Dr. Dennis Hancock
Extension Forage Agronomist
UGA Extension

2014 Forage Conference @ GCA Convention
Forage Systems for Extending the Grazing Season

Forage Systems for Extending the Grazing Season

Dr. Dennis Hancock
Extension Forage Specialist
Crop and Soil Sciences – UGA

Winter Annuals

Forage Distribution in the Southeast

Other Options for Extended Grazing

Forage Distribution in the Southeast

Dr. Dennis Hancock
Extension Forage Agronomist
UGA Extension
Forage Systems for Extending the Grazing Season

2014 Forage Conference @ GCA Convention

Forage Distribution in the Southeast

Winter Annual Grasses

Bermudagrass

WA Clover

Brassicas

Forage Distribution in the Southeast

Winter Annual Grasses

Bermudagrass

Crop Residues

Stockpiling Tall Fescue or Bermudagrass

“Average” Expectations

INPUTS
• Moisture
• N fertilizer (up to 60#/ac for TF; up to 80# for BG)
• More than typical grazing management
  • Improved bermudagrass

OUTPUTS
• 1500-3500+ lbs of standing dry matter (DM)/acre.
  • 30 – 60 days (more or less, depending on grazing method and weather)
• CP levels starting in 8 – 12% range, ending below 10%
• TDN levels ranging 55-58%

Stockpiling Tall Fescue or Bermudagrass

Steps Involved

1. Graze or take hay cutting (2-3’)
   • TF: Early to mid-Sept.
   • BG: about 6-8 wks prior to first anticipated frost.
2. Add fertilizer like making a hay cutting.
3. Don’t allow it to be grazed (if possible) until:
   • TF: After Thanksgiving
   • BG: After first killing frost

4. Measure amt. of stockpiled forage that is available.
5. Take forage samples to determine supplement need.
6. Only let them have small strips (no more than 2-3 days worth) at a time (frontal grazing).
   • Each 1200 lb cow will need ~35-40 lbs of stockpile/day
   • Allow access to mineral, ionophore, and supplement as needed.
2014 Forage Conference @ GCA Convention

Forage Systems for Extending the Grazing Season

Grazing Methods

- Strip-Grazing
- Frontal Grazing

Winter Grazing: Our Competitive Advantage

Photo: Winter grazing at the UGA Tifton beef cow pastures.

Winter Annual Forage Quality

<table>
<thead>
<tr>
<th>Species</th>
<th>Crude Protein</th>
<th>Total Digestible Nutrients</th>
<th>Annual Yield*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>lbs DM/acre</td>
<td></td>
</tr>
<tr>
<td>Ryegrass</td>
<td>10-20</td>
<td>56-74</td>
<td>10,630</td>
</tr>
<tr>
<td>Oats</td>
<td>8-14</td>
<td>55-70</td>
<td>7,100</td>
</tr>
<tr>
<td>Wheat</td>
<td>8-14</td>
<td>52-70</td>
<td>7,110</td>
</tr>
<tr>
<td>Rye</td>
<td>8-14</td>
<td>50-70</td>
<td>4,850</td>
</tr>
<tr>
<td>Arrowleaf</td>
<td>14-17</td>
<td>56-75</td>
<td>3,470</td>
</tr>
<tr>
<td>Crimson</td>
<td>14-16</td>
<td>57-75</td>
<td>3,570</td>
</tr>
</tbody>
</table>

Quality ranges are approximate and are highly dependent upon forage maturity at grazing/harvest. Yields are 3-yr averages from GA and AL.

Winter Annual Grasses Differ in Forage Distribution

Contingent on Early Planting Date and Weather

GA₃ Available As:

On-Farm Trial: Eden Church Rd.
Dairy, Louisville.

