



BRIEFING

Briefing No. 36

February 2003

Harvested Roughage and Rangeland Production Risk Management in Montana—Crop Insurance

James B. Johnson

Agricultural Marketing Policy Center
 Linfield Hall
 P.O. Box 172920
 Montana State University
 Bozeman, MT 59717-2920
 Tel: (406) 994-3511
 Fax: (406) 994-4838
 email: ampc@montana.edu
 website: www.ampc.montana.edu

Contact:

James B. Johnson
 (406) 994-5606
jamesjohnson@montana.edu

Introduction:

As drought continues in some areas of Montana, farm and ranch managers are increasingly seeking production risk management tools for forage seeding and harvested roughages such as forage and corn silage, and rangeland.

Producer production risks can be ameliorated to some degree by using multiple peril crop insurance products subsidized by the federal government through the Federal Crop Insurance Corporation with oversight provided through the USDA's Risk Management Agency (RMA). If such products are unavailable in a specific county but exist in other counties, producers may file a *Request for Actuarial Change* (see Briefing No. 13-Revised) to obtain insurance coverage or they may rely on the Noninsured Disaster Assistance Program (NAP) administered by the USDA's Farm Service Agency (see Briefing No. 14-

Revised) for financial assistance.

Harvested Roughage and Range Insurance Products:

A limited number of crop insurance products are available to farm and ranch managers for harvested roughage and range (Table 1).

Forage Crop Insurance:

In Montana, only forages that have been planted with the expectation of being harvested (as opposed to grazed) are insurable. Forages covered by multiple peril crop insurance are **alfalfa, alfalfa/grass mixture, and grass/alfalfa mixture**. RMA distinguishes among these three types of forages by using the number of living alfalfa plants per square foot and the year of establishment.

Table 1: Harvested Roughage and Rangeland Crop Insurance Products Available in Montana

Crop/Type	Type of Insurance			Available by Written Agreement
	APH	Dollar	Pilot	
Alfalfa	yes			no
Alfalfa/Grass	yes			no
Grass/Alfalfa	yes			no
Forage Seeding		yes		no
Corn for Silage	yes			yes
Rangeland			yes	no

**Objective
 Analysis
 for Informed
 Decision Making**

Table 2: Alfalfa Plants per Square Foot Required by Type/Practice of Forage, by Year after Stand Establishment

Type of Forage/ Practice	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Alfalfa/Irrigated	6.0 and above	4.0 and above	3.0 and above	3.0 and above	3.0 and above	*	*
Alfalfa-Grass Mixture/Irrigated	2.5 to 5.9	1.7 to 3.9	1.2 to 2.9	1.2 to 2.9	1.2 to 2.9	1.2 and above	1.2 and above
Alfalfa/Non-Irrigated.	4.8 and above	3.2 and above	2.4 and above	*	*	**	**
Alfalfa-Grass Mixture/Non-Irrigated	2.0 to 4.7	1.3 to 3.1	1.0 to 2.3	1.0 and above	1.0 and above	**	**
Grass-Alfalfa Mixture/Non-Irrigated	***	0.2	0.2 to 0.9	0.2 to 0.9	0.2 to 0.9	0.2 and above	0.2 and above ****

- * Stands are not insurable as the Alfalfa typ, but can be insured as Alfalfa/Grass Mixture type
- ** Overage stands not insurable as Alfalfa or Alfalfa/Grass types can be insured as Grass/Alfalfa mixture types
- *** Insurance does not attach until after second year after establishment
- **** No maximum age limit applies. Non-irrigated Alfalfa and Alfalfa/Grass mixture types in the eighth and succeeding years after year of establishment are insurable as Alfalfa/Grass mixture as long as there are at least 0.2 living plants per square foot.

This determining factor is adjusted depending upon the age of the stand beyond the establishment year (Table 2).

Alfalfa and alfalfa/grass mixture are covered under both irrigated and non-irrigated production practices. Grass/alfalfa mixture is covered only under non-irrigated production practices.

