Cattlemen’s Forage Conference
Making, Storing, and Feeding
Round Bale Silage

Making, Storing, and Feeding Round Bale Silage

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Silage & Baleage
SILAGE - Forage that has undergone anaerobic fermentation
Less dependent on weather
Makes use of some forages that other-wise wouldn’t work.

Silage Fermentation
Silage pH

Lactic acid bacteria
Acetic acid bacteria

1   2   3   4       7                       14                    20                   28
Days after ensiling

Baled Silage
Can be more efficient...
Fewer Losses
Accumulate With Each Step
End Result:
90% of Original DM

Quality Advantages
- Enables timely harvest
- Lowered risk of rain damage
- Less shatter loss
- Higher forage quality¹
  - Lower NDF, ADF, ADL
  - Higher CP
  - Increased digestibility
  - Increased palatability
- However, “Garbage in = Garbage out!”

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Baled Silage – An Option for Harvesting High Quality

<table>
<thead>
<tr>
<th>Treatment</th>
<th>CP</th>
<th>TDN</th>
<th>RFQ</th>
<th>ADG (lbs/ha/d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bermuda Hay</td>
<td>16.1a</td>
<td>62.9b</td>
<td>116c</td>
<td>1.56b</td>
</tr>
<tr>
<td>Ryegrass Baleage</td>
<td>16.3a</td>
<td>65.9a</td>
<td>174a</td>
<td>1.94a</td>
</tr>
<tr>
<td>Ryegrass Hay</td>
<td>14.7b</td>
<td>62.4c</td>
<td>133b</td>
<td>1.26b</td>
</tr>
<tr>
<td>LSD&lt;sub&gt;0.05&lt;/sub&gt;</td>
<td>0.22</td>
<td>0.35</td>
<td>3.2</td>
<td>0.341</td>
</tr>
</tbody>
</table>

Bale Comparisons

Baleage Bale:
- 5 ft wide x 4.5 ft tall
- 60% Moisture
- Total weight = 2125 lbs.

Hay Bale:
- 5 ft wide x 4.5 ft tall
- 15% Moisture
- Total weight = 1000 lbs.

1: Cut down no more than you can handle.
- Lay down an appropriate amount of forage for wilting, baling and wrapping.
- Cut mid-afternoon on one day, bale & wrap the next day.
- Amount cut = how much can be baled and wrapped on same day.
- Bales should be wrapped w/in 12 hrs of baling.

2: Choose the right bale wrapper.
Consider:
- Cost, Labor, Speed, Volume

Wrapper Costs

Wrapper Styles
- 3 point hitch ($3,000 - $14,000)
- individual ($5,000 - $18,000)
- in-line ($13,000 - $24,000)
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Baled Silage Costs

| Plastic Cost: $6.00 - $8.00/ton DM
| Wrapper cost: $2.00 - $5.00/ton DM
| Fuel & Repairs: $0.50 - $5.00/ton DM
| Labor: $0.75 - $2.00/ton DM

The Unseen Cost of Hay Storage

<table>
<thead>
<tr>
<th>Expected Losses</th>
<th>Cost of Production ($/ton)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$80 $100 $120 $140</td>
</tr>
<tr>
<td>Hay, no cover/on ground 50%</td>
<td>$40 $50 $60 $70</td>
</tr>
<tr>
<td>Hay, under roof 25%</td>
<td>$20 $25 $30 $35</td>
</tr>
<tr>
<td>Baleage 15%</td>
<td>$12 $15 $18 $21</td>
</tr>
</tbody>
</table>

3: Explore your options.

4. Bale at the right range of moisture

Ideal Range, 50-65% Moisture

Hancock and Collins (2006): combined data from two trials; alfalfa harvested at mid-bud stage of maturity

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**Effects of Moisture Content on Lactic Acid**

- Hancock and Collins (2006): combined data from two trials; alfalfa harvested at mid-bud stage of maturity

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5. Make good bales

- Maximize bale size
  - match to tractor
  - dense bales
  - 4’x 5’ bale is most popular
  - 9-1300 lbs, depending on %M
  - square edges

- Use plastic twine or net
  - sisal twine degrades plastic

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6. Choose an appropriate site for wrapping

- Where feed out is easy
- Good sod and no stobs

- Wrap at the storage site
  - reduces handling
  - reduces risk of spoilage

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7. Apply enough plastic but no more.

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**Application Amount – Inline Wrapper**

- Six-Eight layers (+ double on joints)
  - 12.5 – 16.7% overlap
  - two rolls rotating around bales
  - Pre-stretched to 50-70%
  - Tacky side towards the bale
  - 60-80+ bales per hour

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**Application Amount – Ind. Wrapper**

- Four layers (2 + 2 system)
  - 50% overlap
  - two full bale rotations
  - 15-40 bales per hour
8. Feed it in an appropriate way.

- Match quality to animals needing that quality
- Use a ring (or cone) feeder
- OK for mixed rations
  - Bale grinder
  - May need to be sliced

9. Feed the bales within 9 months.

- Bales will squat and be difficult to handle.
- Plastic will deteriorate over time.
- Bales will begin to spoil.

10. Have a plan for handling the plastic.

- Recycling is not currently an option
- Reduce the bulk to aid in handling

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