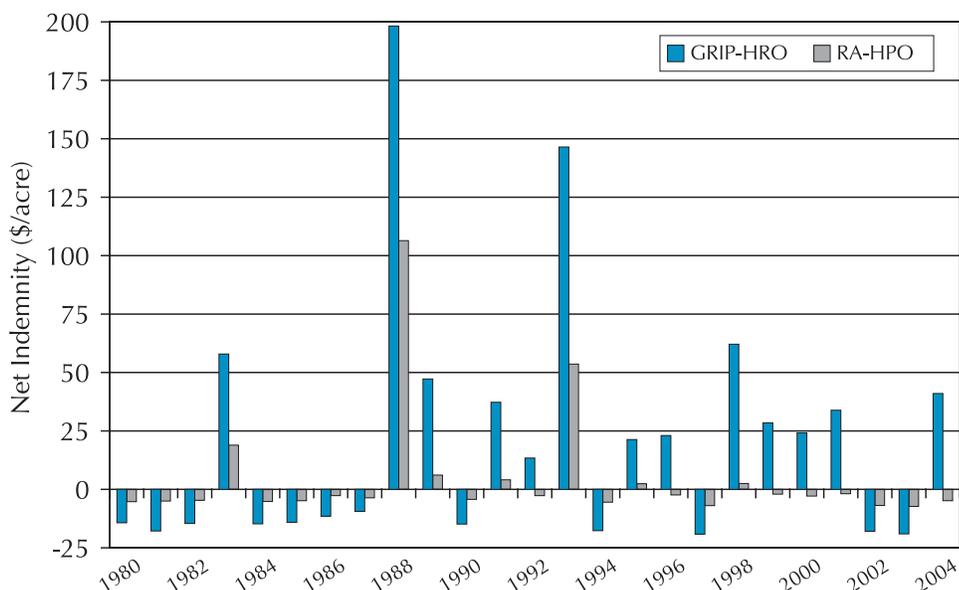

Figure 1. Net indemnities for 90 percent GRIP-HRO and 75 percent RA-HPO for Poweshiek County, Iowa, corn coverage, 1980-2004

time. We assumed that the maximum amount of insurance was obtained with GRIP-HRO at the 90 percent coverage level. For comparison, we also estimated what the cost and average payout for RA (with the harvest price option) and CRC would have been over the same period at the 75 percent coverage level. These coverage levels were chosen to equalize the premium subsidy percentage among the insurance products.

Net indemnities (insurance payout minus producer-paid premium) are shown in Figure 1 for corn in Poweshiek County, Iowa; Figure 2 for wheat in Barnes County, North Dakota; and Figure 3 for dryland cotton in Lubbock County, Texas. A positive number indicates that indemnities paid out exceed what the producer would have paid in premium.

Figure 1 shows that GRIP-HRO pays out much more often and a higher amount than does RA in Poweshiek County. There are two reasons for this. The first is that GRIP-HRO has a 90 percent trigger and RA has a 75 percent trigger, which means that a price drop like we saw in 2004 will more readily trigger a payout under GRIP than under RA. The second reason is that losses at the farm level are highly correlated with losses at the county level. This means that whenever there are significant farm-level losses, there will also be significant county-level losses. The technical terms describing this situation are that losses on corn in Iowa are primarily driven by systemic factors such as widespread drought or excess rainfall (factors affecting many farms in the area at the same time) and not by poolable factors such as wind, hail, or disease (factors affecting only individual farms).