As stands become older (overage), they may sometimes be insured under a different type within a practice. That is, irrigated alfalfa in the sixth year beyond the establishment year can be insured as an irrigated alfalfa/grass mixture if the alfalfa plant count is sufficient. This essentially allows an irrigated producer more years of coverage. In the eighth and subsequent years after stand establishment, irrigated harvested forage production can no longer be insured. But, there may be other avenues to manage production risks associated with overage irrigated stands (for example, NAP).

For non-irrigated production, alfalfa stands become overage in the fourth year beyond stand establishment. Again, a producer can obtain more years of coverage if a stand meets the criteria for non-irrigated alfalfa/grass. Then, as long

as the non-irrigated stand has at least 0.2 alfalfa plants per square foot, production may be insured as grass/alfalfa. As long as the non-irrigated forage stand qualifies as a grass/alfalfa mixture, then NAP is not applicable to the stand.

The insurance period for forage production in Montana begins with an adequate stand on May 22 following the year of spring-seeded acreage. For fall seeded acreage, insurance begins on acreage with an adequate stand on October 16 following the year of seeding. Insurance coverage ends the earliest of: (1) total destruction of the stand; (2) final adjustment of a loss; (3) abandonment of the forage crop; (4) removal from the windrow or field for each cutting; (5) the date grazing commences on the forage production; or (6) October 15. The sales closing date for forage production is September 30.

Grazing is allowed on acreage insured for forage production as long as grazing commences after the forage has gone into winter dormancy. All livestock must be removed from the insured acreage prior to the end of winter dormancy.

Multiple peril crop insurance products for forage, available at the basic unit level,* are based on actual production histories (APH). The average yield for forage production must

be based on written verifiable records of acreage and production, by type.

Producers can choose among yield coverages of 50, 55, 60, 65, 70 or 75 percent of their actual production history. Producers can choose price elections ranging from 55 to 100 percent of RMA-determined maximum price elections. Maximum price elections are established each year by RMA prior to the sales closing date. Those applicable to Montana for the 2003 crop year are presented (Table 3).

Indemnities are paid when a producer's harvested yield fall below the guaranteed yield.

Table 3: 2003 Forage Production Price Election Maximums by Production Types

Forage Production Type	Price Per Ton
Alfalfa	\$84
Alfalfa/Grass Mixture	\$84
Grass/Alfalfa Mixture	\$75

* See Briefing Paper No. 6-Revised for a

description of units.

Consider an irrigated alfalfa producer who has a proven actual production history yield (APH) of 4.0 tons per acre on 300 acres. Suppose this producer selects a 75 percent yield election -- which is the maximum available. Thus, the guaranteed yield is 3.0 tons per acre (0.75 x 4.0 tons/acre). Furthermore, assume this producer selects 100 percent of the maximum price election (or \$84 per ton).

Under usual conditions, this producer would realize a gross revenue from hay production of \$100,800 if the market price equaled \$84/ton (4 tons/acre x \$84/ton = \$336/acre x 300 acres = \$100,800).

However, suppose the producer harvests 2 tons per acre from a first cutting, but only 0.5 tons per acre from a second (final) cutting because of limited irrigation water supplies. In this case, the producer would receive an indemnity equivalent to 0.5 tons/acre valued at \$84/ton over the 300 acres, or \$12,600 (3.0 tons/acre insured coverage - 2.5 tons actual production = 0.5 per acre insured loss x \$84/ton = \$42/acre indemnity x 300 acres = \$12,600).

If the market price for the harvested hay averaged \$84 per ton, the sales revenue plus the indemnity for the quantity loss would provide total gross revenue would be \$75,600. Therefore, the producer would suffer a \$25,200 shortfall in gross revenue and exclusive of the insurance premium.

