Haylage Production & Utilization in Florida

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Rational for Haylage

• Conservation of forages for later feeding is limited by a number of challenges.
• The timely harvest of forage in Florida for hay production is often limited by optimal drying conditions.
• Alternative methods of forage conservation need to be examined.
• Round bale silage (RBS) offers an alternative forage harvesting and storage system
• The use of RBS may be an attractive compliment to traditional hay harvest system by overcoming several of the challenges to hay production in the Southeast.
Probability of three consecutive dry days each week during spring and summer in Florida

Bates et al., 1989
Making Round Bale Silage
General Recommendations

- Harvest forage at optimum quality, 4-5 wks regrowth.
- Cut and condition the forage as normal for hay making.
- Wilt forage to 50-60% dry matter, 2.5 to 4 hours during good drying conditions.
- Bale with normal hay baling equipment.
- Make well-shaped dense bales of appropriate weight.
- Use untreated sisal or plastic twine, or net-wrap
Wrapping Round Bale Silage

- Wrapping should occur the same day as baling, but can be delayed up to 48 hours.
- Choose a quality, sunlight (UV) stable stretch wrap.
- Four wraps of plastic minimum, six layers plastic likely the optimum.
- Additional labor associated with wrapping may be similar to labor associated with hay making.
- Cost of round bale silage may be offset by reduction in field losses of nutrients and potential yield of poor hay making.
- Bale quality is dependent on excluding air from the bale storage system.
Storage of Round Bale Silage

• Choose storage location carefully.
  – Avoid sharp gravel, sticks, etc.
• Holes in the wrap will occur.
  – Patch with special tape
  – Consider feeding damaged bales first to reduce spoilage
• Stacking round bale silage bales has been tried but is not recommended.
• Distortion of bale shape leads to air leakage
Feeding Round Bake Silage

• Handle like regular round hay bales.
  – Requires chopping/grinding for incorporation into TMR
  – Moisture content requires sharp, clean blades???
• Feeds mostly like hay, but consider it’s similarity to silage.
  – Limited aerobic stability
  – White, pink, gray, and blue mold have not been harmful to cattle
  – Mold effect on milk yield and quality is not known
COMPARING HAY AND RBS PRODUCTION
Effect of conservation method on Bermudagrass forage quality

<table>
<thead>
<tr>
<th>Item</th>
<th>Hay</th>
<th>RBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Bale</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wet weight, lb*</td>
<td>824</td>
<td>1,556</td>
</tr>
<tr>
<td>Dry matter, %*</td>
<td>92.5</td>
<td>41.3</td>
</tr>
<tr>
<td>Crude protein, %*</td>
<td>10.4</td>
<td>13.1</td>
</tr>
<tr>
<td>TDN, %*</td>
<td>54.1</td>
<td>57.2</td>
</tr>
<tr>
<td>Dry matter, lbs*</td>
<td>769</td>
<td>638</td>
</tr>
<tr>
<td>Crude protein, lbs</td>
<td>77.9</td>
<td>82.8</td>
</tr>
<tr>
<td>TDN, lbs*</td>
<td>415.8</td>
<td>365.2</td>
</tr>
</tbody>
</table>

* Bale types are different ($P < 0.05$).
Effect of Bermudagrass forage system on production and quality

<table>
<thead>
<tr>
<th>Item</th>
<th>Hay</th>
<th>Hay-RBS</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Cuttings</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td># of Bales</td>
<td>259</td>
<td>479</td>
</tr>
<tr>
<td>Total harvest, lbs wet</td>
<td>219,123</td>
<td>709,131</td>
</tr>
<tr>
<td>Total harvest, lbs dry</td>
<td>202,743</td>
<td>312,728</td>
</tr>
<tr>
<td>Mean Bale</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wet weight, lb*</td>
<td>847</td>
<td>1,470</td>
</tr>
<tr>
<td>Dry matter, %*</td>
<td>95.5</td>
<td>46.8</td>
</tr>
<tr>
<td>Crude protein, %*</td>
<td>10.1</td>
<td>12.9</td>
</tr>
<tr>
<td>TDN, %*</td>
<td>53.8</td>
<td>57.1</td>
</tr>
<tr>
<td>Dry matter, lbs*</td>
<td>786</td>
<td>645</td>
</tr>
<tr>
<td>Crude protein, lbs</td>
<td>78.6</td>
<td>82.0</td>
</tr>
<tr>
<td>TDN, lbs*</td>
<td>418.4</td>
<td>369.2</td>
</tr>
</tbody>
</table>

* Production systems are different (P<0.05).
Utilizing Round Bale Silage

• Quality of RBS will only be as good as the forage that is started with
  - fermentation does not improve forage quality.
• Acceptable, good quality alternative for hay or silage.
• May allow for additional cuttings because a regular harvest schedule can be maintained.
• Feeds mostly like hay but consider its similarity to silage—
  – Needs adequate time to ferment
  – Aerobic stability of offered bales during long feed-out periods
• Acceptable forage for mature cows, developing heifers, and growing calves.
UF Animal Science RBS Applications

• Developing heifer RBS with dried distillers grains
  – High-quality with DDG and SBM
  – Low-moderate quality with DDG and program feeding
  – High quality with DDG and program feeding
• Two-year old cows with DDG or WBG
  – Intake-digestion trial
• Steer RBS with DDG adaptation trial
• Developing heifer RBS with level of DDG
  – Intake-digestion RBS level of supplement
RBS Forages

- Tifton-85 bermudagrass
- Coastal bermudagrass
- Bahiagrass
- Sorghum-sudan
- Forage soybean
### RBS Forage Quality

<table>
<thead>
<tr>
<th>Forage</th>
<th>DM</th>
<th>CP</th>
<th>TDN</th>
<th>RFQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tift 85 RBS-07</td>
<td>45.6</td>
<td>8.6</td>
<td>59</td>
<td>106</td>
</tr>
<tr>
<td>Tift 85 RBS-08</td>
<td>51.1</td>
<td>8.4</td>
<td>57</td>
<td>99</td>
</tr>
<tr>
<td>Tift 85 RBS-09</td>
<td>53.2</td>
<td>12.0</td>
<td>57</td>
<td>RFV=88</td>
</tr>
<tr>
<td>Coastal RBS-08</td>
<td>53.5</td>
<td>15</td>
<td>61</td>
<td>120</td>
</tr>
</tbody>
</table>
Additional Round Bale Silage Resources

- [http://edis.ifas.ufl.edu/AN145](http://edis.ifas.ufl.edu/AN145)
- [http://www.animal.ufl.edu/extension/beef/documents/SHORT89/Bates.htm](http://www.animal.ufl.edu/extension/beef/documents/SHORT89/Bates.htm)
- [http://www.uaex.edu/Other_Areas/publications/PDF/FSA-3051.pdf](http://www.uaex.edu/Other_Areas/publications/PDF/FSA-3051.pdf)
Questions...
Comments...
Discussion...