

Crop Insurance in Missouri

Crop insurance offers farmers a way to manage risk associated with agricultural commodity production and prices. Crop insurance can decrease the production risk associated with adverse weather conditions, fire and pests, and the price risk associated with fluctuating commodity markets.

Crop insurance basics

The Risk Management Agency (RMA) of the U.S. Department of Agriculture (USDA) administers the Federal Crop Insurance Corporation and other programs to support U.S. agriculture. Policies are available through the RMA for more than 100 crops, although not all of those crops are insurable in all states. Across the U.S., 17 private companies sell and service all federal crop insurance products. RMA develops and approves the premium rates, administers subsidies, approves and supports products, and reinsures these private companies. In 2016, more than 2.2 million policies were sold in the U.S., protecting 366 million acres. Of those policies, more than 50,000 were sold in Missouri, covering over 9 million acres of cropland. The percentage of Missouri cropland insured has steadily increased since the mid-1990s (Figure 1).

Crop insurance plans

There are four general types of crop insurance available to Missouri corn and soybean farmers in particular:

- Revenue protection (RP)
- Revenue protection with harvest price exclusion (RP-HPE)
- Yield protection (YP)
- Area risk protection insurance (ARPI)

Insurance policies are also available for other major crops, but what crops are covered varies by county. Contact your local crop insurance agent for details. Following are brief descriptions of the crop insurance products available for Missouri row crop producers. Further information is available online from the RMA (see Resources).

Revenue protection

Revenue protection (RP) plans protect against revenue loss due to yield reductions, price fluctuations or both.

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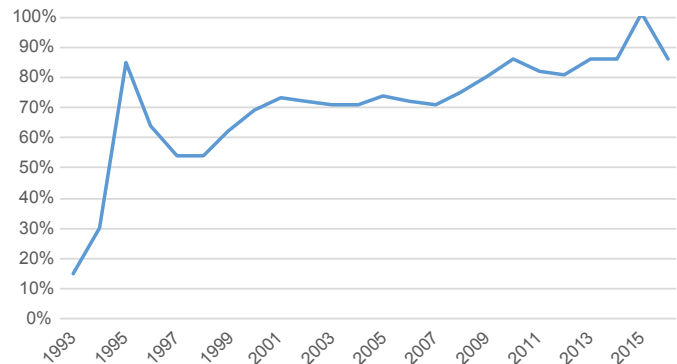


Figure 1. Percentage of Missouri cropland insured, 1993 to 2016. (Sources: U.S. Department of Agriculture — Risk Management Agency and Quick Stats Database)

Note: Percentages were calculated by dividing the acres insured (RMA) by the acres planted (Quick Stats). The year 2015 was an anomaly due to the quantity of prevented planted acres (more acres were insured than planted). As a result, the graph shows 100 percent of planted acres insured.

The farmer selects the amount of average yield to insure, between 50 and 85 percent. The coverage price is based on the greater of the new crop projected price during February (December futures contract for corn, and November futures contract for soybeans) or the harvest price (during October). If the farmer's actual revenue (based on actual yield times harvest price) is less than the insurance policy revenue guarantee, an indemnity is paid for the difference.

Revenue protection example

A soybean field has a proven yield, called actual production history (APH), of 40 bushels per acre. An RP policy is purchased with an 80 percent revenue guarantee. Projected new crop price in February was \$10 per bushel. Actual yield in the fall was 35 bushels per acre, and harvest price was \$9 per bushel.

Guaranteed revenue:

$$40 \text{ bu/acre} \times 80\% \times \$10/\text{bu} = \$320 \text{ per acre}$$

Actual revenue:

$$35 \text{ bu/acre} \times \$9/\text{bu} = \$315 \text{ per acre}$$

Indemnity:

$$\$320 - \$315 = \$5 \text{ per acre}$$

Revenue protection with harvest price exclusion

Revenue protection policies with harvest price exclusion (RP-HPE) are essentially the same as RP policies, except that with RP-HPE policies, farmers do not have the opportunity to improve their revenue guarantee if prices improve at harvest.

Yield protection

Yield protection (YP) plans protect against production loss. The farmer selects the amount of average yield to insure, between 50 and 85 percent. The farmer also selects the portion of the projected price to insure, between 55 and 100 percent of the crop price established by the average new crop future prices during the month of February (December contract for corn, and November contract for soybeans). If the harvest is less than the yield insured, the farmer is paid an indemnity based on the difference. Indemnities are calculated by multiplying this yield difference by the insured percentage of the established price selected when crop insurance was purchased.

Yield protection example

A soybean field has an actual production history (APH) of 40 bushels per acre. A YP policy is purchased with an 80 percent yield guarantee and an election to cover 90 percent of the \$10 new crop futures price. Actual yield in the fall was 20 bushels per acre.

