Understanding Risk Management Programs for Forage Production

Monte Vandeveer, UNL Extension Educator
Forage Production is Highly Variable

- 2012 one of the worst years, 2014 one of the best
  - Best and Worst Two Years Apart?
- Managing a grazing system involves huge uncertainty
- What tools can help manage this?

Insurance and disaster payments for forage production

- Pasture, Rangeland, and Forage (PRF) insurance
  - Sold through private insurance agents
  - Still a pilot program with RMA
  - Available in Nebraska since 2009

- Livestock Forage Disaster Program (LFP)
  - Authorized in Agricultural Act of 2014
  - Based on drought zones of US Drought Monitor
  - Authorized for life of Farm Bill (thru 2018)
Pasture Rangeland and Forage Insurance

- PRF Insurance is an area risk management plan that can help forage/livestock producers manage for potential production losses.

- Can’t insure pasture yields like we do crop yields
  - We don’t measure pasture production like we measure crop production

- But... forage production is correlated with precipitation

PRF: works with a rainfall index

- The Rainfall Index Plan uses data from NOAA weather stations to measure precipitation.

- This data is then compared to long term averages and is indexed to determine if there is a loss.

- Rainfall Index used in Nebraska since 2013
  - Used a vegetative index prior to that
Pasture Rangeland and Forage Insurance

- Insurance coverage is for a single peril – lack of precipitation. PRF does not cover fire, hail, grasshoppers etc.
- Coverage is area-based. Rainfall at four nearest reporting stations to grid area are used to calculate the rainfall index. Index is *not for an individual farm or ranch* or specific weather station.
- An index is a ratio. If the long term average for annual precipitation for your location is 16 inches and you only got 8, your index/ratio is 50%.
Three potential coverage gaps

- **Rainfall Proxy Gap**
  - Rainfall is only a proxy measure for forage production; they won’t track exactly

- **Area Basis Gap**
  - Rainfall is measured at 4 nearest reporting stations; may not match local experience

- **Perennial Production Gap**
  - Pasture is a perennial production system; what happens this year also affects next year
How PRF Insurance Works in NE

- Producers identify what acres they want to insure, grid location, level of coverage, dollars of protection and time frames to cover
- Coverage must be purchased by November 15.
- Precipitation is tracked by NOAA and compared to long term data.
- Producers will be paid an indemnity if precipitation index values fall below the insured level of coverage.

EXAMPLE:
Custer County Diversified Farm/Ranch

- 2,500 Acres Rangeland/Pasture
- 250 Acres Alfalfa/Grass Hay
- Looking at 1980-2013 (34 years)

- Use the RMA Decision Support Tool
Pasture, Rangeland, Forage

Pasture, Rangeland, and Forage cover approximately 55 percent of all U.S. land. Forage grows differently in different areas, so it's important for farmers and ranchers to learn which types and techniques work best for their region. The following insurance programs for pasture, rangeland, and forage (PRF) utilize various indexing systems to determine conditions. Also see livestock policy or PRF Self Table.

http://www.rma.usda.gov/policies/pasturerangeparage/

http://maps.agforceusa.com/prf/ri
**Grid Locator**

Find a Location: Broken Bow, Nebraska

Enter name, address, or latitude/longitude values: **More Info**

**Grid Tools:**
- Decision Support Tool
- Historical Rainfall Indices
- View Actuarial Info
- View Cost Estimator

**Current Location**
- Grid ID: 25622
- Latitude: 41° 24' 5.43" N
- Longitude: 99° 38' 28.41" W
- County: Custer
- State: Nebraska
- Address: 945-967 South E Street, Broken Bow, NE 68922, USA

**Grid Tools:**
- Decision Support Tool
- Historical Rainfall Indices
- View Actuarial Info
- View Cost Estimator

**Steps**
1. Enter nearest town or address
2. Click Search

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**Decision Support Tool**

*Pasture, Rangeland, Forage*

Please Select a Location: State Nebraska **County Custer** Grid 25622

**Protection Information**
- Insured Use: Grazing
- Coverage Level (%): 50
- Productivity Factor (%): 150
- Insurable Interest (%): 100
- Insured Acres: 2000
- Sample Year: 2012