The results in Figure 2 and Figure 3 show that insurance losses on North Dakota wheat and Texas cotton are driven by both systemic and poolable factors. The years in which GRIP pays out a large amount are also the years when RA and
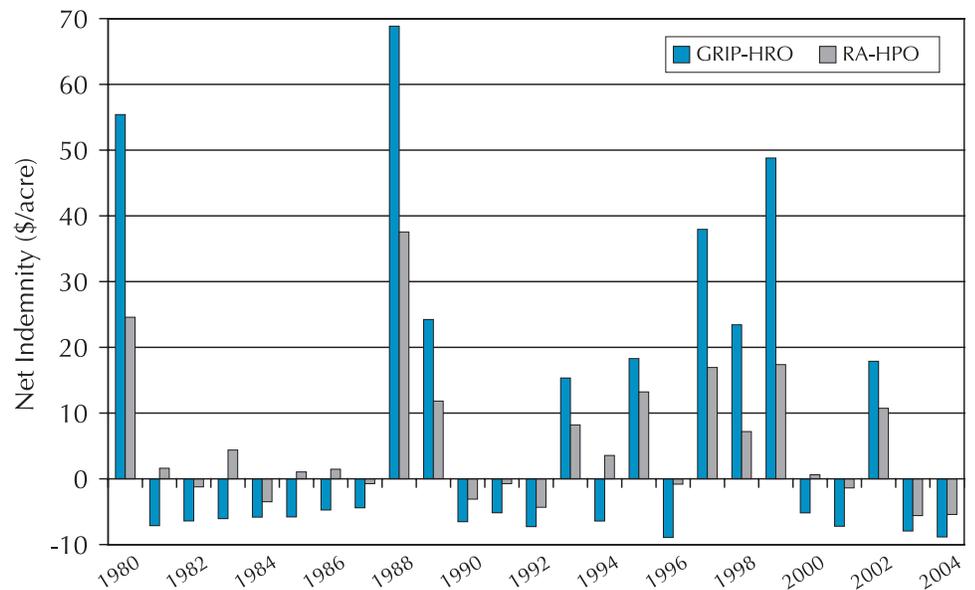
Figure 2. Net indemnities for 90 percent GRIP-HRO and 75 percent RA-HPO for Barnes County, North Dakota, wheat coverage, 1980-2004
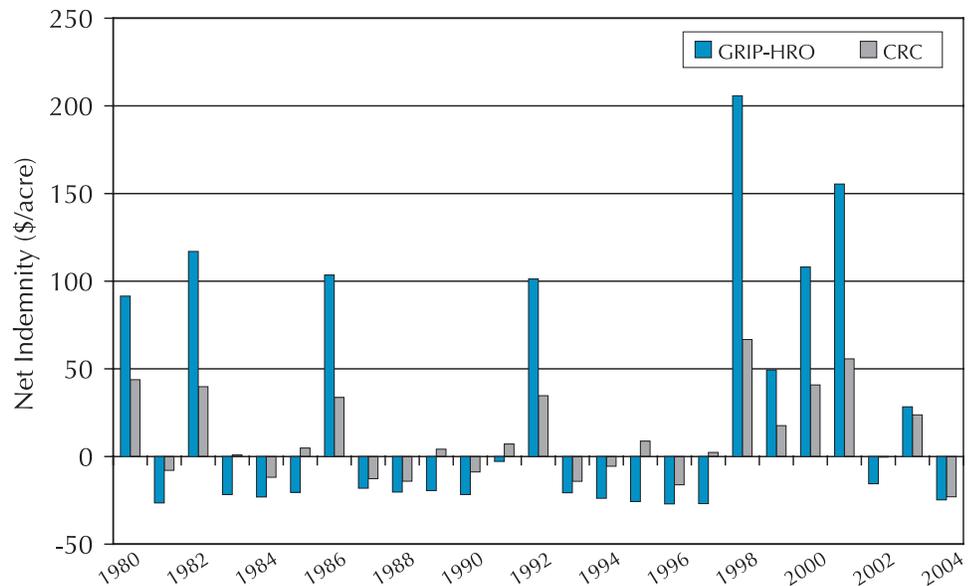
Figure 3. Net indemnities for 90 percent GRIP-HRO and 75 percent CRC for Lubbock County, Texas, non-irrigated cotton coverage, 1980-2004

CRC pay out a large amount, which shows that systemic risk is important in both regions. But note the number of years in which RA or CRC pay out but GRIP does not. For both the wheat and cotton examples, we estimate that there would have been positive net average payouts for RA but negative net payouts for GRIP in 6 out of the 25 years. This illustrates that for these crops, poolable risk is

much more important than it is for Iowa corn.

These illustrations show that whether GRIP is the right crop insurance choice for a farmer depends in part on whether a farmer's losses are driven primarily by poolable risk or systemic risk. One way to estimate the importance of the two is to graph a farm's histori-

FAPRI Analyzes the U.S. Proposal to the WTO

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In addition to our preliminary baseline for the *2006 U.S. and World Agricultural Outlook*, this year economists with the Food and Agricultural Policy Research Institute (FAPRI) also undertook an analysis of the proposal to the World Trade Organization (WTO) submitted by the Office of the U.S. Trade Representative in October. The proposal was an effort to jumpstart negotiations leading up to WTO's sixth ministerial conference in December. The Hong Kong conference brought 149 member countries together to further negotiations on agricultural trade reform and other topics.

The U.S. WTO proposal includes changes in export competition, market access, and domestic support. The FAPRI analysis covers the first seven years of policy changes implied by the proposal, during which the most significant reductions in tariffs and trade-distorting domestic support and elimination of export subsidies would be phased in starting in 2007/08.

