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# 2008 A Year in Review

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## Overview

Although the 2008 crop year is definitely behind us at the time of this publication and we are well into the 2009 crop season, the actuarial and statistical results for 2008 are now pretty firm and well into focus. Unfortunately, much like the movie scene of the Tyrannosaurus Rex from *Jurassic Park* and the lyrics of Meat Loaf, “. . . objects in the rear view mirror may appear closer than they are . . .,” the 2008 crop year had much in common with the Disney theme park’s “*Mr. Toad’s Wild Ride*.” Beginning with commodity prices for corn and soybeans at historically high levels, the year was characterized by difficult planting conditions and spring flooding in the Corn Belt followed by major hail storms in the U.S. and Canada, and then the precipitous decline in commodity prices coupled with the catastrophic downturn in the general economy. In addition to the weather and the markets, the 2008 Farm Bill was passed with

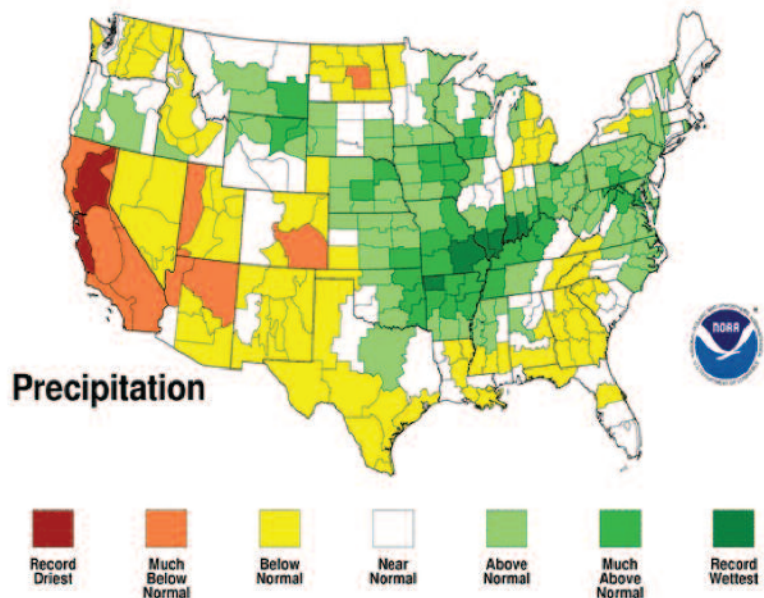
its requisite “storm” of cuts for the crop insurance program. Consequently, when viewed from the rear view mirror, the results of 2008 will temper the path of the crop insurance industry for several years to come.

With that said, the purpose of this article is to review the 2008 crop insurance season and highlight some of the dramatic events that shaped the year. We will begin with a discussion of the spring weather conditions that set the stage for the remainder of the year. That will be followed by a discussion of prices and price volatility in the commodity markets throughout the year. Crop-hail experience for both the U.S. and Canada will then be reviewed. Next will be a discussion of the results for the federal crop insurance program with a focus on the dramatic drop in commodity prices that led to significant losses for the industry’s revenue products. And lastly, no review of 2008 would be complete without a summary of the Farm Bill and its economic impacts on the crop insurance industry.

## Weather

Despite many damaging weather events, the production of major field crops generally turned out favorably in 2008. The crop year began with winter crops seeded in mostly dry conditions in the fall of 2007, which reduced hard red winter wheat plantings. Over the winter, most of the nation experienced above normal precipitation, which provided favorable snow cover for winter crops and relief in the far west from ongoing drought. However, parts of the southeast, Texas, and Colorado faced below normal precipitation. The growing and harvest seasons for winter wheat were much improved over 2007, with sharply higher production in Kansas and Oklahoma, but drought-reduced output in Texas and Colorado. Hard red winter wheat production rose eight percent over the

Figure 1  
March-May 2008 National Climatic Data Center/NESDIS/NOAA

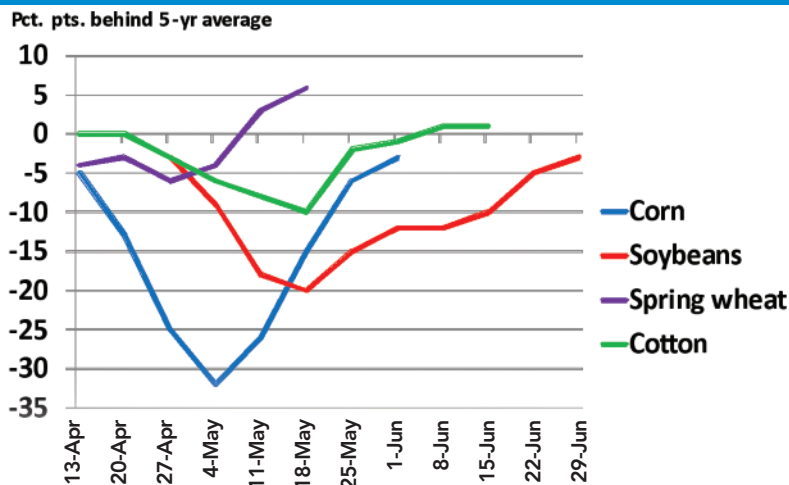


previous year, and soft red winter wheat production increased 74 percent over the prior year's freeze-damaged crop, aided by more acreage and record-high yields in many states.