RyzUp SmartGrass

Untreated

Dr. Dennis Hancock
Extension Forage Agronomist
UGA Extension
Forage Systems for Extending the Grazing Season

An Early RyzUp Application (1/2/11) and Harvest 45 d later (2/12/11)

- @ $7/acre, The added yield cost $0.026

RyzUp Affected Forage Yield

- @ $7/acre, The added yield cost $0.022

Carrollton, GA

Gainesville, GA

Dr. Yoana Newman, UFL

Dr. Dennis Hancock
Extension Forage Agronomist
UGA Extension
### Response of Winter Annual Grass* to Early Season Application of RyZup Smartgrass®

<table>
<thead>
<tr>
<th>Harvest</th>
<th>RyZup</th>
<th>None</th>
<th>Diff.</th>
<th>Diff. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb. 17, 2012</td>
<td>1429</td>
<td>1120</td>
<td></td>
<td>21.60%</td>
</tr>
<tr>
<td>Feb. 29, 2012</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Apr. 25, 2012</td>
<td>2090</td>
<td>1961</td>
<td>n.s.</td>
<td></td>
</tr>
<tr>
<td>Season Total</td>
<td>5186</td>
<td>4691</td>
<td>9.50%</td>
<td></td>
</tr>
</tbody>
</table>

* Averaged over rye, ann. ryegrass, and rye+ARG plots.
** Fall application made on Nov. 4, 2012 (plants were at 2-4 leaf stage).

### Response of Winter Annual Grass* to Mid-Season Application of RyZup Smartgrass®

<table>
<thead>
<tr>
<th>Harvest</th>
<th>RyZup</th>
<th>None</th>
<th>Diff.</th>
<th>Diff. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb. 17, 2012</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mar. 15, 2012</td>
<td>2366</td>
<td>2286</td>
<td>n.s.</td>
<td></td>
</tr>
<tr>
<td>Apr. 25, 2012</td>
<td>2684</td>
<td>2366</td>
<td>11.80%</td>
<td></td>
</tr>
<tr>
<td>Season Total</td>
<td>4831</td>
<td>4454</td>
<td>n.s.</td>
<td></td>
</tr>
</tbody>
</table>

* Averaged over rye, ann. ryegrass, and rye+ARG plots.
** Winter application made on Feb. 29, 2012.
Response of Winter Annual Grass* to Early and Mid-Season Application of RyZup Smartgrass®

<table>
<thead>
<tr>
<th>Harvest</th>
<th>Early + Mid-Season Application**</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RyZup</td>
</tr>
<tr>
<td></td>
<td>(lbs/acre)</td>
</tr>
<tr>
<td>Feb. 17, 2012</td>
<td>1390</td>
</tr>
<tr>
<td>Feb. 29, 2012</td>
<td>-</td>
</tr>
<tr>
<td>Mar. 15, 2012</td>
<td>2217</td>
</tr>
<tr>
<td>Apr. 25, 2012</td>
<td>2300</td>
</tr>
<tr>
<td>Season Total</td>
<td>5445</td>
</tr>
</tbody>
</table>

* Averaged over rye, ann. ryegrass, and rye+ARG plots.
** Fall application made on Nov. 4, 2012 (plants were at 2-4 leaf stage), winter application made on Feb. 29, 2012.

Possible Negatives to Using GAs for Forage Management

Matthew et al., 2009 (NZ J. Ag Res.):
- Really only works if inducing the plant to grow when it wouldn’t ordinarily (e.g., winter, late fall)
  - No benefit to adding if plant is already growing at max growth rate.
- Not all grass species respond similarly
  - Small grains > ann. ryegrass > tall fescue
- Reduces nodulation in legumes

Possible Negatives to Using GAs for Forage Management

Matthew et al., 2009 (NZ J. Ag Res.):
- Yield lag in later cuttings (at very high rates)
- Reduction in root mass (at very high rates)
- Reduction in tiller number (at very high rates)
- No significant change in forage quality observed, but possible?
- Could increase need for moisture and N.

Root Mass: Soil-Building?

