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Supplemental Revenue Assistance Payments Program (SURE): Montana

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Introduction

The new Supplemental Revenue Assistance Payments Program (SURE), created by Section 12033 of the 2008 Farm Bill as an amendment to the 1994 Federal Crop Insurance Act, is a permanent disaster aid program for farms producing crops. The program is one of five different permanent disaster programs authorized by the 2008 Farm Bill that are intended to replace ad hoc disaster relief programs. The other four standing disaster programs are the Livestock Indemnity Payments program (LIP), Livestock Forage Disaster program (LFP), Emergency Assistance for Livestock, Honey Bees and Farm Raised Fish program (ELAP), and the Orchard and Nursery Tree Assistance Program (TAP).

Historically, ad hoc disaster programs have been authorized by Congress when agricultural producers in a specific region of the country have experienced substantial losses because of a single catastrophic event (most often in the form of severe weather events such as extreme droughts and hurricanes). Congress's objective in creating the new suite of agricultural disaster programs is to remove the need for future ad hoc disaster legislation.

The purpose of the SURE program is to provide crop producers with automatic disaster payments when the region in which they farm experiences catastrophic natural weather events or when an individual farm experiences a severe crop losses because of highly localized adverse weather conditions. For the purposes of the SURE program, a producer's **farm** includes all the acres she or he crops in all counties in the United States and Puerto Rico.

The SURE program will apply to all eligible farms in counties in a geographic area covered by a qualifying natural disaster declaration and in counties bordering those disaster area counties [Section 531 (a) 5 B(i) of the 2008 Food, Conservation and Energy Act]. To receive a SURE payment, farms must also experience at least a 10 percent production loss. The program will also apply to any farm that experiences "a total loss of production of the farm relating to weather (that) is greater than 50 percent of the normal production of the farm" [Section 531 (a) 5 B(ii) of the 2008 Food, Conservation and Energy Act], regardless of where the county is located.

The SURE Program: Basic Concepts

To be eligible for the SURE program, a farmer ***must*** purchase federal crop insurance coverage under an insurance product approved by the USDA Risk Management Agency or, for crops for which federal crop insurance products are not available, coverage under the Non-Insured Crop Disaster Program (NAP) managed the USDA Farm Service Agency. Coverage under one of these two programs must be obtained for all **economically significant** crops.

A crop is **economically significant** if it is expected to contribute five percent or more of the farmer's total revenues from market sales of all crops grown on the farm. Crops expected to contribute less than five percent of total market revenues do not have to be insured, enabling farmers, for example, to plant small areas of their land to experimental crops, horticultural crops intended for sales in local farmers' markets or on farm use, or for other reasons without being concerned about the availability and cost of crop insurance (or NAP coverage) for those crops.

For example, suppose a farmer, Mr. Jones, has one operation in Roosevelt County, Montana, on which he plants 2,000 acres of wheat and 1,000 acres of barley, but he has also inherited a farm in Iowa on which he plants 400 acres of corn and 300 acres of soybeans. Further, all four crops are expected to account for more than 5 percent of Mr. Jones's total revenues from crop market sales. To be eligible for the SURE program, Mr. Jones has to purchase crop insurance coverage for all of his wheat and barley acres in Montana and for all of his corn and soybean acres in Iowa. If Mr. Jones also planted one acre to pumpkins on his Montana farm to sell in a local farmers' market, the acre of pumpkins would not have to be insured, because it would not be expected to make an economically significant contribution to the farm's market revenues.

The SURE program has two other major components. Each eligible farmer must establish a ***SURE guarantee,*** which is determined by the farm's crop insurance purchase decisions at the sign up time for the insurance. After harvest, the farm's ***total farm revenue*** is then determined. Both the farm's ***SURE guarantee*** and ***total farm revenue*** are based on all acres planted by the farm in the United States and Puerto Rico. For example, Mr. Jones's SURE guarantee would be determined by his insurance decisions with respect to the wheat and barley acres he plants in Montana and the corn and soybean acres he plants in Iowa.

To receive a SURE payment, the farm must first qualify by being in a county in a disaster area, or in a county adjacent to a disaster area, or by experiencing more than a 50 percent loss of expected crop revenue. If the farm's ***SURE guarantee*** is larger than its ***total farm revenue;***

the farm receives a SURE payment equal to 60 percent of the difference between the ***SURE guarantee*** and ***total farm revenue***. For example, if a farm's SURE guarantee is $150,000 and its revenue to count is $120,000, then the farm will receive a SURE disaster payment of $18,000 (= [0.60 x ($150,000 -$120,000)] = 0.60 x $30,000).

Payment Limitations under the SURE Program

Payment limitations apply to the SURE program. An eligible person cannot receive more than a combined total of $100,000 in any given year from all five disaster programs authorized by the 2008 Farm Bill (SURE, LIP, LFP, ELAP and TAP). For example, if Mr. Jones received $12,000 from the LIP in 2009, the most he could receive under the SURE and the other three disaster programs would be $88,000 ($100,000 - $12,000). Note that the eligible person rules established in the 2008 Farm Bill apply to this limitation.

