



Wyoming Barley Production: Opportunities to Manage Production, Quality and Revenue Risks

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Introduction

Barley is an important crop in Wyoming that may be raised as animal feed or for malting. Different varieties are typically used for feed barley and malt barley and malting barley yields are generally lower than feed barley yields. Some farmers may choose to raise organic barley to serve the needs of niche markets. Insurance products offered by the USDA Risk Management Agency are available for feed barley, malting barley (through a malting barley endorsement), and organic barley. These products are the focus of this briefing paper.

In Wyoming, most barley is produced under irrigation practices. On Wyoming farms that produce sugar beets, barley is often grown in the rotation, usually as a cash crop. On other irrigated farms, barley is also often grown as a cash crop. On ranches with a water source for irrigation, barley is also sometimes grown as a livestock feedstuff for on-ranch use.

During the 10-year period 2007 through 2016, in Wyoming on average a total of 83,200 acres of barley were planted annually, of which on average 65,600 acres were harvested. The state-wide average annual barley yield per acre **harvested** over

this 10-year period was 100.1 bushels and ranged from a low of 85 bushels per acre to a high of 107 bushels per acre, as shown in Table 1. In a state with a semi-arid climate, these average yields indicate that the dominant practice is to produce barley under irrigation.

In recent years, about 65 percent of the acres planted to barley in Wyoming have been located three counties: Park, Big Horn and Washakie. Other counties which annually report 1,000 or more acres planted to barley are Fremont and Hot Springs, which are contiguous to the three counties in which the majority of Wyoming's barley acreage are located. In some years, three eastern tier Wyoming counties - Crook, Goshen and Platte - also reported that 1,000 or more acres of barley had been planted.

On average, in Wyoming, around 20 percent of the total acres planted annually to all barley (malt plus feed) are not harvested for several reasons. Some acres planted to barley that are insured are not harvested because of production losses attributable to insurable perils. Crop insurance records for Wyoming indicate that in recent years 67 percent of the acres of barley planted were insured but 33 percent were not insured.

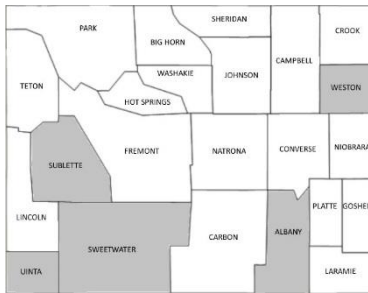
Table 1: A Historical View of Barley Production in Wyoming

Year	Acres Planted	Acres harvested	Production (000 bushels)	Yield (Bushels/acre)
2007	62,000	53,000	4,505	85
2008	90,000	75,000	6,900	92
2009	80,000	64,000	6,720	105
2010	75,000	62,000	6,076	98
2011	80,000	67,000	6,499	97
2012	85,000	69,000	6,141	89
2013	85,000	65,000	6,052	89
2014	80,000	63,000	6,741	107
2015	100,000	86,000	8,170	95
2016	95,000	82,000	7,872	96
Total	832,000	656,000	65,676	100.1
Average	83,200	65,600	6,658	100.1

Multiple peril crop insurance for barley is available in most Wyoming counties. Counties where crop insurance for barley is not available are Albany, Sublette, Sweetwater, Uinta and Weston counties, as shown in Figure 1.

It is useful to note that RMA area yield and revenue plans, typically based on county yields, are also available in counties where APH insurance plans are available. These are index insurance plans based on the yield experience in an entire county rather than the yield experience of the individual producer. However, relatively few producers opt for area yield based plans when individual farm APH yield based plans are also offered.

Figure 1: Map of Wyoming Counties



Insuring Barley: Barley harvested as grain for feed, malting, or other human consumption is insurable. Any acres planted to hay barley varieties, however, are not insurable as grain unless the hay barley variety is being grown for harvest and sale as seed.

Three insurance plans are available to insure barley harvested as grain. These plans are **yield protection (YP)**, **revenue protection (RP)**, and **revenue protection with harvest price exclusion (RP-HPE)**.

These three insurance plans provide protection against yield and/or revenue losses due to naturally occurring events such as adverse weather, fire, insects, plant disease, wildlife, volcanic eruption, and failure of irrigation water supply due to a

naturally occurring event, and for revenue plans only, a change in the **harvest price** from the **projected harvest price**.

Yield protection (YP) provides protection against production loss. The **production guarantee** is based on a farm's individual yield history for the area to be insured multiplied by a crop insurance **coverage level**. The **coverage level** is selected by the barley producer. The **production guarantee** is multiplied by the **projected harvest price** (which is as determined by the USDA Risk Management Agency) for barley for grain to establish the per acre **insurance guarantee** for the acreage being insured.

Revenue protection (RP) provides protection against loss of revenue due to either a production loss, a price decline or increase, or a combination of price movements and production loss. The **insurance guarantee** is determined by multiplying the **production guarantee** by the **greater** of the **projected harvest price** or the **harvest price**.

Revenue protection with harvest price exclusion (RP-HPE) provides protection against the loss of revenue due to a production loss and/or a price decline. The **insurance guarantee** is determined by multiplying the **production guarantee** by the **projected harvest price**.

The **production guarantee** is based on the producer's individual yield history for barley production by insurance unit. A producer's individual yield history is based on their production of barley in the unit to be insured and most often referred to as the **actual production history** or **APH**.

