



Precipitation Risk Management for Annual Forages

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Planting annual forages is subject to precipitation risk. The Annual Forage Insurance Plan offers an opportunity to manage this risk.

Planting annual forages following a primary crop or specifically for feed can provide a number of benefits, including ground cover and forage resources for livestock. One of the main risks with this production practice, especially in a non-irrigated field, is erratic precipitation and soil moisture conditions. The Annual Forage Insurance Plan, available in Nebraska from the USDA–Risk Management Agency (RMA), is one tool available to crop and livestock producers to help mitigate this risk.

Annual Forage Insurance Plan

The Annual Forage Insurance Plan coverage is for annual forages seeded for use as livestock feed or fodder. This includes annual forage plants seeded for grazing, haying, grazing/haying, grain/grazing, green chop, grazing/green chop, or silage. Changes to the program in 2017 expanded the number of growing seasons and established a common signup date. The Annual Forage Insurance Plan now includes four growing seasons that cover the entire year (see sidebar). The sign-up deadline for all of these growing seasons is July 15 each year so producers interested in obtaining this insurance should contact their crop insurance

agent in early summer to see what they need to do to get the coverage in place and what it might cost them.

Generally, the types of annual forages planted during growing season 1 include the spring small grains such as oats, triticale, barley, or a blend of species that are typical of cover crop mixtures (*Figure 1*). If planting can be done in July, warm-season annuals could also be used. These forages would be utilized in fall or stockpiled for winter. Forages for growing season 2 would be limited to winter

The four growing seasons available with the Annual Forage Insurance Plan coverage.

- Growing Season 1
 - Planting Dates: Jul 16–Oct 15
 - Rainfall coverage available from September 1 through March 31
- Growing Season 2
 - Planting Dates: Oct 16–Jan 15
 - Rainfall coverage available from December 1 through June 30
- Growing Season 3
 - Planting Dates: Jan 16–Apr 15
 - Rainfall coverage available from March 1 through September 30
- Growing Season 4
 - Planting Dates: Apr 16–Jul 15
 - Rainfall coverage available from June 1 through November 30



Figure 1. A cover crop mixture planted into wheat stubble in late July (growing season 1).

small grains such as wheat, triticale, and cereal rye with planned grazing use the following spring. Common forages for growing season 3 would again include spring small grains, legumes, or brassicas with utilization in early summer (Figure 2). Some species with regrowth potential, such as annual ryegrass, would result in an extended period of use. The most common forages for growing season 4 would be warm-season annuals such as sudangrass, sorghums, or millets. Cool-season species could be used if planted in April.

The Annual Forage Insurance Plan coverage is based off of precipitation index data provided by the National Oceanic and Atmospheric Administration Climate Prediction Center (NOAA CPC). Producers can insure from 70 percent to 90 percent of the Expected Grid Index precipitation across a series of two-month intervals spanning the coverage period for each growing season.

Both irrigated and non-irrigated acres are insurable. Each county in Nebraska has a County Base Value determined by the RMA that represents its annual forage productive value regardless of production method. For example, the 2017 County Base Value for Buffalo County, Nebraska, was \$199.86 per acre. Producers can select a productivity factor between 60 percent (\$107.92 per acre) and 150 percent (\$269.81 per acre) of the County Base Value depending upon their own projected productive value, cost of production, etc.

Annual Forage Insurance Plan premium costs will vary depending upon the coverage selected. Producers interested in using the plan are encouraged to access the decision support tool on the RMA website to explore various coverage options, premium costs, and performance data based on historical rainfall indices. Premium costs are subsidized



Figure 2. A mixture of oats and field peas planted during growing season 3.

from 51 percent to 59 percent depending upon coverage level selection.

Catastrophic (CAT) coverage is available for the Annual Forage Insurance Plan. In general, it is hard to justify purchasing it unless a person has a lot of acres to cover within a particular county and is only protecting against a prolonged dry period. CAT coverage is fixed at 65 percent coverage on precipitation for the entire growing season, as one six- to seven-month interval. The productivity factor is also fixed at 45 percent.