The SURE guarantee

A farm's SURE guarantee is determined by the producer's crop insurance decisions for all the crops that must be insured. In effect, when a farmer purchases federally subsidized crop insurance (or NAP) for a crop, say wheat, she makes decisions that determine the liability for that crop. The liability is the maximum indemnity she would receive if a total loss occurred (that is, the crop yield turned out to be zero). In many cases, a farm's ***SURE guarantee*** will be the sum of the farm's liabilities for each insured crop multiplied by 115 percent. However, if that amount exceeds ***90 percent*** of the farm's expected revenue from crop sales (defined as the insured price multiplied by the farm's direct payment yield or APH yield and planted acres for each crop), then the farm's ***SURE guarantee*** will be capped at ***90 percent of its expected revenue***. Farms that insure crop yields at 75 percent or lower coverage levels will not be subject to this limitation as, on a crop by crop basis, their direct revenue guarantee will be no more than 86.25 percent of their expected revenues. Some farms that select coverage levels of 80 percent or higher for some crops, usually crops produced under irrigation, may be subject to this limitation.

The liability for a crop is determined in different ways for different crop insurance products. In a traditional multiple peril or APH contract, a farmer chooses a ***coverage level*** and a ***price election*** for the insured crop. These choices determine the farm's liability for that crop.

Suppose, Farmer Davis has a proven or APH yield for wheat of 40 bushels an acre and the maximum price at which insurable crop losses can be valued is $6 (determined by RMA)[1]. The farmer selects a coverage level of 75 percent (the maximum coverage level allowed by RMA in his county) and a price election of 100 percent.

The coverage level determines the ***trigger yield*** for indemnity payments and the ***trigger yield*** equals the farm's APH yield multiplied by the coverage level. In this example, the ***trigger yield*** for Farmer Davis's wheat is ***30 bushels*** an acre = (0.75 x 40 bushels).

A farmer receives a crop insurance indemnity when the farm's per acre yield falls below the trigger yield. On a per acre basis, the indemnity is the difference between the trigger yield and the actual yield multiplied by the farm's elected price. The elected price is the maximum price at which losses can be valued multiplied by the farmer's price election. In the example, farmer Davis selected a ***100 percent price election*** and so his elected price is ***$6 per bushel*** = (1.00 x $6).

The per acre liability or maximum indemnity, the amount paid to the farm if its yield is zero, is therefore the farm's trigger yield multiplied by the farm's elected price. The farm-wide liability for the crop is the per acre liability multiplied by the total number of acres planted to the crop. In the example, Farmer Davis's per acre liability for wheat is $180 (the farm's trigger yield of 30 bushels the farm's elected price of $6) and his farm wide liability for wheat is therefore ***$360,000*** = ($180 per acre x 2,000 planted acres).

If Farmer Davis only planted wheat then his ***SURE guarantee*** would be 115 percent of his farm-wide insurance liability for wheat, or ***$414,000 =*** (1.15 x $360,000).

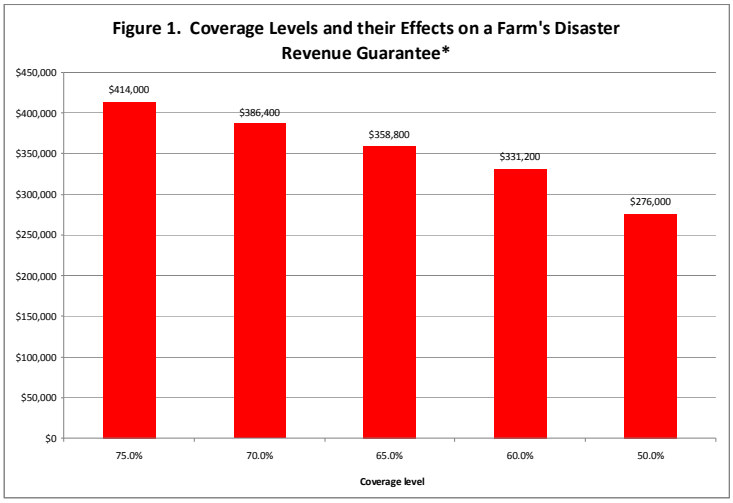
There is one circumstance in which Farmer Davis could obtain a higher SURE guarantee. The 2008 Farm Bill provisions allow a farmer to use the **larger** of either their Commodity Credit Corporation counter-cyclical payment yield or their crop insurance APH yield for the crop in establishing their SURE guarantee. For example, if Farmer Davis had a 44 bushel per acre CCC counter-cyclical payment yield, his SURE guarantee

[1] A farm's APH for crop insurance program may be based on some "plug" yields, which replace the farm's actual yields in years when these actual yields are relatively low. SURE program APHs are calculated using the farm's actual yields in these years, not the plug yields. Note also that a farm's SURE APH for a crop is its average yield on all land planted to the crop, regardless of production practice (e.g., irrigated and dryland wheat yields would be averaged, based on the amount of land used in each practice).

would be computed using that yield instead of his APH yield of 40 bushels an acre. Most CCC counter-cyclical payment yields were established using yield data from the 1980s when yields for most crops were considerably lower than current yields. Therefore, it is likely that most farms that have participated in federal crop insurance programs are likely to have higher APH proven yields than CCC counter-cyclical payment yields.

