



## Managing Precipitation Risk on New Mexico Rangelands

**T**im and Tina are a married couple operating a small ranch in northwestern New Mexico. They raise sheep and lambs on a 2,400-acre range unit shared among three family members.

The carrying capacity for the land is 60 sheep units year-long or roughly 40 acres per sheep unit year-long. Tim and Tina hold permits for 42 sheep units with the remainder distributed between the two other families.

Every year, drought is a major risk that threatens their opportunity to generate a positive net income from their sheep enterprise. So far, they have handled this

risk in one of two ways, depending upon market conditions:

1. When dry weather leads to poor range conditions and a shortage of forage, they either sell a few sheep or buy some hay.
2. If prices are high, they sell sheep. If prices are low, they buy hay.

The problem is, when drought occurs, sheep prices are usually low and hay prices are usually high. This leaves them with a difficult financial decision to make.

Tim and Tina like raising sheep. They are proud of their heritage of working with the land and animals. It is important to them

that they keep a steady presence of sheep in their lives, as they would like their three children to experience the same sense of pride they did growing up in a ranching environment.

## Drought Risk

They would like to find a better way to address the risk of drought, other than just reacting after it occurs. They don't want to stock pile hay because of the capital investment involved and the risk of it going bad or getting stolen before it can be used. They live close to a public road and don't have any good place to store it. Similarly, they don't see using a lighter stocking rate or acquiring more permits as an option because they cannot afford the luxury of holding onto extra grazing resources just in case they need them.

Tina has been exploring online and has located some educational resources

**USDA** United States Department of Agriculture  
A Risk Management Agency Fact Sheet  
**Pasture, Rangeland, Forage Pilot Insurance Program**  
Revised August 2017

**Pasture, Rangeland, Forage**  
The Risk Management Agency's (RMA) Pasture, Rangeland, Forage (PRF) Pilot Insurance Program is designed to provide insurance coverage on pastures, rangeland, or forage acres. The PRF program utilizes a rainfall index to determine precipitation for coverage purposes, and does not measure production or loss of products themselves. The Rainfall Index uses National Climatic and Atmospheric Administration Climate Prediction Center (NOAA CPC) data, which utilizes a grid system to determine precipitation amounts within an area. Each grid is 0.25 degrees in latitude by 0.25 degrees in longitude, which translates to approximately 17 by 17 miles at the equator. Acres will be assigned to one or more grids based on the location to be insured.

The Pasture, Rangeland, and Forage insurance was designed to help protect a producer's operation from the risks of forage loss due to the lack of precipitation. It is not designed to insure against ongoing or severe drought, as the coverage is based on precipitation expected during specific intervals only.

**Availability**  
PRF is available in the 48 contiguous states with the exception of a few grids that cross international borders.

**Coverage and Claims**  
Coverage is based on a producer's selection of coverage level, index intervals, and productivity factor. The index interval represents a two-month period, and the period selected should be the one when precipitation is most important to a producer's operation. Policyholders can select a coverage level from 70 to 90 percent. The rainfall index does not measure direct production or loss. The producer is insuring a rainfall index that is expected to estimate production. Producers select a productivity factor to match the amount of protection to the value of the production that best represents the operation and the productive capacity of the producer's acres.

Producers do not have to insure all acres. However, producers cannot insure more than total number of insurable acres.

Insurance payments are determined by using NOAA CPC data for their grid(s) and index intervals that were chosen to insure. When the final grid index falls below the policyholder's "trigger grid index", the producer may receive an indemnity. This insurance coverage is for a single peril – lack of precipitation. Coverage is based on the experience of the entire grid. It is not based on individual farms or ranches or specific weather stations in the general area.

**Tools**  
Producers need to make several choices when insuring their grazing or hay production, including coverage level, index intervals, irrigated practice, productivity factor, and number of acres. Producers should work with their crop insurance agent to view the [Grid ID Locator](#) map and index grids for their area, and location and use of the acreage to be insured. RMA encourages the use of the [Grid ID Locator, historical indices tool, and decision support tools](#) available on RMA's website to help decide whether PRF is the right insurance coverage for a producer's operation.

**Buying a PRF Policy**  
PRF policies can be bought from a crop insurance agent by the sales closing date shown for each county in the [actuarial documents](#). A list of crop insurance agents is available at all USDA service centers and on the RMA website at [www.rma.usda.gov/tools/agent.html](http://www.rma.usda.gov/tools/agent.html).

**Contact Us**  
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Email: [RMA.Media.Requests@rma.usda.gov](mailto:RMA.Media.Requests@rma.usda.gov)

This fact sheet provides only a general overview of the crop insurance program and is not a complete policy. For further information, and an evaluation of your risk management needs, contact a crop insurance agent. USDA is an equal opportunity provider and employer. © 2017 United States Department of Agriculture. Office of Agricultural Risk, 1400 Independence Ave., SW, Washington, DC 20250-8101 or call (800) 635-6962 (Toll-Free Customer Service), (800) 877-6238 (Local or Foreign calls), (800) 317-6463 (Hearing-impaired).

focused on addressing the risk of drought. She has come across several mentions of an insurance product from the USDA Risk Management Agency (RMA) called Pasture, Rangeland, Forage (PRF) insurance that provides coverage based on a rainfall index.

## Decision Support Tool

She decided to visit the RMA website ([www.rma.usda.gov](http://www.rma.usda.gov)) to check it out. There she discovered a decision support tool that allowed her to enter her location and example coverage information to learn how the insurance might have worked for their operation over the last several years if they had purchased it.