Consider a different scenario in which a producer harvests the expected 2 tons per acre from a first cutting and obtains gross revenue of \$50,400 (2 tons/acre x \$84/ton = \$168/acre x 300 acres = \$50,400). Suppose the producer harvests another 2 tons per acre from a second (final) cutting. However, excessive rain reduced the value of the second cutting from

\$84/ton to \$40/ton. Production from the second cutting yields a gross revenue of \$24,000 (2 ton/acre x \$40 = \$80/acre x 300 acres = \$24,000). Total hay revenue equals \$74,400 (\$50,400 + \$24,000). In this case, the producer does not receive an indemnity because 4 tons per acre were harvested which exceeds the insured production level of 3.0 tons. This example illustrates that multiple peril crop insurance forage products insure against yield losses, but not against quality losses.

In Montana only perennial forage production can be insured against yield losses. Annually-planted forages and grains planted for the purpose of forage production cannot be insured.

Forage Seeding:

Forage seeding multiple peril crop insurance is a dollar (revenue) plan (in contrast to a yield plan). This product allows producers to select a dollar coverage per acre. The sales closing date for the 2003 season is March 15, 2003. The intent is to indemnify producers if various events cause a poor stand of forage to be established.

Insured forage seeding consists of spring-seeded **perennial alfalfa, perennial red clover, perennial grasses** or a **mixture thereof**. The final planting date for the 2003 season is May 31, 2003. Insurable types and practices are irrigated and non-irrigated alfalfa and alfalfa/grass mixtures in Montana. Normal stands are defined by type and practices (Table 4).

Table 4: Normal Stands of Forage Seeding, by Type and Practice (Alfalfa plants per square foot)

Type	Irrigated	Non-Irrigated
Alfalfa	8.0	6.4
Alfalfa/Grass	3.3	2.7

Several conditions must be met to be eligible for crop insurance. First, forage seeding must occur in the spring within a range of planting dates. Second, forage must not be planted with the intent to be grazed at any time during the insurance period. Third, forages cannot be interplanted with other crops except oats or flax. If interplanting occurs, seeding rates for oats and flax cannot exceed 16 pounds per acre. Oats must be harvested for hay no later than the milk stage.

The insurance period begins when the forage is seeded. The insurance period ends the earliest of: (1) total destruction of the insured crop; (2) first harvest date after August 5, 2003 (may harvest as soon as practical on or before that date); (3) final adjustment for the loss; (4) the date grazing commences on the insured crop; or, (5) May 21, 2004.

The dollar amount of insurance is driven, in part, by a reference dollar amount specified by practice (Table 5).

Table 5: Reference Dollar Amount by Practice, 2003 Crop Year

Practice	Reference Dollar Amount
Irrigated	\$127/acre
Non-Irrigated	\$110/acre

Producers select coverage levels that are percentages of the reference dollar amounts to obtain their desired dollar coverage (Table 6).

Suppose a producer seeds forage on irrigated land. If the producer selects a 50 percent coverage level, the only choice of a dollar amount would be 100 percent. The dollar amount of coverage would be:

(50 percent coverage level) x (100 percent of the dollar amount) x (\$127/acre) = \$64/acre.

Table 6: Coverage Levels and Ranges of Percentages of Dollar Amounts

Coverage Level	50	55	60	65	70	75
Percent of Dollar Amount	100	91-100	84-100	77-100	72-100	67-100

However, suppose a different irrigated forage producer selected a 75 percent coverage level and elected a 100 percent of the dollar coverage. The dollar amount of coverage would be:

$$(75 \text{ percent coverage level}) \times (100 \text{ percent of the dollar amount}) \times (\$127/\text{acre}) = \$95/\text{acre}.$$

These examples define the minimum and maximum per acre dollar coverage levels for forage seeding on irrigated production.

