

February 28, 2007**FEFO 07-04****GRIP in 2007**

In Illinois, use of Group Risk Income Plan (GRIP) increased dramatically in 2006. GRIP use on corn was 11% of insured acres during 2005 increasing to 36% in 2006.

Some now are questioning the advisability of using GRIP in 2007 for two reasons. First, premiums will be much higher in 2007. A GRIP product that cost between \$20 and \$25 in 2006 will cost in the \$40 to \$45 range in 2007. Second, GRIP made payments in few counties in 2006, causing some to question whether GRIP will make payments in 2007.

The structure of GRIP has not changed between 2006 and 2007. In most Illinois counties, GRIP in 2007 will be expected to pay out more in indemnity payments than farmers pay in premiums. However, GRIP will provide less risk protection than farm-level products, as has been the case in previous years.

Why GRIP Should Pay Out More than Farmers Pays In Premiums

By design, indemnity payments from GRIP should exceed farmer paid premiums. When the Risk Management Agency (RMA) sets premiums on multi-peril insurance policies, the goal is to obtain a loss ratio near 1.0 (Legislation sets a goal of 1.075 and a .88 target often is used in setting ratings. Hence, this paper uses a target of 1.0). This target is expected to be achieved over time. In any given year, loss ratios will vary from the target, depending on yield and price conditions.

A loss ratio equals indemnities paid divided by total premiums:

$$\text{Loss ratio} = \text{indemnities} / \text{total premiums}$$

If a loss ratio of 1.0 is obtained over time, this means that indemnities equal total premium.

Farmers do not pay total premiums on the crop insurance products. Multi-peril crop insurance is subsidized based on a schedule set in the Agricultural Risk Protection Act of 2000 (see Table 1). At a 90% coverage level, GRIP's subsidy is 55%. This means that farmers pay 45% of the total premium while the Federal government pays 55% of the total premium.

Target loss ratios based on farmer-paid premiums can be calculated. At a 90% coverage level, the farmer-paid loss ratio should be 2.2 (\$1 in payments / \$.45 in farmer-paid premiums) given that target 1.0 loss ratios using total premiums is obtained. This means that farmers should expect to receive 2.2 in payments for every dollar of premium. Suppose that the premium is \$40 per acre. Over time, the farmer should expect to average \$88 in payments for the GRIP policy at a 90% coverage level (\$88 = \$40 premium x 2.2).

The farmer-paid loss ratio will not equal 2.2 every year because of variations in indemnity payments. Estimates contained in the *Payment Simulator* in the crop insurance section on *farmdoc* suggest that farmers should expect to get payments from GRIP with the harvest revenue option (GRIP-HR) between 40 and 50% of the years. In years of no payments the loss ratio will equal 0.0. In other years, farmers should receive indemnity payments such that farmer-paid loss ratios exceed 2.2. If 2007 could be repeated ten times, the average of the indemnity payments should equal 2.2 times the farmer-paid premium, given a 90% coverage level and properly-set premiums.

Note that all multi-peril crop insurance products; including Actual Production History (APH), Crop Revenue Coverage (CRC), Income Protection (IP), and Revenue Assurance (RA); should have farmer-paid loss ratios exceeding 1.0. Actual experience in Illinois indicates that farmers have paid more into APH, CRC, IP, and RA than they have received back in payments. This fact does not indicate a rating problem with GRIP. It may indicate that premiums are too high for APH, CRC, IP, and RA.

Actual Performance

GRIP with the Harvest Revenue option (GRIP-HR) has existed since 2004 in Illinois. Farmer-paid loss ratios were calculated for corn for all counties in Illinois using GRIP-HR at a 90% coverage level. Average farmer-paid loss ratios for the years between 2004 and 2006 are reported in Figure 1. Across all counties, the average farmer-paid loss ratios is 1.9, slightly below the farmer-paid target ratio of 2.2.

There is a geographical pattern to farmer-paid loss ratios (see Figure 1). A strip of counties from northeast Illinois to west-central Illinois had higher loss ratios than other areas of the state. This strip experience low yields in 2005 as a result of a drought, leading to relatively high GRIP payments. East-central Illinois did not have as low of yields in 2005. As a result GRIP payments were less and farmer-paid loss ratios are lower in east-central Illinois. Two counties in eastern Illinois – Ford and Iroquois counties – had farmer- paid loss ratios lower than 1.0, meaning that farmers paid in more in premiums than they have received back. This likely is anomaly, due to above-average yields in Ford and Iroquois counties over the past several years.