If a producer has acceptable production records for between four and ten consecutive crop years to be insured (ending with the year previous to the year of the insurance policy), then the producer's **APH** is based on the yields for those years.¹ Provisions are

¹ The calculation of a producer's APH yield for a crop can be complex and involve the exclusion of some yields in the yield history, or the use of cups and caps on yield changes, and in some settings yield trend adjustments. See, the following RMA publication: Agricultural Act of 2014 – APH Yield Exclusion, available at www.rma.usda.gov/bulletins/pm/2014/14-062a.pdf.

also available for new producers of a crop to establish an APH.

The **production guarantee** is determined by multiplying a producer's **APH** times the **coverage level** selected by the producer. For both **yield protection** and **revenue protection** a barley producer seeking a buy-up level of crop insurance can select from a 50 percent up to an 85 percent coverage level, in 5 percent increments (for example, 55 or 70 percent coverage, but not 53 or 64 percent coverage).

The three insurance plans, **yield protection (YP)**, **revenue protection (RP)**, and **revenue protection with the harvest price exclusion (RP-HPE)** are all part of the Common Crop or **COMBO** Policy. This policy has a common set of basic provisions that supports these three plans of insurance for which a commodity futures market exchange price discovery mechanism is used.

Price discovery is required for the **yield protection (YP)**, **revenue protection (RP)** and the **revenue protection with harvest price exclusion (RP-HPE)** plans. For commodities such as feed barley which do not have their own futures market contracts, price discovery is based on futures market contracts for a commodity whose price is sufficiently closely linked to the price of feed barley. Corn futures market contracts form the basis of price discovery for feed barley. The Risk Management Agency (RMA) computes the **projected harvest price** and the **harvest price** for feed barley using the Chicago Board of Trade (CBOT) corn futures contracts.

The COMBO Policy revenue and yield protection insurance plans for feed barley all use Commodity Exchange Price Provisions. The result is that all yield and revenue insurance coverage offered for feed barley uses the same **projected harvest price**.

The **projected harvest price** for feed barley to be planted and harvested in Wyoming for the 2017 crop is based on the average daily settlement price for the CBOT September 2017 corn contract over the period of February 1, 2017 through February 28, 2017 (rounded to the nearest cent). This is the one

full month period that is two weeks prior to the final sign up date of March 15 for corn (and feed barley) crop insurance in Wyoming under the COMBO Policy insurance plans. This average corn contract price is then adjusted using by an adjustment factor determined by RMA to establish the **projected harvest price** for feed barley. This adjustment factor is also used in computing the **harvest price** for feed barley.

An annual adjustment factor is computed by RMA using the ratio of the annual marketing year average price for feed barley, as reported by the USDA's National Agricultural Statistics Service (NASS), to the average daily settlement price in August for the CBOT September futures corn futures contract. This ratio is computed for each of the most recent previous ten years and the RMA annual adjustment factor for feed barley is the ten year simple average of these ratios.

The **harvest price** for feed barley in Wyoming is based on the average daily settlement price for the CBOT December corn contract over the August 1 through August 31 period in the same year of the contract. This average is also multiplied by the adjustment factor determined by RMA.

COMBO Policy Feed Barley Prices: The following 2016 and 2017 feed barley prices were relevant for Wyoming barley producers seeking crop insurance for their production are shown Table 2.

Table 2: RMA Feed Barley Prices

Crop Year	Projected Harvest Price (\$ per bushel)	Harvest Price (\$ per bushel)
2016	3.31	2.83
2017	----	NA

NA--This price will not be calculated and announced by RMA until the fall of 2017

The projected feed barley **projected harvest price** and **harvest price** will be used in examples that demonstrates the potential use of the three crop insurance plans by a representative Park County feed barley producer for the 2016 crop. Note that that the only 2016 feed barley price available to the

producer at the time the producer signed up for feed barley insurance was the *projected harvest price* of **\$3.31** per bushel for feed barley.

Application of YP, RP and RP-HPE to Feed

Barley Production in Wyoming: Consider a Park County farm manager who has produced feed barley for many years. The farm's feed barley APH is 102 bushels per acre for the unit to be insured. All cropland the manager farms is either owned by the farm or rented for cash from neighbors. So the manager has a 100 percent share in the feed barley the farm produces. In 2016 the farm manager planned to plant and grow 68 acres of feed barley using conventional production practices. The manager used the RMA *cost calculator* to determine which crop insurance plan might be used and was mindful of the fact that the YP plan allows a producer to select a price from 59 to 100 percent of the *projected harvest price*. In evaluating the farm's YP plan options, the manager therefore considered price elections of 100 and 90 percent.

The farm manager has previously been advised by a crop insurance agent that **RP** and **RP-HPE** are only available at 100 percent of the *projected harvest price* and so those plans were evaluated only at that

price. The manager had historically selected a 70 percent coverage level for feed barley and so makes comparisons among the four options under consideration (**YP 100%**; **YP 90%**; **RP**; **RP-HPE**) at that 70 percent *coverage level*. The manager's *coverage level* choice therefore results in a *production guarantee* of 71.4 bushels per acre (70% x 102 bushels per acre). The production guarantee, insurance guarantee, liability and premiums under each of the four options are shown in Table 3.

