



Farmer Costs of Insuring Individual Yield

Background

The Risk Management Agency (RMA) of the United States Department of Agriculture (USDA) regulates and subsidizes crop insurance to farmers and ranchers in the U.S. Private insurance companies sell and service the policies.

To obtain insurance a farmer must decide whether to insure yield or revenue and whether to insure with an individual policy or group policy.

Individual yield policies accounted for 53.9 percent of the policies for corn, cotton, peanuts, soybeans, and wheat in Alabama, Florida, Georgia, North Carolina, and South Carolina during 2008 – 2012.

A farmer who wants to insure his yield rather than the yield in his county must do numerous things that affect the cost of his individual yield policy.

The individual yield policy is called an Actual Production History policy for peanuts and a Yield Protection (YP) policy for all other row crops.

The farmer must provide records for the last 4 to 10 years of his yields on the crop land to be insured. The average of these yields is called the farmer's actual production history (APH). If the farmer has records that cover less than four consecutive years of yields, county transitional yields are used for missing years to calculate the APH.

The farmer must choose a coverage level, which determines his insured yield.

If the farmer wants an insured yield that is 50 percent of his APH, he chooses a catastrophic policy (CAT).

If the farmer wants an insured yield that exceeds 50 percent of his APH, he chooses a buy-up policy and the proportion—55, 60, 65, 70, or 75 percent—of his APH for the coverage level. In some cases, the farmer can ensure that his actual yield plus any covered loss are at least 80 or 85 percent of his APH.

A covered crop loss occurs if the farmer's yield falls below his insured yield.

The farmer must also choose a proportion of RMA's projected price that would be used to value a covered crop loss.

RMA sets its projected price of peanuts.



RMA's projected price for other crops is an average of futures prices from the Chicago Board of Trade during the crop's planting season.

A farmer with catastrophic coverage must choose 55 percent (CAT 50/55) or 100 percent (CAT 50/100) of the projected price for valuing a crop loss.

A farmer with a buy-up policy must choose a proportion, which can be as small as 55 percent or as large as 100 percent, of RMA's projected price for valuing a crop loss.

The farmer must also choose a type of unit in which to insure his crop.

A unit is an independently insurable tract of land or a combination of tracts within a county.

A farmer with an individual yield policy must choose an optional, basic, or enterprise unit and must insure his entire crop in a county within, typically, one type of unit.

Types of Units

An optional unit allows the farmer to separately insure land that he owns or rents for cash in different townships throughout a county. An optional unit also allows the farmer to insure a crop grown under a particular seed type or production practice separately from the same crop grown under a different seed type or production practice, if there is a clear break between areas where the crops are grown.

A basic unit comprises all tracts of land that the farmer owns or rents for cash in a county and on which he grows a single crop. A different basic unit comprises all tracts of land in a county on which the farmer grows a single crop under a crop-share lease with a single owner.

An enterprise unit comprises all areas of a single crop that the farmer grows within a county, regardless of whether the areas are owned, rented, or share leased by the farmer. An enterprise unit must combine at least two basic units, the crop must be grown in at least two township sections of a county, and each of at least two sections must account for no less than 20 acres or 20 percent of the total area insured in the enterprise unit.

Determination of a Farmer's Premium

A farmer with catastrophic insurance that values a covered crop loss at 55 percent of RMA's projected price, a CAT 50/55 policy, pays a \$300 administrative fee.

A farmer with catastrophic insurance that values a covered crop loss at 100 percent of RMA's projected price, a CAT 50/100 policy, or any other individual yield policy pays a premium. The farmer's out-of-pocket cost is the product of the insurer's liability, the premium rate, and the farmer's share of the rate:

$$\text{farmer's premium} = (\text{insurer's liability}) \times (\text{premium rate}) \times (\text{farmer's share})$$

Insurer's Liability

The liability that the farmer's individual yield policy creates for an insurer is this:

$$\text{liability} = (\text{chosen percent of price}) \times (\text{RMA's projected price}) \times (\text{insured yield}) \times (\text{insured area})$$

RMA's projected price of an insured crop multiplied by the farmer's chosen percent of the price represents the value per unit (e.g., dollars per bushel) used for reimbursement of a covered crop loss.

The insured yield is also called the 'trigger point' and is the product of the farmer's coverage level and actual

production history (APH) for the type of unit chosen. That is, insured yield = (coverage level) x (APH).

The insured area is the farmer's portion of, or financial interest in, the area of a crop insured within a unit. For example, the insured area for a farmer growing a crop on 100 acres under a 50-50 crop-share lease would be 50 acres, while the insured area for a farmer who owned the 100 acres would be 100 acres.

