Background on: Crop Insurance

Commercial

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IN THIS ARTICLE

Overview

Agricultural production is subject to many uncertainties, including natural disasters. Adverse weather, insect infestations and plant diseases can severely reduce the yield or quality of a crop, wiping out a farmer's profits for the whole year in a bad season.

Crop insurance is purchased by agricultural producers, including farmers, ranchers and others to protect against either the loss of their crops due to natural disasters, or the loss of revenue due to declines in the prices of agricultural commodities.

The catastrophic potential of many crop-related perils led to the development of two types of crop insurance: multiple peril crop insurance (MPCI) and crop-hail insurance. Crop-hail insures against crop damage caused by hail and may also include extended coverages like fire and lightning. MPCI covers loss of crop value due to all types of natural disasters, including hail, drought, excessive moisture and unusually hot weather.

Crop-hail policies are provided directly to farmers by private insurers and can be purchased at any time during the growing season. MPCI policies must be purchased prior to planting and are sold under the Federal Crop Insurance Program’s unique public-private partnership. There are currently 13 private companies authorized by the United States Department of Agriculture Risk Management Agency (USDA RMA) to write MPCI policies.

Providing crop insurance has historically been a difficult undertaking. Insurance operates most effectively when the pool of people exposed to a certain kind of risk do not all suffer a loss at the same time. For example, offering fire insurance works well because it is highly unlikely that every policyholder will suffer a fire at the same time. But if all policyholders are exposed to the same loss at the same time, such as if a flood affects all farmers in a floodplain, then insurers cannot spread the risks broadly enough and over a sufficient length of time to keep insurance affordable. The difficulty in spreading risks for crop-related risks is a fundamental issue that is critical to understanding the history of crop insurance and is one of the reasons for the creation of a federal crop insurance program.

Crop-hail insurance

Hail insurance has been in existence in some form since the early part of the twentieth century and it has been a thriving segment of the insurance industry since the 1920s. Insurers also tried to develop a multi-risk crop insurance business. But the attempt failed because they had insufficient data to set adequate rates to cover the kind of widespread catastrophic losses that long periods of drought, for example, produced.

Hail strikes randomly and erratically. Crops growing in one part of a field may be completely ruined while the remainder is unscathed. Damage from hail can be easily identified and assessed separately from other adverse conditions that can lead to yield losses

Insurance coverage for hail damage is provided by both the private sector, with crop-hail insurance, and under federally subsidized multiple peril insurance policies. Farmers who purchase crop-hail coverage can choose to drop coverage for hail under the multiple peril policy, in exchange for a reduction in premium, or keep it for additional protection.

A basic crop-hail policy covers losses due to hail and generally also fire, which is characterized by the same randomness as hail. The policy also covers damage caused by lightning and transit after harvest to storage. Coverage for additional causes of loss, such as vandalism, may be available as well as coverage for replanting costs when hailstorms early in the growing season damage a crop so severely that it has to be replanted. When the destroyed crop is replanted, the farmer also receives compensation for the reduction in expected yield due to the later planting date. Most insurers offer policies for the major grain and hay crops but the availability of coverage for specialty and vegetable crops is more limited.

A crop-hail policy can be purchased at any stage during the growing season from the time when 50 percent of the crop is clearly visible to the anticipated harvest date, as long as the crop has not already been damaged by hail. Farmers can insure all crops in which they have a financial interest (where land is leased, the landowner as well as the farmer have financial interests in the crop yield) or just a portion of their acreage.

The amount of coverage, which is purchased on a per-acre basis, is limited to the expected value of the crop, including anticipated profit. Coverage amount is the harvest price per bushel (or pound) forecast for the crop at the time the insurance policy is sold, times the number of bushels or pounds each acre is expected to produce. Premiums vary according to the susceptibility of the crop to hail damage and the location of the crop. Since hail losses have been tracked for more than 40 years, certain townships are known to be more prone to hail damage than others.