After reviewing this summary the Park County farm manager sets aside the **YP-90** percent alternative but had other important questions about the remaining three options. The manager wants to assess how, when the *harvest price* is different than the *projected harvest price*, the net proceeds will be affected from an insurance indemnification when a total crop loss occurs because of a catastrophic event (such as a severe hail storm), or a partial crop loss due to a shortage of irrigation water due to some natural, insurable cause. The reason is that the indemnity the farmer receives under **Revenue Protection** may be affected by the *harvest price*, as that price is determined by RMA.

Table 3: Application of YP, RP, and RP-HPE by a Park County Feed Barley Producer

Item	YP, 100 %	YP, 90 %	RP	RP-HPE
APH Yield	102 bushels	102 bushels	102 bushels	102 bushels
Coverage Level	70 %	70 %	70 %	70 %
Production Guarantee	71.4 bushels	71.4 bushels	71.4 bushels	71.4 bushels
Projected Harvest Price	\$3.31	\$2.98	\$3.31	\$3.31
Insurance Guarantee/Acre	\$236.34	\$212.78	\$236.34*	\$236.34
Acres Insured	68	68	68	68
Total Insurance Liability	\$16,071	\$14,469	\$16,071	\$16,071
Total Premium	\$955	\$860	\$1,174	\$1,031
Premium Subsidy	\$563	\$507	\$693	\$ 608
Producer Premium	\$392	\$353	\$481	\$ 423

*For **RP**, as explained below, the insurance guarantee presented in Table 3 is the minimum insurance guarantee, as the insurance guarantee increases if the *harvest price* exceeds the *projected harvest price*.

The Park County farm manager first evaluates what the situation would be under each insurance option if there were a total crop loss where the value of *production-to-count* = 0 and then under a situation where a partial harvest loss occurs and yields average 40 bushels per acre over the farm's 68 acres planted to feed barley.

The farm manager proceeds by initially calculating the payout for the *YP* insurance plan for a total production loss, with an indemnifiable production loss of 71.4 bushels, the farm's *production guarantee*, and a yield of 40 bushels, with an indemnifiable production loss of 31.4 bushels per acre, as shown in Table 4.

Next, the farm manager in Park County evaluates the crop insurance coverage that could be obtained under the *RP* insurance plan, assuming, as was the case in 2016, that the *harvest price* is lower than the *projected harvest price*, as shown in Table 5.

Finally the farm manager in Park County evaluates the crop insurance coverage that could be obtained under the *RP-HPE* plan, again recognizing that the 2016 *harvest price* is lower than the 2016 *projected harvest price*, as illustrated in Table 6.

Table 4: The Application of YP to the Park County Producer's Feed Barley

Item	Total Production Loss	Harvested 40 Bushels per Acre	Explanation
Production Guarantee	71.4 bushels	71.4 bushels	APH x Coverage Level
Production-to-Count	0.0 bushels	40.0 bushels	Bushels harvested
Bushels Indemnified	71.4 bushels	31.4 bushels	Production Guarantee – <i>Production to Count</i>
Price per Bushel	\$3.31	\$3.31	<i>Projected Harvest Price</i>
Per Acre Indemnity	\$236.34	\$103.93	Bushels Indemnified x <i>Projected Harvest Price</i> *
Acres Insured	68	68	Producer's decision
Total Indemnity	\$16,071	\$7,067	Per Acre Indemnity x Acres Insured
Producer Premium	\$392	\$392	RMA Cost Calculator
Contract Fee	\$30	\$30	RMA fee per contract
Net Payment	\$15,649	\$6,645	Total Indemnity – costs

*Note that the production loss to be indemnified is valued at the *Projected Harvest Price*.

Table 5: Application of RP to the Park County Producer's Feed Barley

Item	Total Production Loss	Harvested 40 Bushels per Acre	Explanation
Minimum Revenue Guarantee	\$236.34	\$236.34	Production Guarantee x <i>Projected Harvest Price</i>
Maximum Revenue Guarantee	\$236.34	\$236.34	Production Guarantee x greater of <i>Projected Harvest Price</i> or <i>Harvest Price</i>
Value of Production-to-Count	\$0.00	\$88.86	<i>Production to Count</i> x <i>Harvest Price</i>
Per Acre Indemnity	\$236.34	\$147.48	Maximum Revenue Guarantee- <i>production to Count</i>
Acres Insured	68	68	Producer decision
Total Indemnity	\$16,071	\$10,029	Per Acre Indemnity x Acres Insured
Producer Premium	\$481	\$481	RMA Cost Calculator
Contract Fee	\$30	\$30	RMA fee per contract
Net Payment	\$15,560	\$9,518	Total Indemnity- Costs

Table 6: Application of RP-HPE to a Park County Producer's Feed Barley

Item	Total Production Loss	Harvested 40 Bushels per Acre	Explanation
Minimum Revenue Guarantee	\$236.34	\$236.34	Production Guarantee x <i>Projected Harvest Price</i>
Value of Production-to-Count	\$0.00	\$88.86	<i>Production to Count</i> x <i>Harvest Price</i>
Per Acre Indemnity	\$236.34	\$147.48	Revenue Guarantee- <i>Production to Count</i>
Acres Insured	68	68	Producer decision
Total Indemnity	\$16,071	\$10,029	Per Acre Indemnity x Acres Insured
Producer Premium	\$423	\$423	RMA Cost Calculator
Contract Fee	\$30	\$30	RMA fee per contract
Net Payment	\$15,618	\$9,576	Total Indemnity- Costs

The Park County farm manager recognizes that in a market for feed barley where the *Harvest Price* is less than the *Projected Harvest Price*, with a total loss of production, in terms of the total indemnity the operation would receive, he would be indifferent among the three insurance plans available to him and the net indemnity payments would also be very similar, as shown in Table 7:

Another important question for the farm manager is what would be the outcomes of the two revenue plans in a market where the *Harvest Price*, established near or after the feed barley harvest, exceeds the *Projected Harvest Price*. For the 2016 feed barley crop, therefore, the two revenue plans are re-evaluated assuming a *Harvest Price* of \$4.00 per bushel, as shown in Tables 8 and 9.