Spring planted crops faced many challenges across the nation in 2008. Excessive spring rainfall totaled at least 150 percent of normal from eastern Oklahoma into the Ohio Valley, as illustrated in the precipitation map (Figure 1). The excess moisture and cool weather caused extensive flooding, seriously delayed planting of corn and soybeans, and delayed spring crop emergence and development. As shown in Figure 2, corn planting was only 27 percent complete by May 4, 32 percentage points behind the previous 5-year average of 59 percent by that date. Similarly, soybean planting lagged its 5-year average by 20 percentage points on May 18. Although drier conditions generally prevailed in the northeast and south, the planting pace by cotton producers was also below normal most of the spring. The unsettling weather patterns also featured a sharp increase in storm activity. Nationally, the number of tornadoes in 2008 exceeded the previous 5-year average by 35 percent, and the number of hailstorms was up by 60 percent. In the west, the abundant winter precipitation made western water-supply prospects mostly favorable going into the spring, but then spring weather took a turn for the worse, with California having its driest spring in over 100 years.

During the summer and fall, most major field crops continued to face lagging development and maturation. The Corn Belt had an ideal July but a dry August. With normal to below normal temperatures, corn and soybeans were able to avoid heat stress. Corn yields turned out to be the second highest ever, but the U.S. corn harvest ended down seven percent from 2007 due to reduced planted area. Soybean yields were lower than the year earlier, but record-high planted acreage resulted in the fourth largest crop ever. While hot, dry weather reduced durum wheat yields from the prior year's level in all states except California, other spring wheat production

**Figure 2**  
**Planting Progress for Major Spring Field Crops for 2008**



was up 14 percent with yields up in most states. Most of the south had good rains but also faced an active hurricane season. Hurricane Fay alleviated the southeastern drought areas, but Hurricane Gustav slammed Louisiana, reducing crops such as rice, soybeans and cotton. While cotton production and yields were down nationally, declines were most pronounced in the Delta Region, Texas and California. In Louisiana, for example, Hurricane Gustav led producers to abandon 60,000 acres, harvesting the lowest area on record. However, Gustav, together with Hurricane Ike coming ashore in Texas, did bring ample September rains to the Corn Belt. Unfortunately, the far west continued to face excessive heat, having to draw on irrigation supplies with reduced water allocations throughout the growing season.

Information for this section of the article was obtained from U.S.D.A. and U.S. Department of Commerce publications including *Crop Production Annual Summary*, *Weekly Weather and Crop Bulletin*, *World Agricultural Supply and Demand Estimates*, and *The Climate of 2008 (US and Global Climate Perspectives)*.

## Commodity Prices

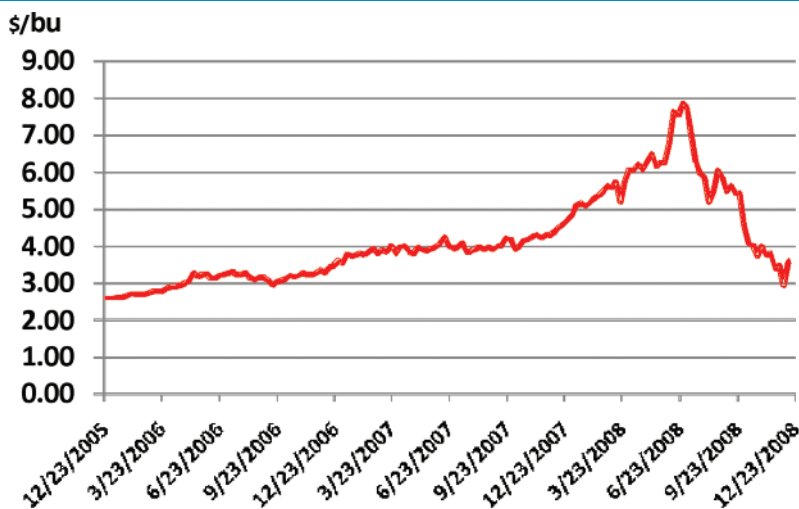
Perhaps the most remarkable development in U.S. agriculture in many years was the record-high surge and then decline in crop prices during 2008. During the mid-to-late 1990s, large global grain production led to excess grain supplies and weak prices. However, beginning in 1999, global grain demand

exceeded production for five consecutive years, nearly halving global grain stockpiles between 1998 and 2003. Even so, grain and most other crop prices increased only slightly, and global grain production remained essentially flat over this period.