**Graph**
- Type: Index Values
- Estimated Indemnities
- Range: Start 2010 End 2014

**Table**
- Index Interval
- Percent of Value (%) 50% 21.00 0.00 0.00 0.00 0.00
- Policy Protection per Unit 30 25.50 0.00 0.00 0.00 0.00
- Premium per $100 30 16.04 0.00 0.00 0.00 0.00
- Total Premium 30 90.24 0.00 0.00 0.00 0.00
- Subsidy Level 30 110.50 0.00 0.00 0.00 0.00
- Premium Subsidy 30 110.50 0.00 0.00 0.00 0.00
- Producer Premium 30 110.50 0.00 0.00 0.00 0.00
- Policy Total 30 110.50 0.00 0.00 0.00 0.00

**Actual Indemnity Value**
- County Base Value: $15.25
- Dollar Amount of Protection: $15.25
- Total Insured Acres: 2000
- Total Policy Protection: $45,500
- Subsidy Level: 100%
- Maximum Payment of Value per Index Interval: 33.20

**http://prf.agforceusa.com/ri**
Intended Use:  
- haying or grazing

Coverage Level:  
- 90% to 70%

Productivity Factor:  
- 60% to 150%

Insurable interest:  
- 100% = full ownership

County Base Value =  
base dollars of coverage per acre; set by RMA

Dollar Amount of Protection =  
County Base Value × Productivity Factor %
× Coverage Level %

Total Policy Protection =  
$ Amount of Protection × Total Insured Acres
INDEX INTERVALS

- Time periods for which you insure rainfall
- Must choose at least two intervals
- Must allocate % of coverage to each (max 60%, min 10%)

CHOOSE PERIODS WHICH ARE KEY FOR PRODUCTION

<table>
<thead>
<tr>
<th>Index Interval</th>
<th>Percent of Value (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan-Feb</td>
<td></td>
</tr>
<tr>
<td>Feb-Mar</td>
<td></td>
</tr>
<tr>
<td>Mar-Apr</td>
<td></td>
</tr>
<tr>
<td>Apr-May</td>
<td>N/A</td>
</tr>
<tr>
<td>May-Jun</td>
<td>60</td>
</tr>
<tr>
<td>Jun-Jul</td>
<td>N/A</td>
</tr>
<tr>
<td>Jul-Aug</td>
<td>40</td>
</tr>
<tr>
<td>Aug-Sep</td>
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<tr>
<td>Sep-Oct</td>
<td></td>
</tr>
<tr>
<td>Oct-Nov</td>
<td></td>
</tr>
<tr>
<td>Nov-Dec</td>
<td></td>
</tr>
</tbody>
</table>

When does Precipitation Impact Forage Production?
Figure 8. Seasonal distribution of plant growth (lines) and midpoints (●) of rapid-growth windows (shaded areas) for key species on a limy upland range site in western Nebraska.

Figure 9. Seasonal distribution of plant growth (lines) and midpoints (●) of rapid-growth windows (shaded areas) for key species on a sands range site in western Nebraska.
Forage production and weather data available for 2 ranches managed by UNL

- Gudmundsen Sandhills Laboratory
  - Weather data back to 1987
  - Forage production back to 2004

- Barta Brothers Ranch
  - Weather data back to 1997
  - Forage production back to 1999

- Also have details on pasture/forage composition

Average Annual Precipitation, 1971-2000
Nebraska

Map copyright (c) 2006 by the PRISM Group and Oregon Climate Service, Oregon State University.

Two UNL ranch sites with studies of forage production and rainfall:
G = Gudmundsen
B = Barta Brothers
How does forage output track with annual rain?

Gudmundsen SL: Annual Rainfall and Forage Yields

Average annual rainfall: 20.8 inches
Average annual forage yield: 1,853 lbs
Simple correlation: 0.804

How does forage output track with annual rainfall?

Barta Bros. Ranch: Annual Rainfall and Forage Yields

Average annual rainfall: 20.9 inches
Average annual forage yield: 1,765 lbs
Simple correlation: 0.608
How well do ranch forage yields track with PRF rainfall indices?