Table 7: Net Payments under the YP, RP, and RP-HPE Insurance Plans and Different Loss Scenarios when the *Harvest Price* is less than the *Projected Harvest Price*

Insurance Plan	Total Production Loss	Harvested 40 Bushels per Acre
YP	\$15,649	\$6,645
RP	\$15,560	\$9,518
RP-HPE	\$15,618	\$9,576

However, if the farm were to have some bushels of harvestable feed barley (as in the 40 bushel per acre yield example) the farm manager would be financially better off by choosing one of the revenue plans, although both RP and RP-HPE provide the same total indemnity and similar net indemnities because the *harvest price* is lower than the *projected harvest price*.

Table 8: Indemnities under a Revenue Plan (RP) when the Feed Barley *Harvest Price* Exceeds the Feed Barley *Projected Harvest Price*

Item	Farm harvests 40 bushels per acre	Explanation
Minimum Revenue Guarantee	\$236.34	Production Guarantee x <i>Projected Harvest Price</i>
Maximum Revenue Guarantee	\$285.60	Production Guarantee x greater of <i>Projected Harvest Price</i> or <i>Harvest Price</i>
Value of Production-to-Count	\$125.60	<i>Production to Count</i> x <i>Harvest Price</i>
Per Acre Indemnity	\$160.00	Maximum Revenue Guarantee- <i>Production to Count</i>
Acres Insured	68	Producer decision
Total Indemnity	\$10,880	Per Acre Indemnity x Acres Insured
Producer Premium	\$481	RMA Cost Calculator
Contract Fee	\$30	RMA fee per contract
Net Payment	\$10,369	Total Indemnity- Costs

Table 9: Indemnities under a Revenue Plan with the *Harvest Price* Exclusion (RP-HPE) when the Feed Barley *Harvest Price* Exceeds the Feed Barley *Projected Harvest Price*

Item	Harvested 40 Bushels per Acre	Explanation
Minimum Revenue Guarantee	\$236.34	Production Guarantee x Projected Harvest Price
Value of Production-to-Count	\$125.60	Production to Count x Harvest Price
Per Acre Indemnity	\$80.74	Revenue Guarantee- Production to Count
Acres Insured	68	Producer decision
Total Indemnity	\$5,490	Per Acre Indemnity x Acres Insured
Producer Premium	\$423	RMA Cost Calculator
Contract Fee	\$30	RMA fee per contract
Net Payment	\$5,037	Total Indemnity- Costs

The total and net indemnities are substantially higher under the **RP** plan than under the **RP-HPE** plan when the price of feed barley increases during the production season. The reason is that any losses are reimbursed at the *harvest price* under the RP plan, and the *harvest price* is higher than the *projected harvest price* that is used to indemnify losses under the RP-HPE plan.

Crop insurance for Organic Barley Production

Organic crop production was recognized as an emerging farming practice by the federal government in farm bill legislation in the 1990s. Organic certification processes were then

established in federal regulations. Subsequently, the number of organic producers and the amount of organic production expanded. For a time the risk management opportunities for organic producers were very limited although some crop insurance coverage of organic production was provided through the use of *Written Agreements*.

Times have changed and in recent years risk management opportunities through the federal crop insurance program have been substantially expanded for organic producers. Specifically RMA has made changes to the definitions of good farming practices that permit coverage for the organic

production of a wide range of crops, including barley.

The 2014 RMA Good Farming Practices Handbook defines as *good farming practices* as follows:

The production methods utilized to produce the insured crop and allow it to make normal progress toward maturity and produce at least the yield used to determine the production guarantee or amount of insurance, including any adjustments for late planted acreage, which are: (1) for conventional and sustainable farming practices, those generally recognized by agricultural experts in the area; or (2) for organic farming practices, those generally recognized by the organic agricultural industry for the area or contained in the organic plan.

In most respects, the regulations governing the insurability of organic and transitional practices are now the same as for conventional practices. The Risk Management Agency provides crop insurance coverage for both (1) *certified organic acreage* and (2) *transitional acreage*, acreage that is transitioning from conventional to certified organic acreage in accordance with a producer's organic plan.

In Wyoming, crop insurance is available for several types of barley produced on both *certified organic acreage* and *transitional acreage*.

In the 2011 crop year RMA initiated a program to specify *organic price premiums*. In 2016 *organic price premiums* were available for barley produced in Wyoming.

