Production Risk Management Options for Wyoming Ranches: Crop Insurance and Federal Disaster Programs

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Executive Summary

Ranchers know they are involved in risky enterprises and use a wide range of tools to manage risk and reduce the chances that they will suffer financial losses. In other words, they are experienced in developing and implementing risk management strategies for their operations.

Increasingly, federal insurance for agricultural commodities offered by the Federal Crop Insurance Corporation has become an important and attractive risk management tool for ranchers. Ranchers in Wyoming have access to a range of federally-subsidized insurance products to facilitate their ability to manage production risk.

This policy paper provides descriptions of forage production, feed barley and rangeland insurance products developed under contract with the Federal Crop Insurance Corporation and made available to Wyoming ranch operations by private insurance companies agents. Administrative oversight for federal insurance products available to ranchers is provided by the Risk Management Agency (RMA) of the United States Department of Agriculture (USDA).

The paper also provides detailed descriptions of three disaster programs authorized under the 2008 Farm Bill that apply directly to Wyoming ranch operations and that also require ranches to purchase federally-subsidized crop insurance products and/or obtain Noninsured Crop Disaster Assistance Program (NAP) coverage from the USDA Farm Service Agency. The three disaster aid programs are the Supplemental Revenue Assistance Payment Program (SURE), the Livestock Forage Disaster Program (LFP), and the Emergency Assistance for Livestock Honey Bees and Farm Raised Fish Program (ELAP). All three programs are administered by the Farm Service Agency (FSA). However, producers should be aware that at the time this paper was published (August, 2011), Congress had not approved funding for these programs for the 2012 fiscal year, although such funding may subsequently become available.

In this paper, the impacts of alternative ranch risk management strategies based on the use federal crop insurance and NAP coverage are examined. The approach is to simulate the effects of those alternative risk management strategies in limiting the adverse financial consequences of production risks for a representative ranch located in Fremont County. The simulations account for the interactions in each strategy between crop insurance indemnities and disaster payments when the ranching operation is in a county eligible for disaster aid or the ranch is otherwise eligible.

The representative Fremont County ranch is structured as follows: The ranch depends primarily on range forage to sustain a cow calf and yearling operation. It operates with 250 mature cows, 50 replacement heifers, 12 range bulls, and, in most years, about 75 yearlings. The ranch has a limited irrigated cropland base that consists of 340 acres of alfalfa hay and 80 acres of feed barley. The ranch has an extensive rangeland base of nearly 37,500 acres, equally divided between permitted BLM rangeland and deeded rangeland.

Many production risk management strategies can be pursued on the representative and many Wyoming ranches. A ranch manager is likely to choose among alternative strategies on the basis of the ranch business's financial structure and the ranch manager's preference about taking on or avoiding risk. Ranchers use a variety of production techniques that reduce forage and livestock losses such as rotational grazing and inoculating livestock against disease. Additionally ranchers employ strategies that involve insurance products and, when they are triggered, permanent disaster programs. In this analysis, the ranch manager is assumed to be interested in four production risk management strategies and two combinations of these basic strategies. These strategies involve different combinations of the following federally-subsidized insurance products that are available to Wyoming ranchers: Yield Production Plan (YPP), Actual Production History (APH) and Pasture, Rangeland, Forage Vegetation Index (VI-PRF). Some strategies also involve use of the Noninsured Crop Disaster Assistance Program (NAP) offered for fee through the FSA.

Three "production year outcome" scenarios are examined for the representative ranch.

In the first scenario the ranch enjoys an average or good year. Crop yields are about average and crop and livestock prices are close to their expected levels. Consequently there are no shortfalls in yields, prices or revenues. As a result, the ranch receives no crop insurance indemnities, but pays the premiums it owes for the insurance it purchases (and/or NAP fees). Additionally there are no catastrophic events that make permanent disaster program payments available to the rancher.

In the second scenario a severe drought occurs in central and northwest Wyoming leading to limited irrigation and resulting in a 60 percent decline in mechanically harvested crop and forage yields (and proxy variables for yields) and a similar reduction of rangeland forage. In this scenario, the representative ranch will receive crop insurance indemnities for production losses of irrigated hay, irrigated feed barley and rangeland (or alternatively or additionally financial assistance payments when the rangeland was covered by NAP). Additionally disaster payments may be available through the Supplemental Revenue Assistance Payment Program (SURE) and the Livestock Forage Disaster Program (LFP).

In the third scenario, the drought conditions described in the previous scenario persist and contribute to conditions in which a range fire occurs on 8,000 acres of the ranch's permitted BLM rangeland. The range fire also leaps a ranch road and burns about 700 tons of baled hay in the ranch's stack yard. In this scenario, the ranch will again receive crop insurance indemnities for alfalfa hay, feed barley and rangeland yield losses and SURE disaster payments. Additionally, the ranch will be eligible for disaster payments to compensate for the forage loss caused by fire on public rangeland and the ranch's loss of harvested hay because of fire under the Livestock Forage Disaster Program (LFP) and the Emergency Assistance for Honey Bee and Farm-raised Fish Program (ELAP).

Introduction

Ranching is a financially risky business. On Wyoming ranches forage losses from natural hazards (severe drought, insect infestation, etc.) often occur. Livestock losses also occur because of adverse winter weather, summer heat, animal disease and predation. The link between ranch level production losses and commodity prices is weak. At the market level, when production is relatively low prices tend to be relatively high, but an individual rancher may experience low levels of production because of locally adverse production conditions when commodity prices are also low.

Ranchers know they are involved in risky enterprises and use a wide range of techniques to manage risk. Typically, they use a wide range of techniques to reduce the chances that they will suffer financial losses; that is, they develop and implement risk management strategies for their operations. Ranchers use production techniques that reduce livestock and forage production losses such as inoculating cattle against diseases and managing a mix of rangeland types that provide forage in different seasons to limit the grazing losses due to drought. They also use rotational and other cropping and forage management systems to improve soil moisture retention, and they manage the wildlife - domestic livestock interface to reduce stock losses.

Increasingly, federally-subsidized insurance for agricultural commodities offered by the Federal Crop Insurance Corporation has become an important risk management tool for ranchers. Ranchers in Wyoming now have a range of federally-subsidized crop insurance products to facilitate their ability to manage production risk. These include products that provide a rancher with an indemnity when there are crop/forage specific production or yield losses. Yield products, called Multiple Peril Crop Insurance (MPCI) products, provide indemnities when yields for the insured crop are low. Some ranch-specific products are crop-loss products that provide an indemnity only when the rancher's yields for a crop are low.

Ranchers in Wyoming are also able to purchase insurance products that provide indemnities when the area in which the ranch operation is located experiences low per acre crop yields (called Group Risk Plans). Historically, the area has been the county in which the ranch is located. A sub-county area-based product for forage losses, the Pasture Rangeland and Forage Vegetation Index (VI-PRF) product, has been available to Wyoming producers in recent years. The VI-PRF uses satellite information on vegetation growth for areas that are approximately 4.8 miles square to determine eligibility for indemnities and the size of indemnity payments.

Until recently ranchers could only access federally-subsidized crop insurance coverage through separate insurance contracts for each crop or forage. However, since 2007 whole farm (ranch) insurance has been available in Wyoming in the form of the RMA Adjusted Gross Revenue Lite (AGR-Lite) product. This product provides indemnities to producers when a ranch's adjusted gross income from multiple enterprises is either low relative to historical levels or low relative to expected revenues. AGR-Lite may be used as a stand-alone product or in tandem with crop and livestock enterprise specific insurance products. AGR-Lite can also be used to satisfy the production risk management purchase requirement for Federal disaster programs. [**AGR-Lite participation by Wyoming farmers and ranchers has been very limited, so this insurance product in not considered as part of the representative ranch's agricultural insurance strategies].**[1]

The 2008 Farm Bill established five permanent or standing disaster aid programs for farmers and ranchers. Four of these programs have the potential to provide substantial benefits for Wyoming ranchers. The disaster programs most relevant to ranch management are as follows:

- The Supplemental Revenue Assistance Payments Program (SURE);
- The Livestock Forage Disaster Program (LFP);
- The Livestock Indemnity Program (LIP); and

[1] Readers seeking more information on AGR-Lite should refer to: ***Adjusted Gross Revenue Lite: A Whole Farm Revenue Insurance Available in Wyoming***: Montana State University Agricultural Marketing Policy Center Policy Paper No: 24, February 2008.

- The Emergency Assistance for Livestock, Honey Bees, and Farm-raised Fish Program (ELAP).

Production Risk Management on Wyoming Livestock Ranches

Some production risk management efforts undertaken by a ranch manager are highly visible. Other risk management efforts may not be so obvious. The primary forage harvested by Wyoming ranchers, hay for winter feeding, is subject to considerable production risk. Some ranches only produce upland hay and, in drought years, either have no production or experience substantial production losses. Other ranches may produce irrigated hay, often alfalfa, using irrigation water diverted from a stream or water from a small storage reservoir. In some drought years, irrigation may not be possible or may be limited to the early part of the production season, reducing hay crops because of lower yields per cutting and/or fewer cuttings. In other years, even when good management practices are followed, hay production may be relatively low because of other natural causes such as disease or insect infestations. Many Wyoming ranch managers address the problem by establishing relatively large hay inventories, more than they are most likely to need for the next winter feeding period. This strategy generally guarantees that they will have sufficient hay if the winter feeding period is longer and/or more severe than usual. The strategy also typically provides some carryover hay for the next year's winter feeding period. If hay production is limited in the current production year, the ranch then has carryover hay in its inventories for its livestock.