The U.S. proposal reduces the permitted current U.S. aggregate measures of support to $7.64 billion and limits so-called blue box support to $4.77 billion. These limits imply lower loan rates and support prices and reduced countercyclical payments. The proposal lowers domestic support in the European Union to €11.4 billion, implying large reductions in actual domestic support in sugar, dairy, cereals, fruits, and vegetables. The proposal includes significant tariff reductions or tariff rate quota (TRQ) expansions. These market access reforms would open the protected rice, sugar, and dairy markets. All export subsidies would be eliminated, which would mostly affect E.U. production and trade of sugar, rice, meat, and dairy products.

Effects on Commodity Prices

The FAPRI analysis finds that these proposed reforms would moderately increase world prices for most commodities, with larger increases for sugar, rice, and dairy. Dairy and livestock would be directly impacted, which in turn would affect feed sectors. U.S. exports of pork, beef, and rice would greatly expand. Corn and wheat exports would grow moderately. U.S. cotton exports would decline.

FAPRI projects that in many cases, the increase in world prices and gains in world markets would not fully compensate for the removal of coupled domestic support in the United States and European Union. Decoupled payments could compensate for the loss of farm income from coupled payments. They would not have to be as large because distortions would be removed and world prices would be higher. Select results of the analysis for major world commodities are given on pages 7 and 8.

U.S. Proposal versus Hong Kong Declaration

The sixth WTO ministerial meeting ended with a declaration on December 18 that falls short of the U.S. proposal. It does not provide the so-called modalities necessary to implement the proposed reductions in tariffs and domestic support. Countries have tentatively agreed to eliminate all export subsidies by 2013 (the U.S. proposal stipulated 2010 as a deadline). Least-developed countries would have duty-free access to developed country markets on at least 97 percent of tariff lines by 2008; yet that leaves 3 percent of lines potentially blocked for protected markets (for example, U.S. and E.U. sugar). Other tariff cuts will fall within four bands, with higher cuts in higher bands but with thresholds yet to be defined.

Countries agreed to reduce trade-distorting domestic support using a three-tier system, with proportional cuts in total support and aggregate measures of support decreasing by tier; the European Union would be in the top tier, Japan and the United States in the second tier, and everyone else in the lower tier. Cotton export subsidies of developed countries must be eliminated in 2006. The declaration states that other cotton subsidies "should be reduced more ambitiously" but does not provide modalities for achieving this. Special and differential treatment is still being negotiated. Therefore, it is hard to know if the eventual WTO agreement will have as much impact as the U.S. proposal would if it were implemented.

For more details, see "U.S. Proposal for WTO Agriculture Negotiations: Its Impact on U.S. and World Agriculture," available at http://www.fapri.iastate.edu/, and "Potential Impacts on U.S. Agriculture of the U.S. October 2005 WTO Proposal," available at http://www.fapri.missouri.edu/. ◆

U.S. Proposal to the WTO: Selected Results from the FAPRI Analysis

Grains and Coarse Grains

Corn

U.S. corn exports and feed consumption both increase, contributing to a modest increase in U.S. corn prices (less than 3 percent), driven by larger net imports by the E.U. and South Korea. E.U. tariff reductions induce larger E.U. corn imports. Lower target prices and loan rates and a demand-driven increase in corn prices almost offset each other. U.S. corn use for ethanol and other industrial purposes falls, as do corn ending stocks. Higher U.S. corn prices contribute to an increase in prices for substitute feed grains.

Wheat

U.S. wheat prices increase moderately (almost 3 percent) because of increased export demand from Japan and China and reduced export supplies of Canada, Russia, and Ukraine. Higher prices result in a slight increase in wheat production, limited by the increase in returns for feed grains. Food use and stocks decline slightly in response to higher prices. In E.U. wheat markets, the livestock sector decreases feed use considerably, which leads to a fall in E.U. wheat prices.

Rice

World prices for long-grain rice increase by 8 percent. Medium-grain rice prices increase by 25 percent. These price increases are driven by greater market access in Japan and South Korea. Additional imports by Philippines, Indonesia, and the E.U. also increase long-grain rice trade. China, the U.S., Australia, and Egypt gain market shares in medium-grain rice trade. Long-grain rice exports increase for India, Myanmar, Pakistan, Thailand, the U.S., and Vietnam.