A second measure that can be used to more accurately identify the price a specific producer receives for organic production has been established through a *contract price addendum*. The *contract price addendum* for a crop produced on certified or transitional acreage allows the crop to be insured at the price specified in the contract between the producer and the buyer if the contract is in place

prior to the sales closing date for the crop insurance plan. To take advantage of this opportunity, the producer must select the *contract price option* by the sales closing date for the insurance being purchased and provide a copy of the contract to their insurance agent by the acreage reporting date.

There are limits on the extent to which contract prices can differ from the price based on the **organic price premium**. Details on using contract prices are provided in: *Risk Management for Wyoming Crop and Livestock Commodities Produced under Organic Practices through the Use of Risk Management Agency products and Farm Service Agency Programs*, [Agricultural Marketing Policy Center Paper No. 52](#), July 2016, Montana State University.

Prices based on *organic price premiums* for organically-produced feed barley in Wyoming are as shown in Table 10.

Table 10: RMA Prices for Organic Feed Barley in Wyoming

Crop Year	Projected Harvest Price (\$ per bushel)	Harvest Price (\$ per bushel)
2016	6.06	5.18
2017	-----	NA

NA---this price will not be calculated and announced by RMA until the fall of 2017.

Organic barley may also be insured using **YP**, **RP** and **RP-HPE** (as well as area based insurance plans). Essentially, the structures of these plans are identical to those for feed barley. Farmers must establish APH yields and select *coverage levels* and *price elections*. However, the prices used to establish protection levels and indemnities for organic barley, while based on the *projected harvest price* and *harvest price* for feed barley, are calculated using a multiplicative adjustment factor.

The organic barley price adjustment factor is calculated as follows. Data used to derive the organic barley factor are gathered from the

Agricultural Marketing Service (AMS). All three APH based COMBO plans of insurance (**Yield Protection, Revenue Protection, Revenue Protection with HPE**) associated with the Basic Provisions use the same factor, which (as stated above) is applied to both the *projected harvest price* and *harvest price* as applicable.

For the most recent five years, annual organic barley prices reported to RMA by AMS are divided by annual conventional feed barley AMS prices. The five price ratios are then averaged to compute the organic barley price factor. This organic barley price factor is used for all locations. For 2016, the organic practice *projected harvest price* for barley was \$6.06 per bushel and the *harvest price* for organic barley was \$5.19 per bushel.

Application of YP, RP, and RP-HPE by a Park County Organic Feed Barley Producer: Consider a neighbor to the feed barley producer using conventional production methods. This neighbor also plants 68 acres of barley but plants that crop on certified organic acreage. The organic barley producer wants to assess the application of the three

insurance plans available in the **COMBO** policy as shown in Table 11.

Several features of the example deserve attention. First the insurance guarantee for the organic producer is similar to the insurance guarantee for the non-organic producer. The reason is as follows. As for the non-organic producer, the APH yield is established by the organic producer and the *projected harvest price* is specified by RMA. The organic APH is 56 bushels per acre, just slightly more than 50 percent of the APH of the conventional producer. However, the RMA *projected harvest price* for feed barley produced on certified organic acreage is 185 percent of the *projected harvest price* for non-organic feed barley produced using conventional methods. As a result, the insurance guarantees per acre were similar for the two producers: \$236.34 for the producer using conventional production practices and \$237.55 for the organic producer.²

Table 11: Application of YP, RP, and RP-HPE by a Park County Producer of Organic Feed Barley

Item	YP, 100 %	RP	RP-HPE
APH Yield	56 bushels	56 bushels	56 bushels
Coverage Level	70 %	70 %	70 %
Production Guarantee	39.2 bushels	39.2 bushels	39.2 bushels
Projected Harvest Price	\$6.06	\$6.06	\$6.06
Insurance Guarantee/Acre	\$237.55	\$237.55*	\$237.55
Acres Insured	68	68	68
Total Insurance Liability	\$16,154	\$16,154	\$16,154
Total Premium	\$960	\$1,180	\$1,036
Premium Subsidy	\$566	\$696	\$611
Producer Premium	\$394	\$484	\$425

* For **RP**, this is the minimum insurance guarantee.

² Producers raising barley on transitional acres, however, should note that in 2016 they were not permitted to insure their crop using the RMA organic price for feed barley as their crop would not be certified organic until the three year transition period to organic production had been completed.

As was the case with feed barley produced using conventional practices, an organic producer experiencing a total crop loss would be indifferent among the three insurance plans as long as the RMA estimated *projected harvest price* exceeds the RMA estimated *harvest price*. So, with no **production-to-count**, the gross indemnity for the 68 acres suffering total production loss would be \$16,154 under each of the plans.

However, as with conventional production, the three plans may provide different payouts when to an organic barley producer when there are partials losses in production. The **YP**, **RP** and **RP-HPE** plans are available when 20 bushels per acre are harvested, as shown in Tables 12, 13, and 14.

Table 12: The Application of YP to the Park County Producer's Organic Feed Barley

Item	Harvested 20 Bushels per Acre	Explanation
Production Guarantee	39.2 bushels	APH x Coverage Level
Production-to-Count	20.0 bushels	Bushels harvested
Bushels Indemnified	19.2 bushels	Production Guarantee – <i>Production to Count</i>
Price per Bushel	\$6.06	<i>Projected Harvest Price</i>
Per Acre Indemnity	\$116.35	Bushels Indemnified x <i>Projected Harvest Price</i> *
Acres Insured	68	Producer's decision
Total Indemnity	\$7,912	Per Acre Indemnity x Acres Insured
Producer Premium	\$394	RMA Cost Calculator
Contract Fee	\$30	RMA fee per contract
Net Payment	\$7,488	Total Indemnity – costs

* Note that the production loss to be indemnified is valued at the *Projected Harvest Price*.