<table>
<thead>
<tr>
<th>Index Interval</th>
<th>Percent of Value (%)</th>
<th>Policy Protection per Unit</th>
<th>Premium Rate per $100</th>
<th>Total Premium</th>
<th>Premium Subsidy</th>
<th>Producer Premium</th>
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</thead>
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<tr>
<td>Jan-Feb</td>
<td></td>
<td>$0</td>
<td>21.60</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Feb-Mar</td>
<td></td>
<td>$0</td>
<td>23.89</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Mar-Apr</td>
<td></td>
<td>$0</td>
<td>19.64</td>
<td>$0</td>
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<td>$0</td>
</tr>
<tr>
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<td>$0</td>
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<tr>
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<td>Jun-Jul</td>
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<td>Sep-Oct</td>
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<td>$0</td>
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<td>Oct-Nov</td>
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<tr>
<td>Nov-Dec</td>
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<td>29.54</td>
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<td>$0</td>
<td>$0</td>
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<td>Per Acre</td>
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<td>N/A</td>
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<td>$1.27</td>
<td>$1.22</td>
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<td>$3,180</td>
<td>$3,054</td>
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</table>
RESULTS FOR 2012

Coverage level = 90%

May-Jun:
Actual Index = 21.6

Payment Factor = \( \frac{90 - 21.6}{90} = .7600 \)

Indemnity = Payment Factor x $ Policy Protection
= \( .7600 \times 27,338 \)
= $20,777

Opportunity to Insure Perennial Hay Meadows and Alfalfa

- Perennial hay crops can be insured
- Winter feed is critical to many operations
- PRF insurance helps compensate for loss
### Protection Information

- **Intended Use:** Haying
- **Coverage Level (%):** 90
- **Productivity Factor (%):** 150
- **Insurable Interest (%):** 100
- **Insured Acres:** 250
- **Sample Year:** 2012

### Calculations

<table>
<thead>
<tr>
<th>County Base Value</th>
<th>$284.08</th>
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<tbody>
<tr>
<td>Dollar Amount of Protection</td>
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<tr>
<td>Total Insured Acres</td>
<td>250</td>
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<td>Total Policy Protection</td>
<td>$95,878</td>
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<tr>
<td>Subsidy Level</td>
<td>51.0%</td>
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<td>Maximum Percent of Value per Index Interval</td>
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### Index Interval Details

<table>
<thead>
<tr>
<th>Index Interval</th>
<th>Percent of Value (%)</th>
<th>Policy Protection per Unit</th>
<th>Premium Rate per $100</th>
<th>Total Premium</th>
<th>Premium Subsidy</th>
<th>Producer Premium</th>
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<td>Mar-Apr</td>
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<td>$0</td>
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<td>Apr-May</td>
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<td>$0</td>
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<td>$0</td>
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<td>$0</td>
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<td>May-Jun</td>
<td>50</td>
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<td>$3,038</td>
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<td>$0</td>
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<td>$0</td>
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<td>$0</td>
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<td>Jul-Aug</td>
<td>50</td>
<td>$47,938</td>
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<td>$3,621</td>
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<td>$0</td>
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<td>$0</td>
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<td>$0</td>
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<td>Oct-Nov</td>
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<td>$23.79</td>
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<td>$0</td>
<td>$0</td>
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<td>$29.54</td>
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<td>Per Acre</td>
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<td>$6,782</td>
<td>$6,516</td>
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<td>$77,280</td>
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</table>
Premiums & Indemnities for 2012

- **Total Premiums** $9,570
  - Grazing $3,054
  - Haying $6,516

- **Total Indemnities** $113,598
  - Grazing $36,309
  - Haying $77,289

- **Net of $104,028**

Experience over 1980-2013

90% Coverage, 150% Productivity

- Paid 20 out of 34 years
- Annual Premium = $9,570
- Average Annual Indemnity = $18,679
- $1.95 received for every $1 spent
Experience over 1980-2013
80% Coverage, 150% Productivity

- Paid 15 out of 34 years
- Annual Premium = $5,933
- Average Annual Indemnity = $13,350
- $2.25 received for every $1 spent

Experience over 1980-2013
70% Coverage, 150% Productivity

- Paid 15 out of 34 years
- Annual Premium = $3,201
- Average Annual Indemnity = $8,857
- $2.77 received for every $1 spent
Things to Evaluate

- Risk Management Tool? Precipitation = Forage
- Does it Provide Opportunities & Meet Goals?
- When is Taking the Insurance Prudent?
- Use the Decision Support Tool to evaluate your options
- When, Levels of Coverage & Levels of Productivity

Questions on PRF?