After a report of loss, the adjuster estimates the percentage reduction in yield due to hail damage by taking samples and sometimes actually counting the plants damaged in a representative area. The loss calculation takes into account the fact that the expected value of the crop at the time the loss occurs may be higher than the value (yield times market price) forecast at the time the policy was written. However, the claim payment or "cash value" cannot exceed the original underwriting limit or the policyholder's financial interest in the crop. Where there is the possibility of a bumper crop, the farmer may increase coverage mid-season.

Multiple Peril Crop Insurance

Multiple peril, or all-risk crop insurance, protects against low yield and crop quality losses due to adverse weather (including hail) and unavoidable damage from insects and disease. While multiple peril insurance covers most economically significant agricultural crops grown in the United States—more than 100 crops—insurance for a specific crop may not be available in every state or in every county within a state. Most crops for which there is not yet coverage are eligible for the limited protection offered by the Noninsured Crop Disaster Assistance Program.

A farmer purchasing multiple peril crop insurance has a number of coverage options. The first is a CAT (catastrophe) policy, the lowest amount of protection available. The federal government subsidizes the entire cost of the CAT coverage. Farmers pay only an administrative fee. In addition, farmers can buy additional insurance, known as "private supplemental," under a "buy up" program designed to encourage purchase of higher, more adequate levels of coverage.

Under the buy-up program, the federal government subsidizes a portion of the premium. Producers of some crops may be eligible for a multiple peril coverage known as "group risk" crop insurance, which may cost less than other options. It differs from the basic coverage in that yield guarantees are based on the county average yield rather than that of the individual farmer and is suitable for farmers whose yields tends to follow countywide yields. Policyholders automatically receive an insurance payment in any year that the county average yield falls below the yield guarantee.

Differences Between Crop-hail and Multiple Peril Insurance

There are several key differences between multiple peril and crop-hail insurance programs. First, farmers purchasing multiple peril insurance choose coverage levels by "unit" rather than by acre as with crop-hail. A unit is the entire acreage of the crop planted in the county by the farmer. Farmers can also break down coverage by "sections"—one square mile—or by irrigated and dryland practices. This difference is most evident when a loss occurs, because in the multiple peril program the amount of the loss—the reduced yield—is averaged out over all the fields in the unit rather than over the affected acre or acres insured.

Second, a farmer cannot suddenly decide to buy a multiple peril policy. Unlike crop-hail, multiple peril coverage must be purchased prior to certain dates set by the federal government, which vary according to the county and the crop. These sign-up deadlines are set early in the planting season before long-range weather forecasts can influence purchase decisions. Coverage takes effect once the crop is planted, but the crop must be planted before the last government established planting date by crop and by county. Coverage may not be added during the growing season.

In addition, crop-hail coverage generally provides coverage from the first dollar of loss, although deductibles are offered, whereas multiple peril coverage includes what amounts to a deductible, guaranteeing up to 100 percent of expected market price but never 100 percent of yield.

Standard Reinsurance Agreement: From a private reinsured company financial perspective, the federal crop insurance program is unique in many ways. The first is the Standard Reinsurance Agreement. This sets out the relationship between private insurance companies and the federal government concerning the risk each will bear. There are three risk pools in each state—the commercial, developmental and assigned risk funds—and the amount of risk the insurer retains varies according to the pool and by state. Those policies covering acreage in counties known for low yields, for example, will be placed in the assigned risk fund, where the federal government bears most of the risk, and those where the risk of low yields is lowest in the commercial pool. Insurers may also reinsure a portion of their business in the private reinsurance market. Second, the agreement reimburses crop insurers for administrative and operating costs. Starting in crop year 2011, all administrative and operating costs are reimbursed by the federal government on a per policy basis rather than a percentage of premiums basis to neutralize the impact of fluctuations in commodity prices.