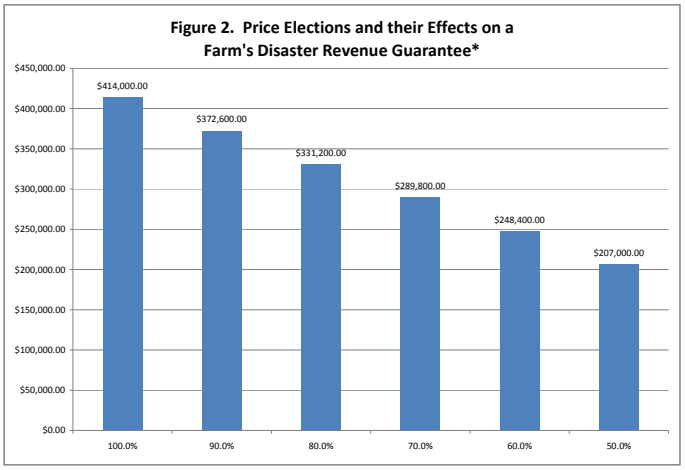
Coverage Levels, Price Elections and the SURE guarantee

A farm's **SURE guarantee** is determined by its crop insurance coverage and price election choices. Lower coverage levels and lower price elections result in lower SURE guarantees. Farmer Davis's SURE guarantee changes as his coverage level declines from 75 percent to 50 percent in five percentage point increments, assuming he continues to choose a 100 percent price election (Figure 1). As this farmer reduces his coverage level on the 2,000 acres of wheat he planted with a 40 bushel APH, his SURE guarantee falls substantially. For example, at the highest (75 percent) coverage level, the SURE guarantee is $414,000; at the most frequently selected coverage level (65 percent) the guarantee declines to $358,800 (a 13.5 percent reduction), and at the lowest coverage level (50 percent) it falls to $276,000 (33 percent lower than at the highest coverage level).



* The farm is assumed to choose a 100% price election at each coverage level.

The effects of reductions in price elections are illustrated (Figure 2). Farmer Davis selects a 75 percent coverage level but reduces his price election from 100 percent to 50 percent in five ten percent increments. At the highest price election (100 percent), the farm's SURE guarantee is $414,000; at the lowest price election (50 percent), the guarantee is $207,000, half of the amount at the highest price election (because the SURE guarantee declines at the same rate as the elected price).



* The farm is assumed to choose a 75% coverage level for each price election.

Catastrophic coverage, often called CAT coverage, is the minimum level of crop insurance that can be purchased using a traditional APH yield product. Some farmers find CAT coverage appealing for a crop because their only cost is a $300 administrative fee. Under CAT coverage, the farmer obtains a 50 percent coverage level and a 55 percent price election. If Farmer Davis opted for CAT coverage, his SURE guarantee would be $151,800, only 37 percent of the guarantee he would obtain had he selected a 75 percent coverage level and a 100 percent price election.

The SURE guarantee and Alternative Crop Insurance Products

Farmers have a wide range of crop insurance options. Most wheat and barley producers in Montana can either use a traditional multiple peril APH yield product, or a multiple peril APH revenue product like Revenue Assurance (RA) or Crop Revenue Coverage (CRC). They can also use RMA area yield products, called Group Risk Plans (GRPs), and area revenue products, called Group Revenue Insurance Plans (GRIPs), to insure their crops. They can also insure against crop losses with a whole farm insurance plan such as Adjusted Gross Revenue Lite (AGR-Lite). All of these products can be used to comply with the requirement that farmers insure all of their economically significant crops to be eligible for the SURE program and to establish a SURE guarantee for their farm.

APH Revenue Products

SURE guarantees are established using individual farm APH based revenue products in a somewhat similar way to the SURE guarantees for APH yield insurance products. Crop Revenue Coverage, a widely used APH

based revenue insurance product in Montana, considers two prices for an insured crop. Prior to the production of a crop and prior to the sales closing date for CRC coverage, a ***CRC Base Price*** is announced. The ***CRC Base Price*** is specified as a specific average futures contract settlement price for delivery at harvest time for a crop over a period just prior to the closing date for the ***CRC*** contract (typically at or just before the crop is planted). Using the ***CRC Base Price***, a producer establishes an initial per acre ***CRC Liability*** for the insurance by selecting a coverage level and multiplying the CRC base price by the farm's APH yield and the coverage level; that is,

CRC Liability per acre = ***CRC Base Price x Coverage Level*** **x APH.**

Note that the coverage levels (50 percent to 85 percent in five percent increments) are similar to those available under an APH yield insurance product.

If the producer does not choose what is called the ***Harvest Price Option***, then the ***CRC liability per acre*** forms the basis for the crop's contribution to the farms SURE revenue guarantee. The crop's contribution to farm's **SURE guarantee** is therefore:

CRC Base Price x Coverage Level x APH x Total Planted Acres x 115 percent.

Under the CRC product provisions (and the Revenue Assurance product which is also available for some crops in 2010), a farmer can choose an option that increases the ***CRC Liability per acre*** if a crop's ***Harvest Price*** exceeds its ***CRC Base Price***, where the ***Harvest Price*** is defined as a specific average futures contract settlement price at harvest time. If a farmer chooses this CRC option, and the ***Harvest Price*** does exceed the ***CRC Base Price,*** then the crop's contribution to the SURE guarantee will be based on the harvest price; that is, the crop's contribution to farm's **SURE guarantee** is therefore:

CRC Harvest Price x Coverage Level x APH x Total Planted Acres x 115 percent.

As in the case of the traditional APH yield insurance product, a producer can increase their SURE guarantee by using their CCC direct payment yields if those yields exceed their federal crop insurance APH for the crop. APH based revenue insurance is not available for many crops and so many producers insure one or more crops under traditional APH yield contracts and other crops under APH revenue contracts. Their **SURE guarantee** will then be 115 percent the sum of the liabilities under each type of contract.