Rangeland forage in Wyoming is also subject to substantial production risk. Many Wyoming ranch managers use stocking rates that maintain rangeland quality and leave useable forage on the land after grazing. Views differ about how much of a forage resource should be utilized, but in periods of adequate precipitation and other satisfactory growing season conditions, many Wyoming producers leave some forage that could have been grazed. On grazingland, standing forage serves as a ranch's inventory for periods when range production is restricted because of limited precipitation, excessive heat, and other adverse growing conditions. When forage production is stressed on rangeland leased from public agencies, rangeland forage utilization may be restricted in several ways, including the imposition of lower stocking rates or specification of early pull-off dates.

Many Wyoming ranches raise their own replacement heifers. A cow-calf operation may retain more replacement heifers than might be expected. Such "overstocking" provides the rancher with some risk protection against loss of animals or infertility. More mature cows may be culled from a herd than would be indicated by recommended culling rates. For instance, additional culling might be needed if pregnancy testing indicates that several mature cows are open. Further, some replacement heifers may be without calf, or a ranch manager may wish to cull some of replacement heifers with calf for other reasons.

Risk management strategies also may involve crop insurance products. Some ranchers choose not to purchase any type of insurance. Ranchers who pursues this option choose to ***self insure***. Some potential causes of production loss can be addressed using ***single peril*** crop insurance products. For example, a rancher may choose to take out an insurance policy that would provide an indemnity if their stacked hay were to be destroyed by fire. Single peril insurance products are available through private insurance companies but generally are not products developed by RMA, and their premiums are not subsidized by the federal government. Alternatively a rancher may choose a more comprehensive approach and use a ***multiple peril*** crop insurance product developed under auspices of the RMA with premium subsidies provided by the federal government.

In recent years, the mix of federally-subsidized RMA crop insurance products for Wyoming ranchers has been expanded. New products have been developed through contractual agreements with the Federal Crop Insurance Corporation (FCIC). Such products must be revewed by independent experts and approved by FCIC before being offered to ranchers and other agriculturaL producers. On many ranches, federally-subsidized insurance products provide protection against yield

losses of feed grain, forage and rangeland production.

In addition, the 2008 Farm Bill established five permanent disaster aid programs for operations in eligible counties and sub-county areas. These programs do not require ranchers to enroll in them to the occurrence of a disaster, but three of the programs have a risk management purchase requirement that requires agricultural producers to obtain protection through federal risk management programs (RMA crop insurance products and/or the FSA NAP program) to be eligible for disaster aid payments. The following two sections provide more detailed information about multiple peril crop insurance products and NAP and the permanent disaster programs most relevant for Wyoming ranchers.

RMA Crop Insurance Products and the FSA NAP Program: Yield based APH insurance products, the Pasture Rangeland and Forage Vegetation Index (VI-PRF) product and the FSA's Noninsured Crop Disaster Assistance Program are described in this section.

Yield-Based Crop Insurance---Yield based APH insurance policies include Multiple Peril Crop Insurance (MPCI) and Group Risk Plan (GRP) policies. Under MPCI policies, indemnity payments are triggered by low yields on an individual producer's insured acres. Under GRP policies, indemnity payments are triggered by low county-wide or other specified area yields or indexes.

Producers of major crops like barley have been able to utilize federal MPCI policies to insure against yield losses for many years. A rancher may purchase a MPCI policy for optional units, or combine optional units to insure basic units, or combine basic units into an enterprise unit which includes all acreage planted to the crop in the same county. An APH approved average yield must be established for each crop for each unit that is insured.

A producer selects a **coverage level** for each crop, defined as the percentage of the APH yield on each insurable unit against which insurance is to be purchased. Producers can insure between 50 percent and 75 percent of their APH yield for most crops in most counties, although, in some areas, 85 percent of the APH yield can be insured for some crops (for example, irrigated barley).

The **yield guarantee** is the producer's **APH yield** multiplied by the **coverage level** selected by the producer. If the actual yield falls below the yield guarantee then the producer receives an indemnity payment. In quantity terms, the **indemnity payment** is equal to the difference between the **yield guarantee** and the **actual yield** multiplied by the number of insured acres.

Suppose a producer has an APH yield of 4.00 tons per acre and selects a 75 percent yield election on a 100 acre optional unit in which the producer has a 100 percent ownership share. The producer's yield guarantee is computed as follows: Yield Guarantee = (Yield Election) x (APH yield) x (Share) = 0.75 x 4.00 tons per acre x 1.00 share = 3.00 tons per acre

Suppose the producer, due to some insurable event, only harvests 2.00 tons per acre. The yield guarantee of 3.00 tons per acre is greater than the actual yield of 2.00 tons per acre and so the producer is eligible for an indemnity payment. In quantity terms, the Indemnity Payment = (Yield Guarantee - Actual Yield) x (Insured Acres) = (3.00 tons/acre - 2.00 tons/acre) x 100 acres = 100 tons.

For each MPCI crop, the FCIC establishes an expected market price for the forthcoming crop year and a producer can select a **price election** of between 60 percent and 100 percent of that price. The elected price is the price at which a producer's quantity loss is valued. In dollar terms, if a quantity indemnity loss is incurred then the producer receives a dollar indemnity payment equal to the quantity indemnity loss multiplied by the elected price.

Suppose the FCIC establishes a market price (prior to insurance signup) for the insured crop of $112 per ton and no additional price is subsequently announced. A producer selects a 75 percent price election. The Elected Price = (Price Election) x (FCIC Market Price) = 0.75 x $ 112.00 per ton = $84.00 per ton and the Indemnity Payment =

Indemnity Payment (in Quantity Terms) x Elected Price = 100 ton x $ 84.00 per ton = $8,400.

Premium rates are expressed as percentages of coverage. Different premium rates are applied for each coverage level. As coverage levels increase, premium rates paid by producers also increase because larger portions of their crops are covered against loss. The producer's premium rate is applied to the **maximum dollar indemnity payment** the producer could receive under the contract, also called the **liability** or **amount of insurance purchased**. This is the indemnity payment the producer will receive if there is a total crop loss; that is, if the actual harvest yield is zero. The total premium payment for a policy is equal to this **liability** multiplied by a premium rate. A producer must also pay an administrative fee.[2]

Beginning in 2011, APH-based yield and revenue multiple peril insurance products were affected by implementation of RMA's new **Common Crop Insurance Policy** basic provisions. The **Common Crop Insurance Policy** combined several yield and revenue APH insurance products (APH, CRC, RA, and IP) into one policy. The **Common Crop Insurance Policy** standardized the methods by which premium rates, coverage levels, and other elements of the yield and revenue policies it replaces. For example, expected market prices for many crops now covered under the **Common Crop Insurance Policy** are now derived from Commodity Exchange futures contract prices. Crops such as barley are now covered under the **yield protection plan** of insurance with Commodity Exchange price determination. Forage production from alfalfa hay (and certain other crops) continues to be an **APH** crop because no Commodity Exchange price discovery exists for the crop, i.e., crops without a futures price contract. APH insurance for alfalfa hay forage production will continue to utilize RMA **established prices** and **additional prices** when changing market conditions merit price changes.

[2] A more complete discussion of yield based insurance (before recent revisions) is provided in ***Federal Crop and Crop Revenue Insurance Programs: Multiple peril and Catastrophic Coverage Policies***, Montana State University Agricultural Marketing Policy Center, Briefing No. 8 (Revised), October 2003.

Pasture, Rangeland, and Forage Vegetation Index (VI-PRF) Insurance---The VI-PRF insurance product allows producers to obtain indemnities when widespread reductions in pasture or forage production occur in a designated area called a ***grid.*** The insurance program is primarily intended for use by ranchers and other agricultural producers whose forage production (feed for livestock comprised of plants grown for haying or grazing) tends to follow the average growth patterns of the ***grid***, about 4.8-miles by 4.8-miles in area, in which at least some of the producer's contiguous grazingland or hayland is located.

A vegetation index called the Normalized Difference Vegetation Index (NDVI) serves as proxy or indicator variable for pasture, range and forage production. The index is calculated using satellite data on plant greenness from the U. S. Geological Survey Earth Resources Observation and Science data center.

Operationally, a producer selects a "point of reference" identified by the longitude and latitude that best represents the location of the forage acreage a rancher wants to insure. This reference point determines the ***GRID ID*** for the grid whose NDVI forms the basis for the insurance the producer will purchase.

The ***crops*** to which the VI-PRF is applicable are defined as pasture, rangeland or forage. Two ***crop types*** are identified: ***grazingland*** and ***hayland***. **Grazingland** is an area of forage established on land suitable and intended for grazing by livestock. **Hayland** is an established area of hay on land suitable and intended for haying.

The VI-PRF program can be used to insure against reductions in grazingland or hayland forage production. If the NDVI is sufficiently low relative to its average (or normal value), a producer will receive an indemnity. The NDVI for each grid is normalized so that an index value of 100 always represents the average value for the grid NDVI.

Historical data on the values of the NDVI for a ***grid*** are available to a rancher and a rancher's insurance agent for each three month period or quarter from 1989 to the current year. These three month periods are called **index intervals**. In any given year, on a

national basis, the following **index intervals** are potentially available for each **crop type, grazingland** and **hayland:**

- January – March Index Interval
- February – April Index Interval
- March – May Index Interval
- April – June Index Interval
- May – July Index Interval
- June – August Index Interval
- July – September Index Interval
- August – October Index Interval
- September – November Index Interval
- October – December Index Interval

However, in any given location or grid, the intervals available to a rancher for grazingland or hayland may be limited by RMA because of vegetation growth patterns. So for a particular crop type, **hayland** or **grazingland**, only certain index intervals may be used for insurance purposes. In Wyoming, the VI-PRF index currently intervals offered for all GRIDs for grazing and hayland are identical for the two crop types and restricted to be the following intervals:

- April through June
- May through July
- June through August
- July through September
- August through October

A rancher can choose to insure a crop type, **hayland** or **grazingland,** in one or more of the **index intervals**. At least 10 percent of the eligible acres in any forage type to be insured must be in any selected interval. Furthermore, the selected index intervals cannot overlap; that is, no month can be included in more than one index interval in each VI-PRF insurance contract.