Guaranteed yield:

$$40 \text{ bu/acre} \times 80\% = 32 \text{ bushels per acre}$$

Guaranteed price:

$$\text{\$}10/\text{bu} \times 90\% = \text{\$}9 \text{ per bushel}$$

Indemnity:

$$(32 \text{ bu/acre guarantee} - 20 \text{ bu/acre actual yield}) \times \text{\$}9/\text{bu} = \text{\$}108 \text{ per acre}$$

Area risk protection insurance

Area risk protection insurance (ARPI) plans protect against widespread loss of revenue or yield in a county. Farmers select policies that cover 70 to 90 percent, in 5 percent increments, of the county's yield and can cover 80 to 120 percent of the price. ARPI provides farmers with the convenience of one policy for their operation, and often requires less paperwork and has lower premiums than individual farm-level insurance. However, it is recommended that farmers use this plan only if their yields move in the same direction as their county's averages. In 2013, ARPI policies replaced the group risk plan (GRP) and group risk income protection plan (GRIP). Currently available ARPI policies include area revenue (with or without harvest price exclusion) and area yield.

Area risk protection example

Anticipated county yields for soybeans was 40 bushels per acre at \$10 per bushel. A farmer purchases an ARPI policy with an 80 percent yield coverage and 100 percent of the maximum protection coverage. The actual county yield was 25 bushels per acre, a 7 bushel shortfall from the 32 bushel trigger yield.

Guaranteed coverage:

$$(40 \text{ bu/acre} \times 80\%) \times (\text{\$}10/\text{bu} \times 100\%) = \text{\$}320 \text{ per acre}$$

County revenue:

$$25 \text{ bu/acre} \times \text{\$}10/\text{bu} = \text{\$}250 \text{ per acre}$$

Payment factor:

$$(\text{\$}320/\text{acre} - \text{\$}250/\text{acre}) \div [\text{\$}320/\text{acre} - (40 \text{ bu/acre} \times \text{\$}10/\text{bu} \times 0.18 \text{ limit loss factor})] = 0.282$$

Indemnity:

$$0.282 \times (40 \text{ bu/acre} \times \text{\$}10/\text{bu} \times 100\%) = \text{\$}112.90 \text{ per acre}$$

Note: The limit loss factor is set by the RMA for each crop. In this example, 0.18 is used.

Unit structure

Crop insurance plans can allow a farm to be insured in a variety of ways, depending on the needs of the operation. A farm can be set up in multiple units, each with separate crop insurance policies, or as an entire unit. The unit classifications selected affect the premium rates, and any subsequent indemnities, under the respective policies. Characteristics of each unit classification are as follows.

Enterprise units

Enterprise units combine all acres of the same crop a producer owns, cash rents or share crops in the same county into one insurable unit. For example, corn and soybean acres in one county would result in two separate enterprise units.

Basic units

Basic units combine all acres a producer owns or cash rents in the same county into one insurable unit for each crop. A crop that is share rented among different landlords, tenants or sharecroppers would result in separate basic units for each arrangement.

Optional units

Optional units can further divide a farming operation into more units than the basic unit classification. Farms can be organized as separate insurable units based on different sections, section equivalents or USDA Farm Service Agency (FSA) farm numbers (in the absence of sections or section equivalents). Additionally, if certain farming practices, such as irrigation or organic production, are used, then separate units can be established for each parcel of land.

Whole-farm units

Whole-farm units combine all the acres a producer farms in the same county into one insurable unit whether or not multiple crops are planted.

Premiums

The cost of crop insurance policies varies by crop, location, plan, coverage level and unit classification. Crop insurance agents are the best source of specific information about local farms, and can be located online through the USDA-RMA Crop Insurance Agent Locator (see Resources). Additionally, the University of Illinois has developed an online Crop Insurance Premium Calculator that shows general premium ranges for Missouri producers by typical county yields, coverage level and plan (see Resources).

Crop insurance policies are subsidized by the federal government to make them less expensive for farmers. The subsidy offsets a portion of the cost associated with the premium. As coverage levels increase in crop insurance policies, the percentage of government subsidy decreases. Insurance premiums for all U.S. crops insured in 2015 collectively approached \$9.75 billion, about \$6.08 billion of which was subsidized by the government.

History of Missouri crop insurance

The following figures and table show historical crop insurance data for Missouri's principal row crops — corn, cotton, oats, rice, grain sorghum, soybeans, wheat. Of the major policy types, revenue protection is currently the most popular coverage; its use has increased dramatically in the past 10 years (Figure 2). Use of yield protection policies have trended downward but still consistently represents 10 to 15 percent of planted principle row crop acres in Missouri. Few Missouri acres are covered by area risk protection insurance (ARPI), formerly known as GRP and GRIP.

