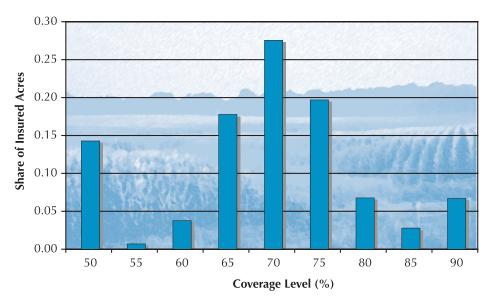# Crop Insurance: Inside or Outside the Farm Bill?

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U.S. farm programs are once again under scrutiny as Congress gears up to determine what to do with the 2007 farm bill. The new chair of the House Committee on Agriculture, Collin Peterson from Minnesota, has added a new dimension to the discussion with his call for adoption of a standing disaster payment program as a permanent part of the farm bill. His proposal expands this year's farm bill debate because consideration of the merits of a standing disaster program will inevitably draw in a discussion about what to do with the crop insurance program. After all, as former USDA under secretary J.B. Penn pointed out in 2006 testimony before the House Subcommittee on Agriculture, "One of the overarching goals of the crop insurance program has been the reduction or elimination of ad hoc disaster assistance." If Congress moves in the opposite direction and passes a permanent disaster program, then a major policy rationale for a subsidized crop insurance program is called into question.

In the past, when ad hoc disaster payments have been authorized, farmers who suffer a yield decline of greater than 35 percent qualify for the payments. The similarity of this disaster coverage to current crop insurance coverage is readily apparent because the most popular crop insurance coverage triggers payments when yield or revenue de-

Crop insurance coverage levels for program crops in 2006

clines by 30 percent (see the graph above). This similarity raises a number of policy questions. Should Congress continue to subsidize crop insurance coverage if it is going to give every farmer 65 percent disaster assistance coverage? Is taxpayer support for disaster payments more beneficial to farmers than taxpayer support for crop insurance? Would farmers still buy crop insurance if Congress provided free disaster coverage as part of the farm bill? Is the 35 percent loss threshold too high to provide meaningful disaster assistance? If so, could current commodity programs be changed to work with disaster-type assistance that could provide more meaningful coverage?

Disaster Assistance versus Crop Insurance

Although a standing disaster assistance program has the potential to duplicate much of the coverage offered by the crop insurance

program, there are some important differences. Many farmers purchase revenue insurance policies rather than yield insurance policies. Thus, crop insurance provides coverage against price changes and yield losses whereas disaster programs typically cover yield declines. In addition, crop insurance programs allow producers to choose their own deductible, whereas past disaster programs have a fixed percent deductible. And most producers buy crop insurance at a price level of 100 percent, which means that losses are compensated at 100 percent of the crop price rather than at 65 percent of price, the level used to calculate disaster payments.

But despite these differences, 65 percent disaster coverage would duplicate a significant portion of the coverage provided by a 70 percent crop insurance policy. That the two programs provide duplicate coverage is well recognized by Congress; consider, for instance, that in years

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when a farmer qualifies for both a crop insurance payment and a disaster payment, the disaster payment is capped so that the farmer does not receive compensation that exceeds the value of a normal crop. The fact that producers receive double payments for crop losses is sometimes cited as one of the benefits of having both disaster payments and crop insurance because the combination substantially increases total payments when a loss is severe.

For most farmers, availability of free or subsidized base insurance coverage at a 65 or 70 percent coverage level provides assurance that assistance will be provided when a true disaster strikes their crop. But does it really make sense to use scarce farm bill funding to duplicate coverage that is already available to farmers? An alternative use of funds would be to design a program that would complement rather than duplicate crop insurance coverage. Two examples of complementary programs have been developed by the National Corn Growers Association (NCGA) and American Farmland Trust. Before examining these programs, a basic question that should be addressed is whether the current public/private provision of insurance coverage through the crop insurance program best serves the interests of farmers and taxpayers. A recent study of the distribution of benefits from crop insurance provides some insights.

Farmer Benefits versus Industry Benefits

In a previous *Iowa Ag Review* article (Summer 2006), we reported that since 2001, taxpayers have spent $15.1 billion supporting the crop insurance program. Farmers received $8.8 billion of this amount, with the $6.3 billion balance being paid to crop insurance companies and agents to administer the program. We pointed out that large underwriting gains were a major source of

industry gains. Proponents of the program criticized our analysis by claiming that the industry takes on a portion of possible losses from crop insurance policies and that the gains they have obtained over the last five years is just compensation for the risk they divert from taxpayers.

Whether taxpayers would be better served taking on this risk themselves is an important question. The answer depends in part on the price that taxpayers pay the industry to take on risk. If the price is too high, then taxpayers would be better served by adopting a standing disaster program or by reforming commodity programs so that payments are triggered by revenue declines rather than yield declines.