The following variables determine how much insurance coverage may be purchased.

The **coverage level** is the percentage of the **county base value** selected by a producer for insurance coverage. A rancher can chose a coverage level of 70, 75, 80, 85, or 90 percent of the **county base value** for the crop type being insured.

The **protection factor** is a value between 60 and 150 percent that a producer selects to reflect their operation's forage productivity. Ranchers often select coverage levels and protection factors to reflect the forage production value on the acreage they are insuring.

The **producer share** is the insured's share of forage production on the insured acreage. If a rancher is an owner/operator, their share is likely to be 100 percent.

The **dollar amount of protection** per acre is equal to the **county base value** per acre for the crop type times the **coverage level** selected times the **protection factor** selected. The **dollar amount of protection** per acre for **each crop type** is the same for all insured acres.

These variables are needed to determine the level of protection provided to a producer by a VI-PFR policy. The **county base value** is established by RMA.[3] The values of the variables used to calculate the **dollar value of protection** per acre (the **coverage level** and the **protection factor**) are chosen by the producer. So, the **dollar value of protection per acre = county base value per acre x coverage level x protection factor.** The **policy protection per unit** equals the **dollar value or protection** per acre multiplied by the **acres to be insured** in a unit (chosen by the rancher) and the **producer share** (determined by contractual arrangements between a rancher and landowner).

The PFR Vegetation Index policy utilizes the NDVI Index at the grid level to determine indemnity payments.

The **expected grid index** is determined by the Federal Crop Insurance Corporation based on the mean (average) accumulated NDVI values by index interval calculated using the NDVI gridded data, normalized and expressed in a percentage. The expected value for a grid is therefore always equal to 100 or 100 percent.

[3] The **county base value per acre** is the Federal Crop Insurance Corporation's determined production value of the crop in the county as contained in the actuarial documents for the VI-PRF policy.

The **final grid index value** is determined by the Federal Crop Insurance Corporation based on the current NDVI values of each grid ID and index interval during the crop year. The **final grid index value** is expressed as a percentage. An index value that exceeds 100 indicates that the NDVI for the grid has an above average value. An index value of less than 100 indicates that the NDVI for the grid has a below average value. The **final grid index value** for each index interval is published after the close of each index interval.

Premium calculations for a PRF Vegetation Index insurance contract are similar to those of other group risk insurance products. The premium rate is quoted as a dollar amount per $100 of insurance liability (the maximum indemnity payment under the provisions of a contract which equals the **dollar value protection** per acre selected by a producer times the insured acres).

Premium subsidy rates are similar those for other group risk products and subsidy rates decrease as coverage levels increase.

Producer paid insurance premiums for PRF Vegetation Index insurance contracts are calculated in the same way as for other insurance products. The **Total Premium per Unit = Dollar Protection per Acre** x Insured Acres/Unit x **Premium Rate** per $100 insurance x **Adjustment Factor** (0.01) x **Producer Share.** The **Premium Subsidy per Unit = Total Premium per Unit** x **Subsidy rate**. The **Producer Premium per Unit = Total Premium per Unit** – **Premium Subsidy per Unit.**

PRF Vegetation Index insurance indemnities are paid to a producer when NDVI **final grid index** falls below the **trigger grid index** established by the producer. The **Trigger Grid Index** =**Expected Grid Index x Coverage Level**. A unit's indemnity is defined as **Indemnity per Unit** =**Policy Protection per Unit x Payment Calculation Factor.**

As defined above, the **Policy Protection per Unit** equals per acre **Dollar Value of Protection** multiplied by the acres insured in the unit. The payment calculation factor is a rate applied to the **Policy Protection per Unit** to determine indemnities, and is defined as **Payment Calculation Factor** = **(Trigger Grid Index –Final Grid Index) ÷ [Trigger Grid Index – (Expected Grid Index x Total Loss Factor)].** Unless otherwise specified, the **Total Loss Factor** for VI-PRF is 0.30.[4]

If an insured producer wants a relatively high Trigger Grid Index, the producer will choose a relatively high coverage level.

Final Grid Index values are calculated soon after the close of each index interval so that insurance payments can be made in a timely manner.

The use of the VI-PRF product will be illustrated through its application to **hayland** in Fremont County where a rancher has a limited hay base on which he producers 50 acres of irrigated alfalfa hay.

In Fremont County the 2011 **VI-PRF county base value** for **hayland** is $230.76 per acre. [Note that the county base value for grazingland would be much lower]. The rancher recognizes that his usual per acre production of irrigated alfalfa hay to be close to the county average so he selects a **coverage level** and a **protection factor** to make sure that his per acre **dollar value of protection** will be close to the county base value.

The rancher selects a 90 percent **coverage level**, which will influence his premium subsidy, and a **protection factor** of 110 percent. The per acre **dollar value of protection** = $230.76/acre x 0.90 x 1.10 = $228.45. The rancher insures all of his 50 acres of hayland in one index interval. So the **Policy Protection per Unit** = **Dollar Value of Protection** per acre x Acres Insured x **Producer Share**. In the example, the **Policy Protection per Unit** = $228.45/acre x 50 acres x 1.00 =$11,423. On ranches with more than one insured unit the **Policy Protection** is the sum of the **Policy Protection per Unit** values.

[4] The total loss factor is a factor used in the payment calculation to establish the level of loss at which the total indemnity amount for the unit is payable. This is the level at which the vegetation effectively has zero production. The factor will be set at 0.30 unless otherwise specified in the special provisions for the policy. With a factor of 0.30, the policy will pay out the total indemnity when the grid index is less than or equal to 30 percent of the expected grid index. The total indemnity will never be more than 100 percent of the policy protection for the unit.

As specified above, the **Trigger Grid Index** = **Expected Grid Index x Coverage Level.** For the example ranch, the **Trigger Grid Index** = 100 x 0.90 = 90. As specified the expectation is always normalized to 100 percent and the rancher is the example chose a **coverage level** of 90 percent. After the close of the index interval the **Final Grid Index value** was announced as 40.

From this information a **Payment Calculation Factor** can be specified as: **Payment Calculation Factor** = [90 – 40] ÷ [90 – (100 x 0.30)] = 50/60= 0.833.

An indemnity is calculated as: **Indemnity** = **Policy Protection per Unit** x **Payment Calculation Factor**. So, in this limited example the **Indemnity** = $11,423 x 0.833 = $ 9,515.

The NAP Program---The Noninsured Crop Disaster Assistance Program (NAP), administered by FSA, is a federally-funded program that provides financial assistance to producers of noninsurable crops when low yields, or prevented planting occurs as the result of natural disasters. Natural disasters include damaging weather, adverse natural occurrences, and conditions related to damaging weather or an adverse natural occurrence such as insect infestation. The key elements of NAP are described.[5]

NAP provides coverage for crops for which catastrophic (CAT) levels of RMA insurance are unavailable. Eligible crops are those that are noninsurable and include grain for food, fiber, and crops planted and grown for livestock feed.

An eligible producer is a landowner, tenant or sharecropper who shares in the production of a crop that is noninsurable. An eligible producer must apply for cover of noninsurable crops. Applications must be filed and applicable fees paid at the local FSA office by the pertinent application closing dates. The applicable fees are the lesser of: $ 250 per crop per administrative county; $ 750 per producer per administrative county; or $1, 875 per crop across all counties.

Compensated losses of noninsurable crops are those exceeding 50 percent of the expected yields. The payment rate is 55 percent of the average market price of the commodity (specified by FSA, usually at the state or national level). With a total loss of a crop, the maximum payment would be 27.5 percent of the expected crop's value, [(.50 yield) x (0.55 price)] = [0.275 x (price x yield)].

Under the current mix of crop insurance offerings available to cover crop and forage losses in Wyoming, it appears that the likely uses of NAP could be for grains planted for hay (and not insured as grain) and grass hay (and certain mixed forages) and grazingland. NAP would not be applicable for alfalfa harvested for hay as an APH insurance product is available for alfalfa hay that offers CAT coverage. VI-PRF is available for grazingland land but is not offered at the CAT level, so NAP can be purchased to manage production risks for grazingland.

Consider as an example the application of NAP to an isolated section of grazingland owned by a rancher in Fremont County. Assuming an extreme drought in the county, the rancher who paid the appropriate NAP program fee to cover production loss on this section of range, reports a loss to the county FSA office and the county FSA committee has a contracted range conservationist to conduct an independent assessment of the grazing loss suffered. For 2011 FSA has set the national-level Animal Unit Day **basic rate** at $1.0095 and the **payment rate** at $0.55523 (55 percent of the basic rate).

This insured section of rangeland is native grass where FSA estimates it takes 30 acres to provide grazing for an animal unit over the 168 day grazing period. So this unit is expected to yield 3,584 animal unit days, calculated as: [(640 acre ÷ 30 acres per animal unit) x 168 days]. The range conservationist's assessment was a 70 percent loss in production or a loss of 2,509 animal unit days, i.e., 3,584 animal unit days x 0.70. But NAP will only compensate for the portion of a loss that exceeds 50 percent, so the animal unit days to be compensated are [2,509 animal unit days – (3,584 animal unit days x 0.50)] = 717 animal unit days.

[5] More information on NAP is available in ***Noninsured Crop Disaster Assistance Program (Revised)***, Montana State University Agricultural Marketing Policy Center Policy Paper 31, November 2005, or a NAP Fact Sheet which is periodically updated and available on the FSA website.