But things were about to change. Global food demand was increasing as the world economy shook off the early 2000's slowdown, Chinese soybean imports were steadily setting new records, energy and other commodity prices were rising, the foreign currency value of the dollar was declining steadily, and ethanol production was accelerating. These forces were masked by enormous crop production in 2004. But, by late 2006, it was becoming apparent that global grain and oilseed demand was likely to outstrip production and pull stock levels to extremely low levels over the next few years. Grain and oilseed prices began to rise.

By early 2007, corn futures prices exceeded \$4.00 a bushel, as seen in figure 3 showing December 2008 futures prices. Farmers responded that spring by planting 93.5 million acres of corn, the most since 1944. While the stunning level of corn planted area and the resulting record-high production boosted corn stock levels, they were still not excessive. The corn area expansion sharply reduced soybean area, production, and stocks. So, by early in 2008, with a weak dollar and strong global demand still in prospect

**Figure 3**  
**Weekly Corn Futures Prices—Life of the Dec. 2008 Contract**



bushel. For crop insurance, the price declines triggered indemnities for revenue policies. The declines in harvest prices compared with policy base prices were 24 percent for corn CRC, 31 percent for corn RA, 23 percent for soybeans CRC, 31 percent for soybeans RA, 18 percent for spring wheat CRC, and 19 percent for spring wheat RA. Because winter wheat base prices were established before the crop price run-up, harvest prices turned out higher than base prices.

Information for this section of the article was obtained from the Risk Management Agency, the World Agriculture Outlook Board and the Economic Research Service of U.S.D.A., and the website of the Professional Farmers of America.

## U.S. Crop-Hail Experience

For the U.S., crop-hail insurance generally refers to policies in which direct damage to hail is the primary cause of loss. In addition to hail damage, many policy forms carry endorsements for additional perils. For the most part, the added perils include wind and fire, although there are exceptions. For the purpose of this article, results will be reported for all losses on hail policies, including the experience of non-member companies not included in NCIS' *Annual Statistical Summary* reports.

Premium for 2008 was about \$668 million, providing almost \$28 billion in privately insured crop-hail insurance

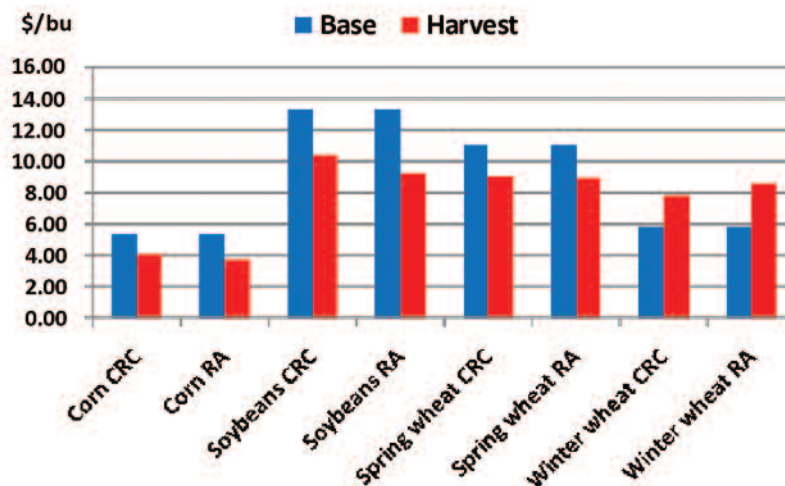
and a new energy bill mandating steady increases in ethanol use, concern was rising as to whether grain and oilseed production could keep up with demand. Corn and oilseeds were in competition for acres, and the prospect that these crops would expand at the expense of other crops was contributing to higher crop prices generally. Futures market participants responded to the prospective tightening of markets by pushing crop revenue insurance base prices to record highs, as shown in Figure 4. The December 2008 corn futures price averaged \$5.40 a bushel in February 2008; November 2008 soybean futures price reached \$13.36 a bushel that month; and September 2008 spring wheat futures price reached \$11.11 a bushel during February.