Central Nebraska Example

Figure 3 presents a 90 percent coverage level example for a 100-acre field in Buffalo County, Nebraska, grid 24724 using the RMA decision support tool (<http://af.agforceusa.com/ri>). This example coverage is for growing season 1 from September 2016 to March 2017. In the example, an indemnity of \$4,381 would have been received for the two-month interval of September–October because the actual index value of 35.2 fell below the coverage level of 90. The indemnity is calculated by taking the difference representing how far below the coverage level the actual index turned out to be times the productive value per acre times the percent of value protected in that coverage interval. In this case, 100 percent of the county base productive value of \$199.86 was selected along with 40 percent of value protected in the September–October interval so the indemnity equals $\$199.86 * (0.90 - 0.352) * 0.4$.

Like most insurance, the Annual Forage Insurance Plan will only pay out indemnities some of the time. In the Buffalo County, Nebraska, example, the indemnity received almost covered the total premium of \$4,439 and more than

| Index Interval | Percent of Value (%) | Policy Protection per Unit | Premium Rate per \$100 | Total Premium | Premium Subsidy | Producer Premium | Actual Index Value | Indemnity |
|----------------|----------------------|----------------------------|------------------------|---------------|-----------------|------------------|--------------------|-----------|
| Sep-Oct | 40 | \$7,195 | 20.98 | \$1,510 | \$770 | \$740 | 35.2 | \$4,381 |
| Oct-Nov | N/A | \$0 | 23.54 | \$0 | \$0 | \$0 | 60.9 | \$0 |
| Nov-Dec | 30 | \$5,396 | 32.79 | \$1,769 | \$902 | \$867 | 146.6 | \$0 |
| Dec-Jan | N/A | \$0 | 22.98 | \$0 | \$0 | \$0 | 150.0 | \$0 |
| Jan-Feb | 30 | \$5,396 | 21.49 | \$1,160 | \$591 | \$569 | 99.0 | \$0 |
| Feb-Mar | N/A | \$0 | 25.34 | \$0 | \$0 | \$0 | 80.5 | \$0 |
| Per Acre | N/A | N/A | N/A | \$44.39 | \$22.63 | \$21.76 | N/A | \$43.81 |
| Policy Total | 1 | \$17,987 | N/A | \$4,439 | \$2,263 | \$2,176 | N/A | \$4,381 |

| | | |
|---|----------|-----------|
| County Base Value | \$199.86 | Calculate |
| Dollar Amount of Protection | \$179.87 | |
| Total Insured Acres | 100 | |
| Total Policy Protection | \$17,987 | |
| Subsidy Level | 51.0% | |
| Maximum Percent of Value per Index Interval | 45.0% | |

Figure 3. Annual Forage Insurance example for 2017 on 100 acres in grid 24724 in Buffalo County, Nebraska, with a 90 percent coverage level and 100 percent productivity factor selected.

covered the producer premium of \$2,176 after taking into account the 51 percent premium subsidy. This may not be the case all of the time. The best approach to using any insurance is to devise a plan that fits the situation and stick with it. If the coverage represented in Figure 3 had been purchased for five consecutive years from 2013–2017, it would have paid out indemnities of \$7,016, \$2,968, \$3,909, \$1,071, and \$4,318 over that time. This would have covered the producer premium in four out of five years, but the total premium would have only been covered once.

Western Nebraska Example

Figure 4 presents a 90 percent coverage level example for a 100-acre field in Kimball County, Nebraska, grid 25306. This example coverage is for growing season 4 from June to November 2017. This is when warm-season annual forages would be grown. In the example, an indemnity of \$3,175 would have been received for the two-month interval of June–July of 2017 because the actual index value of 54.7 fell below the coverage level of 90. The indemnity is calculated by taking the difference representing how far below the coverage level the actual index turned out to be times the productive value per acre times the percent of

value protected in that coverage interval. In this case, 100 percent of the county base productive value of \$199.86 was selected along with 45 percent of value protected in the June–July interval so the indemnity equals $\$199.86 * (0.90 - 0.547) * 0.45$.