There also are several counties in southern Illinois with loss ratios below 1.0. These low ratios may occur because premiums are too high. However, yields also have been relatively good in many areas of southern Illinois between 2004 and 2006, resulting in low insurance payments.

GRIP without the harvest revenue option (GRIP-NoHR) has existed in Illinois since 1999. Between 1999 and 2006, the average farmer-paid loss ratio average across all counties in Illinois has averaged 1.8. The geographical pattern to payments is roughly similar to that shown in Figure 1.

Some have suggested that GRIP premiums are too low, hence resulting in high loss ratios. So far, the GRIP-HR policy has averaged 1.9 and the GRIP-NoHR has averaged 1.8. Both ratios are below the

Table 1. Risk Subsidies as a Percent of Total Premium.

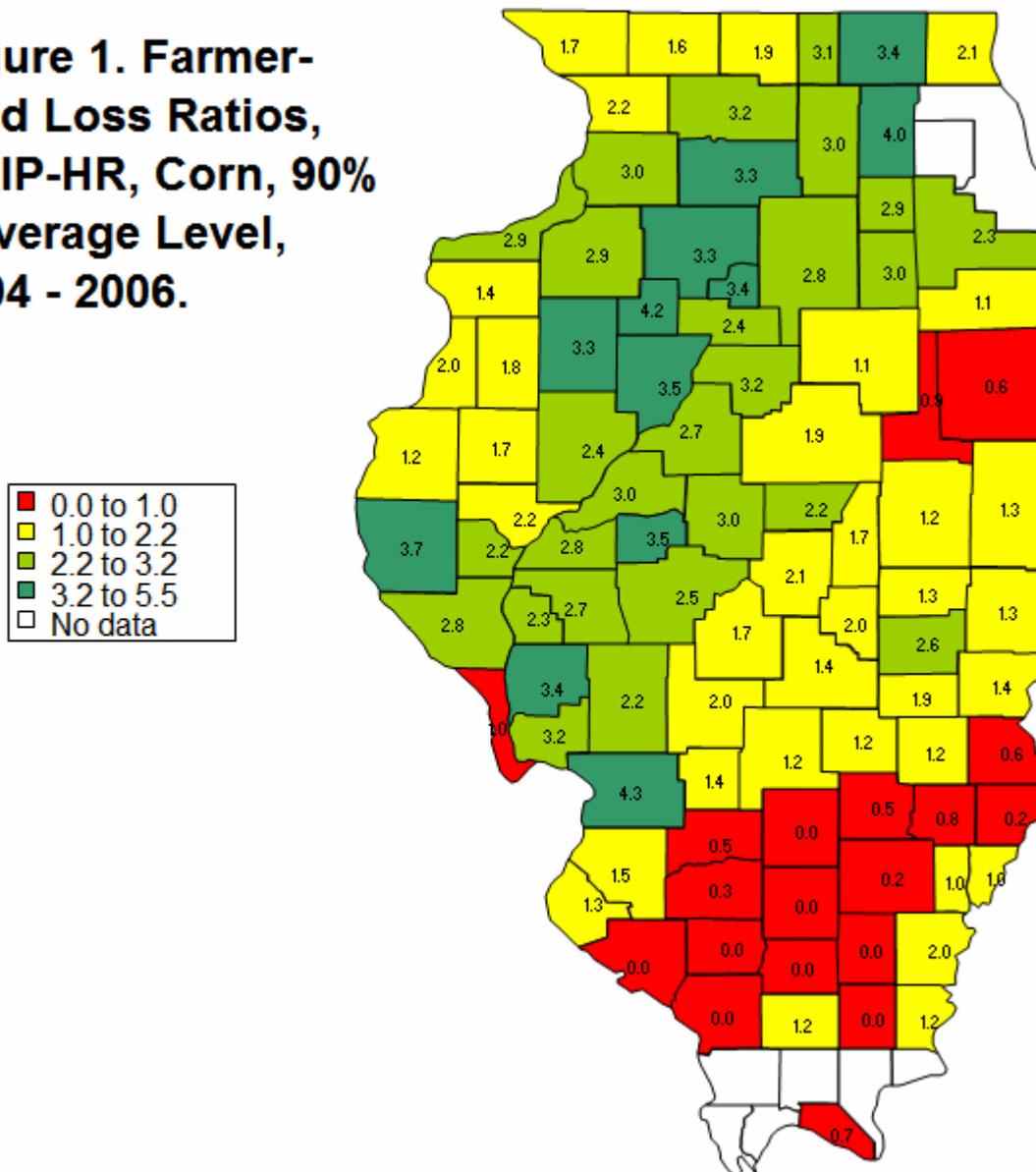
Coverage Level	Farm-Level Products ¹	Group Products ²
CAT	100%	
50%	67%	
55%	64%	
60%	64%	
65%	59%	
70%	59%	64%
75%	55%	64%
80%	48%	59%
85%	38%	59%
90%		55%