Prices continued to soar when farmers indicated in March their plans to reduce corn seeded area in 2008 and expand soybeans. The cool wet spring, with its flooded fields and delayed plantings and emergence, caused the USDA to issue forecasts by June 2008 that corn stockpiles would reach the second lowest level since 1960. December 2008 corn futures hit a life of contract high of \$7.88 a bushel on June 26, 2008. November 2008 soybeans reached \$16.31 a bushel on July 3, 2008. However, with large winter wheat production coming on, hard red spring wheat futures peaked earlier at

\$13.20 a bushel on February 26, 2008.

As the growing season progressed, the global economic slowdown reduced energy prices thus reducing the profitability of ethanol production and its expected use of corn. World food demand slowed, the value of the dollar increased as it became a "safe haven" for global funds, livestock and poultry feeders cut back, winter wheat production increased sharply around the world, and U.S. growing conditions improved crop production prospects. All these factors caused rapid declines in crop prices. By the time the December 2008 corn futures contract expired, it was trading below \$4.00 a

**Figure 4**  
**Prices for Major 2008 Crop Revenue Policies**

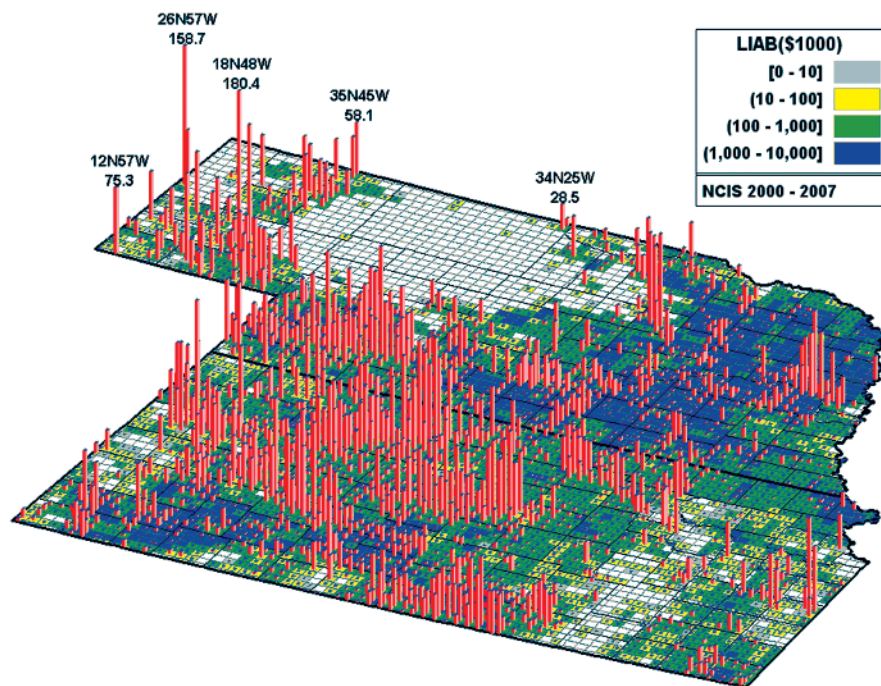


coverage for U.S. farmers. In terms of growth, 2008 was a successful year for the crop-hail program. Total U.S. premium was up nearly 37 percent from \$488 million in the previous year. Strong increases in premium were observed in nearly all states having more than \$1 million in premium, with the only notable exceptions being Arizona (-9 percent), California (-14 percent), North Carolina (-7 percent) and Virginia (-3 percent).

From a profitability standpoint, 2008 was a difficult year for the industry. Losses of approximately \$554 million were more than twice the amount paid in the previous year. The countrywide loss ratio of 0.83 (paid losses divided by premium written) was the highest the industry has experienced since 1998 when the loss ratio was 0.85. Industrywide loss ratios have exceeded 0.83 in only four other years since 1948, including 1992 (1.11), 1980 (1.01), 1994 (0.89) and 1956 (0.86). A summary of countrywide crop-hail experience over the past five years is provided in Table 1.

Despite the heavy losses for the year, not all areas were equally affected. Hail damage is often sporadic, with some areas suffering extensive losses while neighboring areas are relatively unaffected. The following map of Kansas and Nebraska (Figure 5) insured liability and raw loss costs (the ratio of paid losses to liability) for 2008 illustrates the spatial variability of hail losses on a township basis. Areas shaded dark blue have the greatest amount of insured liability, with lighter colors shown in areas with less liability. The height of the red bar indicates the magnitude of the loss cost in each township. As can be seen, many areas in western and central Kansas and Nebraska had unusually high loss costs in 2008, while loss costs in much of the eastern

**Figure 5**  
**Kansas and Nebraska Insured Liability and Raw Loss Costs**



portion of both states were generally low or nearly zero, with some exceptions.