Calculating the "price" that taxpayers pay for transferring risk to the crop insurance industry is not a straightforward exercise because all possible risk scenarios must be considered. In an effort to understand how much risk is being absorbed by the industry and the price that taxpayers are paying to lower their exposure, we conducted an analysis of Group Risk Income Protection (GRIP) in Iowa, Illinois, and Indiana for corn and soybeans (see CARD Working Paper 07-WP 440 by Paulson and Babcock, available at www.card. iastate.edu/ publications). In 2006, GRIP was the most popular crop insurance product purchased by Illinois corn farmers. Because GRIP provides coverage against either national price declines or yield declines at the county level, it offers an alternative to current commodity programs that provide coverage only against price declines.

The table on the next page summarizes some results. The average insurance payout if every corn and soybean producer in Iowa, Illinois, and Indiana purchased GRIP would be $47.05/acre. This number assumes that each farmer bought the

Impact of selling GRIP in the Corn Belt

Average producer indemnity ($/acre)	47.05
Producer-paid premium ($/acre)	27.67
Average company underwriting gains ($/acre)	11.50
Administrative and operating expenses ($/acre)	11.80
Total taxpayer cost ($/acre)	42.68
Producer share	45%
Industry share	55%

maximum coverage (most do), that they bought the Harvest Revenue Option (most do), and that insurance prices are $3.75/bu for corn, $7.00/bu for soybeans, and price volatilities are 27 percent for corn and 20 percent for soybeans.

To obtain the expected payout of $47.05, farmers would have to pay $27.67, giving them an average net benefit of $19.38 per acre. As compensation for taking on risk, insurance companies will receive an expected payment of $11.50/acre. Adding in other administrative costs takes the total industry payment to $23.30/acre. Thus, under GRIP, 55 percent of taxpayer funding flows to the insurance industry, whereas 45 percent flows to farmers. It is also interesting to note that the per acre cost of GRIP exceeds the projected cost of any of the other commodity programs, making crop insurance the costliest farm program currently offered.

The Price of Transferring Risk to Insurance Companies

Is $11.50 per acre a fair price for the risk that taxpayers "sell" to crop insurance companies? This is a difficult question, but we can gain some insight by thinking about the problem in terms of odds on a gamble and in terms of buying an insurance policy.

What Are the Odds?
First, let's look at the costs of risk in terms of a gamble. Note that the $11.50 "price" that taxpayers pay to crop insurance companies is an

average, not a certain payment. This average includes years in which companies lose money, thereby absorbing some losses that taxpayers would otherwise cover, as well as years in which companies make money from the program. Possible company losses range from $0 to $61 per acre. The average loss across all years in which the companies lose money is approximately $23 per acre. The range of gains is $0 to $30 per acre, with an average gain in years that companies make money also equal to about $23 per acre. If the chance of a loss year were equal to the chance of a gain year, then this would be an even-odds gamble, and over the long run taxpayers and companies would break even. If the odds were even then the average payment to crop insurance companies (that is, the price of risk) would be zero. However, we estimate that the chance of a gain year is three times larger than the chance of a loss year. Thus the odds are tilted in favor of the crop insurance companies. In exchange for taking on an average loss of $23 one year out of four, companies receive $23 three years out of four. That is, the fair value of this bet is $11.50 in favor of the crop insurance companies.

A Taxpayer Insurance Policy
Another way to think about these gains and losses is that taxpayers buy an insurance policy from crop insurance companies. Each year taxpayers pay insurance companies a premium of $23 per acre. In three

years out of four, taxpayers do not collect, so they lose their premium. In one year out of four, taxpayers pay their premium but receive an insurance payment of $46. Dividing the average payment received by the premium collected is called the "loss ratio." In this case, the expected loss ratio is 0.5, meaning that taxpayers get back only $0.50 for each $1.00 of premium paid. From the company's viewpoint, a $0.50 average risk brings a $1.00 expected return—a 100 percent rate of return.

To put this rate of return into perspective, an alternative approach would be for the U.S. government to borrow the amount of money needed to cover the losses taken on by the insurance industry and pay an interest rate of 5 percent. This loan could be paid off in years of underwriting gains. In the end, taxpayers could do much better than pay a price of $11.50 per acre.

Combining Individual Insurance Coverage with Commodity Programs

With the current high commodity prices, the crop insurance program now costs more than any other program, with most of the costs going to provide insurance to the crops that also receive commodity payments: corn, soybeans, wheat, cotton, rice, and grain sorghum. Farm groups in major producing states are asking themselves whether their interests are best served by a program in which more than 50 percent of program costs are siphoned off to pay agents for selling the insurance and to companies for taking on a portion of risk.