With a payment rate of $0.55523 per animal unit day, the loss payment is $398 (717 animal unit days x $0.55523 per animal unit day).

Permanent Disaster Programs: The five disaster aid programs established by the 2008 Farm Bill are as follows: (1) the Supplemental Revenue Assistance Payments Program (SURE); (2) the Livestock Forage Disaster Program (LFP); (3) the Emergency Assistance for Livestock, Honey Bees, and Farm-raised Fish Program (ELAP); (4) the Livestock Indemnity Program (LIP); and (5) the Orchard and Nursery Tree Assistance Program (TAP). These programs are administered by FSA. The TAP program is not of major interest to Wyoming ranchers. Among the other four programs, SURE, LFP and ELAP require ranchers to also purchase crop insurance and/or NAP to be eligible for disaster program payments. The Livestock Indemnity Program is of interest to ranchers but does not have a risk management purchase requirement and is not discussed further in this bulletin.[6]

Producers should be aware that at the time this paper was published (August, 2011), Congress had not approved funding for the programs discussed below — SURE, LFP and ELAP **—** for the 2012 fiscal year, although such funding may subsequently become available.

Supplemental Revenue Assistance Payments Program (SURE)---SURE is a permanent disaster program for farms and ranches producing crops. The program provides crop producers with disaster payments when the region in which they farm or ranch experiences catastrophic natural weather events or when an individual rancher experiences severe losses due to highly localized adverse weather conditions.

The SURE program applies to all eligible farms and ranches in counties covered by a qualifying natural disaster declaration and in other counties that border them. To receive a SURE payment ranches must experience at least a 10 percent production loss. This program will also apply to any ranch that experiences ***a total loss of production of the farm (ranch) relating to weather (that) is greater than 50 percent of the normal production of the farm (ranch).***

To be eligible for the SURE program, a rancher **must purchase crop insurance coverage** under a product approved by the USDA Risk Management Agency or, for crops for which federally-subsidized crop insurance products are not available, coverage under the **Noninsured Crop Disaster Assistance Program (NAP)** administered by the Farm Service Agency**.** Coverage under one of these two programs must be obtained for all **economically significant crops** except **grazingland**. A crop is **economically significant** if it is expected to contribute five percent or more of the ranch's total revenues from market sales of all crops grown on the ranch.

The SURE program has two major components. Each eligible rancher must establish a **SURE revenue guarantee**, also called a **SURE guarantee,** which is determined by the ranch's crop insurance purchase decisions at the sign up time for the insurance. After harvest, the farm's (ranch's) **total farm revenue** is determined.

To receive a **SURE** payment, the ranch 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 on the ranch. If the ranch's **SURE guarantee** is larger than its **SURE total farm (ranch) revenue**, the ranch receives a SURE payment equal to **60 percent** of the difference between the **SURE guarantee** and the **SURE total farm (ranch) revenue**.

A ranch's **SURE guarantee** is determined by the rancher's crop insurance decisions for all of the crops that must be insured. In effect, when a rancher purchases federally-subsidized crop insurance or NAP for a crop such as feed barley, he makes decisions that determine insurance liability for that crop. The liability is the maximum indemnity the rancher would receive if a total loss occurred, that is, if the barley yield was zero. In many cases, the **SURE guarantee** will be the sum of the ranch's liabilities for each insured crop multiplied by 115 percent. However, if that amount

[6] For more information on the Livestock Indemnity Program refer to ***Livestock Indemnity Program (LIP): Montana***, Montana State University Agricultural Marketing Policy Center Policy Paper 31, January 2010.

exceeds **90 percent** of the ranch's **expected revenue** from crop sales (defined to be the insured price multiplied by the farm's direct payment yield or APH yield and planted acres for each crop), then the **SURE guarantee** will be capped at **90 percent of its expected revenue**.

In a traditional multiple peril or APH contract, a rancher chooses a **coverage level** and a **price election** for the insured crop. These choices made by the rancher and the expected crop price specified through RMA procedures determine the ranch's liability for the crop (the maximum possible insurance indemnity).

Consider an example. A rancher has an APH yield of 80 bushels an acre for irrigated feed barley. Assume for a particular year the maximum price for which the barley, in 2011 and subsequent years specified through a price discovery mechanism dependent on Commodity Exchange information can be insured is $5.93 per bushel. For insurance coverage on the 100 acres of barley planted, the rancher selects a coverage level of 75 percent and a price election of 100 percent. The **coverage level** determines the **trigger yield** for indemnity payments, where **Trigger Yield** = **APH yield** x **coverage level**. The example trigger yield is: **Trigger Yield** = 80 bushels/acre x 0.75 coverage level = 60 bushels/acre.

The price election is: **Elected price** = **Maximum insurable price** x **price election.** In the example the **Elected price** = $5.93/bushel x 1.00 = $5.93.

Per acre liability, or maximum liability, is therefore the ranch's trigger yield multiplied by the ranch's elected price. The ranch-wide liability is for the crop is the per acre liability multiplied by the total insured acres planted to the crop. For the example ranch, maximum liability = 60 bushels/acre x $5.93/bushel x 100 acres = $35,580.

If the example ranch's only crop was feed barley, then the **SURE guarantee** would be 115 percent of the ranch-wide insurance liability, so it would be: SURE guarantee = 1.15 x [60 bushels/acre x $5.93/bushel x 100 acres] = $40,917. This guarantee is less than 0.90 x [80 bushels/acre x $5.93/bushel x 100 acres] = $42,696.

A ranch's SURE guarantee for crops is determined by its crop insurance coverage level and price election choices. Lower coverage levels and lower price elections result in lower SURE guarantees.

A ranch's **SURE farm (ranch) total revenue** consists of the sum of five elements:[7]

1. Estimated market revenues for each crop = actual yield harvested per planted acre x estimated regional market price x planted acres.

2. 15 percent of the farm's (ranch'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 financial assistance received under NAP

It should be noted that the prices used in the specification of the ranch's total crop revenue are not those of the individual ranch, but prices specified by FSA. Commodity program payments received for most ranches will likely be limited to feed barley.

Finally, the **SURE payment = [0.60 x (SURE guarantee – farm total revenue)].**

Livestock Forage Disaster Program (LFP) ---LFP provides compensation to eligible livestock producers who have suffered grazing losses because of qualifying drought or fire.[8] For drought, losses must occur during the normal grazing period for the county on land that is native or improved pasture

[7] A more detailed discussion of the SURE program is available in: ***Supplemental Revenue Assistance Payments Program (SURE): Wyoming.*** Montana State University Agricultural Marketing Policy Paper No. 35, February 2010.

[8] More complete details on LFP are contained in: ***Livestock Forage Disaster Program (LFP): Wyoming***, Montana State University Agricultural Marketing Policy Center Policy Paper No. 34, February 2010.

land with permanent vegetative cover, or land planted with a crop specifically for grazing livestock. For fire, the LFP provides payments to eligible livestock producers who have suffered grazing losses on rangeland managed by a Federal agency because the producer is prohibited from grazing the normally permitted livestock on that land because of a qualifying fire. The eligible grazingland losses must occur within the same calendar year the benefits are being requested.

There are LFP eligibility requirements for grazing types, grazingland, covered livestock, and livestock producers.

In each county different types or varieties of pasture and grazing types are grouped into one of the following categories: improved pasture with permanent vegetative cover (non-irrigated); native pasture with permanent vegetative cover (non-irrigated); and forages sorghum crops planted specifically for the purpose of providing grazing for covered livestock. Starting and ending dates for the normal grazing periods, by grazing type, and total grazing days, are available in Wyoming county FSA offices.

There is a risk management purchase requirement for a rancher to be eligible for LRP. To be eligible for grazingland, a producer must: (1) obtain a Risk Management Agency (RMA) policy or plan on insurance for the forage crop; or (2) file the required paperwork and pay the administrative fee by the application closing date for the Noninsured Crop Disaster Assistance Program coverage. Under the current interpretation, a rancher can purchase the RMA-approved insurance and file for NAP coverage and be compensated under both for eligible losses.

Livestock producers are **not** required to purchase a pilot insurance product to be eligible for LFP. The only RMA-approved insurance for pastureland and grazingland in Wyoming is the **Pasture, Rangeland and Forage Vegetation Index (VI-PRF)** pilot insurance program**.** This is a **pilot** program and is not offered at the catastrophic level, so coverage for grazingland is also available in all Wyoming counties under the **Noninsured Crop Disaster Assistance Program** (**NAP**).

In 2010 the USDA conducted an analysis to determine whether that the **VI-PRF** pilot policy covered the same loss as covered under **NAP**. **VI-PRF losses** are a measure of vegetation greenness against a norm used to estimate plant condition and **not** a measure of production. **NAP** covers forage production losses; therefore, the **VI-PRF** pilot policy and **NAP do not** cover the same losses on the same acres for the **same intended use**.

For 2011 and subsequent years, a rancher can obtain a VI-PRF policy **and** NAP coverage on the same acres for the **same intended use**, and still remain eligible to earn a VI-PRF indemnity payment and a NAP payment for the same acres.

Producers who meet the criteria for designation as a socially disadvantaged, limited resource, or beginning farmer or rancher do **not** have to meet the risk management purchase requirement to be eligible for LFP.

A general LFP signup period and ending date are not applicable for grazing losses. A county FSA office will announce that producers in the county may make application for LFP when the county has a qualifying drought. Alternatively, producers impacted by grazing losses due to fire on Federally-managed grazingland will be expected to notify their county FSA offices of their losses. Producers will communicate what restrictions have been placed on their grazing by the Federal land management agency and FSA personnel shall verify the details.