As might be deduced from Figure 5, large storms contributed their share of losses for the year. The largest one-day storm in 2008 occurred in Nebraska on June 4, resulting in more than \$12 million dollars paid out to farmers. The top 10 storm events for the year, measured in terms of losses, occurred in Nebraska, Minnesota, Illinois, Kansas and Iowa, with over \$92 million being paid out in these states. Of the top 50 most damaging storms, half occurred in the month of June, twelve in July, seven in May, and six in August.

On a county by county basis, over \$12 million was paid out in Saunders County, Nebraska, \$8.7 million in Hall County, Nebraska, \$7.3 million in Henry County Illinois and \$6.9 million in Sumner

County, Kansas. Mother Nature was not particular as to where she dropped hail stones. As Larry Ewart, Claims Manager for Farmers Mutual Hail said; “Kansas, Oklahoma and Nebraska were especially hit hard and Iowa and southern Minnesota experienced more hail in 2008 than in previous years.” He also stated that “there were more deferred corn and soybean losses than in previous years.” His parting comment; “I am trying to put 2008 behind me.”

In terms of industry results on a statewide basis, crop-hail insurance was written in 43 states in 2008. Of these, 16 states had a loss ratio in excess of 0.70. Four major hail writing states in the central plains had loss ratios of over 1.00 with Nebraska leading the way with 1.30, Kansas at 1.27, Oklahoma at 1.15 and South Dakota at 1.01. Several neighboring states, including Texas, Colorado, Minnesota and Iowa, had loss ratios in excess of 0.70. Crop-hail loss ratios by state are shown in Figure 6. Colors identify states with similar loss ratios and shading is used to identify states with similar premium volume. A second cluster of states with high loss ratios runs through Kentucky, Virginia and North

**Table 1**  
**U.S. Crop-Hail Results, all Perils (Amounts in \$Millions)**

Cropyear	Liability	Premium	Losses	Loss Ratio
2004	\$13,942	\$414.0	\$241.9	0.58
2005	13,879	412.2	183.7	0.45
2006	15,529	403.8	202.2	0.50
2007	19,373	487.8	234.9	0.48
2008	27,525	668.0	553.4	0.83

Carolina. An additional four high loss ratio states are found along the east coast, but these have less than \$1 million premium each.

Information for this section was obtained from NCIS' Insured Crop Summary and claim files.

## Canadian Hail Results

Canadian crop-hail writers experienced severe losses in 2008. Crop-hail business in Canada is primarily written in the prairie provinces of Alberta, Manitoba and Saskatchewan. Total premium for these provinces in 2008 was approximately C\$289 million (Canadian). Losses were over C\$341 million for a loss ratio of 1.18 for 2008. Over 29,000 claims were filed across the prairie provinces. Alberta and Saskatchewan suffered the worst losses with much less severe losses in Manitoba.

In Manitoba, the loss ratio for 2008 was 0.35, with C\$46 million in premium and C\$16 million in losses. About 3,500 claims were filed in Manitoba, above the five year average. The largest storm occurred on July 10, 2008.

Alberta recorded over 4,800 claims, exceeding the 2007 record. Indemnities for Alberta in 2008 were approximately C\$99 million with premium of about

C\$67 million, for a loss ratio of 1.47. The most severe storm was recorded on July 15 in the southern part of the province.

Saskatchewan is by far the largest of the prairie provinces with approximately C\$176 million in premium. For 2008, the loss ratio for Saskatchewan was 1.29 with indemnities of approximately C\$228 million. Although not a record, 21,000 claims were filed in Saskatchewan for 2008. According to reports, hail claims were filed almost daily in the province for the month of July. Major storms occurred on July 9 and 10 totaling about C\$80 million.

Information for this section of the article was taken from the *The Hail Report*, a publication sponsored by the Canadian Crop Hail Association. *The Hail Report* is produced every two weeks during the hail season.