Adoption of a standing disaster program or either of two major proposals that farm groups are considering would dramatically change the distribution of benefits from one that favors the crop insurance industry to one that favors farmers. A standing disaster program would

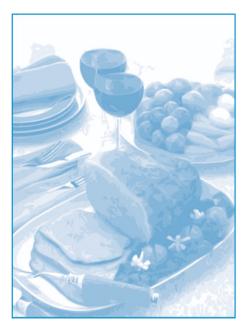# Dietary Change in China's Cities: Empirical Fact or Urban Legend?

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Over the last two decades, urban Chinese consumers have dramatically increased their consumption of meat, other livestock products, and fruits and have decreased consumption of grain-based foods. China's per capita grain consumption declined from 145 kilograms in 1981 to 78 kilograms in 2004 in urban areas, whereas the per capita consumption of meats, eggs, and aquatic products increased respectively from 20, 5, and 7 kilograms in 1981 to 29, 10, and 12 kilograms in 2004. As significant changes in food consumption patterns in urban China are noted, it is natural to ask: Are consumer responses to price changes and income growth entirely responsible for the transformation in food consumption in urban China, or have consumers in urban China changed their preferences for foods? Our recent CARD study examined the empirical evidence for structural change in urban diets in China. The study's findings may be good news for U.S. food industries seeking entry into the Chinese market.

Changes in China's Food Marketing System

Since 1978, a series of reforms of China's administrative system, agricultural policy, state-owned enterprises, investment regulations, fiscal and taxation policies, and financial system have fueled the growth of China's economy. Among these changes, at least three major developments have significantly affected the food marketing chain in China in ways that may have prompted con-

sumers to change their preferences for various food products.

First, privatization of food production, procurement, and marketing dramatically increased the quantity and availability of food in urban China, creating new consumption opportunities. A watershed shift in agricultural policy occurred in 1981, when China's government adopted a decentralized agricultural production system based on household units called the household responsibility system (HRS), which dramatically increased the amount of money a household could keep for themselves from expanded production. Following the adoption of the HRS, China's agricultural production boomed, and the availability of agricultural produce and food greatly increased.

Second, the elimination of food rationing in urban areas allowed food prices to adjust to market supply and demand conditions. Allowing prices to clear markets in 1985 reduced the role of state procurement and sales of agricultural products, especially for non-staple foods.

Within three years, rationing of the 15 non-staple foods in urban areas was totally eliminated. Rationing of grains and edible oils continued until 1993.

Third, the opening of China's food processing and retailing sector to foreign direct investment (FDI) has facilitated the rapid modernization of China's food processing and distribution systems and created an environment that fosters food product innovation. From 1990 to 1997, annual FDI flows into China grew tenfold. Substantial FDI has been targeted at the retail food sector, and the 1990s saw supermarkets rise to become a leading retail format for food products in urban areas. As foreign firms penetrated Chinese food markets, domestic firms responded by emulating and adapting foreign product designs, quality standards, and marketing strategies to better fit the tastes of Chinese consumers. The result has been an abundance of new food products offered in modern retail formats, which has facilitated significant changes in consumer shopping behaviors.

Study Findings

The results of tests applied to urban food consumption data for the period 1981 to 2004 provide a reasonably clear picture of changing food consumption in China's cities. First, the tests indicated that the early 1980s and mid- to late 1990s were periods of structural change in food consumption in urban China. The first of these periods corresponds to the elimination of rationing for non-staple foods and the introduction of the HRS. From 1980 to 1985, the output of fruits and freshwater aquaculture products in China increased by 71 and 130 percent, respectively. Statistical tests show that during this same period, preferences shifted in favor of fruits and aquaculture prod-

ucts, increasing per capita consumption of each product by roughly 2 kilograms. These results suggest that policy changes associated with the abolition of food rationing and development of free markets were the most important agents of structural change in Chinese diets in the 1980s and early 1990s.

Second, foods that have long played a major role in urban Chinese diets did not show strong evidence of preference change. In particular, changes in grain, pork, and vegetable consumption can be largely explained by normal price and income effects. In contrast, fruits, fish, beef, and poultry products, while not absent from traditional Chinese diets, play a less important role in daily food consumption and were frequently identified in the tests as showing evidence of structural change. The increasing consumption of these foods may be evidence that local and regional diets are broadening to include goods that are part of a more diverse national diet. An important observation supporting this notion is the fact that structural change associated with these products occurs in the latter half of the 1990s. This period coincides with the rapid development of private retail food chains and the creation of more regional and national food markets.