Qualifying droughts are rated by the U.S. Drought Monitor as any of the following:

1. **D2 (severe drought)** in any area of the county for at least 8 consecutive weeks during the normal grazing period for the specific type of grazingland or pastureland for the county;

2. **D3 (extreme drought)** intensity in any area of the county at any time during the normal grazing period for the specific type of grazingland or pastureland for the county; or

3. **D3 (extreme drought)** intensity in any area of the county for at least four weeks during

the normal growing period (not consecutive weeks) for the specific type of grazingland or pastureland for the county, or **D4 (exceptional drought)** intensity in any area of the county at any time during the normal grazing period for the specific grazingland or pastureland in the county.

A livestock producer will be eligible to receive LFP payments for grazing losses because of a **qualifying drought** equal to **1, 2, or 3 times the monthly per head rate** specified for each kind, type and weight range of animal. For instance, an adult beef animal would have a monthly payment rate per head of $34.57. A non-adult beef animal of 500 pounds or more would have a monthly rate of $25.93 per head. FSA county offices have monthly per head rates for all kinds of livestock covered by LFP.

An eligible livestock producer who owns or leases grazingland located in a county with a **D2 rating would receive a one month payment equal to the monthly feed cost.** Likewise if there was a **D3 rating,** the producer would receive **2 months payment, a payment equal to twice the monthly feed cost.** A producer would receive **3 months payment, a payment equal to three times the monthly feed cost,** if there was a **D3 rating for at least 4 weeks or a D4 rating.**

The **LFP payment rate** for losses because of a **qualifying drought** is calculated as the **smaller** of:

1. The monthly payment rate (for a particular kind, type and weight of livestock) multiplied by the number of head of eligible livestock. This is done across all kind, type and weight of livestock and the products of these calculations are summed.

2. The number of grazingland or pastureland acres of a specified type divided by the normal carrying capacity per animal unit multiplied by 30 days, and multiplied again by the daily feed cost per animal unit (AU).[9]

In case 1, consider a ranch with 100 head of adult beef cattle that suffers a forage loss due to drought:

100 head x $34.57/head = $3,457, so the potential payment is: $3,457 x 0.60 = $2,074.

In case 2, consider the ranch has 100 head of adult beef cattle on 1,000 acres of grazingland with a carrying capacity of 5 acres per AU. The payment calculation is as follows:

1,000 acres/5 acres per AU = 200 AU
$34.57 ÷ 30 days = $1.1523 daily feed costs
200 AU x 30 days x $1.1523/day = $6,914
$ 6,914 x 0.60 = $4,148

The LFP Payment would be based on the $2,074 for the loss of grazing for the 100 head of adult cattle because this is less of these two values. For a qualifying drought of **D4 severity** the payment would be $2,074 x 3 = $ 6,222.

Payment calculations are similar when grazing losses occur because of fire on Federally-managed rangeland. The payment begins the first day the permitted livestock are prohibited from grazing the eligible rangeland and ends the earlier of either the last day of the Federal lease of the livestock producer or the day that would make the period a 180 day calendar period.

The payment rate is **50 percent of the monthly feed cost** for the number of days the producer is prohibited from grazing the Federally-managed rangeland, not to exceed 180 days.

To determine the payment for payment for grazing loss due to fire, the smaller of two calculations is selected:

1. [Permitted AUs x normal grazing days x AU daily rate] x 0.50 = Maximum Payment Amount

2. [Reduced AUs x reduced grazing days x AU daily rate] x 0.50 = Value of Grazing Reduction due to Fire.

Consider the same ranch with 100 mature beef animals. After a fire on Federally-managed grazingland the rancher will not be able to run 75

[9] Refer to Appendix A, Table A-2, in Livestock Forage Disaster Program (LFP): Wyoming, Montana State University Agricultural Marketing Policy Center Policy Paper No. 34 for AU equivalents].

head of mature beef animals on the rangeland for the remaining 110 days of the grazing period.

[100 AUs x 180 calendar days x $1.1523/day] x 0.50 = $10,371.

[75 reduced AUs x 110 fewer grazing days x $1.1523/day] x 0.50 = $4,753.

Because of fire on the Federally-managed range, the rancher would receive **$4,753** because he could not run 75 head of mature cows for the final 110 days of the grazing period.

Emergency Assistance for Livestock, Honey Bees, and Farm-Raised Fish Program (ELAP)---- ELAP provides emergency assistance to eligible producers of livestock, honeybees and farm-raised fish who have losses due to disease, adverse weather, and other conditions including losses due to blizzards or wildfire, as determined by the Secretary of Agriculture. Essentially ELAP assists producers in addressing financial losses not addressed under other Supplemental Agricultural Disaster Payment programs such as LIP,LFP and SURE. For instance, ELAP covers purchased livestock feed destroyed due to an eligible loss condition.

ELAP has a risk management purchase requirement. To be eligible for ELAP payments, eligible producers on a ranch must have purchased insurance for each insurable commodity, **excluding grazingland.** A rancher must purchase crop insurance coverage under a product approved by the USDA Risk Management Agency or, for crops for which federally-subsidized crop insurance is not available, coverage under the Non-insured Crop Disaster Assistance Program, NAP. Socially disadvantaged farmers and ranchers, limited resource farmers and ranchers and beginning farmers and ranchers are generally exempt from this risk management purchase requirement. There is also an equitable relief provision applicable to this program under which producers can be released from the risk management purchase requirement on a case-by-case basis.

The 2008 Farm Bill provides for up to $50,000,000 per year nationally for ELAP to producers of livestock, honey bees and farm-raised fish. **When this program is over subscribed, then producer payments are prorated.**

In general adverse weather includes, but is not limited to, events such as hurricanes, floods, blizzards, wildfires, extreme heat and extreme cold. Adverse loss conditions include adverse weather (as just described), disease, and other conditions as determined by the Secretary of Agriculture.

ELAP is being implemented to fill in the gap and provide assistance under conditions as the Deputy Administrator (of FSA) determines are appropriate. ELAP is intended to provide broad coverage of losses not covered by the other standing disaster programs. Several different types of losses have been identified. Those most pertinent to ranching operations are explained:

1. Livestock producers are eligible for ELAP if they have eligible **grazing losses due to eligible adverse weather or eligible loss conditions**, on eligible grazingland physically located in a county that experiences such adverse weather or eligible loss conditions.

2. **Livestock producers of forage or feedstuffs** intended for forage for the producer's livestock are eligible for ELAP **if the feed is damaged or destroyed** when the feed is located in a county that experienced the eligible adverse weather or loss condition.

3. Livestock producers are eligible for ELAP to cover a portion of the loss related to **additional costs incurred in transporting livestock feed** to eligible livestock due to eligible adverse weather or loss condition.

4. Livestock producers are eligible for ELAP to cover a portion of the loss related to the **cost of purchasing additional livestock feed above normal quantities** to maintain the eligible livestock due to an adverse weather or eligible loss condition until additional livestock feed becomes available. The additional feed must be fed to livestock in the county where the eligible adverse weather or eligible loss condition occurred.

5. Livestock Producers are eligible for ELAP if they have **losses due to livestock death** in excess of normal mortality due to an eligible loss condition that is **not** an eligible loss under LIP. ELAP covers livestock death losses due to other eligible loss conditions.

ELAP payments depend on the types of losses incurred. Payments for eligible **livestock feed losses** that the producer/rancher incurred in a calendar year are based on **60 percent of the producer's cost of:** replacing livestock feed that was damaged or destroyed; or, the additional cost incurred for transporting livestock feed; or, the additional cost of purchasing feed above normal quantities.

Payments for **grazing losses,** not to exceed 90 days, for **reasons other than drought and fire**,
Are based on **the lesser of 60 percent of**: the total value of the feed cost for all covered livestock owned by the eligible livestock producer based on the number of grazing days lost; or, the total value of grazing lost for fall all eligible livestock based on the carrying capacity of the eligible land for the number of grazing days lost.

Payments for **grazing losses due to wildfires** on **non-Federal grazingland will be based on 50 percent of the value of the lost grazing** based on the carrying capacity of the eligible land, not to exceed 180 days of lost grazing.

Payments for livestock death losses due to eligible loss conditions will equal 75 percent of the **market value** of the eligible livestock lost in excess of the normal mortality. Market values used for compensation will be consistent with those specified for LIP payments.

Consider an example calculation of ELAP compensation to a rancher for a loss due to an eligible adverse condition. A Wyoming rancher bought and had delivered to his stack yard 300 tons of alfalfa hay that he intended as winter feed for his beef cows.

An early-September lightning-caused fire on nearby BLM grazingland jumped the county road and set fire and totally destroyed his stack of 300 tons of purchased hay. With proper documentation of the value of purchased feed that was destroyed due to the wildfire, it was expected that the rancher would be compensated for 60 percent of the purchase price of the 300 tons of alfalfa hay. The rancher invoice from the trucking firm that delivered the hay noted that he paid $130 a ton for the hay delivered to the ranch.

The calculation of ELAP compensation for the 300 tons of purchased alfalfa hay was:

[(Quantity of feed lost) x (Price per unit of feed lost)] x [0.60, the compensation portion] x [Producer's share] = ELAP Compensation

For this situation, the calculation was**:** [(300 tons of alfalfa hay) x ($130/ton)] x [0.60] x [1.00] = $23,400.

In summary, ELAP is one of five standing disaster programs. The program is for losses **not covered** by LIP, SURE, and LFP. There is a risk management requirement for all agricultural commodities except grazingland.