To illustrate the details of forage seeding crop insurance, suppose a producer seeds both irrigated and non-irrigated acreage in the spring of 2003. The producer selects a 70 percent coverage level and 90 percent of the dollar reference amount (which is within the 72-100 percent allowable range) for each practice. On a per acre basis, the dollar coverage would be:

$$\text{Irrigated: } (70 \text{ percent coverage level}) \times (90 \text{ percent of the dollar amount}) \times \$127 = \$80/\text{acre}.$$

$$\text{Non-irrigated: } (70 \text{ percent coverage level}) \times (90 \text{ percent of the dollar amount}) \times \$110 = \$69/\text{acre}.$$

To determine the total dollar amount of coverage, the acres to be seeded under each practice need to be specified. Assume this producer seeds 40 irrigated acres and 100 non-irrigated acres of forage. The total dollar coverage is calculated as:

40 acres irrigated seeding x \$80/acre	=	\$3,200
100 acres of non-irrigated seeding x \$69/acre	=	6,900
Total Dollar Coverage	=	10,100

After seeding, the producer incurs a loss which reduces the number of alfalfa plants per square foot on both the irrigated and non-irrigated acres.

Forage seeding indemnity is calculated as:

$$\text{Indemnity} = \text{Total Dollar Coverage} -$$

Total Production to Count

“Production to Count” is the dollar amount of the established stand, which includes acreage:

- (1) having at least 75 percent of the normal stand;
- (2) abandoned or put to another use without prior written consent;
- (3) damaged solely by uninsured causes;
- (4) harvested and not reseeded.

Suppose this producer harvests a cutting from the 100 non-irrigated acres. On 30 of the 40 irrigated acres, only 3 alfalfa plants per square foot were established. In addition, there was no loss of alfalfa plants per square foot on the other 10 irrigated acres.

This producer's indemnity is calculated as:

Total Dollar Coverage (see above)	=	\$10,100
LESS:		
100 Acres of Non-irrigated seeding that was harvested (see above)	=	6,900
10 acres of irrigated seeding that was harvested (10 acres x \$80/acre)	=	800
Indemnity	=	\$2,400

This indemnity covers the poor stand on the 30 acres of irrigated seeding that had only 3 alfalfa plants per square foot, 37.5 percent of the normal stand (3 alfalfa plants per square foot / 8 alfalfa plants per square foot under production irrigation).

The amount of indemnity on any spring-planted acreage (such as the previous example) will be reduced by 50 percent if the stand is less than 75 percent but more than 55 percent of the normal stand. In the example if there had been 5 alfalfa plants per square foot (rather than 3 plants per square foot) then stand would be 62.5 percent of normal (5 alfalfa plants per square foot / 8 alfalfa plants per square foot). The indemnity would have been \$1,200 for the 30 acres, a 50 percent reduction in the initial estimate of a

\$2,400 indemnity.

Other Harvested Roughage:

Other than harvested forage production, corn for silage is Montana's other harvested roughage. Each year 40,000 to 50,000 acres of corn silage are harvested. Ten of Montana's 56 counties account for nearly all of the corn silage production with most of it coming from irrigated acreage. Multiple peril crop insurance for irrigated corn silage production is offered in 23 counties (Figure 1) and 7 of these counties have multiple peril crop insurance offerings for corn silage produced on non-irrigated acreage (Figure 2).

Multiple peril crop insurance for corn for silage has a sales closing date of March 15 in Montana. A producer can select catastrophic coverage at 50 percent of the APH yield and 55 percent of the price election. The usual opportunities exist for increasing coverage. Producers can select yield coverage at 50, 55, 60, 65, 70, and 75 percent of their APH yields. Producers have a choice of 60 to 100 percent of the maximum price election. For the 2003 crop year the maximum price election is \$15.20 per ton in Montana.

Multiple peril crop insurance for corn silage may be selected at the optional, basic, or enterprise unit levels. Usual perils are covered including the failure of the irrigation water supply. Indemnities are based on appraised quantity losses below the insured yield specified as a percentage of the APH yield established in the usual manner from written, verifiable acreage and production records. Corn for silage may be adjusted for quality. That is, if the appraised corn content is less than 4.5 bushels per ton of silage, the production will be reduced.

Rangeland Insurance:

A pilot rangeland insurance product is available to producers in 12 Montana counties (Figure 3). The insured crop is rangeland or pastureland intended for harvest by grazing. The rangeland or pastureland cannot produce a second crop. The sales closing date is March 15.