Area Yield Products (GRP)

Producers can also use Risk Management Agency GRP and/or GRIP area yield and revenue products for a crop to ensure eligibility for the SURE program and establish their **SURE guarantee**.

Under the GRP area yield contract, a farm insures against production shortfalls at the county level with respect to the expected county yield. The farm selects a coverage level of either 50 percent (CAT coverage) or between 70 percent and 90 percent (in five percentage point intervals) to establish a trigger county yield. For example, if the expected county yield for wheat is 30 bushels an acre and the selected coverage level is 80 percent then the farm's trigger yield is 24 bushels. When the county yield is less than the trigger yield, the farm receives an indemnity that, in terms of bushels, is equal to the difference between the trigger yield and the actual county yield, divided by the coverage level.

The value of each bushel of loss is determined as follows. RMA identifies an expected price for the crop. The producer can then adjust that price by choosing a proportion that can range between 30 percent and 150 percent and, in effect, multiplying the RMA price by that amount. In so doing, the producer establishes what RMA call a ***dollar amount of protection per acre***. For example, if the RMA price for wheat is $6 a bushel, the county yield is 30 bushels, the coverage level is 90 percent, and the producer chooses a price election of 150 percent, then the dollar amount of protection per acre is $243 = (30 bushels x 0.90 x $6 x 1.50).

Note, however, that if the producer raised only wheat, the **SURE guarantee** established using the GRP product would not be the equivalent of $243 per acre. First, the producer would have to use their own APH or direct payment yield (say 25 bushels per acre) rather than the county average yield. Second, that yield would be multiplied by the RMA GRP price of $6 to obtain the farm's expected revenue per acre, in this case 25 bushels x $6 or $150 per acre. Third, the farm's **SURE guarantee** would be limited to no more than 90 percent of its **expected revenue**, which would be $135 per acre = (0.90 x $150)

Area Revenue Products (GRIP)

Under a GRIP area revenue product, a farm insures against shortfalls in the expected county revenue per acre for the crop. In this product, the liability or maximum indemnity for a farm is established as follows. The expected county yield (established by RMA) is multiplied by the expected price for the crop (as estimated by RMA) at time of planting to establish the expected county

revenue from the crop. The producer selects a coverage level of between 70 percent and 90 percent (in five percentage point increments) to establish a trigger revenue. The farm receives an indemnity when the actual county revenue (the actual county yield multiplied by the price of the crop at harvest, as reported by RMA) is less than the trigger revenue. The liability (maximum indemnity that can be received by the farm) is determined by the farm through choosing a dollar amount of protection, which can be between 60 percent and 100 percent of the maximum per acre amount of protection available multiplied by the number of acres planted to the crop. The contribution of the GRIP insurance to the farm's **SURE guarantee**, however, will be based on the farm's direct payment or APH yield and the GRIP expected price as estimated by RMA, with the caveat that the farm's **SURE guarantee** cannot exceed 90 percent of its expected revenue from market sales. As with CRC, under GRIP, a harvest revenue endorsement can be obtained under which the dollar amount of protection and the trigger revenue will be based on the harvest time RMA price for the crop if that price exceeds the RMA expected price for the crop. In that case, the harvest time GRIP price would be used to establish the farm's expected revenue from sales of the crop and the crop's contribution to the farm's **SURE guarantee**.

Whole Farm Income Protection Products (AGR and AGR-Lite)

Farmers can purchase whole farm income protection against losses from the sum of all of their crop and livestock enterprises through Adjusted Gross Revenue (AGR) and AGR-Lite insurance products. The AGR products are complex and specific details of all key elements of the AGR-Lite product are presented in Agricultural Marketing Policy Center Policy Issues Paper #28, *Risk Management Options for Montana Farms*, available on the web at *www.ampc.montana.edu/policypaper/policy28.pdf*. In the AGR-Lite product (the most commonly used whole farm insurance product), for each crop and insurance year, producers work with their insurance agent to report the acres to be planted, the expected price per unit of production and the expected yield. In addition, producers have to provide sufficient information to establish their expected allowable expenses.

From such information Approved Adjusted Gross Income (AGR) is established. Farms then select a coverage level (65 percent, 75 percent or 80 percent) that determines the AGR level for the insurance that would trigger an indemnity payment. Farms also select a payment rate (75 percent or 90 percent) that determines the indemnity they receive when their AGR is less than its trigger level. The indemnity equals the difference between the farm's AGR trigger level and its actual AGR multiplied by the selected payment rate.

The farm **SURE guarantee** will equal 115 percent of the sum of the farms expected AGR revenue from crops multiplied by the farm's selected AGR coverage level, as long as that amounts not more than 90 percent of the farm's expected revenues from those crops.

Revenue to Count

Under SURE, a farm's **total farm revenue** consists of the sum of the following five elements:

1. Estimated market revenues for each crop = actual yield harvested per planted acre x estimated regional market price x planted acres. The regional price is estimated by the USDA National Agricultural Statistical Service (NASS).

2. 15 percent of the farm's direct payments.

3. All countercyclical program payments or ACRE program payments.

4. All payments received under the Loan Rate/Loan Deficiency Payment/Marketing Loan Gain programs.

5. All crop insurance indemnity payments (and NAP payments).

SURE Payment

As discussed above, the SURE payment is equal to **60 percent** of the difference between a farm's **SURE guarantee** and its **total revenue**.