## Federal Crop Insurance Program

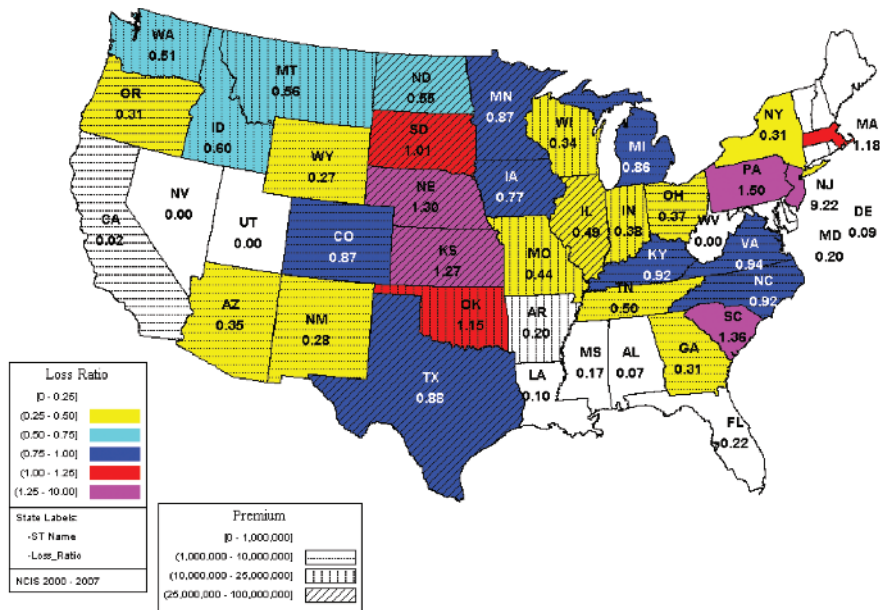
The Federal crop insurance program had a particularly interesting year in 2008. The most noteworthy weather-related event was delayed or prevented planting in several Midwestern states due to flooding and excess precipitation during spring planting season, as indicated in the spring precipitation map included above. On a countrywide basis, flood and excess precipitation indemnities increased 41 per-

cent from 2007 to 2008, rising from \$716 million to \$1.012 billion. Indemnities in Iowa for the two perils rose from \$25 million to \$194 million. Missouri rose from \$40 to \$144 million, Illinois from \$7 to \$120 million, Indiana from \$3 to \$76 million, and Wisconsin from \$3 to \$34 million. On the other hand, several states with large flood and excess precipitation payments in 2007 saw sharp decreases in 2008. These included South Dakota, where indemnities fell from \$127 to \$95 million, North Dakota, down from \$169 to \$73 million, and Kansas, which saw a decrease from \$86 to \$47 million.

The effect of rollercoaster prices on indemnities for revenue protection policies was the other significant challenge for the year. High commodity prices for several of the major crops at the start of the season led to unprecedented levels of premium and liability being insured. On a year-over-year basis, premium written in 2008 jumped 50 percent over the prior year and liability rose nearly 34 percent, while the number of acres insured was virtually unchanged. Prices continued to surge until the middle of summer when a rapid retrenchment began. By year's end, prices for the major crops were substantially below those at the start of the year.

While price reductions have no impact on loss ratios for yield-based plans of insurance, they can have a significant effect on revenue protection. With price declines nearly reaching or exceeding the deductibles on many policies, the number of claims needing to be adjusted mushroomed. One industry claims manager noted that the "harvest prices on corn and soybeans created many revenue losses and a tremendous amount of work in 2008; we were finding ourselves sending adjusters to many different locations to get the work done as quickly as possible." He also stated that the "\$100,000 reviews added an additional burden in trying to get the claims paid and the money in the hands of the producers in a timely manner." Overall, the number of policies with claims rose 75 percent over the previous year. Claim frequency (the ratio of the number of policies with claims to the number of policies

Figure 6  
2008 Crop-Hail Results



**Table 2**  
**Federal Crop Insurance Program, Gross Basis (Amounts in \$Millions)**

Cropyear	Liability	Premium	Indemnity	Acres	Loss Ratio
2004	\$46,602	\$4,186	\$3,210	221	0.77
2005	44,259	3,949	2,367	246	0.60
2006	49,912	4,579	3,504	242	0.77
2007	67,344	6,562	3,545	272	0.54
2008	89,910	9,852	8,625	272	0.88

\* Source: RMA Summary of Business Reports, July 7, 2009

in force) was 53 percent for revenue plans (vs. 26 percent in 2007), 81 percent for GRIP (vs. 20 percent in 2007), and 20 percent for yield-based plans (no change). Overall, claim frequency in 2008 was 41 percent of all policies in force (vs. 24 percent in 2007).

Along with the dramatic increase in the number of claims, the collapse in commodity prices led to a sharp increase in the indemnities paid under revenue insurance policies. On a countrywide basis for all plans of insurance combined, a record level of indemnities of \$8.6 billion were paid to farmers in 2008, more than double the amount paid in the previous year. The 2008 loss ratio of 0.88 rose substantially from the loss ratios for the previous four years of 0.77, 0.60, 0.77 and 0.54 as shown in Table 2.

Results differed widely for the various insurance plans. The countrywide loss ratio for individual farmer revenue protection (including the CRC, RA, IP and IIP plans of insurance) was 0.91. Group Risk Income Protection (GRIP), an area-based plan that provides protection based on county average revenues rather than individual farmer revenue, was even higher, with a loss ratio of 1.21. Area plans other than GRIP (consisting of the GRP, RI and VI plans of insurance) had a 0.91 loss ratio, while yield-based protection (including all remaining plans of insurance) had an overall loss ratio of only 0.62. While some portion of these differences can be explained by a different mix across states and crops for the various plans, most of the difference is due to commodity price changes. As demonstrated by the relatively low loss ratio for the yield-based plans, growing conditions in 2008 were generally favorable. The higher loss ratio on revenue plans pro-

vides an indication that farmers suffered significant losses arising out of price declines despite generally favorable growing conditions. GRIP loss ratios were higher still in consequence of its low deductibles.