Figure 1: Montana Counties with APH Crop Insurance for Corn Silage, Irrigated

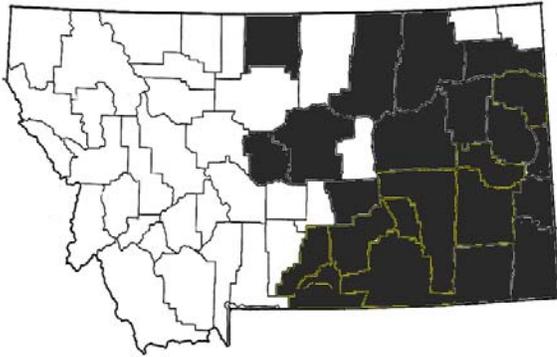
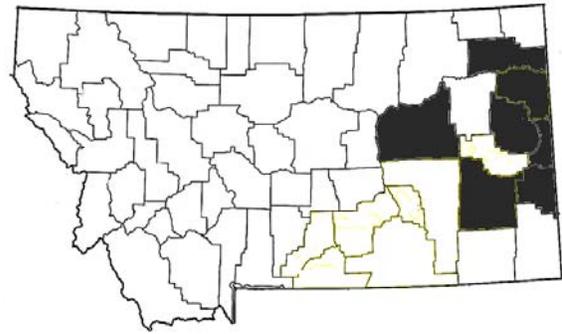


Figure 2: Montana Counties with APH Crop Insurance for Corn Silage, Non-irrigated



The pilot insurance for rangeland or pastureland is a Group Risk Plan (GRP) rather than an individual insurance plan. This GRP product is designed to insure against widespread loss of production on rangeland or pastureland in an entire county. Thus, production on a producer's own farm or ranch is inconsequential.

GRP rangeland coverage is expressed in dollar amounts of protection per acre. Producers can select from 60 to 100 percent of the maximum dollar protection per acre, i.e., similar to a price election. In addition, producers select a county-level yield election ranging from 65 to 90 percent in 5 percentage point increments.

A producer's trigger yield is determined by multiplying expected county-level yields by the producer's selected yield election. Trigger yields for rangeland are based on county-wide all non-irrigated hay production as reported by the National Agricultural Statistics Service.

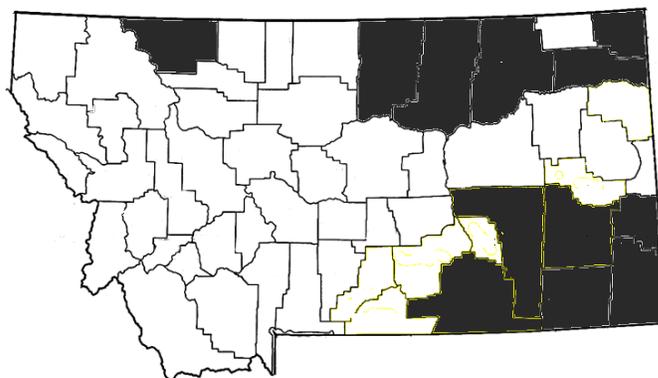
Producers are advised that the pertinent yield for this group risk plan product is not the average amount of forage grazed from rangeland in the county. Rather it is the all non-irrigated hay yield for the county, a yield considered to be correlated with range production.

If county-wide all non-irrigated hay production declines below a producer's trigger yield, then a producer will receive an indemnity.

The county-level National Agricultural Statistics Service yields for all non-irrigated hay, as adjusted by the Federal Crop Insurance Corporation, is used to determine rangeland production.

Because these estimates for all non-irrigated hay are not available until early in the calendar year following the production season, indemnities are not issued until May of the year following that production season.

Figure 3: Montana Counties with Rangeland Group Risk Plan Coverage, 2003





The programs of the MSU Extension Service are available to all people regardless of race, creed, sex, disability or national origin. Issued in furtherance of cooperative extension work in agriculture and home economics, acts of May 8 and June 30, 1914., in cooperative with the U.S. Department of Agriculture, Dr. LeRoy Luft, Interim Vice Provost and Director, Extension Service, Montana State University, Bozeman, MT 59717.