An Example Farm

Many dryland farms in Montana raise two economically significant crops; wheat and barley. Some farmers also raise peas and lentils and/or minor oilseeds like canola, mustard seed, safflower, sunflower and crambe. The example farm has 4,800 acres of cropland and is representative of full-time farming operations in the four-county corner of Northeast Montana. The farm plants 2,000 acres of spring wheat, 500 acres of feed barley, and 300 acres of canola, and fallows the remaining 2,000 acres. Expected planted acre (farm APH) yields are 25 bushels for spring wheat produced after fallow, 30 bushels for feed barley, and 850 lbs for canola (Table 1).

Table 1: Example Farm, Roosevelt County

Crop	Acres Planted	Planted Acre Yields
Spring Wheat	2,000	25 bushels
Feed Barley	500	30 bushels
Canola	300	850 pounds
Fallow	2,000	----------
Total	**4,800**	**NA***

* NA denotes not applicable

Expected Revenues

In 2009, farmers in Roosevelt and other Northeast Montana counties, could insure spring wheat and barley under a range of alternative APH based yield and revenue insurance products. However, area yield and revenue plans were only available for wheat, but yield APH insurance was the only insurance product available for canola. The insurance products available for each crop and the RMA estimated expected harvest prices associated with each of those products are identified (Table 2). The farm's estimated expected revenues from market sales for each crop under each plan, given the farm's planting decisions and APH yields are estimated (Table 3).

Expected market revenues vary by plan because the farm's expected price for a crop varies among the plans. In 2009, for example, farms could value their barley crop at up to $3.70 a bushel under a traditional APH yield product but at only $2.65 per bushel under a revenue insurance plan. As a result, the farm's estimated expected revenues from barley under the traditional APH yield plan are $55,500 but only $39,750 under the APH revenue insurance plan.

The SURE Guarantee

The farm's SURE guarantee is determined by the types of insurance product it chooses and the coverage level it selects within those products. To illustrate the effects of different insurance product choices, we consider four scenarios. In Scenario 1, the farm purchases traditional APH products for each crop and selects a 65 percent coverage level and a 100 percent price election (Table 4).

Table 2: Insurance Products Available in Roosevelt County by Crop and RMA 2009 Estimated Expected Harvest Price

Insurance Product	Spring Wheat	Feed Barley	Canola
APH (MPCI Yield)	Yes, $7.65 per bushel	Yes, $3.70 per bushel	Yes, 21.86 cents per lb
Revenue Insurance (APH) [A]	Yes, $6.20 per bushel	Yes, $2.65 per bushel	Not Available
Area Yield (GRP)	Yes, $7.65 per bushel	Not Available	Not Available
Area Revenue (GRIP)	Yes, $6.20 per bushel	Not Available	Not Available

[A] Both the CRC and Revenue Assurance revenue insurance plans are available for wheat while Revenue Assurance (RA) is the only revenue insurance plan available for feed barley. These two plans will be merged into a single plan with a single premium rate schedule in 2010 and already have very similar features. Hence they are treated as if they are the same plan. No farmers purchased AGR-Lite and so whole farm income plans are omitted from this table.

Table 3: Expected Market Revenues by Insurance Products for Each Crop
(Expected price x APH yield x planted acres)

	Wheat	Feed Barley	Canola
Yield Insurance (MPCI APH)	$382,500	$55,000	$54,743
Revenue Insurance (APH)	$310,000	$39,750	Not available
Area Yield Insurance (GRP)	$325,000	Not Available	Not Available
Area Revenue Insurance (GRIP)	$310,000	Not Available	Not Available

In Scenario 2, the farm uses traditional APH products and a 100 percent price election, but for each crop, the farm selects a 75 percent coverage level. In Scenario 3, the farm purchases APH revenue insurance products for wheat and barley, APH yield insurance for canola, and selects a 65 percent coverage level. Scenario 4 is identical to Scenario 3 with one exception; the farm selects a 75 percent coverage level for each crop. While GRP and GRIP products are available for wheat, sales of these products in Roosevelt County and adjacent counties are negligible. So scenarios that incorporate GRP or GRIP products are not developed.

SURE revenue guarantees for the farm under the four scenarios are presented in Table 4. The methods by which these guarantees are calculated are presented in the Appendix Table A1. Purchasing insurance coverage involves premium payments. The farmer's premium payments under each scenario are also presented (Table 4). These premium payments are obtained using the USDA RMA premium calculators provided on the RMA home page.

Revenue to Count

As discussed above, in determining a farm's eligibility for a SURE payment and the size of that payment, five types of revenue are included: (1) estimated market revenues for each crop (actual yield per planted acre x planted acres x estimated regional market price), (2) 15 percent of the farm's direct payments, (3) all countercyclical program payments or ACRE program payments (4) all Loan Rate/Loan Deficiency Payment/Marketing Loan Gain payments, and (5) all crop insurance indemnity payments (and NAP financial assistance received)

The example farm is assumed to participate in the direct payment/countercyclical payment (DCP) program. However, national average crop prices are assumed to be too high to trigger countercyclical payments or marketing loan gains and loan deficiency payments. So the farm has only three potential sources of revenue to count: estimated market revenues, crop insurance indemnities, and 15 percent of the farm's direct payments. In 2009, the farm's direct payments for each crop equal its production acres for the crop multiplied by (a) the farm's direct payment crop yield, (b) the crop payment rate and (c) 83.3 percent.