Third, the analysis indicates that the greatest changes in preferences occurred in consumers' responses to price changes. In particular, consumer demands became less responsive to price changes. As incomes have risen, food choices have increased and consumers' food preparation and shopping behaviors have

U.S. food companies that are able to successfully target the food product attributes desired by urban Chinese consumers will tap into a huge and growing market.

begun to change. Consequently, product attributes other than prices, such as quality, convenience, and food safety, may be playing a greater role in consumption decisions.

Implications for U.S. Food Industries

From the perspective of U.S. food industries, China's food product markets have been limited by low consumer incomes and tastes for locally produced products. Our study suggests that these constraints are loosening, and prospects for U.S. food products are improving. The growing sophistication of Chinese consumers, greater openness to new products, and the declining responsiveness to prices may suggest that U.S. beef, pork, and poultry industries will see greater opportunities to expand sales of higher-valued products than in the previous decade. The continued improvements in

China's cold chain, especially with the growing distribution networks of large supermarket chains, increase the capacity for U.S. meat products to retain their quality until they reach consumers. Moreover, greater numbers of households are willing and able to pay for the quality, convenience, and safety of U.S. products. China still has a long way to go in its transition from a market for low-value cuts and variety meats to a market for high-value cuts, but the stage is set for change.

China has experienced tremendous foreign direct investment and rapid dietary changes facilitated by an evolution in its food marketing system. These adjustments point to the importance of discovering and targeting the product characteristics most valued by Chinese consumers. As in Japan and Korea, Chinese consumers are becoming increasingly sensitive to food safety and consistent quality. Nevertheless, the ability for products to adapt to the traditional Chinese cuisine is still important. U.S. food companies that are able to successfully target the food product attributes desired by urban Chinese consumers will tap into a huge and growing market. While this is certainly a tall order, the observed changes in Chinese consumer preferences indicate that the barriers to entry are declining.

Learn More

The study cited in this article is described in detail in "Changing Diets in China's Cities: Empirical Fact or Urban Legend?" CARD Working Paper 06-WP 437, available at www.card.iastate.edu/publications. ◆

Ethanol-Livestock Integration

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Two ethanol plants are exploring the possibilities of linkages between ethanol and livestock production. The E3 BioFuels plant in Mead, Nebraska, and the Panda Ethanol plant in Hereford, Texas, are trying to take advantage of the synergies between ethanol and livestock production. These two plants are also testing whether cost advantages in ethanol production still exist for the Midwest or whether there may be advantages in locating ethanol production closer to end users for both ethanol and ethanol by-products, specifically distillers grains.

Corn and Cattle:
Two Plants' Advantages

The E3 BioFuels plant is on the verge of starting production as of this writing. The plant is co-located with a 30,000-head cattle feedlot. This co-location determined the size of the ethanol plant. The 24-million-gallon-per-year plant is designed to be powered by biogas derived from the 228,000 tons of manure annually produced at the feedlot. The feedlot has a slatted floor system that allows the manure from the cattle to be captured and processed in two 4-million-gallon digesters. Power is also saved because the distillers grains from the ethanol production process are not dried; wet distillers grains will be fed directly to the cattle in the feedlot. In addition, thin stillage, another ethanol co-product, will be fed into the digesters to help maintain digester

temperatures without the use of natural gas. In this closed-loop system between ethanol and livestock, output from each component can be used as input for the other. In fact, the end product from the digester can be used as fertilizer, providing an additional linkage to the corn used in the production scheme.

Panda Ethanol is expected to come online in the latter half of 2007. Like the E3 BioFuels plant, the Panda plant will use manure as a power source. With the Panda plant's location in the middle of Texas cattle country, manure is in steady supply. The 100-million-gallon-per-year plant will also create 900,000 tons of wet distillers grains to be fed to local cattle. Both plants take advantage of two key factors: the ability to use cattle manure as an energy source for the ethanol plant and the ability to feed wet distillers grains to the cattle. Both factors contribute to cost savings in plant operation and should allow the plants to be highly competitive in the ethanol industry. But these two plants do highlight a question about the ethanol industry and its relationship with livestock: does it make more economic sense to place the ethanol plant where livestock currently are or to move the livestock and the ethanol plant close to where the corn is grown? Historically, the ethanol industry has located plants in areas of inexpensive corn and has not taken advantage of livestock synergies. The E3 BioFuels and Panda plants show that the ethanol industry is evolving to capture other cost advantages.