In the Kimball County, Nebraska, example, the indemnity received covered the total premium of \$2,813 and more than covered the producer premium of \$1,378 after taking into account the 51 percent premium subsidy. If the coverage represented in Figure 4 had been purchased for five consecutive years from 2013–2017, it would have paid out indemnities of \$4,362, \$612, \$2,815, \$3,309, and \$3,175 over that time. This would have covered the producer premium as well as the total premium in four out of five years.

Summary

Soil moisture at the time of planting annual forages as well as precipitation during the growing season is one of the primary drivers in the expected yield. Rainfall during germination and early growth is key for annual forages that require shallow planting because of small seed size. Adequate rainfall during the periods when these annual forages are growing rapidly is also critical. Producers utilizing the

| Index Interval | Percent of Value (%) | Policy Protection per Unit | Premium Rate per \$100 | Total Premium | Premium Subsidy | Producer Premium | Actual Index Value | Indemnity |
|----------------|----------------------|----------------------------|------------------------|---------------|-----------------|------------------|--------------------|-----------|
| Jun-Jul | 45 | \$8,094 | 13.12 | \$1,062 | \$542 | \$520 | 54.7 | \$3,175 |
| Jul-Aug | N/A | \$0 | 13.49 | \$0 | \$0 | \$0 | | |
| Aug-Sep | 45 | \$8,094 | 17.10 | \$1,384 | \$706 | \$678 | 108.4 | \$0 |
| Sep-Oct | N/A | \$0 | 22.00 | \$0 | \$0 | \$0 | 122.2 | \$0 |
| Oct-Nov | 10 | \$1,799 | 20.42 | \$367 | \$187 | \$180 | 104.6 | \$0 |
| Per Acre | N/A | N/A | N/A | \$28.13 | \$14.35 | \$13.78 | N/A | \$31.75 |
| Policy Total | 1 | \$17,987 | N/A | \$2,813 | \$1,435 | \$1,378 | N/A | \$3,175 |

| | | |
|---|----------|------------------|
| County Base Value | \$199.86 | Calculate |
| Dollar Amount of Protection | \$179.87 | |
| Total Insured Acres | 100 | |
| Total Policy Protection | \$17,987 | |
| Subsidy Level | 51.0% | |
| Maximum Percent of Value per Index Interval | 45.0% | |

Figure 4. Annual Forage Insurance example for 2017 on 100 acres in grid 25306 in Kimball County, Nebraska, with a 90 percent coverage level and 100 percent productivity factor selected.

plan and choosing which two-month intervals to insure should evaluate how soil moisture and timing of precipitation would impact the annual forage crop that is being insured. In the Figure 4 example, a summer annual forage would not be expected to grow much in the October–November period due to the likely event of frost terminating the crop. Maximizing insurance coverage in the two-month intervals of June–July and August–September when precipitation would have the greatest impact on summer annual forage production would be logical.

For producers considering utilizing the Annual Forage Insurance Plan in Nebraska, one of the greatest challenges in using the product is the timing of the sign-up period for purchasing the insurance. The deadline for buying the insurance is July 15 for the next crop year. Many producers who plant annual forages especially in the spring and summer will often have not identified the specific number of acres or crops that they plan to plant this far in ad-

vance. Producers planting annual forages in the spring and summer who have long-term cropping plans will be best positioned to utilize this risk management tool.

One of the biggest risks in planting annual forages either as a primary or secondary double crop is having the precipitation and soil moisture to make it work. The Annual Forage Insurance Plan is one tool available to producers to help mitigate this risk. Producers interested in using the Annual Forage Insurance Plan are encouraged to contact their local crop insurance agent and visit <http://www.rma.usda.gov/policies/ri-vi/annualforage.html> to access more information, including a grid locator, decision support tool, and all of the historical rainfall indices. A recorded webinar on this topic is also available at beef.unl.edu.

This material is funded in partnership by USDA, Risk Management Agency, under award number RM17RMEP-P522C004.

This publication has been peer reviewed. Nebraska Extension publications are available online at <http://extension.unl.edu/publications>.

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