Oilseeds and Products

In oilseed markets, changes are moderate. Higher prices for grain and reduced loan rates and target prices contribute to a slight reduction in U.S. soybean production in most years and slightly higher prices (up 1 percent). Reduced livestock production in Japan and the E.U. causes a reduction in U.S. soybean meal exports. This is offset by an increase in domestic soybean meal consumption driven by larger U.S. livestock production. The policy changes include tariff cuts for oilseeds and oilseed products in China, the E.U., India, Japan, Mexico, South Korea, Taiwan, and Thailand. The world price of soybean oil increases by 4 percent by 2014 following these tariff cuts. The elimination of differential export taxes in Argentina results in increased export demand for soybean products relative to soybeans, contrib-

uting to improved crushing margins. Crush increases slightly, as improved crushing margins more than offset the effect of reduced soybean production. World consumption of all protein meal declines in tandem with animal production.

Meat

U.S. meat exports increase, driven by expanding Japanese import demand following lower duties. Japan is historically a large consumer of U.S. beef and pork. The elimination of export subsidies and increased market access open E.U. meat markets. World prices of pork and beef products increase significantly while poultry price changes are moderate. World trade of pork, beef, and poultry products increases by 7, 6, and 3 percent, respectively. The E.U. eliminates its beef export subsidy, which affects 76 percent of its total beef exports. These policy changes increase the E.U.'s net beef imports and depress its domestic beef price by 13 percent. In many importing countries, lower domestic prices resulting from tariff reduction are more than offset by higher world meat prices. Brazil, Argentina, Australia, Canada, and the U.S. expand their exports.

Dairy

Major dairy changes occur in the E.U., Canada, and Japan. Most other countries increase their dairy herds and milk production, but less fluid milk is consumed as it is diverted into manufacturing use because world prices of dairy products increase. In the U.S., dairy production and milk prices increase. U.S. butter imports increase, but cheese imports decline and nonfat dry (NFD) milk exports increase. Without an export subsidy and with reduced intervention prices, E.U. production and exports decrease substantially. Domestic E.U. consumption increases because of lower domestic prices. The E.U. becomes a marginal player in NFD and butter world markets. Australia, New Zealand, Argentina, Ukraine, and India partially compensate for the decline in E.U. exports, which leads to higher world prices for butter, cheese, NFD, and whole milk powder (average increases of 34, 16, 7, and 18 percent, respectively). Canada becomes a net importer of NFD, as export subsidies disappear and tariffs are lowered.

Sugar

U.S. sugar imports increase with the much larger TRQ, resulting in a 12 percent price decline for raw cane sugar. Domestic sugar production falls and consumption increases. The E.U. would declare sugar as sensitive, which would result in a larger TRQ and reduced

tariff. The world sugar price increases by 24 percent on average, driven by proposed E.U. sugar reforms. The E.U. imports over 4 million metric tons of sugar. Net exporting countries, such as Brazil, Australia, Colombia, Argentina, and Cuba, would respond to the higher world price with increased sugar production, lower sugar consumption, and increased exports.

Cotton

Cotton prices increase by about 2 percent in world markets. Given the modest foreign adjustments in the sector, the primary impact is through the reduction in domestic supports, which lowers U.S. production and exports. After the reduction in U.S. trade, the resulting higher world prices push other exporters to ship out more while importers decrease their net demand on world markets. There is an overall reduction in world trade. Larger exports out of Africa, Brazil, Pakistan, and Central Asia partially offset the lower U.S. cotton exports.

U.S. Net Farm Income

The reduction in U.S. target prices and loan rates reduces crop returns to producers. For some crops, this effect is more than offset by higher prices. Between 2012/13 and 2014/15 under this deterministic analysis, average returns, including all payments, increase for grains and most oilseeds but fall for cotton, peanuts, and sugar. Stochastic analysis led by FAPRI economists at the University of Missouri considers a range of possible market outcomes and yields slightly different average results. Considering a broader range of outcomes leads to circumstances in which the increase in prices may not be adequate to compensate producers for reduced loan program benefits and countercyclical payments, even for grain and oilseeds. ◆

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U.S. Proposal for WTO Agriculture Negotiations: Its Impact on U.S. and World Agriculture. FAPRI Staff. December 2005. 05-WP 417.

cal yield against the county average yield. If the scatter plot forms close to a straight line with a positive slope, then farm yields and county yields are highly correlated and GRIP may provide good risk management benefits. If the scatter plot is widely variable with no real discernable pattern, then poolable risk is important and the farmer ought to think twice before buying GRIP.