Figure 7 illustrates how loss ratios for revenue, GRIP and yield-based plans of insurance varied across states. Loss ratios for the yield-based plans in the vast majority of states (40 out of 50) fell in the range from 0.50 to 1.25. For revenue plans, state loss ratios tended to run somewhat higher, with the majority of states (32 of 48) having loss ratios in the range from 0.75 to 1.50. The wide variation of GRIP loss ratios across states indicated in Figure 7 is partly due to the small premium volume in many of these states. After eliminating states with less than \$1 million of GRIP premium in 2008, 12 of the remaining 17 states had loss ratios falling between 1.00 and 2.00.

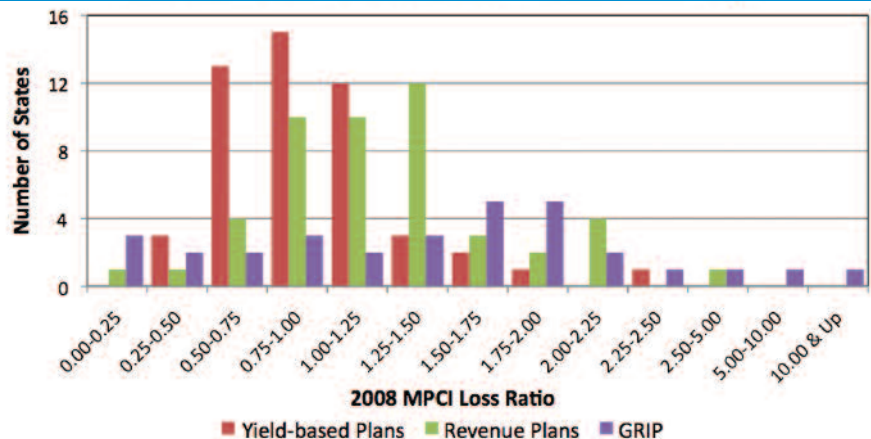
Figure 8 takes the comparison of the three types of insurance a step further by highlighting differences within

states. Only those states with more than \$1 million in GRIP premium are included. States are ordered from left to right based on their statewide loss ratios for all plans combined. In all states other than South Carolina, North Carolina and Kentucky, the loss ratio for revenue plans is consistently higher than the loss ratio for yield-based plans. With three exceptions, GRIP had the highest loss ratio of the three types. Mississippi and Colorado had no losses under GRIP, while Missouri's GRIP loss ratio fell in the middle of the other two types of insurance. One interesting observation is the excellent experience for Illinois across the board for revenue, GRIP and yield-based plans. This is in sharp contrast to the experience in the five surrounding states of Iowa, Indiana, Missouri, Wisconsin and Kentucky.

Another perspective on the results in 2008 is provided by Figure 9. Gross losses exceeded the statutory loss ratio of 1.00 in the states shaded red or purple. This includes Iowa and Texas, two states with premiums in excess of \$500 million each. Of the remaining high premium volume states, Minnesota and North Dakota had loss ratios falling in the range from 0.75 to 1.00, while South Dakota, Nebraska and Kansas had loss ratios from 0.50 to 0.75.

Information for this section of the article was obtained from Summary of Business reports released by the Risk Management Agency.