Table 13: Application of RP to the Park County Producer's Organic Feed Barley

Item	Harvested 20 Bushels per Acre	Explanation
Minimum Revenue Guarantee	\$237.55	Production Guarantee x <i>Projected Harvest Price</i>
Maximum Revenue Guarantee	\$237.55	Production Guarantee x greater of <i>Projected Harvest Price</i> or <i>Harvest Price</i>
Value of Production-to-Count	\$99.46	<i>Production to Count</i> x <i>Harvest Price</i>
Per Acre Indemnity	\$138.09	Maximum Revenue Guarantee- <i>production to Count</i>
Acres Insured	68	Producer decision
Total Indemnity	\$9,390	Per Acre Indemnity x Acres Insured
Producer Premium	\$484	RMA Cost Calculator
Contract Fee	\$30	RMA fee per contract
Net Payment	\$8,876	Total Indemnity- Costs

Table 14: Application of RP-HPE to a Park County Producer’s Organic Feed Barley

Item	Harvested 20 Bushels per Acre	Explanation
Minimum Revenue Guarantee	\$237.55	Production Guarantee x <i>Projected Harvest Price</i>
Value of Production-to-Count	\$99.46	<i>Production to Count</i> x <i>Harvest Price</i>
Per Acre Indemnity	\$138.09	Revenue Guarantee- <i>Production to Count</i>
Acres Insured	\$68.00	Producer decision
Total Indemnity	\$9,390	Per Acre Indemnity x Acres Insured
Producer Premium	\$425	RMA Cost Calculator
Contract Fee	\$30	RMA fee per contract
Net Payment	\$8,935	Total Indemnity- Costs

As in the case of the **YP**, **RP**, and **RP-HPE** for feed barley raised under conventional production practices, an organic feed barley producer receives a higher net payment under the two revenue plans.

Crop Insurance for Malting Barley Production³

Malting barley may also be insured under one of the three APH based plans: yield protection (**YP**), revenue protection (**RP**) and revenue protection harvest-price exclusion (**RP-HPE**). The requirement is the additional use of a new *malting barley endorsement* (**MBE**) introduced by RMA in 2016. The 2016 **MBE** protects producers when their malting barley fails to meet quality specifications in a malting barley contract and is rejected by a buyer, in addition to providing protection against yield losses and/or revenue losses.

Malting barley crop insurance coverage has been available to producers for many years. However, the new endorsement includes some important changes. The new 2016 **MBE** is the focus of this discussion.

The **MBE** has the following central features. To be eligible for an **MBE**, a policyholder must have an executed malting barley contract from a buyer for

malting barley, comply with all terms and conditions of the **MBE** in addition to the provisions of the underlying insurance contract (**YP**, **RP**, or **RP-HPE**).

All acreage planted by the producer to malting barley that is eligible for insurance in a given county must be insured under the same **MBE**. However, while the endorsement applies to all planted acres, malting barley planted in different units will be covered under the yield provisions and insurance plan provisions applicable to that unit in the underlying **YP**, **RP**, or **RP-HPE** contract. Malting barley APH yields for each insured unit are established under the standard rules applicable for any crop.

In addition, to be eligible for the **MBE**, all malting barley acres must also be planted to *approved* varieties of malting barley. These include all varieties approved for malting by the American Malting Barley Association for the current crop year or any variety grown under the terms of a malting barley contract.

Eligible contracts for **MBE** include a malting barley contract, a malting barley price agreement and a malting barley seed contract. The **MBE** works slightly different depending on the type of contract

³ This section draws heavily on the information on the **Malting Barley Endorsement** provided by RMA in the following publications: *Frequently Asked Questions: Malting Barley Endorsement* published June 1, 2016, available at www.rma.usda.gov/help/faq/maltingbarley.html, *A Risk Management Agency Fact Sheet: Malting Barley, Endorsement*, , available at www.rma.usda.gov/pubs/rme/maltingbarleyendorsement.pdf, and the 2016 *Malting Barley Endorsement Insurance Standards Handbook* available at www.rma.usda.gov/handbooks/20000/2016/20240u.pdf

with the malting barley buyer. For example, as described by RMA, under a malting barley price agreement, quality specifications for purposes of whether the acreage is eligible for quality adjustment are detailed in the *Special Provisions* of the RMA insurance contract and not the specifications in the price agreement with the buyer.

The malting barley contract is a written contract between the farmer and a buyer that is a brewery or any other buyer that produces or sells malt or malt products to a brewery, or a business enterprise owned by such a brewery or business. The buyer must also have one or more qualified representatives at the point where the contracted malting barley is delivered to the buyer by the producer for quality assessment purposes.

The contract between the producer and the malting barley buyer must specify the amount of contracted production and specify the purchase price or a method to determine such price, and establish the obligations of each party to the agreement.

The quality specifications in the malting barley contract are used to determine if the crop insurance policyholder qualifies for quality adjustment in accordance with the **MBE**.