Crop insurers have less investment income than insurers in other segments of the industry because they receive payment for coverage after it has been provided, rather than in advance as with other types of insurance. Premiums, for example, are not due until the end of the insurance period and are not paid on policies under which claims have been filed. The premium is deducted from amounts owed, and administrative expenses are not reimbursed until the actual acreage planted is reported, often as much as five months after the insurance sales closing date. Moreover, premiums fluctuate widely because they are tied to the market value of the crop and the acreage planted.

Revenue Insurance: Farmers face three major risks: low crop prices, poor quality and low yields. Under the standard multiple peril policy, farmers are compensated for losses in crop yield. Revenue insurance, which was first introduced in the mid-1990s, goes a step beyond standard multiple peril coverage. It guarantees farmers a certain income, allowing them to manage both yield and price risk. It recognizes that farmers' income is the product of the price they receive for what they have grown, as well as the number of bushels or pounds their acreage yields. With a revenue insurance policy in hand, farmers can borrow against and market their crops in advance, knowing they will have set revenues regardless of market conditions at harvest time.

Several types of revenue insurance programs were developed, but these were all bundled into the Common Crop Insurance, or "**Combo**," **policy** in 2010 to reduce costs and streamline the administration of the program. The new Revenue Protection policy provides protection against a production loss, a price decline or increase, or a combination of both. Yield protection provides protection against a production loss for crops for which revenue insurance is available but not elected. Farmers can also purchase revenue protection and yield protection guarantees on a per acre basis. Group risk protection coverages based on the county averages rather than the historical average of the individual farmer are still available as is another option designed for small farms: adjusted gross revenue coverage, which insures the revenue of the entire farm, including some livestock rather than a single crop.

Livestock insurance is now available in all states where livestock are farmed. Livestock insurance allows the policyholder to lock in prices for animals to be sold for slaughter. If prices subsequently fall, the policy compensates for a portion of the loss.

In a related move that will also help livestock producers, the Risk Management Agency has developed programs for pasture, rangeland, forage (PRF) and hay to provide a safety net for farmers who face drought conditions. There are two programs: the Rainfall Index program and the Vegetation Index—both use indexes and grids that are smaller than counties to determine expected losses. The Rainfall program is based on accumulated rainfall and the Vegetation program relies on satellite images to measure departures from expected losses in a given grid area.

The History of the Federal Crop Insurance Program

In 1933 at the height of the Great Depression, Congress passed major legislation called the Agricultural Adjustment Act (AAA) aimed at protecting the family farm. By restricting domestic production, it hoped to raise prices for agricultural products and this, together with subsidies to keep acreage unplanted, would restore farmers' standard of living to pre-World War I levels. Five years later in 1938 the U.S. Supreme Court declared the law unconstitutional, and a new piece of legislation was enacted with similar goals, authorizing the Secretary of Agriculture to set acreage and marketing quotas for staple and export crops and to pay cash subsidies for planting soil conserving crops. (It was not until the 1990s that Congress began to seriously question the wisdom of protecting farmers from market forces, especially since the family farms that such programs were designed to protect now account for only a small portion of agricultural production.)

In 1938 Congress also approved the Federal Crop Insurance Act, thereby creating the first federal crop insurance program. Backed by the resources of the U.S. Treasury Department, lawmakers expected the federal program to avoid the problems that had thwarted the formation of a private multi-risk insurance industry. However, it was plagued by high costs, low participation on the part of farmers and an inability to accumulate sufficient reserves to pay for catastrophic losses. And as federal expenditures under these programs grew, not surprisingly, farmers had little incentive to purchase crop insurance and consequently for decades the program remained limited in scope.

In 1980, frustrated by the program's continuing deficiencies, Congress passed legislation designed to make crop insurance the preeminent vehicle for helping farmers survive major agricultural disasters. Its goals were to increase participation in the program to the point where government-funded disaster assistance programs could be abolished; raise the level of efficiency by joining with the private sector to sell, service and bear some of the risk of providing coverage (until then crop insurance was provided solely by the U.S. Department of Agriculture); and create an actuarially sound program that would reduce federal outlays while keeping coverage affordable through subsidies.