Besides the risk management benefits, crop insurance products can boost average farm incomes because of the premium subsidies. Farmers pay only 45 percent of the total premium if they buy RA or CRC at the 75 percent coverage level or GRIP at the 90 percent coverage level. The Risk Management Agency tries to set the total premium at a level that would generate sufficient premiums to just cover losses over the long term. That is, they hope that if many farmers buy their products over many years, then the indemnities paid out would about equal the total premium. In other words, the total premium is supposed to represent an actuarially fair premium.

If premiums are actuarially fair, then farmers who buy RA or CRC at the 75 percent coverage level or GRIP

at the 90 percent coverage level should receive $100 in indemnity for every $45 they pay in premium, for a net return of $55. That is, the expected rate of return from investments in farmer-paid premiums should be 122 percent (1.22 = .55/.45) if premiums are actuarially fair.

Table 1 reports the historical rates of return for the products and time periods illustrated in Figures 1, 2, and 3. The average rate of return for GRIP over this period across the three examples equals 123 percent. Given the way that GRIP premium rates were developed, all three crops would have generated approximately 122 percent rates of return if the historical period had been extended back to 1957.

The rates of return to RA and CRC are all positive, indicating that farmers should expect to receive more in indemnities than they pay in premiums. But they are also all less than 122 percent, which could indicate premium rates that are in excess of actuarially fair levels. Furthermore, the expected returns (net indemnities) to GRIP are substantially greater than for RA and CRC. This reflects both the higher expected rate of return and (for corn and wheat) the higher liability and premium per acre. Poweshiek County corn producers would have received $17/acre more in net in-

demnities for GRIP than for RA over the historical period.

Recommendations

The large rates of return for GRIP are to be expected because of the large premium subsidies. Putting the GRIP decision into gambling terms, farmers get to bet $55 of house money for every $45 they bring to the table. With those odds, it is no wonder that GRIP pays out in the long run.

But crop insurance is more than a gamble: it also keeps farmers in business. The real danger in using GRIP for crop insurance is that even with good odds, catastrophes do happen. A hailstorm or localized flooding can destroy a farmer's crop when the county has a bumper crop. Or a regional drought can devastate a farmer who operates at the edge of a county, while leaving farms in the rest of the county untouched. From a risk management perspective, GRIP is ideally suited for farmers who are well diversified geographically in a county. For these farmers, GRIP can provide both a high rate of return on premium dollars as well as efficient risk management benefits. ◆

Note of disclosure: Bruce Babcock helped develop GRIP, GRIP-HRO, and RA as a private consultant. He has no current financial interest in any of these products.

Table 1. Average historical performance

	Corn in Poweshiek County, Iowa	Wheat in Barnes County, North Dakota		Non-irrigated Cotton in Lubbock County, Texas		
	GRIP-RO	RA-HPO	GRIP-RO	RA-HPO	GRIP-RO	CRC
	($/acre)					
Total Premiums[a]	36.71	14.05	14.83	11.04	49.30	46.86
Producer-Paid Premium[b]	16.52	6.32	6.67	4.97	22.19	21.09
Net Indemnity[c]	21.98	4.61	8.25	5.34	24.87	10.81
Rate of Return[d]	133%	73%	124%	107%	112%	51%

[a] The product of the 2006 premium rate and the amount of insurance that would have been available in each year.
[b] Total premium multiplied by 0.45.
[c] Average indemnity paid out minus producer-paid premium.
[d] Net indemnity divided by producer-paid premium.

High Yields, Low Prices, and High Government Payments

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The 2004 and 2005 crop years have set the high-water marks for national net farm income. In 2004, U.S. net farm income rose to $82.5 billion. And were it not for 2004, 2005 would have set a record for national net farm income at $71.5 billion. Even if we remove government support from the net farm income calculation, the 2004 and 2005 farm income levels are the highest ever recorded. In fact, since 2002, the U.S. agricultural economy has been on a tear, with net farm income, cash receipts, and values of production all being much stronger than we have seen historically. However, at the same time, government support to agriculture has also increased to near record levels. As Figure 1 shows, if USDA projections for 2005 hold, government support for agriculture will be $22.7 billion in 2005, which would be slightly below the record of $22.9 billion set in 2000. While the value of agricultural production has risen significantly over the last several years, the value of government farm payments has maintained a high level.