**Figure 7**  
**Number of States with Loss Ratios in the indicated range**



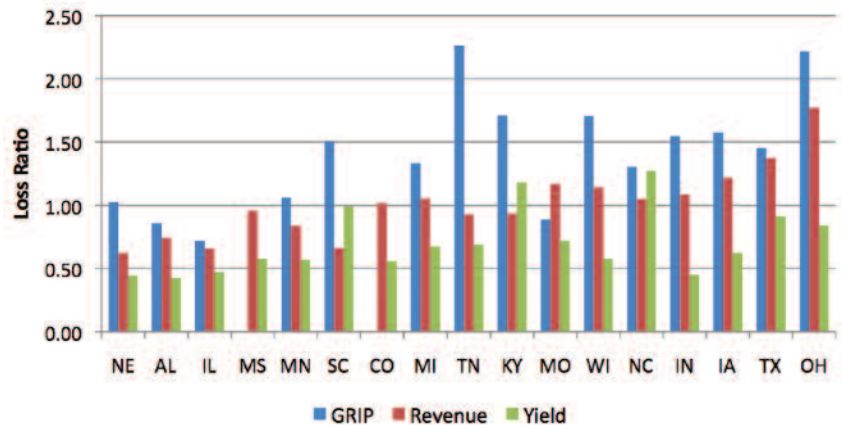
## 2008 Farm Bill

The Food, Conservation and Energy Security Act of 2008, known as the 2008 Farm Bill, was enacted on May 22, 2008. This comprehensive legislation contains numerous provisions affecting commodity programs, trade, conservation, rural development, credit, food assistance, research, forestry, food safety and other areas. With respect to crop insurance, the Farm Bill's changes are estimated to result in a \$6.4 billion reduction in program expenditures during 2008-2017. The spending cuts targeted the Administrative and Operating (A&O) payments to crop insurance companies for program delivery expenses. Payments for area or group plans were reduced to 12 percent of net book premium; prior to this change, group or area plan A&O was 19.4 percent of premium at 85 percent or higher coverage levels. Catastrophic (CAT) loss adjustment expense (LAE) payments were reduced from seven percent of net book premium to six percent. A&O payments for the remainder of the program were reduced by 2.3 percentage points from the existing level when the statewide loss ratio is 1.20 or less. When the loss ratio exceeds 1.20, the reduction is 1.15 percentage points. On average, these A&O reductions are equivalent to a reduction of about 13 percent of the amount paid under the prior payment schedule. In addition to these reductions, fees for producers were increased, premium due dates were changed, and payments to companies were delayed. Although the spending cuts under the new Farm Bill were not implemented in 2008, it is important to recognize the future impacts of these cuts on the program along with the losses incurred in 2008 as the industry faces a renegotiation of the Standard Reinsurance Agreement (SRA) in the near future.

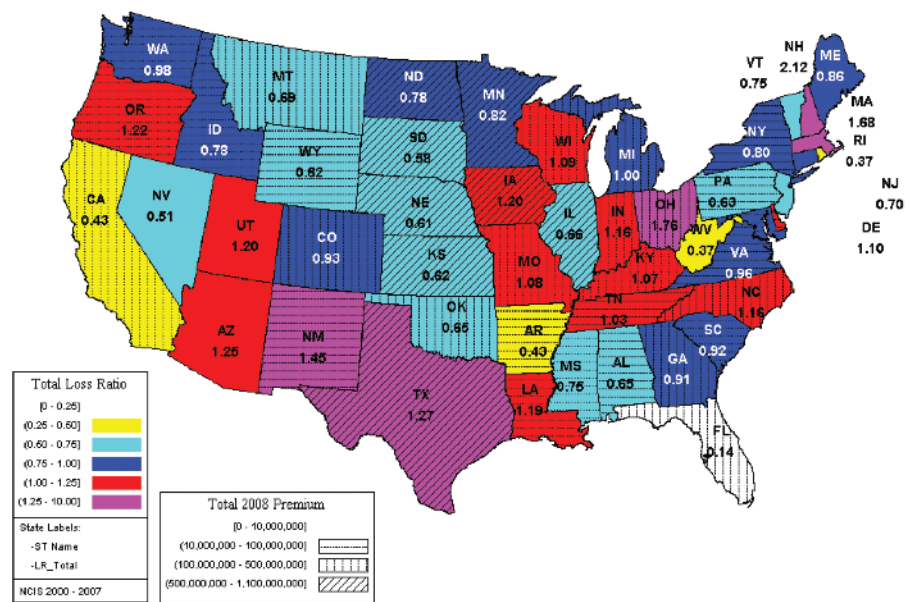
## Conclusion

Despite the challenges of intense hailstorms, spring flooding and wild price swings, the crop insurance industry was able to effectively deliver promised benefits to farmers on a timely basis. Equally important, these benefits were delivered without the need for Congress to pass

**Figure 8**  
GRIP, Revenue, and Yield Plan Loss Ratios for 2008



**Figure 9**  
2008 MPCI Premium and Loss Ratios - All Plans Combined



further disaster assistance legislation. The Crop-Hail program provided farmers security against the major cause of localized damages that might otherwise fall beneath their deductibles under the Federal program. In addition, the Federal crop insurance program continues to work successfully within its Congressional mandates. Farmer participation is high and the companies providing coverage are financially stable thanks to reserves carried forward from prior years. The program provides

farmers with valuable protection against drought, flooding and other widespread disasters. The availability of revenue coverage makes it possible for farmers to protect their financial interests even in years with declining prices. With the success of the program in dealing with the 2008 commodity price collapse, revenue protection will continue to be an essential tool in future years to enable farmers who suffer losses to pay back their production loans and continue in business for another year.