Finally, it is important to remember that the three permanent disaster programs of interest to ranchers that have production risk management requirements are SURE, LFP and ELAP. SURE requires that, with the important exception of grazingland (which does not have to be insured), all economically significant insurable crops be insured. LFP requires the purchase of crop insurance for pastureland and grazingland. ELAP requires the purchase of crop insurance for all insurable commodities **excluding grazingland.**

Risk Simulation under Specified Risk Management Strategies and Outcome Scenarios:

Risk Management Strategies---Typically, many different risk management strategies can be pursued by a ranch. Ranch managers choose among these alternatives on the basis of the ranch's financial structure and their preferences about taking on or avoiding risk. The focus here is on the use of RMA crop insurance products, the NAP program, and the SURE, LFP and ELAP disaster aid

programs. Eligibility for SURE and ELAP payments requires the ranch to have obtained crop insurance and/or NAP coverage for the crops the ranch raises, other than grazingland. Eligibility for LFP requires crop insurance or NAP coverage for the impacted forage.

The representative ranch in Freemont County raises two crops that can be covered under the recent RMA-specified Common Crop Insurance Policy. The 80 acres of irrigated barley are covered under a yield protection plan because the pertinent price for barley is derived from Commodity Exchange futures contract prices. The 340 acres of irrigated alfalfa hay are covered under an APH plan because futures price contracts are not traded for alfalfa. The ranch may also cover irrigated alfalfa under the VI-PRF pilot product (Table 1).

The ranch's public and private range land forage production (totaling 37,500 acres) can be covered in three ways: (1) using a VI-PRF policy, (2) using NAP and (3) using both VI-PRF and NAP. As discussed above, the second option is permitted because the VI-PRF product is a pilot product and also because it does not offer CAT-level coverage. By recent FSA determination, option three is available to ranchers, and they are allowed to both purchase VI-PRF and NAP coverage, and obtain indemnification under both the VI-PRF policy and NAP for losses on the same acres.

Six risk management strategies are considered, all of which ensure that the ranch is eligible for SURE, LFP and ELAP disaster aid payments if they are available. The six strategies are summarized (Table 1). In each strategy, irrigated barley is insured under a **yield protection plan** with a 100 percent price election and a 70 percent coverage level. In three strategies (1, 2 and 5) irrigated alfalfa hay is covered under **VI-PRF** with a 90 percent coverage level; in the other three strategies (3, 4, and 6), alfalfa hay is covered under an **APH plan** with a 100 percent price election and a 70 percent coverage level. Public and private rangeland are covered with **VI-PRF** in two strategies (1 and 3), with **NAP** in two strategies (2 and 4), and with both **VI-PRF** and **NAP** in two strategies (5 and 6).

Scenarios---The following three "production year outcome" scenarios are examined for the representative ranch.

Scenario 1. The ranch has an average or good year. Crop and forage yields are close to, or above average, and prices are also close to those that were expected. Consequently there are no shortfalls in yields, prices or revenues. As a result, the ranch receives no insurance indemnities, but pays the premiums and fees it owes for the insurance and NAP coverage it purchases. In addition, no disaster aid payments are available.

Table 1: Alternative Risk Management Strategies for the Representative Ranch

Commodity	Strategy 1	Strategy 2	Strategy 3	Strategy 4	Strategy 5	Strategy 6
Alfalfa Hay (Irrigated)	VI-PRF	VI-PRF	APH	APH	VI-PRF	APH
Barley (Irrigated)	YPP*	YPP	YPP	YPP	YPP	YPP
Rangeland (Private)	VI-PRF	NAP	VI-PRF	NAP	VI-PRF & NAP	VI-PRF & NAP
Rangeland (Public)	VI-PRF	NAP	VI-PRF	NAP	VI-PRF & NAP	VI-PRF & NAP

* YPP denotes Yield Protection Plan, APH denotes Actual Production History Plan, and VI-PRF denotes Vegetation Index-Pasture Range and Forage Plan.

Scenario 2. Many ranches in Freemont County experience a severe drought, including the representative ranch. As a result, crop production and forage production is only 40 percent of average and the vegetation index value is only 40 percent of average in the two index intervals in which the ranch insures its forage. The county is declared to be eligible for SURE disaster aid payments by the Secretary of Agriculture. The drought is local and crop and forage prices are at their expected levels (that is, market prices equal the prices at which the ranch has insured irrigated barley and irrigated alfalfa hay). Payments are available under the LFP disaster program because the drought is defined as of extreme intensity and lasts for more than four weeks.

Scenario 3. Scenario 3 is identical to Scenario 2 in terms of weather conditions and impacts on barley, irrigated hay and rangeland forage production. However, the drought creates conditions in which a range fire occurs on 8,000 acres of the ranch's permitted BLM rangeland, leaps a ranch road and burns about 700 tons of baled hay in the ranch's stack yard. In this scenario, the ranch may also be eligible for disaster payments to compensate for the forage loss caused by fire on public rangeland and the ranch's loss of harvested hay under the Livestock Forage Disaster Program and the Emergency Assistance for Honey Bee and Farm-raised Fish Program.

Scenario Outcomes---Consider the outcomes for **Scenario 1**. In this scenario the ranch does not receive crop insurance indemnities, NAP payments, or disaster aid payments. It does incur risk management strategy costs in the form of insurance premiums and fees and NAP fees (Table 2). Total costs per strategy range from a low of $4,419 under strategy 4 to a high of $19,397 under strategy 5. Producer paid VI-PRF premiums for rangeland are the major source of differences among strategies. Under VI-PRF insurance coverage for rangeland, the premium amounts to $13,574 in strategies 1, 3, 5 and 6.

In the outcomes for **Scenario 2** the ranch receives APH and PRF insurance indemnities**,** NAP payments (when NAP is purchased) and SURE payments under all strategies, although SURE payments are small under strategies 1, 2 and 5 when the ranch uses VI-PRF to insure irrigated hayland instead of APH. Indemnities for irrigated barley, insured under a **price protection plan,** where price discovery uses Commodity Exchange information, are as follows. The irrigated barley **APH** is **80 bushels per acre** and the **coverage level** selected by the rancher is **70 percent**. So, under the **APH** insurance contract, the **payment yield** (or trigger yield) equals 80 bushels per acre x 70 percent or **56 bushels per acre**. The ranch's actual yield is 40 percent of its expected yield or 32 bushels acre.

Table 2: Insurance Premiums and NAP Payments and Fees Paid by the Representative Ranch under Each Risk Management Strategy

Commodity	Strategy 1	Strategy 2	Strategy 3	Strategy 4	Strategy 5	Strategy 6
Alfalfa Hay (Irrigated)	$4,435	$4,435	$3,031	$3,031	$4,435	$3,031
Barley (Irrigated)	$888	$888	$888	$888	$888	$888
Rangeland (Private)	$6,787	$250	$6,787	$250	$7,037	$7,037
Rangeland (Public)	$6,787	$250	$6,787	$250	$7,037	$7,037
Total Premiums and Fees	**$18,897**	**$5,823**	**$17,493**	**$4,419**	**$19,397**	**$17,993**

The **price election** selected by the ranch is $5.93 per bushel. So the indemnity for irrigated barley is calculated as follows: Indemnity per Acre = [(56 bushels – 32 bushels) x $5.93 per bushel] = $ 142.32 per acre. As the ranch plants and insures 80 acres of irrigated barley, the Total Irrigated Barley Indemnity = [80 acres x $142.32 per acre] = $11,386 (Table 3).

As there is no futures price contract for alfalfa hay, alfalfa hay is insured under an **APH insurance plan**. The irrigated alfalfa hay **APH** is **3.5 tons per acre** and the **coverage level** selected by the rancher is **70 percent**. Under the **APH** insurance plan, the **payment yield** (or trigger yield) equals 3.5 tons per acre x 70 percent or **2.45 tons per acre**. The ranch's actual yield is 40 percent of its APH yield or 1.40 tons per acre. The selected **price election** is $112 per ton. So the indemnity for irrigated alfalfa hay is calculated as follows: Irrigated Alfalfa Hay Indemnity per Acre = [(2.45 tons – 1.40 tons) x $112 per ton] = $ 117.60 per acre. As the ranch has 340 acres of irrigated alfalfa hay, the Total Irrigated Alfalfa Hay Indemnity = [340 acres x $117.60 per acre] = $39,984 (Table 3).

VI-PRF insurance is available to ranchers in Freemont County and other Wyoming counties in to cover production risks for grazingland and hayland. RMA has established grids approximately 4.8 miles square across the county. Ranchers and other producers locate the grazingland and hayland they wish to insure with reference to these grids, each which carries a unique **GRID ID**. They can insure these crop types within a particular grid for one or more non-overlapping grid intervals with each interval containing three months. In most Wyoming counties, five of these intervals are available for these crop types.

Table 3: Scenario 2 Insurance Indemnities and NAP, SURE, and LFP Payments Received by the Representative Ranch under Each Risk Management Strategy

Commodity	Strategy 1	Strategy 2	Strategy 3	Strategy 4	Strategy 5	Strategy 6
Alfalfa Hay (Irrigated)	$56,490	$56,490	$39,984	$39,984	$56,490	$39,984
Barley (Irrigated)	$11,386	$11,386	$11,386	$11,386	$11,386	$11,386
Rangeland (Private)	$122,656	$5,830	$122,656	$5,830	$141,535	$141,535
Rangeland (Public)	$122,656	$5,830	$122,656	$5,830	$128,466	$128,466
Total Indemnity and NAP Payments	**$313,188**	**$79,536**	**$296,682**	**$63,030**	**$337,877**	**$321,371**
SURE Payments	$186	$186	$10,701	$10,701	$186	$10,701
LFP Payments	$22,138	$22,138	$22,138	$22,138	$22,138	$22,138
Total Indemnity, NAP, SURE, and LFP Payments	**$335,512**	**$101,860**	**$329,521**	**$95,869**	**$360,201**	**$354,210**
Total Premiums and Fees	$18,897	$5,823	$17,493	$4,419	$19,397	$17,993
Net Indemnities and Payments	**$316,615**	**$96,037**	**$312,028**	**$91,450**	**$340,804**	**$336,217**

Instead of insuring the ranch's 340 acres of irrigated alfalfa hay under APH yield insurance, the rancher can also chooses to insure the 340 acres irrigated hay under the VI-PRF. The 340 acres of irrigated hay are located in Grid # 59278. The ranch chooses to insure half of its irrigated alfalfa hay, 170 acres, in the May-July index interval and the other 170 acres in the August-October index interval. It selects a **Protection Factor** of 100 percent (as the ranch's alfalfa hay yields are typical of the county) and the maximum allowable **Coverage Level** of 90 percent. As is the case for all index intervals, the normalized **expected index value** for each index is 100, or 100 percent. After the completion of the index intervals, RMA announces that the **final index value** for each of the insured intervals is 40, or 40 percent. These 40 percent values indicate that the degree of greenness is 60 percent less than the norm for each index interval. Indirectly this would suggest diminished forage production.