In Iowa, these trends are just as pronounced. Iowa net farm income and value of agricultural production have been very strong over the past few years. For example, the value of Iowa's corn crop has exceeded $3.7 billion in each of the last four years. However, in 2004 and 2005, Iowa corn received sizable government support. Figure 2 shows the ratio of government support to the value of production for Iowa corn from 2002 through 2005. In 2002 and 2003, this ratio was below 10 percent, implying that over 90 percent
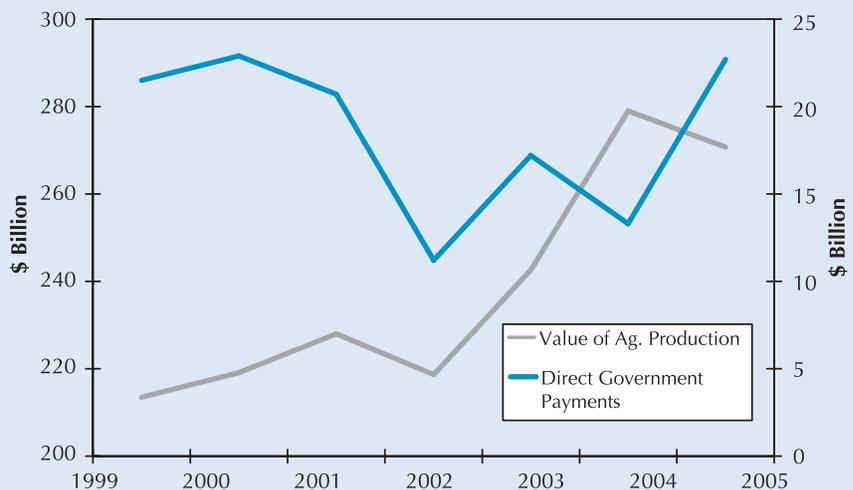

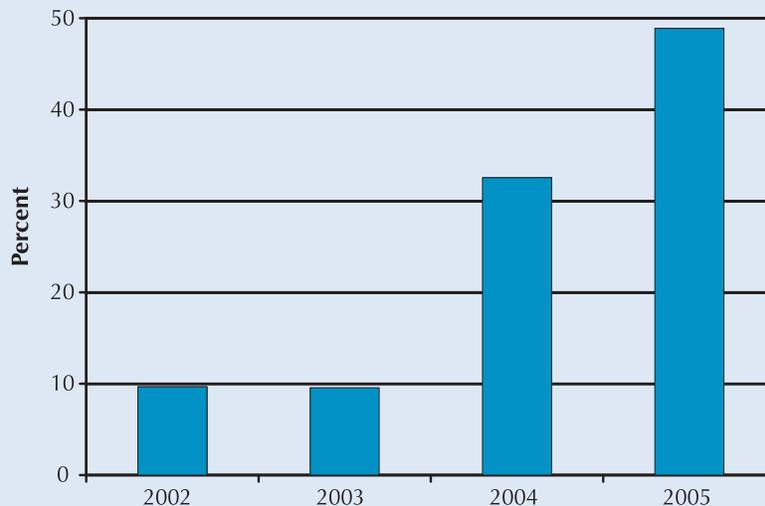**Figure 1. U.S. value of agricultural production and direct government payments**

Figure 2. Ratio of government support to value of production for Iowa corn
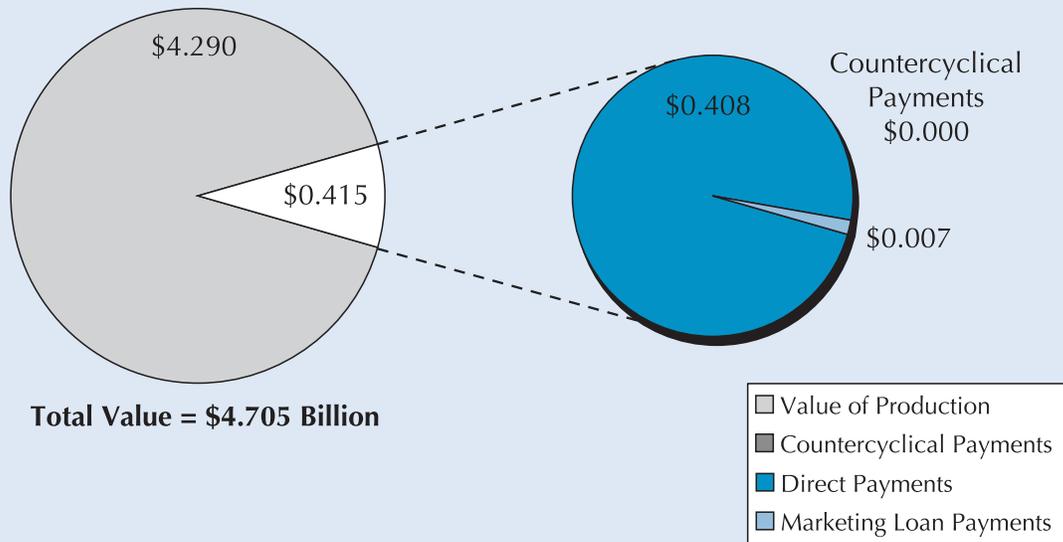
$4.290