A producer may plant malting barley on acres for which production has been contracted by a buyer, and also on acres not covered by that contract. If that is the case then both the contract and non-contract malting barley acres must be covered by the **MBE**. The price at which the entire crop can be insured is then the weighted average the expected production on the contract acres and the non-contract acres multiplied by their respective *projected harvest prices*.

Consider the following example for a given production year. For malting barley production on the contracted acres, the *projected harvest price* is the contract price, assumed to be \$6.00 per bushel; for production on the non-contracted acres, production is priced at the *RMA projected harvest price* for feed barley, assumed to be \$3.00 per bushel.

Suppose that a producer has an APH yield of 50 bushels per acre on 100 acres of land planted to malt barley, of which 60 acres are produced under contract with a buyer and 40 acres are produced without a contract. The **MBE** price for all malting barley production would then be computed as a production-weighted average *projected harvest price*:

The weighted average *projected harvest price* = $[(50 \text{ bushels per acre} \times 60 \text{ acres} \times \$6) + (50 \text{ bushels per acre} \times 40 \text{ acres} \times \$3.00)] / [50 \text{ bushels} \times 100 \text{ acres}] = \4.80 per bushel .

The *harvest price*: Under a **YP** contract the *projected harvest price* as described above serves as the *harvest price*.

Under a revenue contract (**RP** or **RP-HPE**), the *projected harvest price* is as described above. The *harvest price* is based on the Chicago Board of Trade soft red winter wheat (SRWW) August futures market contract because there are no futures market contracts for malting barley.

The *harvest price* is determined as follows. The *projected harvest price* for soft red winter wheat, as determined by RMA, is subtracted from the *harvest price* for soft red winter wheat. The difference is then added to the *projected harvest price* established for the producer's malting barley to determine the *harvest price* for malting barley.

For example, suppose that for SRWW the *projected harvest price* is \$4 per bushel and the *harvest price* for SRWW is \$5 per bushel and the *projected harvest price* under the producer's malting barley contract is \$6.00. Then the malting barley per bushel *harvest price* = $\$6.00 + (\$5 - \$4) = \7.00 .

Insurance guarantees are established as follows for the **YP** and **RP-HPE** contracts. The *projected harvest price* is multiplied by the producer's selected *coverage level*, their APH yield and the number of acres to be insured under the **MBE** contract. For the **RP** contract, the initial **insurance guarantee** is established in exactly the same way and if the *harvest price* is less than or equal to the

projected harvest price the insurance guarantee remains unchanged. If the **harvest price** exceeds the **projected harvest price** then, as with feed barley, the **insurance guarantee** is increased by using the higher **projected harvest price** in place of the **harvest price** to recalculate the **insurance guarantee**.

Indemnifiable losses occur under two circumstances, either one or both of which may occur. Malting barley that has been produced may not meet the quality specifications included in the contract with the buyer and be rejected for malting barley. In addition, a producer may experience an indemnity because of a yield shortfall under a **YP** insurance policy or a revenue shortfall because a yield shortfall and/or low price at harvest under an **RP** or **RP-HPE** policy.

When a producer has all or a part of their crop rejected by a buyer because of failure to meet contract quality specifications, the **production to count** in estimating the indemnifiable loss is adjusted downwards.

The procedure is as follows for **YP** and both revenue contracts (**RP** and **RP-HPE**). The amount of the rejected production is multiplied by the ratio of the applicable **harvest price** for feed barley to the applicable **harvest price** for the producer's malting barley. The resulting number is then treated as lost production and subtracted from the producer's actual production of malting barley to estimate the **production to count** in calculating an indemnity.

For example, suppose the **harvest price** for **feed barley** is \$3.00 and, based on the provisions of the producer's malting barley contract, the **harvest price** for **malting barley** is \$6.00. Also suppose the producer harvests 50 bushels of malting barley per acre on a total of 60 acres, yielding total production of 3,000 bushels. However, the buyer only accepts 2,000 bushels, rejecting 1,000 bushels that fail to meet the quality specifications in the purchasing contract. The **production-to-count** is then calculated as follows.

The ratio of the **harvest price** for **feed barley** to the **harvest price** for **malting barley** is $\$3/\$6 = 0.5$. This ratio is multiplied by the 1,000 bushels of production rejected for malting by the buyer to obtain the amount by which the **production-to-count** will be reduced because of the **quality loss**; that is, the reduction in **production-to-count** = $0.5 \times 1,000$ bushels = 500 bushels. The **production-to-count** is therefore **total production** - the reduction in **production-to-count** = $3,000$ bushels - 500 bushels = $2,500$ bushels. The $2,500$ bushels of **production-to-count** is then used as the basis for calculating whether an indemnity payment will be made and the size of that payment.

Now consider the example farm in Park County. The farm also raises malting barley. Malting barley variety yields are about 20 percent lower than feed barley variety yields and so the farm, which plants 60 acres of malting barley under irrigation, has an APH yield for malting barley of 80 bushels an acre.

The farm manager recognizes that if a total production loss of malt barley occurs then the analysis of the indemnities received under the **YP**, **RP** and **RP-HPE** policies for feed barley are directly relevant and, qualitatively, the same assessments of the three plans apply. The manager wants to understand, however, how total indemnities and net indemnities will differ under the **YP** and **RP** policy options for a partial production loss (recognizing that many farmers prefer to **RP** to **RP-HPE** because of the extended price protection under **RP**).

