What’s New for Beef Producers:
Latest in equipment, hay preservatives, alfalfa, & forage technologies

Virginia Winter Forage Conferences

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Baling

Cutting forage for hay/haylage

- Higher initial machinery cost
- Higher energy requirement
- Stones cause knife damage
Baling

Cutting forage for hay/haylage

- Higher initial cost
- Higher energy requirement
- Stones cause knife damage

✓ Greater bale density
✓ Better feed intake
✓ Better animal gain
✓ Less feeding loss
Number of bars on the pickup head.

- Economy models come with four bars while better machines have five.
- Five-bar designs
  - tend to leave less hay in the field
  - have reduced leaf loss during pickup.
Measuring Quality

Bale quality

STAR WHEEL MOISTURE & BALE RATE SENSORS

Two 7" star wheels are located right behind the knotters. Moisture is measured by conductivity between the wheels and the rate of baling is monitored by the revolutions. Readings are accurate between 7% to 70% moisture.
Why should ash content be a concern?

- Ash provides minerals to the diet, but no calories (i.e. energy).
- Takes the place of nutrients on almost a 1:1 basis.
- Ash content above that contained in plant is dirt contamination.
Ash Content of Forage Samples

- Average internal ash content of alfalfa is 6 to 8%
- Average internal ash content of grass is 5 to 6%
- **Remainder of ash is dirt!**

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<th>Type</th>
<th>Statistic</th>
<th>% Ash</th>
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<tr>
<td></td>
<td>Min</td>
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<td>Hay</td>
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<td></td>
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<tr>
<td></td>
<td>Min</td>
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Ash Content of Forage Samples, UW Marshfield Lab
Factors Reducing Forage Quality

- Ash content
Possible Causes of Higher Levels of Ash in Forages

Disk Cutterbar

Cutting height
Disc Mower knife type

Those knives that “pick up hay” better, also pick up more ash.
Possible Causes of Higher Levels of Ash in Forages

- Disc mower knives angled
- Forage cut too close to ground
- Windrow lays on ground
- Raking to scrape ground
- Merging swaths/windrows will minimize ash content while improving harvest efficiency
Options in poor drying environment

- Make smaller bale
  - Need <14% moisture for 1 ton bale to avoid molding
  - Need < 16% moisture for 0.5 ton bale to avoid molding
- Use preservative – propionic or acetic acid will minimize mold if hay is less than 24% moisture
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Bale marker identifies high moisture hay

- a dye sprayer marking system provides a simple, practical method for visually identifying areas of high moisture hay in bales.

- Harvest Tec
Propionic acid needed

The amount of propionic acid needed for preservation increases with forage moisture content.

Propionic acid only preserves for 6 to 9 months.
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- Wrap bales in plastic
Common Forage Harvesting Losses

29% Fed
71% Lost

- Field curing: -26%
- Harvesting: -14%
- Storage: -35%
- Feeding: -30%

Percent of Total Dry Matter Lost

Management:
- lax
- good

Diagram showing the breakdown of forage losses with categories for feeding, storage, harvesting, and field curing.
Optimum Management

73% Fed
27% Lost

- Feeding: -8%
- Storage: -5%
- Harvesting: -8%
- Field curing: -10%

Management (lax vs. good)

Percent of Total Dry Matter Lost

- Feeding
- Storage
- Harvesting
- Field Curing
Cost of Forage

Assuming hay at $100/ton

- 73% loss, $345/t
- 27% loss, $140/t