A mapping tool allowed Tina to pin point their range unit on a map. She had read that the PRF insurance rainfall indices were based on of grids 0.25 degrees longitude by 0.25 degrees latitude. The mapping tool showed her where the grid boundaries



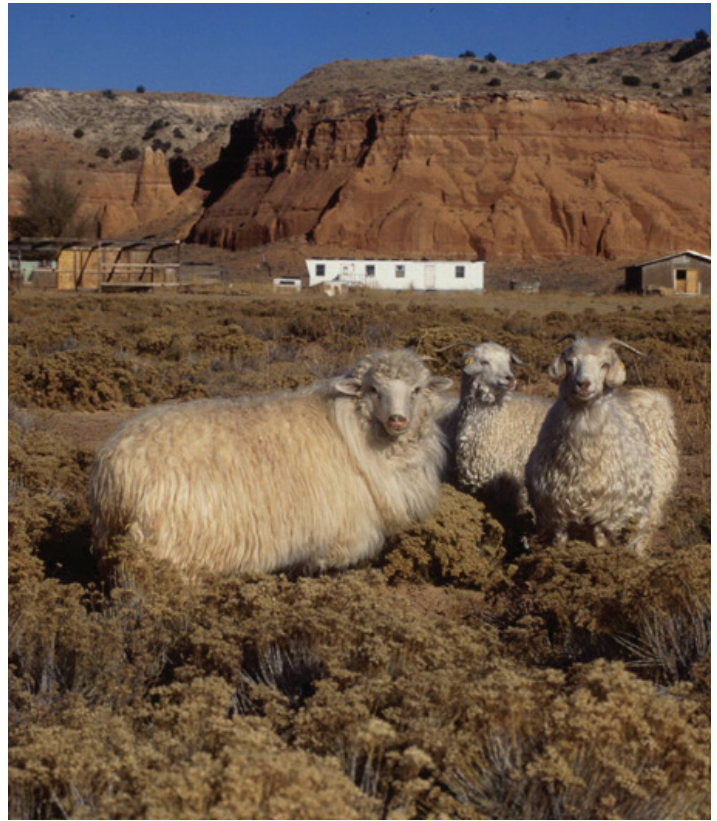
are and she discovered that their grazing unit was spread across two different grids. Since it was all one continuous range unit, she knew from her reading that they could put all of their coverage in either one of the grids or split it between the two, based on how many acres are in each grid.

The value of PRF coverage is based on a county-average grazing value per acre. Since their entire range unit resides in their home county, coverage will be based on the same county base value, regardless of the grid they select for coverage. They can adjust this value up or down between 60 percent and 150 percent of the base value for each coverage contract to better match the dollar value per acre with their coverage needs.

### **Rainfall Index Intervals**

The rainfall index coverage for PRF insurance is based on two-month intervals spread throughout the calendar year. They could apply as high as 60 percent of their coverage in any one interval, but they may not overlap any intervals of coverage or select less than 10 percent coverage in any interval. Tina investigated different scenarios in each grid to see what the different options might look like, based on past rainfall history and current premium rates.

Tina liked the idea of spreading their rainfall coverage across all months of the year, because her research was showing there was a high likelihood they would cover their premium costs each year with indemnity payments. Coverage offered by PRF insurance is based on the selection of a coverage level, productivity factor, and selected index intervals. Tina adjusted these parameters in the decision support tool as if she were making the insurance selection until she got a product she felt would best meet their needs. She then sat down with Tim and showed him what she had put together, the selections she made, why she made them, and how she felt this insurance product would help them meet their risk management goals.



### **Coverage Levels**

Coverage levels can be adjusted between 70 percent and 90 percent of expected rainfall. Higher coverage levels have a higher probability of paying an indemnity and a higher indemnity payment when they do pay, but they also have a higher premium cost attached to them. Tina settled on a 75 percent coverage level, along with an 80 percent productivity factor. Combining these two factors, resulted in total policy protection of \$10,181 or \$6.06 per acre. She felt this was about right, given the productive value of their range unit. Since, Tim and Tina owned 42 of 60 sheep units in the 2,400 range unit, their insurable interest in the range unit is 70 percent, resulting in \$7,127 in policy protection for their operation.

By selecting the 75 percent coverage level, they would also qualify for the highest premium subsidy level of 59 percent. As a result, the producer premium would be \$757 to purchase coverage on the entire range unit or only about \$530 for Tim and Tina's 70 percent interest. Both Tim and Tina felt very comfortable adding this expense to their operation



given the protection it would provide.

### **Analysis of Past Performance**

Tina's analysis showed that had they had this coverage in place over the past 20 years, in 15 out of those 20 years they would have received indemnities greater than their premium. In only one of those years would they have not received any indemnity. Overall, their average indemnity per year for the past 20 years would have been \$876, which meant an average net benefit of \$346 after subtracting off their premium costs.

Out of curiosity, Tim pulled up their financial records to compare them with the timing of the indemnity payments they saw displayed in the decision support tool. He really liked how the years they spent quite a bit of money on hay seemed to match up with the years PRF insurance would have paid them a relatively large indemnity.

### **Purchase Decision**

Both Tim and Tina were impressed with how PRF looked in the analysis. They decided that the next step was to contact a crop insurance agent and check into what it would take to purchase the insurance. They knew it was too late to sign up for PRF insurance in the current year, but with a November sign-up date for the next calendar year of coverage, they agreed it was important to get moving right away.

### **Additional Resources**

#### RightRisk Courses

<http://RightRisk.org> > Courses

#### RightRisk Risk Analysis Tools

<http://RightRisk.org> > Resources

#### USDA Risk Management Agency

<http://www.rma.usda.gov>

#### USDA Farm Service Agency

<http://www.fsa.usda.gov>

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<http://RightRisk.org>