The use of insurance products varies by crop. From 2013 to 2016, the most widely insured crops were cotton, corn and soybean, with over 80 percent of planted acreage of each crop insured (Table 1). However, the type of insurance purchased for these and other row crops varies. Cotton producers largely use yield protection plans. Corn, grain sorghum, soybean and wheat producers primarily use revenue protection plans. Rice producers are almost evenly

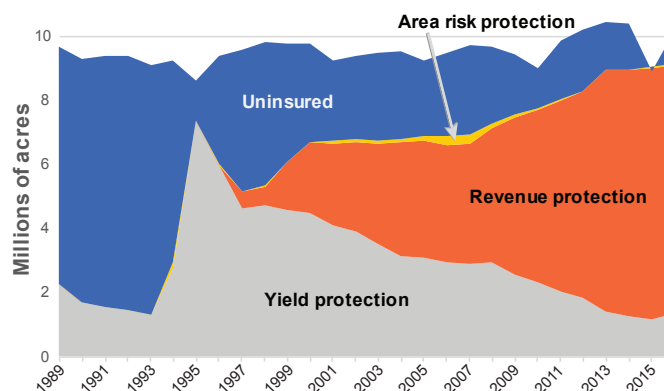


Figure 2. Missouri crop acres insured by type of insurance, 1989 to 2016. (Source: U.S. Department of Agriculture, Risk Management Agency)

split between revenue and yield protection plans. Oats, contrary to other Missouri row crops, are rarely insured.

Crop loss can be due to a number of perils, including insects, plant diseases, tornados, wildlife, wind and fire. Since 2006, the major causes of Missouri row crop loss have been excessive heat and drought and excessive moisture and flooding (Figure 3). In 2016, Missouri farmers received more than \$77.3 million in indemnity payments.

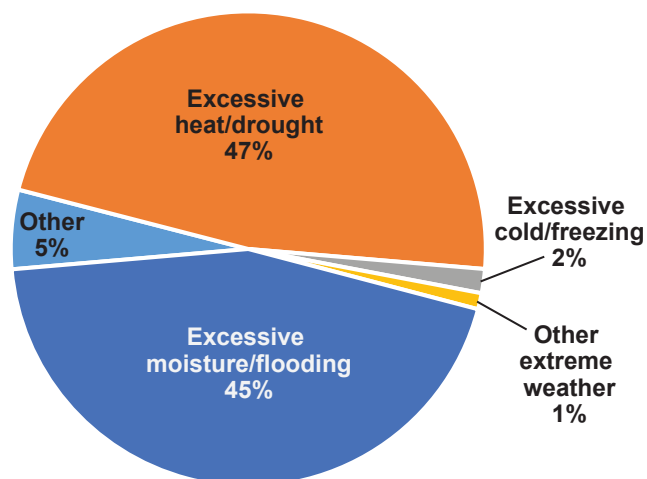


Figure 3. Source of Missouri crop loss by indemnity payments, 2006 to 2016. (Source: U.S. Department of Agriculture, Risk Management Agency)

Table 1. Percentage of Missouri crop acres enrolled in crop insurance, averaged 2013 to 2016.

	Corn	Cotton	Grain sorghum	Oats	Rice	Soybean	Wheat
Revenue protection	85.8%	37.5%	43.2%	0.4%	38.9%	77.6%	53.3%
Yield protection	8.2%	54.1%	19.8%	0.8%	45.6%	12.3%	19.1%
Area risk protection	0.2%	0.0%	0.0%	0.0%	0.0%	0.2%	0.1%
Uninsured	5.9%	8.4%	37.0%	98.7%	15.5%	9.9%	27.5%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: U.S. Department of Agriculture, Risk Management Agency

Summary

Crop insurance offers producers a means to manage risks. Table 2 shows the four general types of crop insurance available to farmers for major crops. There is no single correct amount or type of coverage; the amount and type of coverage necessary varies greatly based on each producer's needs. In addition, unit classification is an important consideration in choosing a crop insurance policy. Producers must assess their current situation and make decisions based on their individual needs. Subsidies provided by the federal government help offset a portion of the crop insurance premiums, but producers still incur a cost, which increases as coverage level increases. Contact

a local crop insurance agent for more information about crop insurance policy premiums and insurance needs.

Resources

Risk Management Agency (RMA) policies: <https://www.rma.usda.gov/policies>

RMA Crop Insurance Agent Locator: <http://www.rma.usda.gov/tools/agent.html>

University of Illinois, Crop Insurance Premium Calculator: <http://www.farmdoc.illinois.edu/cropins/index.asp>

Table 2. Summary of crop insurance plans for Missouri spring-planted row crops.

Characteristic	Revenue protection	Revenue protection with harvest price exclusion	Yield protection	Area risk protection insurance
Insures against	Individual revenue risk		Individual production risk	County-level revenue or county-level yield risk
Yield coverage	50% to 85% of actual production history yield		50% to 85% of actual production history yield	70% to 90% of county yield
Price coverage	Higher of new crop futures contract price in February (base price) or October (harvest price)	New crop futures contract price in February (base price)	55% to 100% of new crop futures contract price in February (base price)	80% to 120% of maximum coverage level
Results on which indemnity is based	Actual yield and futures prices in October		Actual yield	Estimated county revenue and/or yield
Insurable units	Basic, optional, enterprise and whole farm units		Basic, optional and enterprise units	Enterprise units
Major Missouri crops covered	Corn, cotton, grain sorghum, rice, soybean, wheat		Corn, cotton, grain sorghum, oats, rice, soybeans, wheat	Corn, cotton, grain sorghum, soybeans, wheat
Past policies with similar coverage	Crop revenue coverage; income protection; revenue assurance; actual revenue history		Actual production history	Group risk plan; group risk income protection

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