The **Maximum Protection per Acre** in 2011 for hayland in Freemont County insured under VI-PRF is determined by RMA to be $230.76 per acre. Given the selected **coverage level** of 90 percent, the **Dollar Protection per Acre = [($230.76/acre) x (.90)] = $207.68.** Thus the ranch receives a per acre indemnity on its hayland which is calculated as follows: Indemnity per Acre = [Payment Factor x Dollar Protection per Acre]. The **Payment Factor = [(90 percent – 40 percent) ÷ (90 percent) - (100 percent x 0.30)] = 0.833.** So the **Indemnity per Acre = [(0.883) x ($207.68/acre)] = $173.67 per acre.** The total indemnity received by the representative ranch under its VI-PRF policy for irrigated alfalfa hay will therefore be: Alfalfa hay VI-PRF indemnity = $173.67 per acre x 340 acres = $56,490. Note that, even though the ranch insures 50 percent of its irrigated alfalfa hay acres in each of two index intervals, because the final index values are same values in each index interval (40 percent), the ranch receives the same per acre indemnity for losses in each interval.

The 2011 VI-PRF **County Base Value** for grazingland forage in Freemont Count is **$8.72** per acre. Although the ranch has grazingland in four grids (59278, 59279, 59280 and 59281), the rangeland is contiguous and so the ranch has the option of selecting one grid in order to insure all of its acres. It chooses this option and selects Grid 59278. The ranch is assumed to have selected a **Protection Factor** of 100 percent and the maximum **Coverage Level** of 90 percent. For the ranch's rangeland, the **Dollar Protection per Acre = [$8.72 per acre x 0.90] = $7.85 per acre**. The **Trigger Index Value = [100 x 90] = 90.** The **Final Index Value = 40** for each of the index intervals. The **Payment Calculation Factor = [(90- 40) ÷ (90 - 60)] = 0.833**. The resulting **Indemnity per Acre = 0.833 x $7.85 per acre = $6.54 per acre.** The ranch's VI-PRF total indemnities for its private rangeland and leased public rangeland total $245,312 under this strategy. This value is the sum of the following two calculations: Total Private Rangeland Forage Indemnity = $6.54 per acre x 18,750 acres = $122,656. Total Public Rangeland Forage Indemnity = $5.9667 per acre x 18,750 acres = $122,656 (Table 3).

Freemont County can use NAP to address production risk on their grazingland in lieu of using the pilot insurance offering, VI-PRF, or jointly use NAP and VI-PRF to address production risk on their permitted and deeded grazingland. In much of Fremont County on native grass range it takes 30 acres to provide grazing for an animal unit over a 168-day grazing period. So an acre of this range would be expected to provide 5.60 animal unit days (AUD) of grazing, i.e., [(1 acre ÷ 30 acres) x (168) days] = 5.60 animal unit days. In 2011 FSA specified at the national-level an Animal Unit Day **basic rate** of $ 1.0095 and a **payment rate** of $ 0.55523 (55 percent of the basic rate).

The representative ranch has 18,750 acres of private rangeland and 18,750 acres of leased public rangeland. All of the public and private acres can be covered under a single NAP contract. After an independent assessment the ranch was estimated to have experienced a 60 percent range forage loss. The ranch therefore receives a NAP payment because its rangeland production loss is in excess of 50 percent of its expected forage yield. The per acre NAP financial payment equals the difference between the actual loss of 60 percent of the expected forage yield (the actual loss in yield as estimated by the FSA-designated adjuster) less 50 percent of the expected forage yield multiplied by 55 percent of the price or value of the forage.

The usual production of this grazingland is 5.60 AUD per acre and 50 percent of the expected value is 2.80 AUD per acre. The independent assessment determined the actual loss in production to be 3.36 AUD per acre. The per acre **NAP Payment = [(3.36 AUD/acre – 2.80 AUD/acre) x $0.55523/AUD] = $0.3109 per acre.** Total NAP payments for the private and publicly leased rangeland are therefore: Total NAP payment for losses on private land = $0.3109 x 18,750 acres = $ 5,830. Total NAP payment for losses on public land = $ 0.3109 x 18,750 acres = $ 5,830.

In addition to crop insurance indemnities and NAP payments, the farm will also receive **SURE** payments in Scenario 2 because of crop losses. Only two crops, alfalfa hay raised under irrigation and barley raised under irrigation, count with respect to the SURE program, which does not cover grazingland forage losses. The ranch's expected revenue from these two crops is determined by its crop insurance decisions.

The ranch insures barley with a yield protection plan under each of the six risk management strategies. The expected barley yield established for the ranch is 80 bushels per acre, its price election is $5.93 per bushel, its coverage level is 70 percent and it plants 80 acres to barley. The ranch's SURE program expected revenue from barley is therefore $25,566 ($5.93 x 80 bushels x 80 acres x 70 percent). The ranch also insures irrigated alfalfa hay using an APH yield contract in strategies 3, 4 and 6. The ranch's expected irrigated alfalfa hay yield is 3.5 tons, its elected price is $112, its coverage level is 70 percent and it plants 340 acres to alfalfa. The ranch's SURE program expected revenue from alfalfa hay is therefore $93,296 ($112 x 3.5 tons x 0.7 x 340 acres).

In strategies 3, 4 and 6, therefore, the ranch's SURE program expected revenue for the two crops is $119,862 ($25,566 + $93,296). The ranch's SURE revenue guarantee is 115 percent of that amount or $137,842.

In strategies 1, 2 and 5, however, the ranch insures irrigated alfalfa hay with a PRF-VI contract with a 90 percent coverage election and a 100 percent productivity selection. The ranch's SURE program expected revenue from irrigated alfalfa hay under these three strategies is therefore equal to the PRF-VI Dollar Protection per Acre ($207.68) multiplied by the 340 acres planted to irrigated alfalfa hay or $70,613.

In strategies 1, 2 and 5, therefore, the ranch's SURE program expected revenue for the two crops is $97,179 ($25,566 + $70,613). The ranch's SURE revenue guarantee is 115 percent of that amount or $111,756.

In each strategy, the ranch's SURE program revenue to count is the sum of its estimated market revenues from each SURE program crop (the ranch's actual yield for each crop multiplied by FSA's estimate of the price for the crop at harvest), plus 15 percent of any FSA direct payments for each crop, plus all crop insurance indemnities for each SURE program crop, plus any other government payments for each SURE program crop. In strategy 2, market prices for barley and alfalfa hay are assumed to be equal to the insured prices.

The representative ranch is assumed to have direct payments for barley on a base of 80 acres with a direct payment program yield of 80 bushels. The nationally determined direct payment rate for barley was 24 cents per bushel in 2010 and, in 2010, a ranch or farm received direct payments on 83.3 percent of its direct payment acres. The representative ranch's total direct payments for barley are therefore assumed to be $960 (83.3 percent x $0.24 X 80 bushels x 80 acres), of which 15 percent or $144 is included in the ranch's revenue to count against its SURE program guarantee.

A ranch receives 60 percent of the difference between its SURE program revenue guarantee and it SURE program revenue to count. In Scenario 2, in which the farm experiences a 60 percent yield loss on both its barley and irrigated alfalfa hay crops it therefore receives the SURE payments (Table 3). The SURE payments are larger in Scenarios 3, 4 and 6 because, under the APH contract, alfalfa hay is more valuable on a per acre basis than under the PRF-VI contract (used to insure the crop in Scenarios 1, 2, and 5). So, under the APH contract, the estimated revenue loss is more

substantial and the SURE program payment correspondingly larger.

In scenario 2, the ranch may also eligible for payments under the Livestock Forage Disaster Program because, during 2011 Fremont County suffered a drought of extreme intensity. The D3 drought lasted for more than four weeks and ranchers in Fremont County who depend on native grass grazingland estimated they lost at least 60 percent of their range forage production.

In fact, because the drought was rated D3 and lasted for over four weeks, the Livestock Forage Disaster Program (LFP) is applicable. LFP payments will be calculated at 3 times the monthly payment rates set by the Farm Service Agency.

The ranch has the following cattle inventory categorized by kind, type, weight range, and payment rates pertinent to LFP in the 2011 production year:

Kind	Type	Weight Range	Payment Rate (2011)
Beef	Adult	250 mature cows 12 bulls	$34.57/head
Beef	Non-adult (500 pounds or more)	50 replacement heifers 75 yearlings	$25.93/head

The LFP payment for losses from a qualifying drought is calculated as 60 percent of the smaller of:

a) The monthly payment rate (for a particular kind, type and weight of livestock) is multiplied by the number of head of eligible livestock. This is done across all applicable kind, type and weights of livestock and the products of these calculations are summed.

b) The number of grazingland or pastureland acres of a specific type of grazingland is divided by the normal carrying capacity per animal unit or the specific type of eligible grazingland or pastureland. The number is the multiplied times 30 days, and multiplied again by the daily feed costs per animal unit.