2014 Farm Bill and disaster programs for livestock

- Livestock Forage Disaster Program (LFP)
  - Lost forage due to drought or fire
- Livestock Indemnity Program (LIP)
  - Death loss related to extreme weather
- Emergency Assistance for Livestock, Honey Bees, & Farm-Raised Fish Program (ELAP)
  - May cover losses not covered by other programs

http://disaster.fsa.usda.gov/
Livestock Forage Disaster Program (LFP)

- Provides retroactive compensation to cover eligible forage grazing losses due to drought or fire damages dating back to October 1, 2011
  - Signup April 15, 2014 to January 30, 2015
- Limited to $125,000 per person a year across all disaster programs
- Must have Adjusted Gross Income <$900,000

Livestock Forage Disaster Program (LFP)

- Eligible livestock covered by LFP
  - Livestock must be owned or purchased during the 60 days before the beginning date of a qualifying drought or fire
  - Sold or disposed of due to drought condition during the current production year, or one or both of the two proceeding production years
- Ineligible livestock
  - Livestock under 500 pounds
  - Livestock that were or would have been in a feedlot at the time of the disaster
LFP payments and the Drought Monitor

- Drought classifications and payments:

<table>
<thead>
<tr>
<th>Classification</th>
<th>Qualifying drought during normal grazing season</th>
<th># of Monthly Payments</th>
</tr>
</thead>
<tbody>
<tr>
<td>D2 – Severe</td>
<td>8 Consecutive Weeks</td>
<td>1</td>
</tr>
<tr>
<td>D3 - Extreme</td>
<td>Anytime Any 4 Weeks</td>
<td>3, 4</td>
</tr>
<tr>
<td>D4 - Exceptional</td>
<td>Anytime Any 4 Weeks</td>
<td>4, 5</td>
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U.S. Drought Monitor

February 3, 2015
(Released Thursday, Feb. 5, 2015)
Valid 7 a.m., EST

http://droughtmonitor.unl.edu/
LFP eligibility tool, U.S. Drought Monitor

http://droughtmonitor.unl.edu/fsa/Home.aspx
LFP payment rates vary by livestock type

- Eligible LFP livestock and payment rates:

<table>
<thead>
<tr>
<th>Kind</th>
<th>Type</th>
<th>Weight Range</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
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<tr>
<td>Beef</td>
<td>Adult</td>
<td>Bulls, Cows</td>
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<td>$57.77</td>
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<td></td>
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<td>$25.93</td>
<td>$38.86</td>
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<td>$39.42</td>
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<td>Adult</td>
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<td></td>
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<td>500 pounds or more</td>
<td>$25.93</td>
<td>$38.86</td>
<td>$42.96</td>
<td>$39.42</td>
</tr>
<tr>
<td>Buffalo/Beefalo</td>
<td>Adult</td>
<td>Bulls, Cows</td>
<td>$34.57</td>
<td>$51.81</td>
<td>$57.27</td>
<td>$52.56</td>
</tr>
<tr>
<td></td>
<td>Non-adult</td>
<td>500 pounds or more</td>
<td>$25.93</td>
<td>$38.86</td>
<td>$42.96</td>
<td>$39.42</td>
</tr>
<tr>
<td>Sheep</td>
<td>All</td>
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<td>$8.64</td>
<td>$12.96</td>
<td>$14.32</td>
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<td>$12.96</td>
<td>$14.32</td>
<td>$13.14</td>
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<td>$12.96</td>
<td>$14.32</td>
<td>$13.14</td>
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<td>$25.58</td>
<td>$38.34</td>
<td>$42.38</td>
<td>$38.90</td>
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</table>

LFP payment calculations

- FSA calculates LFP payments for an eligible livestock producer at 1, 3, 4, or 5 times the monthly payment rate

- The LFP monthly payment rate for drought is equal to 60 percent of the lesser of the monthly feed cost:
  - For all covered livestock owned or leased by the eligible livestock producer; or
  - Calculated by using the normal carrying capacity of the eligible grazing land of the eligible livestock producer

- Total LFP payments will not exceed five monthly payments for the same livestock
LFP also covers livestock which had to be sold: “mitigated livestock”

- Eligible livestock sold or otherwise disposed of due to drought conditions in one or both of the two previous production years immediately preceding the current production year
- Will have a payment rate equal to 80 percent of the normal monthly payment rate

LFP payments so far & future sign-up

- Nebraska LFP Payments
  - As of December 1, 2014, USDA reports a total of 43,054 LFP claims submitted which total over $512 million

- Signup for 2015 and beyond
  - The application for LFP assistance must be made within 30 days after the end of the calendar year in which the grazing loss occurred
Questions?
  Comments?
  Thanks!

Monte Vandeveer, UNL Extension Educator
  Email – mvandeveer2@unl.edu
  Phone – 402-269-2301

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