The private sector would be involved in two ways: as master marketers and reinsured companies. Master marketers were insurers paid by the federal government to sell crop insurance policies but who did not assume liability on policies they serviced. (This arrangement was phased out by 1994).

Market-oriented Reforms: The Federal Crop Insurance Reform Act of 1994 was passed at a time when the costs of all agricultural programs were under intense scrutiny as part of efforts to balance the federal budget. With little hope of bringing expenditures under control unless it made sweeping changes in the program, Congress decided to mesh crop insurance and disaster assistance into one program, radically restructuring the agricultural community's safety net.

Lawmakers took a multipronged approach. First, if disaster payments were to be severely curtailed or abolished, farmers would need some measure of economic security. A key element of the legislation, therefore, was the provision of basically free "CAT" coverage—insurance against catastrophic losses. All producers of insurable crops would be able to purchase CAT coverage for a nominal processing fee. Crops not covered by the federal crop insurance program would be eligible for a special disaster assistance program with payments triggered by area-wide losses. The level of payment would be similar to that of the CAT insurance plan.

Second, as an added incentive for growers to invest in a comprehensive multiple peril crop insurance program, the federal government would subsidize the premium for additional insurance coverage.

Third, the "emergency" designation status for crop loss legislation, which allowed undisciplined off-budget borrowing to pay for disaster relief, would be repealed. Any future disaster assistance would be considered part of the budget and therefore could not be approved without an offsetting reduction in spending for other programs. Fourth, all farm programs, including crop insurance, would be handled by a single agency to improve service and program coordination.

The Federal Crop Insurance Corporation would manage the crop insurance program, establishing insurance policy terms and conditions, setting rates and generating the payment of claims through its Risk Management Agency (RMA). The exception to this is the noninsured crop disaster assistance program, which remains with the Farm Service Agency. The sale and servicing of policies would be shifted to the private sector.

The New Deal price support program had allowed farmers to sell their crops to the federal government for a fixed price when market prices fell below a government-set target price. Now that the subsidy program was about to end, there was a need to fill this gap. The 1996 Agricultural Market Transition Act addressed the need for "revenue" protection—the product of yield and price. Provisions in the bill set up various pilot programs that respond to fluctuating price levels as well as yield variability using the Chicago Board of Trade (CBOT) commodity prices.

In 2000, Congress approved another major piece of legislation, the Agricultural Risk Protection Act (ARPA). The Act made it easier for farmers to buy different types of multiple peril crop insurance, including revenue insurance, by increasing government subsidies.

From 1996 through 2017, total outlays for farm safety-net programs (including non-commodity specific spending) were on average $16 billion per year, including $8.6 billion for commodity

programs, $2.5 billion for disaster assistance and $4.9 billion for crop insurance.

As its proponents hoped, crop insurance has become the largest single source of financial protection to farmers. From insuring 182.2 million acres in 1997, the program has grown and covered more than 280 million acres by 2012. In 2018 growers planted 240 million acres of the four major crops (corn, soybeans, wheat and cotton). Crop insurance coverage for these same four crops in 2018 totaled 208 million acres, indicating that 87 percent of planted acres had crop insurance coverage.

Up to 1995, only about one-third of farmers bought federal multiple peril crop insurance because, in the event of a disaster, they could generally rely on Congress to bail them out with disaster assistance and emergency loans.

With the passage of reforms in 1995, Congress made it harder to justify legislation granting disaster aid. It also took other steps to encourage farmers to buy insurance against loss of income due to natural disasters, requiring new types of products, such as revenue protection, to make crop insurance more attractive and subsidizing a portion of the basic traditional coverage that protects against loss of yield. These efforts have paid off. More than 90 percent of policyholders opt for more than basic coverage.