Modeling Three Scenarios

To examine this question, we have constructed a simple economic

model of a 50-million-gallon-per-year ethanol plant, accounting for capital, operating, and transportation costs for the plant. The plant yields 2.75 gallons of ethanol and 17 pounds of dried distillers grains per bushel of corn. We use recent prices of $135 per ton for dried distillers grains, $39 per ton for wet distillers grains, $2.00 per gallon for ethanol, and $3.63 per bushel for corn to calculate the revenues and feedstock costs for the plant. We allow operating costs to shift based on whether the plant dries its distillers grains or not. We assume that drying costs make up 50 percent of the plant's energy costs or roughly 25 percent of total operating costs. We have also gathered railroad and trucking transportation cost information to compute transportation costs at various plant locations and distances to markets. We examine three scenarios involving two prototype plants located near corn in Iowa and one plant located near cattle in Texas. For the Texas plant, we assume that all distillers grains are fed wet to cattle within a 50-mile radius, all corn is railed in from Iowa 900 miles away, and the ethanol is shipped 100 miles to reach its market. For both Iowa plants, we assume the ethanol is shipped 1,000 miles to reach its market, half of the distillers grains are fed locally (average distance of 50 miles), and half of the distillers grains are dried and shipped 900 miles to Texas. For one of the Iowa plants, we assume the locally consumed distillers grains are dried (dry DG). For the other, we assume the local distillers grains are wet (wet DG). These scenarios allow us to examine the impact of wet versus dry distillers grains and transportation costs at the same time.

Ethanol plant costs and revenues

	Wet DG		Dry DG
	Iowa	**Texas**	**Iowa**
	($ per bushel)		
Capital cost	0.72	0.72	0.72
Operating cost	1.37	1.17	1.56
Corn cost (including transportation)	3.71	4.26	3.71
Ethanol transportation cost	0.30	0.03	0.30
Distillers grains transportation cost	0.13	0.07	0.11
Ethanol revenue	5.50	5.50	5.50
Distillers grains revenue	1.07	0.99	1.15
Margin	0.35	0.25	0.25

Linkages Key to Competitiveness

The top five lines of the table above outline the costs per bushel of corn each plant faces. The Texas plant would have a $0.20 operating cost advantage over the Iowa plant that ships wet DG and a $0.39 operating cost advantage over the Iowa plant that ships dry DG. These operating cost advantages reflect the drying costs at each plant. The Iowa plants make up some of the cost difference through transportation, as the cost per bushel of moving the corn is higher than that of moving the ethanol and the distillers grains. The Iowa plants have a $0.22 to $0.25 transportation cost advantage. The lower half of the table shows the revenues for the plants and their margins, the dif-

ference between revenues and costs. Given our ethanol price assumption, all three plants have ethanol revenues of $5.50 per bushel of corn. The distillers grains revenues differ across plants, depending on the percentage of distillers grains sold wet versus dry. Because the price of the dry DG is well above that of the wet, the Iowa plants derive more revenue from distillers grains than does the Texas plant. When the costs and revenues are combined, the Iowa plant selling wet DG has the highest margin, earning $0.35 per bushel of corn, followed by the Texas plant and then the Iowa plant selling dry DG. However, these results are dependent on the transportation cost assumptions and the percentage of distill-

ers grains fed wet versus dry for the Iowa plants. For example, if the Iowa plant with wet DG can sell only 20 percent of distillers grains wet, then its margin drops below the Texas plant. If the Iowa plant with dry DG can sell all of its distillers grains within 250 miles of the plant, then that plant's margin will exceed the margin for the Texas plant. Clearly, opportunities provided by linkages with the livestock industry will determine the relative competitiveness of the different locations. It is also worth noting that the relative cost advantages will change with variations in the relative transportation cost of the different products and co-products.

These results show that Iowa ethanol plants will need to develop stronger linkages to the livestock industry to maintain their competitive edge. The ability to feed wet DG to cattle provides the Texas plant in our example a sizable operating cost advantage. The building of the E3 Biofuels and Panda Ethanol plants indicates that this advantage has attracted some ethanol investors. If Iowa ethanol plants can establish sizable feed shipments for wet DG for dairy and beef cattle or dry DG for hogs and poultry in the state, then Iowa plants can also capture significant operating and transportation cost advantages. ◆

Recent CARD Publications

Briefing Paper

The Long-Run Impact of Corn-Based Ethanol on the Grain, Oilseed, and Livestock Sectors: A Preliminary Assessment. Amani Elobeid, Simla Tokgoz, Dermot J. Hayes, Bruce A. Babcock, and Chad E. Hart. November 2006. 06-BP 49.

Working Papers

An Analysis of the Link between Ethanol, Energy, and Crop Markets. Simla Tokgoz and Amani Elobeid. November 2006. 06-WP 435.

Changing Diets in China's Cities: Empirical Fact or Urban Legend? Fengxia Dong and Frank H. Fuller. November 2006. 06-WP 437.

Discounting Spotted Apples: Investigating Consumers' Willingness to Accept Cosmetic Damage in an Organic Product. Chengyan Yue, Frode Alfnes, and Helen H. Jensen. November 2006. 06-WP 436.