$0.415

$0.408

Countercyclical
Payments
$0.000

$0.007

Total Value = $4.705 Billion

☐ Value of Production
◻ Countercyclical Payments
☐ Direct Payments
☐ Marketing Loan Payments

Figure 3. Composition of total value of Iowa corn for the 2002 crop year

$4.260

$1.387

$0.444

$0.535

$0.408

Total Value = $5.647 Billion

☐ Value of Production
◻ Countercyclical Payments
☐ Direct Payments
☐ Marketing Loan Payments
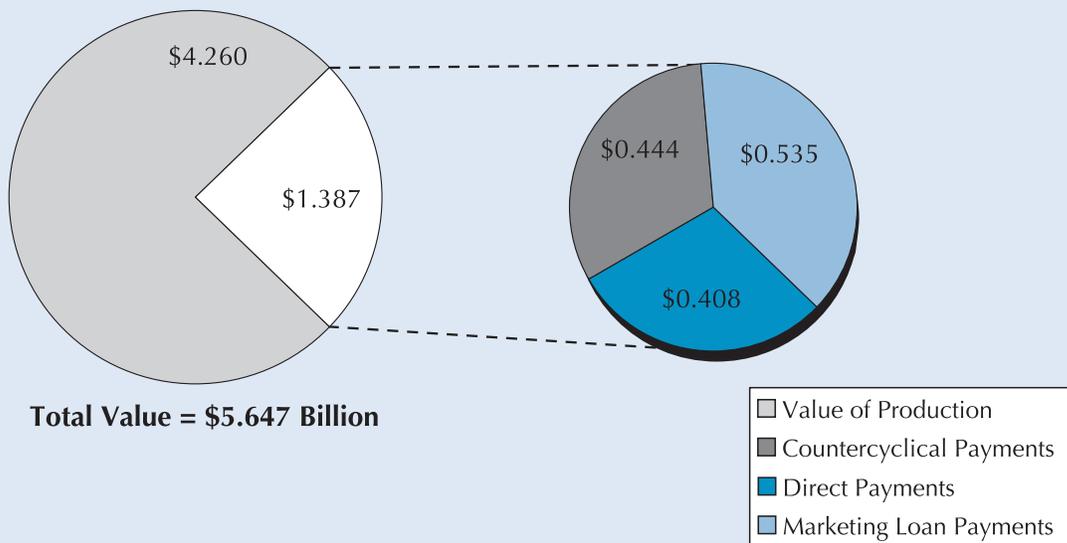
Figure 4. Composition of total value of Iowa corn for the 2004 crop year

of the total value of Iowa's corn crop was derived from the market and less than 10 percent of the value was due to government support. By 2004, this ratio jumped to 33 percent. For the 2005 crop year, projections indicate government payments to Iowa corn will equal half the market value of the crop. The trigger for the jump in support is in the lower corn prices Iowa and the rest of the nation have experienced lately.

Two of the largest government programs for agriculture, the market-

ing loan and countercyclical payment programs, provide payments when prices are low, regardless of market value or revenue from the crop. The 2002 and 2004 crop years highlight how crop prices, values, and government payments can interact. Figures 3 and 4 show the composition of the total value of Iowa's corn crop in 2002 and 2004, respectively. The market value of the corn crop is roughly the same in both years, but because of the government payments, the total value of the 2004 corn crop is nearly

$1 billion higher than that of the 2002 crop. The lower prices for the 2004 crop triggered over $400 million in payments from the countercyclical payment program and $500 million from the marketing loan program. Almost no payments flowed from these programs for the 2002 crop. Programs that trigger on price can often pay when market revenues are at or above average; the 2004 and 2005 Iowa corn crops are examples of this. ◆

Harnessing Information for More Effective Use of Food Safety Resources

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According to recent estimates, society bears nearly $6.9 billion per year in costs related to human illness caused by foodborne pathogens. The numbers of deaths and illnesses, and the high costs of these illnesses, suggest that public and private efforts are needed to improve our response to the problem. However, because the occurrence of foodborne illness is influenced by the complex interaction of many natural phenomena and human behaviors, it is not solely a scientific, regulatory, or human behavior problem. The perspectives of diverse disciplines taken together can better view the problem across the spectrum of the food system and find cost-effective solutions.