A policy's liability increases with RMA's projected price and the farmer's chosen proportion of RMA's projected price, coverage level, APH, and insured area of the chosen unit.

Premium Rate

The RMA-determined premium rate is the percent by which liability is multiplied so that the sum of the farmer's and government's premium for a policy equals the expected indemnity of it.

An indemnity is a reimbursement for the monetary value of a covered crop loss.

Premium rates vary with the seed types and production practices for a crop, called type/practice in RMA's premium calculator. Seed types and production practices affect production risk.

For example, the premium rate for a crop grown with irrigation, which reduces yield variability, is lower than the premium rate for the crop grown without irrigation.

The list of approved seed types and production practices for a crop grown in a specific county can be found in RMA's Actuarial Information Browser.

The type of unit selected by the farmer also influences the premium rate.

A farmer who chooses an optional unit has the highest premium rate because the unit has more risk than any other type of unit.

A farmer who chooses a basic unit receives a 10 percent discount on the premium rate.

A farmer who chooses an enterprise unit receives an additional discount on the premium rate.

The premium rate increases with the coverage level. The degree to which a particular coverage level raises the premium rate varies by county, crop, and year.

The premium rate also depends on the relationship between the county's reference yield and the farmer's actual production history (APH). Historical yields above the county reference yield are considered by RMA to be less risky than historical yields below the county reference yield.

The higher a farmer's APH is above the reference yield, the lower is her premium rate.

The lower a farmer's APH is below the reference yield, the higher is her premium rate.

The county reference yield is the county's historical average yield as estimated by the National Agricultural Statistics Service. RMA uses a county reference yield for each approved seed type and production practice.

Farmer's Share of Premium Rate

The percent that a farmer pays of the premium rate is the farmer's share.

Farmers in Alabama, Florida, Georgia, and the Carolinas paid, on average 36 percent of the premium rates and, thus, the premia for policies to insure individual yields of corn, cotton, peanut, soybean, and wheat from 2008 through 2012. The shares of the premia they paid were 34 percent for corn, 35 percent for cotton, 41 percent for peanut, 31 percent for soybean, and 31 percent for wheat policies during the same time period.

The farmer’s share increases with her chosen percent of actual production history (APH) to insure and varies by type of unit (Table 1).

Table 1: Farmer’s Share (decimal) of Premium Rate by Coverage Level and Type of Unit

Type of Unit	Coverage Level (Percent of APH)							
	50*	55	60	65	70	75	80	85
Basic or Optional Unit	0.33	0.36	0.36	0.41	0.41	0.45	0.52	0.64
Enterprise Unit	0.20	0.20	0.20	0.20	0.20	0.23	0.32	0.47

*for a catastrophic policy with covered crop loss valued at 100 percent of RMA’s projected price

Conclusion

To insure individual yields, farmers must make numerous choices that affect the costs of their policies. A local crop insurance agent and online information from the RMA can assist a farmer to make these choices. In general, the higher is the premium, the higher is the expected indemnity, or benefit, of a policy.

A farmer with an individual yield policy will also, beginning in 2015, be able to choose the Supplemental Coverage Option (SCO). SCO is a group policy. The farmer with SCO insures against a band of losses in the county’s yield. A covered loss occurs if the county’s actual yield falls below 86 percent of the county’s reference yield. The covered loss is bounded, however. In particular, the covered loss cannot exceed the county’s reference yield multiplied by the difference between 86 percent and the coverage level of the farmer’s individual yield policy. Farmers will pay 35 percent of the premium for SCO. SCO will only be available to farmers who also select a price-support program called Price Loss Coverage.

Additional Resources

- Edwards, William. “Proven Yields and Insurance Units for Crop Insurance.” Iowa State University Extension and Outreach. <http://www.extension.iastate.edu/agdm/crops/html/a1-55.html>.
- Hooper, Alan and Scott Templeton. *Overview of Insurance for Row Crop Farmers in Five Southeastern States*, unpublished report available upon request from second author at stemple@clermson.edu.
- Paulson, Nick and Jonathan Coppess. “2014 Farm Bill: The Supplemental Coverage Option” Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, Feb. 27, 2014.
- Risk Management Agency, USDA. “Actuarial Information Browser”, <http://webapp.rma.usda.gov/apps/actuarialinformationbrowser/>.
- Risk Management Agency, USDA. “Agent Locator”, <http://www3.rma.usda.gov/apps/agents/index.cfm>.
- Risk Management Agency, USDA. “Cost Estimator”, <http://ewebapp.rma.usda.gov/apps/costestimator/>.

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