Get a GRIP: Should Area Revenue Coverage Be Offered through the Farm Bill or as a Crop Insurance Program? Nick D. Paulson and Bruce A. Babcock. January 2007. 07-WP 440.

Intra-Industry Trade, Multilateral Trade Integration, and Invasive Species Risk. Anh T. Tu and John C. Beghin. December 2006. 06-WP 439.

Nontariff Barriers. John C. Beghin. December 2006. 06-WP 438.

MATRIC Working Paper

The Recent International and Regulatory Decisions about Geographical Indications. Stéphan Marette, Roxanne Clemens, and Bruce A. Babcock. January 2007. 07-MWP 10.

Who Will Have Surplus Corn?

Chad E. Hart
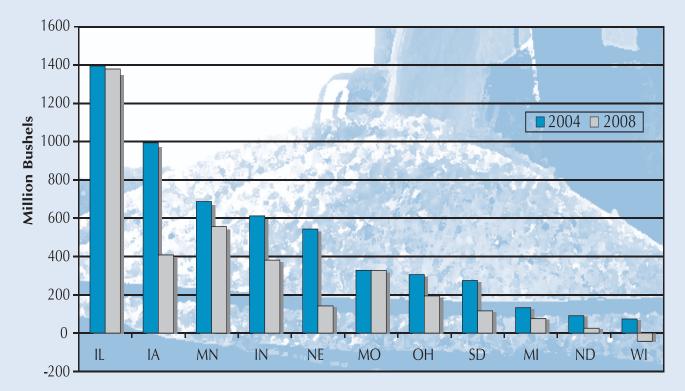*chart@iastate.edu*
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The continuing strong expansion of the ethanol industry has raised questions about the availability and price of corn over the next few years. Will Corn Belt states continue to produce enough surplus corn to meet all the traditional users in other states and in the rest of the world? Based on ethanol industry announcements, the United States could have up to 12 billion gallons of ethanol production capacity during the 2008/09 crop year. With a typical ethanol conversion rate of 2.75 gallons of ethanol per bushel of corn, 12 billion gallons of ethanol translates into 4.4 billion bushels of corn. To see how the expansion of the ethanol industry is changing the flow of corn across the United States, we have estimated state-level domestic surplus corn, which is the amount of corn remaining in a state after accounting for ethanol, livestock feed, and other processing in the state. To do that, we estimated corn usage for ethanol and livestock feed by state and combined those estimates with figures on corn processing for non-ethanol purposes from ProExporter and corn production numbers from USDA. Domestic surplus corn is corn that is either maintained in stocks or available for export to other states or countries. We estimated domestic surplus corn for 2004 and for a projection of 2008.

Corn Utilization and Surpluses for 2004

The graph below shows domestic surplus corn estimates for the two years. This graph also shows that the ethanol industry is having and will continue to have a major impact on U.S. corn utilization and sourcing. The 2004 crop year was a record breaker for corn. The U.S. produced 11.8 billion bushels of corn. Domestic livestock consumed over 6 billion bushels of that crop. Ethanol captured over 1 billion bushels, and other corn processing took over 1 billion bushels as well. That left roughly 3 billion bushels of domestic surplus corn for exports and stocks. As the blue bars show, the surplus corn came from the upper Midwest. Sixteen states produced more corn than they used. Illinois had the ⇨

Domestic surplus corn in the Midwest

most surplus corn, at 1.4 billion bushels, but Iowa, Minnesota, Indiana, and Nebraska all had over 500 million bushels of surplus corn each.

Corn Utilization and Surpluses for Projected 2008

For 2008, we have assumed that the U.S. produces 12.6 billion bushels, based on trend yields and an increase in U.S. corn planting to around 89 million acres. We held state-level livestock feeding and other corn processing constant at 2004 levels but allowed state-level corn usage for ethanol to shift, reflecting the ongoing construction in the ethanol industry. We assumed that all of the plants listed on the CARD ethanol plants Web page (http://www.card.iastate.edu/research/bio/tools/ethanol.aspx) would be in production dur-ing the 2008/09 crop year. Because the plants under construction are concentrated in a few regions of the country, ethanol's expansion will shift the location of domestic surplus and how much is available. Given our assumptions, nationwide there would be a total of just over 800 million bushels of domestic surplus corn available for export to other countries or to place in stocks. The acreage increase is not enough to offset completely the combination of a return to trend yields and the expansion of ethanol. Fifteen states produce more corn than they use. Wisconsin changes from a net exporter of corn to a net importer. Illinois holds firm at 1.4 billion bushels of surplus corn, but other midwestern states experience sizable drops in surplus corn. Iowa falls from second to third in surplus corn, as the state will have only 400 million bushels left after accounting for in-state uses. Nebraska and Indiana also have significant drops in surplus corn. Nebraska's domestic surplus corn falls 400 million bushels from 2004 levels; Indiana's drops 200 million. Corn importing states, such as Kansas and Texas, increase their use of corn to fuel their new ethanol plants as well. The expansion of the ethanol industry could have dramatic effects on the U.S. corn sector and on the other uses for U.S. corn. If sizable declines in surplus corn in Iowa, Nebraska, and Indiana occur, it should translate into higher corn prices within those states. Illinois and Minnesota, with their relatively stable supplies of surplus corn, stand to be the targets for states and countries looking for sources of cheaper corn. ◆