The farm's direct payment yields[2], payment acres (determined by historical production decisions), payment rates (determined by the provisions of the 2008 farm bill), and direct payments for each crop are as follows:

Crop	Payment Acres	Payment Yields (per acre)	Payment Rate	Total Direct Payment
Wheat	2000	20 bushels	52 cents per bushel	$17,326
Barley	500	25 bushels	24 cents per bushel	$2,499
Canola	300	700 lbs	0.8 cents per lb	$1,399
TOTAL	2,800	-----	NA*	$21,224

* NA denotes Not Applicable

[2] The farm's direct payment yields are substantially lower than its APH yields because they were determined by the yields the farm achieved in the early and mid-1980s).

Table 4: Expected Revenues, Disaster Guarantees and Producer Premium Costs under Alternative Insurance Coverage Scenarios

	Total Expected Crop Revenues	SURE Revenue Guarantee (total expected crop revenues x coverage level x 1.15)	Producer Premium Payments [C]
Scenario 1: APH Yield, 65 percent coverage	$493,743[A]	$369,077	$18,815
Scenario 2: APH Yield, 75 percent coverage	$493,743[A]	$425,853	$29,597
Scenario 3: APH Revenue, 65 percent coverage	$405,493[B]	$303,106	$15,532
Scenario 4: APH Revenue, 75 percent coverage	$405,493[B]	$369,073	$26,066

[A] In scenarios 1 and 2, the farm's total expected crop revenue is the sum of the expected market revenues for each crop when the farmer selects an APH yield product for all three crops with a 100 percent price election, as shown in Table 3.

[B] In scenarios 3 and 4, the farm's total expected crop revenue is the sum of the expected market revenues for each crop when the farmer selects an APH revenue product for wheat and feed barley and an APH yield product with a 100 percent price election for canola (because a revenue product is not available for canola).

[C] Producer premium payments are the out-of-pocket payments that must be paid for the insurance coverage the farm purchases. They are computed using the RMA premium calculator available on the RMA home page, assuming that the Revenue Assurance product is used to obtain revenue insurance for both wheat and barley but does not include the harvest price option. The payments reported in Table 3 include a $30 administrative fee for each crop contract, which is generally waived for socially disadvantaged and limited resource farmers, and are based on the assumption that the farm insures basic units (rather than optional units or enterprise units). Note that producer premium payments are not due until harvest time and, if an indemnity is due, are typically deducted from the indemnity payment.

[D] In each scenario, the SURE guarantee estimate based on multiplying total expected revenue by the coverage level and 1.15 percent is less than 90% of total expected crop revenues and therefore is the SURE guarantee.

The farm's total direct payment for all crops is therefore $21,224 of which 15 percent, or $3,184, is included in the farm's revenue to count against its SURE guarantee.

The farm's estimated actual market revenues for a crop equal its actual yield multiplied by the regional average harvest price (as reported by USDA). The farm's insurance indemnities for a crop are determined by the farm's actual yield, its selected coverage level and price election, and, in the case of revenue insurance, the national average harvest price (as reported by USDA).

To examine what happens when the example farm is eligible for a SURE payment under each of the four insurance scenarios, three crop production outcomes are considered and, for each production outcome, two price outcomes are considered. In a given production outcome, the farm is assumed to experience the same proportional loss in production for each crop. The three production outcomes are as follows:

Production Outcome I (moderate loss): The farm obtains 70 percent of its expected crop yields (the APH yields).

Production Outcome II (substantial loss): The farm obtains 50 percent of its expected crop yields.

Production Outcome III (catastrophic loss): The farm obtains 30 percent of its expected crop yields.

The two price outcomes are as follows:
Price Outcome 1(expected price outcome):

> Each crop's actual national (and regional) average price equals the harvest price estimated by RMA to be expected in the fall under the APH yield contract ($7.65 per bushel for wheat, $3.70 per bushel for barley, and 21.86 cents per lb for canola).

Price Outcome 2 (low price outcome):

> Each crop's actual national (and regional) average price is 20 percent lower than the harvest price estimated by RMA under the APH yield contract.

Thus, for each of the four insurance scenarios, there are six possible combinations of production and price outcomes: moderate loss, expected price; moderate loss, low price; substantial loss, expected price; substantial loss, low price; catastrophic loss, expected price; and, catastrophic loss, low price.

Simulation Results

Outcomes for market revenues, insurance indemnities, total farm revenues, SURE payments and the farm's total revenues from all crop production related sources of income are presented for all six production/price outcomes for each of the four insurance scenarios (Tables 5 through 8).

The results for Scenario 1 (each crop insured under a 65 percent coverage APH yield contract) are presented (Table 5). They show that when yields are 70 percent of the APH yield and the farm has selected a coverage level of 65 percent, the farm receives no insurance indemnities because the actual yield exceeds the trigger yield for each crop. When the price of each crop is equal to its expected price and yields are 70 percent of the farm's APH, a $12,161 SURE payment is available under the 65 percent APH coverage option. The SURE payment is relatively small because the coverage level of 65 percent results in a SURE guarantee that is relatively low.

When actual yields are 70 percent of the farm's APH yield larger and prices are 20 percent below their expected levels, the SURE payment is relatively substantial. Low market prices, combined with an absence of crop insurance indemnities, drive revenues from market sales down and cause the farm's revenue to count to fall below the SURE guarantee.

