**Minimizing Hay Storage Loss Demonstration**

300 Day Grazing – Emphasis Program

**Objectives:**
Evaluate the change in hay quantity and quality as well as the economics of losses associated with various hay storage techniques.

**Methods & Procedures:**
Experimental Unit: Bale
Number of Experimental Units Needed Per Treatment: 4 to 6

<table>
<thead>
<tr>
<th>Treatments –</th>
<th>Control</th>
<th>Alternative(s)*</th>
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<tbody>
<tr>
<td>1) Option 1: twine wrapped, stored outside on the ground uncovered</td>
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<td>2) Option 2: net wrapped, stored outside, on the ground, uncovered (this eliminates alternative method #1)</td>
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<td>1) Net wrapped, stored outside, on the ground, uncovered</td>
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<td>2) Net or twine wrapped, stored outside, elevated on pallets</td>
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<td>3) Net or twine wrapped, stored outside, elevated, covered with a tarp</td>
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<tr>
<td>4) Net or twine wrapped, stored outside, on ground, covered with a tarp</td>
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<td>5) Hay – stored inside shed/barn</td>
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*Only one alternative is necessary; however, the demonstration is not limited to one alternative either.

- Weigh each bale and determine dry matter weight.
  - To determine dry matter content take 6 core samples per bale, 3 samples per each side of bale and calculate a dry matter weight.
- Measure forage quality (routine analysis) of the treatment group
- Record the costs associated with each adopted treatment.
  - Apply costs per bale (twine cost, net wrap cost, tarp cost, barn cost, etc.).
  - Barn and Tarp costs should be derived by calculating the number of bales protected annually. Useful age of barn and tarps should also be recorded.
- Record rainfall events and amounts or utilize local weather station data (this can help with interpretation of results).
- Since bales will be exposed to winter weather elements try to make final observations toward the mid-point of winter feeding (this may not be feasible in all circumstances).
• Remove any deteriorated portion of the bales, re-weigh and re-sample for dry matter.

**Data Analysis:**
1) Determine the amount of dry matter loss per bale based on intact weights adjusted for dry matter content.
2) Determine the amount of dry matter loss per bale based on weights whereby deteriorated portions were removed.
3) Determine the storage cost per bale.
4) Determine the value of dry matter retained per bale.
5) Determine the return per bale (and payout period for structures) based on storage losses.

**Outcomes:**
1) Economic returns to hay storage practices.
2) Percent hay loss for control group vs. alternative method.
3) Pounds of hay lost for control group vs. alternative method.

**Outputs:**
1) Number of producers reached through field days, news letters and presentations.
2) Adoption of practices by producers
Hay Storage Loss

Control Method

Agent Name:

Producer Name:

Hay
Hay Storage method

Hay Analysis (Routine)  Attach initial & final analysis

Hay Type

Harvest Date

Final Sample Date

Bale Value

Bale size (length x height)

Cost per bale

Twine cost (sisal or plastic)

Net wrap

Misc.

Rainfall

Record Daily Amounts

Harvest - Feb. (calendar included)

<table>
<thead>
<tr>
<th>Bale Number</th>
<th>Weight @ harvest</th>
<th>DM content @ harvest</th>
<th>Weight after storing</th>
<th>DM content after storing</th>
<th>Weight of deteriorated portion</th>
<th>DM Content of deteriorated portion</th>
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Hay Storage Loss

Alternative Method

Agent Name: ________________________
Producer Name: ________________________

**Hay**
- Hay Storage method
- Hay Analysis (*Routine*)  
  *Attach initial & final analysis*
- Hay Type
- Harvest Date
- Final Sample Date
- Bale Value
- Bale size (*length x height*)

**Cost per bale**
- Twine (sisal or plastic)
- Net wrap
- Tarp
- Barn
- Misc.

**Rainfall**
- Harvest – Feb. (*calendar included*)
- Record Daily Amounts

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<tr>
<th>Bale Number</th>
<th>Weight @ harvest</th>
<th>Dry Matter content</th>
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