Crop Insurance
Continued from page 3

directly transfer a large portion of the risk currently taken on by the crop insurance industry directly to U.S. taxpayers, thereby lowering both underwriting gains and other costs of running the program. A proposal being considered by the NCGA would replace marketing loans and countercyclical payments with a target revenue program at the county level that would also transfer a significant amount of risk away from the crop insurance program. Most of the remaining risk would be transferred with the second part of the NCGA program, which would provide coverage against individual losses. The Ameri-can Farmland Trust has proposed something similar. Its proposal would create a target revenue program at the national level that would take a significant amount of risk away from the crop insurance program, especially in major production regions. The remaining residual risk would be covered by a modified crop insurance program that would deduct payments made by the national program from individual losses before an insurance claim is settled.

Any of these modifications of current farm policy would significantly shift tax support away from the crop insurance industry to direct support of farm income. If Congress ultimately concludes that its efforts to wean agriculture away from disaster assistance programs through an expanded crop insurance program have failed, then some combination of these three proposed new approaches would seem to offer a viable, cost-effective alternative. Combining bottom-up base coverage at the individual farmer level with top-down coverage of a target revenue program is one alternative. The bottom-up coverage could be in the form of the so-called wrap coverage proposed by American Farmland Trust, a standing disaster program, as proposed by Congressman Peterson, or the NCGA's individual revenue insurance program. ◆

After the Ban: U.S. Beef Exports to Japan Lag Demand

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Japanese consumers are among the world's most demanding in their expectations for safety, quality, taste, and value in the food products they purchase. Reminding these consumers that U.S. beef meets all these criteria and rebuilding demand after a two-and-a-half-year absence from the market will require careful marketing, safety assurances, rebuilding of trade relationships—and adequate supplies. In the months following the reopening of the Japanese market to U.S. beef, importers were expressing frustration that they were unable to obtain enough U.S. beef to meet demand, even at the very low volumes needed for a slowly expanding, very cautious market.

The shortage of eligible beef caught some industry participants by surprise. Following the December 2003 ban on U.S. beef, the Japanese government conducted their side of negotiations to reopen their market to U.S. beef in a politically charged environment under strong criticism from political opponents, the Japanese media, and consumer groups. Numerous surveys were published indicating that the majority of Japanese consumers would be unwilling to purchase U.S. beef when it re-entered the market. Negative reports about the safety of U.S. beef and the U.S. export verification system gained steam when the market was reopened only briefly before banned materials were found in a shipment of U.S. veal. It took another six months of negotiations and inspection of U.S. plants by Japanese officials before the market again reopened on July 26, 2006. Given the negative political and media messages questioning the safety of U.S. beef, it is not surprising that Japa-

Thus, although the United States is producing vast quantities of the age and type of beef demanded by the Japanese market, Japanese importers have been unable to source enough eligible beef.

nese consumers expressed caution in surveys about purchasing U.S. beef and that most supermarkets did not immediately stock U.S. beef for sale.

A Return of Confidence— and Demand

Once U.S. beef began to reach Japanese consumers, however, the Japanese media switched its focus and began reporting on examples of strong acceptance of U.S. beef by some consumers. Costco and Zenshoku Co. received wide coverage for being the first supermarket and restaurant chain, respectively, to offer U.S. beef following the ban. On September 18, Yoshinoya D&C Co. sold one million servings of gyudon ("beef bowl") made with U.S. beef in just 10 hours. Newspapers reported that customers had waited in long lines for the Yoshinoya restaurants to open. These early reports of consumer confidence in U.S. beef were supported by results from taste tests in Japanese supermarkets and other

venues where Japanese consumers eagerly sampled U.S. beef.

These initial successes were important signals to many Japanese consumers who were waiting to see what other consumers would do, and to the Japanese restaurateurs and retailers who were waiting to see whether their customers would accept U.S. beef. The successes also revealed that Japanese importers wanted more U.S. beef than was being supplied.

From August through November 2006, the United States exported 8,825 metric tons of beef to Japan. The total volume that might have been exported if the supply of eligible beef had been unlimited is unknown, but more beef could have been shipped. Japanese importers who began purchasing beef immediately after the ban was lifted in July were unable to obtain enough, and importers who waited to judge consumer acceptance found themselves struggling to fill supply chains. The shortage of eligible U.S. beef was attributed to a lack of U.S. fed cattle with documented age verification.