Possible Negatives to Using GAs for Forage Management

Matthew et al., 2009 (NZ J. Ag Res.):
- Yield lag in later cuttings (at very high rates)
- Reduction in root mass (at very high rates)
- Reduction in tiller number (at very high rates)
- No significant change in forage quality observed, but possible?
- Could increase need for moisture and N.

Improvement in soil OM in 3 paddocks located in a pasture-based dairy in Wrens, GA. (2007-2009)

<table>
<thead>
<tr>
<th>Paddock</th>
<th>Initial</th>
<th>1 year</th>
<th>2 years</th>
<th>3 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>P4</td>
<td>1.08</td>
<td>1.15</td>
<td>1.25</td>
<td>2.20</td>
</tr>
<tr>
<td>P8</td>
<td>1.01</td>
<td>1.17</td>
<td>1.59</td>
<td>2.18</td>
</tr>
<tr>
<td>P14</td>
<td>1.14</td>
<td>1.63</td>
<td>1.86</td>
<td>2.00</td>
</tr>
<tr>
<td>Avg.</td>
<td>1.07</td>
<td>1.32</td>
<td>1.57</td>
<td>2.13</td>
</tr>
</tbody>
</table>

3 years after grazing system started, averaging an inc. in soil OM of 0.35 percentage points per year!!!
Impact of Pasture-Based Livestock on Soil Carbon (Soil OM)

- 7.1 Mg C ha⁻¹ yr⁻¹
  - \( r^2 = 0.93 \)
  - \( p = 0.0009 \)

Pasture-Based Dairying 7.1

Benefits of Adding Legumes

A valuable source of N (time-released).

<table>
<thead>
<tr>
<th>Species</th>
<th>Annual lbs (N/acre)</th>
<th>N value at $0.75/lb. of N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alfalfa</td>
<td>200-300</td>
<td>$150-225</td>
</tr>
<tr>
<td>Red clover</td>
<td>100-200</td>
<td>$75-150</td>
</tr>
<tr>
<td>White clover</td>
<td>100-150</td>
<td>$75-113</td>
</tr>
<tr>
<td>Annual clover</td>
<td>50-150</td>
<td>$38-113</td>
</tr>
</tbody>
</table>

Focus: Winter Annual Legumes

Other Winter Annuals

- Brassicas (Turnips, Rape, Swedes, Hybrids)

Forage Turnips

January 2008
Forage Systems for Extending the Grazing Season

Forage Turnips

January 2008

Grazing Crop Residue

- Very inexpensive feed
- Can last for several days
  - Frontal grazing makes for efficient utilization
- Corn residue: 1 cow/acre for 60-100 days
- Cotton residue: 1 cow/acre for 30-35 days

Grazing Cotton Residue

<table>
<thead>
<tr>
<th>Item</th>
<th>Hay</th>
<th>Standing Residue</th>
<th>Mowed Residue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial weight, lb.</td>
<td>1,354</td>
<td>1,369</td>
<td>1,354</td>
</tr>
<tr>
<td>Final weight, lb.</td>
<td>1,410</td>
<td>1,424</td>
<td>1,386</td>
</tr>
<tr>
<td>Weight gain, lb.</td>
<td>56</td>
<td>55</td>
<td>32</td>
</tr>
<tr>
<td>Hay fed, lb/day</td>
<td>27.0</td>
<td>1.3</td>
<td>10.7</td>
</tr>
<tr>
<td>Hay savings, $/day*</td>
<td>----</td>
<td>$0.90</td>
<td>$0.58</td>
</tr>
</tbody>
</table>

* Hay valued at $70/dry ton. 1 cow/acre for 44 days. Data from Plains, GA.

- Check pesticide labels
- Check fence rows and weed species for poisonous plants
- No difference in animal performance between Bt and non-Bt crops.
Dr. Dennis Hancock  
Extension Forage Agronomist  
UGA Extension