When yields decline to 50 percent or 30 percent of the farm's APH yields and crop prices achieve their expected levels, then the farm receives crop insurance indemnities and SURE payments that stabilize the farm's total revenues at $367,024. When market prices are 20 percent lower than expected the farm again receives a SURE payment, but that payment declines as the farm's yield decreases from 50 to 30 percent because crop insurance indemnities increase more rapidly than market revenues decrease. This is because the prices at which the farm is able to sell each crop in the marketplace are now lower than the prices at which yield losses are insured.

The results for Scenario 2 (each crop insured under a 75 percent coverage APH yield contract) are presented (Table 6). In Scenario 2, a moderate 30 percent yield loss results in indemnity payments because the farm has selected a 75 percent coverage level in its APH yield contracts.

Table 5: SURE Payments and Farm Incomes in Insurance Scenario 1 (all crops are insured using a 65 percent coverage APH yield contract)

	Moderate Yield Loss (70% of APH)		Substantial Yield Loss (50% of APH)		Catastrophic Yield Loss (30% of APH)	
	Prices are as expected	Prices are 20% lower than expected	Prices are as expected	Prices are 20% lower than expected	Prices are as expected	Prices are 20% lower than expected
Market Revenues + 15% of Direct Payment	$348,804.1	$279,680.1	$250,055.5	$200,681.2	$151,306.9	$121,682.32
Crop Insurance Indemnities						
Wheat	0	0	$57,375	$57,375	$133,875	$133,875
Barley	0	0	$8,325	$8,325	$19,425	$19,425
Canola	0	0	$8,361	$8,361	$19,510	$19,510
Total Farm Revenue (TFC)	$348,804	$279,680	$324,117	$274,742.7	$324,116	$294,492
SURE Guarantee (SG)	$369,073	$369,073	$369,073	$369,073	$369,073	$369,073
SURE Payment [(60% x (SG - TFR)]	$12,161	$53,636	$26,974	$56,598	$26,974	$44,748
Farm's Total Income	$376,898	$349,249	$367,024	$347,274	$367,024	$355,174

Table 6: SURE Payments and Farm Incomes in Insurance Scenario 2 (all crops are insured using a 75 percent coverage APH yield contract)

	Moderate Yield Loss (70% of APH)		Substantial Yield Loss (50% of APH)		Catastrophic Yield Loss (30% of APH)	
	Prices are as expected	Prices are 20% lower than expected	Prices are as expected	Prices are 20% lower than expected	Prices are as expected	Prices are 20% lower than expected
Market Revenues + 15% of Direct Payment	$348,804	$279,680	$250,056	$200,681	$151,307	$121,682
Crop Insurance Indemnities	$19,125	$19,125	$95,625	$95,625	$172,125	$172,125
Wheat	$2,775	$2,775	$13,875	$13,875	$24,975	$24,975
Barley	$2,787	$2,787	$13,936	$13,936	$25,084	$25,084
Canola	$348,804	$279,680	$250,056	$200,681	$151,307	$121,682
Total Farm Revenue (TFC)	$373,491	$304,367	$373,491	$324,117	$373,491	$343,867
SURE Guarantee (SG)	$425,852	$425,852	$425,852	$425,852	$425,852	$425,852
SURE Payment [(60% x (SG - TFR)]	$31,417	$72,891	$31,417	$61,041	$31,417	$49,191
Farm's Total Income	$420,841	$393,191	$420,841	$401,091	$420,841	$408,991

Table 7: SURE Payments and Farm Revenues in Insurance Scenario 3 (wheat and barley are insured using a 65 percent coverage APH revenue contract)

	Moderate Yield Loss (70% of APH)		Substantial Yield Loss (50% of APH)		Catastrophic Yield Loss (30% of APH)	
	Prices are as expected	Prices are 20% lower than expected	Prices are as expected	Prices are 20% lower than expected	Prices are as expected	Prices are 20% lower than expected
Market Revenues + 15% of Direct Payment	$348,804	$279,680	$250,056	$200,681	$151,307	$121,682
Crop Insurance Indemnities						
Wheat	$0	$0	$10,250	$48,500	$86,750	$109,700
Barley	$0	$0	$0	$6,660	$9,188	$12,518
Canola	$0	$0	$8,361	$8,361	$19,510	$19,510
Total Farm Revenue (TFC)	$348,804	$279,680	$268,667	$264,203	$266,754	$263,410
SURE Guarantee (SG)	$303,106	$303,106	$303,106	$303,106	$303,106	$303,106
SURE Payment [(60% x (SG - TFR)]	$0	$23,425	$20,663	$23,342	$21,811	$23,817
Farm's Total Income	$364,737	$319,039	$305,263	$303,477	$304,498	$303,160

Table 8: SURE Payments and Farm Revenues in Insurance Scenario 4 (wheat and barley are insured using a 75 percent coverage APH revenue contract)