Restrictions Narrow the Funnel

Current Japanese restrictions require that U.S. beef be harvested from animals 20 months of age or younger at the time of slaughter. Age can be verified by enrolling calves in a USDA-approved Quality System Assessment (QSA) program or Process Verified Program, or cattle can be determined to be A^{40} physiological maturity or younger through an official USDA evaluation using the U.S. Standards for Carcass Beef and the description of maturity characteristics within A maturity. In a 2005 study to determine the relationship between chronological and physiological age of U.S. fed beef, USDA estimated that the mean age of U.S. fed cattle at harvest was about 16 to 17 months of age and

that 97 percent of U.S. fed cattle were being harvested before 20 months of age. However, only about 5 percent of U.S. fed cattle had documentation proving chronological age. The study also found that an A^{40} maturity score for U.S. carcasses ensures the beef is harvested from an animal 20 months of age or younger, but the A^{40} score is such a conservative measure of physiological age that less than 8 percent of the cattle in the USDA dataset produced carcasses with a maturity score of A^{40} or younger. Thus, at the time of the study, the U.S. industry had a low volume of carcasses that would potentially qualify for Japan under either method.

Other factors further reduced the volume of eligible beef. Japan inspected and approved U.S. packing facilities to export beef. Not all qualified cattle were being harvested at one of the 34 packing facilities approved to export beef to Japan, and not all the approved facilities were exporting beef to Japan immediately after U.S. beef was allowed to enter Japan. Industry experts estimated that around 3 percent of U.S. beef could potentially qualify for export

to Japan when U.S. beef was allowed re-entry into Japan in July 2006. Thus, although the United States is producing vast quantities of the age and type of beef demanded by the Japanese market, Japanese importers have been unable to source enough eligible beef.

Ramping Up Eligibility

The percentage of U.S. cattle that can achieve A^{40} maturity scores would be expected to show little variation, but producers can control the number of cattle enrolled in an approved age verification program. In 2007, more beef should become available as higher numbers of animals enrolled in approved QSA or Process Verified Programs become ready for harvest, and it will be important for the U.S. industry to continue to provide a large stream of documented animals indefinitely. As the first six-month verification period for the U.S. export verification program for beef to Japan neared an end, the Japanese government declined a USDA request to engage in discussions about raising the age limit of cattle from which beef can be harvested. The Japanese
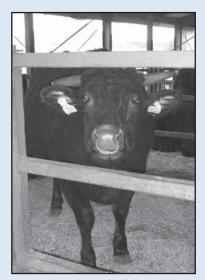
government indicated that it will conduct a second audit, confirm the audit results, and make the results public before considering changes to the current system. It is likely that discussions about age eventually will take place, but if the negotiations over reopening the market serve as an indication, considerable time could elapse before changes are actually implemented.

Another advantage of using documented age verification programs is that Japanese importers seeking to assure their buyers and end-users about the safety of U.S. beef prefer this form of verification because "there is no story with A^{40} beef." The story about how and where meat is produced is an important marketing tool in Japan and will continue to be important even if the age limit for U.S. cattle is increased or lifted. Further, the ability to provide only specific cuts to Japan will continue to be a major advantage for the U.S. industry. To meet these preferences for documentation and cuts as demand increases in Japan, the U.S. industry will need to increase its production of eligible beef. ◆

Beef Production Information and Consumer Assurance

Japanese importers seeking to assure buyers and end-users about the safety of imported beef prefer documented age verification programs because they provide a story about how the beef was produced. Such information is a valuable consumer assurance tool in Japan, where consumers can obtain the production history of domestic cattle from the birth of the source animal through sale of individual beef cuts in the supermarket meat case. Under the mandatory cattle identification system operated by the government, producers double-tag each animal with a unique 10-digit ID number at birth. Producers then fax specific "event" information for each animal to government offices, where the data are entered into a database. The ID number can be used to view production

information via the Internet at any time during the animal's life and is labeled on meat sold in supermarkets. Using the number, producers and consumers can obtain such information as the animal's birth date, sex, breed, place of birth, calf producer's name, dates of movements to different facilities, and harvest date. Cellular phones with Internet access capabilities have increased the accessibility of the database because a computer is no longer required to view the data. The Japanese system sets a high standard that would not be cost-effective for many foreign suppliers to try to match. However, importers indicate that documented age and source verification, even without full traceability, is far preferable to physiological age determination as U.S. beef attempts to regain a foothold in the Japanese market.

All Japanese cattle are source and age verified from birth using ear tags with a unique 10-digit animal identification code.

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