As with the farm's feed barley production, the manager selects a 70 percent **coverage level** and therefore the farm's **production guarantee** for malting barley is the selected **coverage level** multiplied by the **APH yield** and the **number of planted acres**; that is, the **production guarantee** = 70 percent \times 80 bushels per acre \times 60 acres = $3,360$ bushels.

The manager assumes that the farm experiences a substantial production loss because of an insurable peril and yields are only 50 bushels an acre, resulting total malting production of 3,000 bushels (50 bushels per acre x 60 acres). However, in addition, 1,000 of those bushels are rejected for malting by the buyer with whom the farm has a contract, the malting barley *harvest price* as determined by the provisions of the contract with the buyer is \$6 per bushel, and the feed barley *harvest price* is \$3.00 per bushel. Under the **MBE**, therefore, as illustrated above, the farm's **total production** is reduced by 500 bushels to obtain the farm's **production-to-count** of 2,500 bushels.

Next the farm manager in Park County evaluates the crop insurance coverage that could be obtained under the **RP** insurance plan, assuming that, as was the case in 2016, the *harvest price* is lower than the *projected harvest price*, as shown in Table 16, where the malting barley *harvest price*, based on the SRWW harvest price, is **\$5.00** per bushel.

While the **YP** policy has a lower premium (\$546) than the **RP** policy (\$874), in this scenario under the **RP** policy the same yield loss results in a higher indemnity payment (\$7,660) than under the **YP** policy (\$5,160). As a result, the **RP** net indemnity (\$6,756) is higher than the **YP** net indemnity (\$4,584).

Table 15: The Application of YP to the Park County Producer's Malting Barley Enterprise

Item	Harvested 50 Bushels per Acre	Explanation
Production Guarantee	3,360 bushels	APH x Coverage Level x planted acres
Total production harvested	3,000 bushels	Bushels harvested
Quality loss reduction adjustment to total production	500 bushels	1,000 bushels rejected by buyer x 0.5 (the ratio of the <i>harvest price</i> for feed barley to the <i>harvest price</i> for malting barley)
<i>Production to count</i>	2,500 bushels	Total production – quality loss reduction adjustment to total production
Bushels Indemnified	860	Production Guarantee – Production-to-Count
Price per Bushel	\$6.00	<i>Projected Harvest Price</i>
Total Indemnity	\$5,160	Bushels indemnified x <i>projected harvest price</i>
Producer Premium	\$546	RMA Cost Calculator
Contract Fee	\$30	RMA fee per contract
Net Payment	\$4,584	Total Indemnity – costs

* Note that the production loss to be indemnified is valued at the *Projected Harvest Price* in the **YP** plan

Table 16: The Application of RP to the Park County Producer's Malting Barley Enterprise

Item	Harvested 50 Bushels per Acre	Explanation
Production Guarantee	3,360 bushels	APH x Coverage Level x planted acres
Total production harvested	3,000 bushels	Bushels harvested
Quality loss reduction adjustment to total production	500 bushels	1,000 bushels rejected by buyer x 0.5 (the ratio of the <i>harvest price</i> for feed barley to the <i>harvest price</i> for malting barley)
Production to count	2,500 bushels	Total production – quality loss adjustment to total production
Bushels Indemnified	860	Production Guarantee – Production to Count
Price per Bushel	\$6.00	Projected Harvest Price
Revenue Guarantee	\$20,160	Production Guarantee x Projected Harvest Price
Harvest Price	\$5.00	
Revenue to Count	\$12,500	Production-to-Count x Harvest Price
Total Indemnity	\$7,660	Per Acre Indemnity x Acres Insured
Producer Premium	\$874	RMA Cost Calculator
Contract Fee	\$30	RMA fee per contract
Net Payment	\$6,756	Total Indemnity – costs

Summary:

Wyoming feed and malting barley producers, using conventional or organic production practices, are concerned about production and revenue risks associated with barley production.

Individual yield (actual production history or APH) and area yield crop insurance plans are available to feed barley producers in most Wyoming counties. Many feed barley producers elect crop insurance coverage based on their own yield history, some form of APH crop insurance coverage.

Three crop insurance plans are available under the **COMBO** feed barley policy coverage where a uniform method of price discovery is employed for all three plans. **Projected Harvest Prices** and **Harvest Prices** pertinent to feed barley producers using conventional production practices are derived from pertinent futures market contracts. These prices are then adjusted using market-related factors to provide **Projected Harvest Prices** and **Harvest Prices** applicable to barley produced on certified organic and transitional acreage. These three plans

are **Yield Protection (YP)**, **Revenue Protection (RP)**, and **Revenue Protection with the Harvest Price Exclusion (RP HPE)**. Many feed barley producers will seek one of the two revenue plans. Producers of malting barley can also obtain production and revenue risk crop insurance coverage under one of the three underlying crop insurance plans (**YP**, **RP**, and **RP HPE**). They can also address quality risks for their malting barley under the **malting barley endorsement (MBE)**. A new **MBE**, introduced for the 2016 malting barley crops, protects producers when their malting barley fails to meet quality specifications in a malting barley contract and is rejected by a buyer. Although the **MBE** is a continuation of malting barley coverage made available to malting barley producers through an RMA-approved endorsement, some of the coverage and indemnification particulars are considerably different from those previously employed. Current procedures are explained using an example of an irrigated malting barley producer in Wyoming.



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