The U.S. Department of Agriculture is embarking on a program to help small and underserved farmers understand crop insurance and other tools they need to effectively manage risk.

Attention has centered on reducing the cost to the public of federal subsidies to farmers, including ending direct payments to farmers regardless to crop yields. Some of the savings could be used to expand the crop insurance program. Other proposals would severely reduce the crop insurance subsidy farmers receive, from 62 percent of total premiums to 37 percent, the level that existed in 2000 before higher subsidies increased the purchase of crop insurance to its present level. The subsidy was raised in 2000 to encourage farmers to buy insurance rather than rely on taxpayer-funded ad hoc disaster payments. According to the Congressional Budget Office, the Crop Insurance Subsidy Reduction Act could save taxpayers $40.1 billion over 10 years. However, critics warn that if the subsidy reduction cuts crop insurance purchases, Congress could once again be forced into making ad hoc disaster emergency payments.

Charts and Graphs

Private Crop Insurance, 2014-2020

($000)

Year	Net premiums written (1)	Annual percent change	Combined ratio (2)	Annual point change (3)
2014	$582,817	NA	138.8	NA
2015	584,600	0.3%	146.2	7.3 pts.
2016	455,410	-22.1	122.3	-23.9
2017	498,804	9.5	66.6	-55.7
2018	693,254	39.0	126.9	60.3
2019	686,589	-1.0	117.5	-9.4

Year	Net premiums written (1)	Annual percent change	Combined ratio (2)	Annual point change (3)

(1)
(2) After dividends to policyholders. A drop in the combined ratio represents an improvement; an increase represents a deterioration.
(3) Calculated from unrounded data.

NA=Data not available.

Source: NAIC data, sourced from S&P Global Market Intelligence, Insurance Information Institute.

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Multiple Peril Crop Insurance, 2011-2020 (1)

($000)

Year	Net premiums written (2)	Annual percent change	Combined ratio (3)	Annual point change (4)
2011	$5,456,991	55.8%	90.6	16.8 pts.
2012	5,321,811	-2.5	104.0	13.3
2013	4,942,547	-7.1	103.3	-0.7
2014	4,189,765	-15.2	104.9	1.6
2015	3,680,768	-12.1	99.9	-5.1
2016	3,321,281	-9.8	81.7	-18.2
2017	4,742,005	42.8	95.8	14.1
2018	5,380,068	13.5	85.0	-10.8
2019	6,478,428	20.4	108.7	23.6
2020	6,128,159	-5.4	100.5	-8.2

(1) Includes private crop insurance in 2012 and 2013.
(2) After reinsurance transactions, excludes state funds.
(3) After dividends to policyholders. A drop in the combined ratio represents an improvement; an increase represents a deterioration.
(4) Calculated from unrounded numbers.

Source: NAIC data, sourced from S&P Global Market Intelligence, Insurance Information Institute.

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Top 10 Writers Of Multiple Peril Crop Insurance By Direct

Premiums Written, 2020

($000)

Rank	Group/company	Direct premiums written (1)	Market share (2)
1	Chubb Ltd.	$1,934,069	17.9%
2	Sompo Holdings Inc.	1,918,615	17.7
3	QBE Insurance Group Ltd.	1,635,636	15.1
4	Zurich Insurance Group	1,584,245	14.6
5	Great American Insurance Group	913,909	8.4
6	Farmers Mutual Hail Insurance Co. of Iowa	654,086	6.0
7	Fairfax Financial Holdings	597,358	5.5
8	Tokio Marine Group	526,679	4.9
9	American International Group (AIG)	519,904	4.8
10	AXA	162,658	1.5

(1) Before reinsurance transactions, includes state funds.
(2) Based on U.S. total, includes territories.

Source: NAIC data, sourced from S&P Global Market Intelligence, Insurance Information Institute.

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Additional resources

National Crop Insurance Services

Federal Crop Insurance Corp

American Association of Crop Insurers

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