	Moderate Yield Loss (70% of APH)		Substantial Yield Loss (50% of APH)		Catastrophic Yield Loss (30% of APH)	
	Prices are as expected	Prices are 20% lower than expected	Prices are as expected	Prices are 20% lower than expected	Prices are as expected	Prices are 20% lower than expected
Market Revenues + 15% of Direct Payment	$348,804	$279,680	$250,056	$200,681	$151,307	$121,682
Crop Insurance Indemnities						
Wheat	$0	$0	$41,250	$79,500	$117,750	$140,700
Barley	$0	$0	$2,063	$7,613	$13,163	$16,493
Canola	$0	$0	$8,361	$8,361	$19,510	$19,510
Total Farm Revenue (TFC)	$348,804	$279,680	$301,730	$296,155	$301,729	$298,385
SURE Guarantee (SG)	$349,738	$349,738	$349,738	$349,738	$349,738	$349,738
SURE Payment [(60% x (SG - TFR)]	$560	$42,035	$28,805	$32,150	$28,805	$30,812
Farm's Total Income	$365,297	$337,648	$346,468	$344,238	$346,468	$345,130

Moreover, because the farm's coverage level is higher than in Scenario 1, the farm's SURE guarantee is higher resulting in a higher SURE payment even when market prices achieve their expected levels. As yields decline, crop insurance indemnities increase, but the SURE payment remains constant because the crop insurance indemnities increase at the same rate at which market revenues decline The reason for this outcome is that, for each crop, the price at which lost yield is valued for indemnity purposes is the same as the price in the marketplace. When the market price decreases to 80 percent of its expected level, at each of the three yield levels considered, the SURE payment increases substantially to compensate for the loss of market revenues associated with the lower price.

The results for Scenario 3 (wheat and barley are insured under a 65 percent APH revenue contract and canola is insured under a 65 percent APH yield contract) are presented (Table 7). In this scenario, the SURE revenue guarantee is lower than in the 65 percent APH yield contract scenario (Scenario 1). The reason is that the expected price available for insurance purposes under the revenue contract is lower than the expected price available for insurance purposes under the yield contract for both wheat and barley (Table 2).

In this scenario, when yield losses are moderate (yields are 70 percent of their APH), because market prices either exceed or equal the expected prices at which the crops are insured, crop insurance indemnities are not paid on any of the crops. In addition, because the SURE guarantee is relatively low, no SURE payment is available when yield losses are moderate and prices are as expected. When crop yields decline to 50 percent or 30 percent of the farm's APH yields, the farm does receive crop insurance indemnities and those indemnities increase when crop prices decline. The farm also receives a SURE payment in those environments, but the SURE payment is relatively small.

The results for Scenario 4 (wheat and barley are insured under a 75 percent APH revenue contract and canola is insured under a 65 percent APH yield contract) are presented (Table 8). In this scenario, even though a 75 percent coverage level is selected, the farm receives no indemnities when yield losses are moderate (70 percent of the farm's APH yields).

However the higher coverage level causes a substantial increase in the farm's SURE guarantee, and that increase is sufficient to ensure that a SURE payment will be made both when crop prices are at their expected levels and when they are 20 percent below those levels. As yields decline (to 50 percent and then 30 percent of the farm's APH yields), crop insurance indemnities increase, and SURE payments continue to be made. SURE payments actually decrease a little as yields decline from 50 percent to 30 percent of the farm's APH yield because prices at which yield losses are valued for indemnity purposes are higher than market prices. The result is that market revenues decline more slowly than indemnity payments increase, and so, as yields decline, the farm's revenue to count again to its SURE guarantee actually increases.

Summary

The example farm simulations show that, as the crop insurance yield coverage levels increase, the **SURE guarantee** also increases quite substantially and results in larger disaster payments. In addition, the simulations demonstrate that the SURE program provides larger benefits when market prices are relatively low. This means that, to some extent, the SURE program protects farmers against both low yield outcomes and low price outcomes. Although higher coverage levels result in higher SURE disaster payments, it's important to remember that those higher SURE disaster payments come at some cost. To obtain higher coverage levels the example farm has to pay higher out-of-pocket premiums, as shown in Table 4. While the higher coverage levels also result in higher insurance indemnities, the increases in premium payments are substantial. The total producer premium payments for APH yield contracts increase from $18,815 to $29,597 as the coverage level is increased from 65 percent to 75 percent. A similar increase in producer premium payments occurs when the farm increases its APH revenue coverage level from 65 percent to 75 percent. Finally, the simulations clearly demonstrate that the linkages between a farmer's choice of insurance contracts coverage levels and disaster payments are complex. Farmers need to assess what will work best for their own operations as they ensure that they eligible for the new SURE Crop Disaster program.

Appendix: Table A1
SURE Guarantee Computations for Representative Farm
Under Insurance Scenarios 1-4

	APH Yield Expected Gross Revenues	**Scenario 1 (65% coverage)**	**Scenario 2 (75% coverage)**	**APH Revenue for wheat and barley**	**Scenario 3 (65% coverage)**	**Scenario 4 (75% coverage)**
Wheat	2000 acres x 25 bushels x $7.65/bushel = $382,500	$248,625	$286,875	2000 acres x 25 bushels x $6.20/bushel = $310,000	$201,500	$232,500
Barley	500 acres x 30 bushels x $3.70/bushel = $55,000	$36,075	$41,625	500 acres x 30 bushels x $2.65/bushel = $39,750	$25,838	$29,813
Canola	300 acres x 850 lbs $0.2189/lb = $55,743	$36,233	$41,807	300 acres x 850 lbs $0.2189/lb = $55,743	$36,233	$41,807
Total (Wheat, Barley and Canola)	$493,743	$320,933	$370,307	$405,493	$263,570	$304,120
Total x 1.15 (SURE guarantee)	NA*	$369,073	$425,853	NA*	$303,106	$349,738

*NA = Not Applicable