The LFP payments to an eligible producer in a calendar year for grazing losses because of a qualifying drought will not exceed 3 monthly payments for the same livestock.

Considering the livestock on the representative ranch, the feed cost calculation is as follows:

[262 head of adult beef x ($34.57/head x 3)]
= $27,172 x 0.60 = $ 16,304
[125 head non-adult beef x ($25.93/head x 3)]
= $ 9,724 x 0.60 = $ 5,834

Total Cost = $ 22,138

The representative ranch has 37,500 acres of permitted and deeded grazingland. The acres in permitted grazing are half of the total and the carrying capacities of the native grasses on both the permitted grazingland and the deeded range are each 30 acres per animal unit. The normal carrying capacity of the 37, 500 acres is 1,250 animal units = 37,500 acres/30 acres per animal unit. The daily feed cost (cost per animal unit day) is $1.1523 = $34.57 per animal unit/30 days.

The daily feed based Total Cost = [1,250 animal units x 30 days x $1.1523/day] = $ 43,211 x 0.60 = $ 25,927.

The rancher received the lesser of the above two values, resulting an LFP payment of $22,138. In Scenario 2, this LFP payment is paid to the representative ranch under each of the risk management strategies because all strategies satisfy the risk management purchase requirements for grazingland.

Scenario 3. In Scenario 3, the farmer would receive all of the insurance indemnity, NAP payments, SURE and LFP payments he received in Scenario 2. However, if the representative ranch had any luck at all in 2011, it was bad luck and even worse luck in scenario 3. In scenario 3, after Fremont County suffered a D3 extreme intensity drought late in the normal grazing period that subsequently resulted in a LFP payment for the grazing losses, the federal management agency overseeing the permitted grazing required the cattle to be pulled off. The representative rancher was able to sustain his livestock inventory on his own

ranch by supplementing grazing on his deeded land by feeding alfalfa hay that he raised.

About 30 days before the end of the normal grazing period, a range fire was started by lightning strikes and burned about 8,000 acres of his permitted rangeland, crossed a ranch road and burned 700 tons of baled alfalfa hay in the rancher's stack yard.

The rancher sought further disaster assistance under LFP. He thought he might qualify for some assistance under a provision that could provide for grazing losses because of fire on Federally managed lands. To determine the payment for grazing loss due to fire, the smaller value derived from two calculations applies:

[Permitted Animal Units x normal grazing days x AU daily rate] x 50 percent = Maximum Payment Amount.

[8,000 acres/30 acres per AU x 168 days x $1.1523] x 0.50 = $ 25,811.

[Reduced Animal Units x reduced grazing days x AU daily rate] x 50 percent = Value of Grazing Reduction due to Fire.

[8,000 acres/30 acres per AU x 30 days x $1.1523] x 0.50 = $ 9,218.

So, the representative rancher thought he might receive $9,218. However, after review, FSA denied the requested LFP payment for two reasons.

First, the federal management agency had called for removal of all cattle from the permitted grazing for the remainder of the normal grazing period when the D3 extreme drought was declared in Fremont County. So the rancher had no opportunity to use the Federally managed range over the last 30 days of the normal grazing period.

Second, Farm Service Agency policy states that "the amount of any payment for which a participant may be eligible under LFP, LIP, SURE, and ELAP may be reduced by any amount received by the participant for the same or any similar loss from a different source." The representative ranch had already received a larger LFP payment for drought-related grazing losses on these acres.

The representative rancher then sought relief under ELAP for some of the costs he had incurred. He had fed a considerable amount of his own hay to his livestock because of the reduced forage from his deeded rangeland that had been adversely impacted by drought. However, FSA determined that he could seek no assistance under ELAP for the hay that had been fed. Livestock producer are eligible for ELAP to cover a portion of loss related to the cost of **purchasing additional livestock feed above normal quantities** to maintain the eligible livestock due to an adverse weather condition until additional livestock feed becomes available. In this case, no additional livestock feed had been purchased because the rancher fed hay he had produced.

The loss of 700 tons baled alfalfa hay that burned in the stack yard due to the spread of the range fire was a different matter. Compensation for this loss under ELAP was calculated as:

[(Quantity of feed lost) x (price per unit of feed lost)] x [60 percent] = ELAP Compensation

[(700 tons) x ($112/ton)] x [0.60] = $47, 040.

The ranch manager had to verify both the quantity of alfalfa hay lost and its cost or value. Other sources of verification included the rancher's annual crop acreage reports from recent years which he had filed with the county FSA office that noted the acres of alfalfa hay grown annually. The verification sources also included the crop insurance records of established irrigated alfalfa yields on the ranch that the farmer had filed with RMA. Additionally, he submitted photos of the baled hay in the stack yard and the bale count records from his two balers as additional verification. Provision of cost or price information was also required. The $112 per ton at which the rancher valued the hay lost was based on the crop insurance policy price. Local market price quotes were also cited because a considerable amount of hay had been purchased in the county due to the county-wide drought.

In Scenario 3, therefore, the representative ranch received an ELAP payment of $47,040 for the baled hay that was lost due to the spread of the range fire to his stack yard but not for lost forage on his deeded land. He was **not** compensated for the fire on the Federally managed rangeland or for the hay he produced and fed to his livestock to supplement his deeded grazingland where productivity had been reduced due to drought. This ELAP payment of $47,040 would be made to the ranch under all of the six risk management strategies (Table 1). Likewise, the net indemnity and disaster payments the farmer received in Scenario 2 under each of the six strategies (Table 3) would also be increased by the ELAP payment of $47,040 in Scenario 3 (Table 4).

Some ranch managers remain unsure or skeptical of purchasing crop insurance to cover the production risks associated with their mechanically harvested crops such as feed barley and alfalfa hay, and their grazing land, or paying NAP fees for coverage of production risks when insurance products are unavailable. So what happens when a ranch manager elects not to purchase crop insurance or NAP?

If a ranch manager chooses not to purchase crop insurance or NAP, the producer is essentially self insured. That is, the producer has made at least an implicit decision to incur all the potential financial consequences of production losses himself. By making that decision the producer avoids paying producer premiums for crop insurance coverage or fees for NAP coverage. As illustrated in the example ranch insurance strategy scenarios, these insurance premiums (although heavily subsidized) and the NAP fees can be substantial.

Table 4: Scenario 3 Insurance Indemnities and NAP, SURE, and LFP Payments Received by the Representative Ranch under Each Risk Management Strategy

Commodity	Strategy 1	Strategy 2	Strategy 3	Strategy 4	Strategy 5	Strategy 6
Alfalfa Hay (Irrigated)	$56,490	$56,490	$39,984	$39,984	$56,490	$39,984
Barley (Irrigated)	$11,386	$11,386	$11,386	$11,386	$11,386	$11,386
Rangeland (Private)	$122,656	$5,830	$122,656	$5,830	$141,535	$141,535
Rangeland (Public)	$122,656	$5,830	$122,656	$5,830	$128,466	$128,466
Total Indemnity and NAP Payments	**$313,188**	**$79,536**	**$296,682**	**$63,030**	**$337,877**	**$321,371**
SURE Payments	$186	$186	$10,701	$10,701	$186	$10,701
LFP Payments	$22,138	$22,138	$22,138	$22,138	$22,138	$22,138
ELAP Payments	$47,040	$47,040	$47,040	$47,040	$47,040	$47,040
Total Indemnity, NAP, SURE, LFP and ELAP Payments	**$382,552**	**$148,900**	**$376,561**	**$142,909**	**$407,241**	**$401,250**
Total Premiums and Fees	$18,897	$5,823	$17,493	$4,419	$19,397	$17,993
Net Indemnities and Payments	**$363,655**	**$143,077**	**$359,068**	**$138,490**	**$387,844**	**$383,527**

But what does the rancher who self insures sacrifice when a catastrophic event takes place that results in insurable losses or losses covered by NAP.

First, because the producer is not carrying crop insurance or NAP coverage, the producer is no longer eligible for most of the standing disaster programs. The producer will therefore receive no compensation for eligible losses under the following programs: the Livestock Forage Disaster Program; the Emergency Assistance for Livestock, Honey Bees and Farm-raised Fish Program; and, the Supplemental Revenue Assistance Payments Program. As a result, in severe production loss situations the rancher will not receive disaster payments for rangeland forage losses, losses in mechanically harvested crops such as feed barley and alfalfa hay, and compensation for costs incurred in purchasing additional feedstuffs for livestock. Second, the producer will not receive crop insurance indemnities or NAP payments. Crop insurance indemnities and NAP payments are not expected to make the rancher "whole"—that is, fully compensate them for production losses. NAP only compensates for losses in excess of 50 percent of normal production. The maximum crop insurance coverage for many crops is 75 percent and so only provides compensation for production losses in excess of 25 percent of normal production. Furthermore, the insurable price for a commodity may be quite different than the per unit purchase price for that commodity in a local area or region where commodity production has been severely affected by the catastrophic event such as drought that caused production losses and resulted in insurance indemnities and NAP payments.

The rancher who purchase crop insurance and/or NAP coverage has to incur insurance premium payments and NAP fees whether or not a loss occurs. But in the event of a catastrophic event that leads to insurable losses, crop insurance indemnities and NAP payments will offset some of the financial burden of the losses (and more than offset the insurance premium payments and NAP fees in most cases). For instance, in a situation when a total production loss occurs, a producer with NAP coverage would be compensated for 50 percent of the approved loss valued at the state-level price prior to the disaster. This is not much coverage, but NAP fees are relatively low and disaster programs eligibility is established. Under crop insurance at the 75 percent coverage level a producer under a total loss condition would be compensated for 75 percent of the approved production at the insurable price established before the production season. Again, eligibility for disaster program payments is established.