¹ Products include Actual Production History (APH), Crop Revenue Coverage (CRC), Income Protection (IP), and Revenue Assurance (RA).

² Products include Group Risk Plan (GRP) and Group Risk Income Plan (GRIP).

Source: Risk Management Agency

Figure 1. Farmer-Paid Loss Ratios, GRIP-HR, Corn, 90% Coverage Level, 2004 - 2006.



target of 2.2. Overall, there are too few years to accurately judge the actual performance of GRIP. However, evidence to this point does not suggest that GRIP premiums are too high.

Projected 2007 Performance

The *Payment Simulator* in the crop insurance section of *farmdoc* has estimates of 2007 farmer-paid premiums and expected payments from GRIP. Expected payments in the *Payment Simulator* are estimated using a simulation model calibrated for 2007 conditions. From these premiums and expected payments, expected farmer-paid loss ratios were calculated for 2007. If 2007 could be repeated, actual loss ratios likely would be close to these expected loss ratios.

Expected 2007 farmer-paid loss ratios are shown in Figure 2 for GRIP-HR at the 90% coverage level. These expected loss ratios are given for Illinois, Indiana, and Iowa. As can be seen, most counties have farmer-paid loss ratios exceed 1.0, meaning that farmers should expected to receive more in indemnity payments than they pay in premiums. Some counties located in the extreme northern and southern portions of Illinois, Indiana, and Iowa have farmer-paid loss ratios below 1. Overall, the pattern of the projected loss ratios for Illinois in Figure 2 roughly follows the pattern of historical loss ratios in Figure 1.

Higher Protection Levels in 2007

Even given higher premiums, farmer-paid loss ratios in most counties are expected to be above 1.0 in 2007 because of higher protection levels. The protection level is multiplied by the revenue loss to arrive at the payment. Higher protection levels will result in higher insurance payments when they occur.

The protection level equals:

Expected county yield x base price x 1.5 x farmer-chosen protection level

where the farmer-chosen protection level can range from 60 to 100%. Higher protection levels are illustrated for Piatt County Illinois. Last year, the expected yield for Piatt county was 173.9 bushels and the base price was \$2.59, resulting in a \$675 protection level at the 100% farmer-choice ($\$675 = 173.9 \times \$2.59 \times 1.5 \times 100\%$). For 2007, the expected yield is 173.5 and the base price will be around \$4.05. The 2007 protection level then is \$1,057 ($173.5 \times 4.06 \times 1.5 \times 100\%$).

The higher protection level yields higher payments. Take for example, a 10% revenue shortfall. Last year a 10% revenue shortfall would have resulted in a \$68 per acre payment ($\$675 \times .10$). This year a 10% revenue shortfall will result in a \$106 payment ($\$1,057 \times .10$).

Higher protection levels result in higher expected payments. These higher expected payments offset higher premiums, causing 2007 to have farmer-paid loss ratios above 1.0.

Summary

In terms of expected performance, GRIP in 2007 does not differ markedly from previous years. Choice of GRIP over other farm-level products should be based on similar criteria as in previous years:

1. Risk position – farmers in more vulnerable positions should choose farm-level products over GRIP.
2. Farm yields tracking county yields. Farms whose farmland more closely tracks county yields will have GRIP payments more highly correlated with farm-level experience, thereby enhancing the risk protection offered from GRIP.

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Figure 2. Estimated Farmer-Paid Loss Ratios, GRIP-HR, Corn, 90% Coverage Level, 2007