Building a Framework

CARD led a collaboration of other university and institutional partners in the Food Safety Research Consortium to develop a conceptual framework to guide modeling and data collection efforts to improve food safety. The fundamental idea is that decisionmakers in public and private settings can improve how they set food safety priorities and allocate resources if they have quantitative risk rankings and can consider the availability, effectiveness, and cost of interventions to address these risks.

Determining the best use of food safety resources is a difficult task faced by public policymakers, regulatory agencies, state and local food safety and health agencies, as well as private firms. To be most useful, a structure for priority setting and resource allocation for food safety must take full account of the food

The perspectives of diverse disciplines taken together can better view the problem across the spectrum of the food system and find cost-effective solutions.

system's complexity and available data but at the same time be simple enough to be workable and of practical value to decisionmakers. Workshops in Iowa, Georgia, and Massachusetts and a national conference in Washington, D.C., included federal, state, and local public health and other agency representatives, commodity organizations, food and processing industry representatives, consumer representatives, and university researchers.

Two Types of Priority Setting

The project team identified two types of priority-setting decisions. Purpose 1 priority setting guides risk-based allocation of food safety resources, primarily by government food safety agencies, across a wide range of interventions and other opportunities to reduce the public health impact of foodborne illness. Purpose 2 priority setting guides the choice of risk management actions and strategies with respect to particular hazards and commodities.

Purpose 1 priority setting helps policymakers identify the risks in the food supply and the points on the farm-to-table continuum that should be targeted for reducing

these risks but does not reveal the most effective risk management actions or strategies. Purpose 1 can thus be described as broad resource allocation. Purpose 2 priority setting involves more data-intensive analysis aimed at quantifying and comparing, where possible, the relative effectiveness of alternative risk management actions and strategies, so it can be described as targeted risk management. Case studies may be particularly useful for this purpose.

Typically, regulatory agencies look at Purpose 1 within their own jurisdictions or, in the case of the Centers for Disease Control (CDC) and other crosscutting agencies, across the entire food system. Purpose 2 risk management strategies typically focus on particular hazardous agents or categories of hazards such as specific agent-food combinations (for example, *E. coli* O157:H7 in ground beef), a grouping of foods associated with a particular pathogen or other agent (for example, *Listeria monocytogenes* in meat, dairy, and other commodities), or all agents associated with a particular food or food category (for example, the safety of broiler chickens as affected by *Salmonella, Campylobacter* and other pathogens, or the safety of produce as affected by all microbial and chemical hazards).

Purpose 2 analysis is likely to be significantly more data-intensive than is Purpose 1, both because it can be and because it often needs to be, especially if it is intended to result in government regulatory action or spending decisions by private entities. In these situations, decisionmakers may seek more detailed and case-specific information about the effectiveness and cost of proposed actions to justify their decisions.

Building Blocks of the Framework

It is essential that the framework be grounded in a multi-disciplinary approach—including in the integration of data. It must also be practical, flexible, and dynamic by including ongoing evaluation and continuous updating of risk rankings and other elements. Four analytical elements are included in the framework structure: risk ranking, intervention assessment, health impact estimation, and combined evaluation. These elements apply to both Purpose 1 and Purpose 2 priority setting, albeit to widely varying degrees.

Risk ranking efforts order the relative public health impact of the food safety risk in terms of known human health outcomes. Intervention assessment identifies potential risk reduction interventions and, when available data permit, considers their feasibility, effectiveness, and cost. Health impact estimation is used to compute, as permitted by available data, the public health effectiveness and benefits of specific interventions and intervention strategies. Finally, the combined evaluation integrates all the data—from the risk ranking, intervention assessment, and health impact estimation—to help inform the decision-making process in food safety. Each analytical element has its unique challenges in terms of methods and available data, and priority setting for food safety cannot be reduced to a formula for either purpose. Determining the resource allocations or risk management strategies that are best for public health will always require judgment calls on a wide range of values and factors—political, policy, legal, or scientific—that are not amenable to quantitative analysis. Nevertheless, basic comparisons can be made on the available scientific information.

The framework is only the starting point. The next step is the development of specific analytical tools and data systems to implement the framework and thus help achieve the ultimate goals of better resource allocation and risk management and a reduced public health burden of foodborne illness.

Background materials are available on the project Web site: http://www.card.iastate.edu/food_safety/. ◆

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