
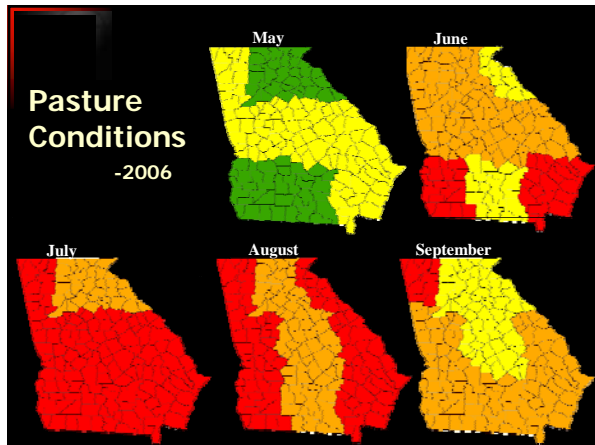
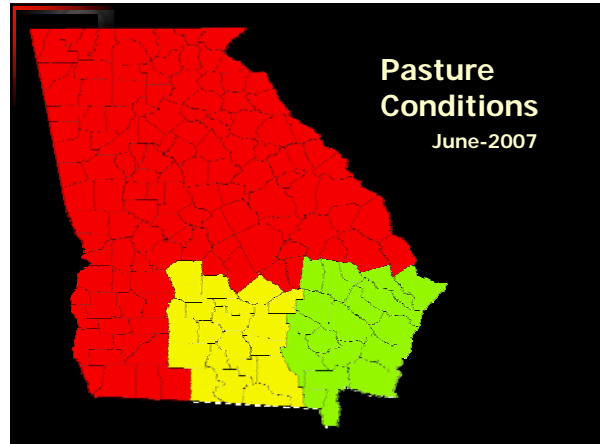


Grazing Herd Management during Drought:

Forages


Forage Utilization and Grazing Management during a Drought

Dennis Hancock, PhD.
Extension Forage Agronomist
Crop and Soil Sciences


A few assumptions...

- Delayed decisions have led to overgrazing
- Ground cover is low
 - Soil erosion potential is high
- Body condition scores are slipping (< 5)
 - Likely poor conception rate!
 - Problem is worse where Tall Fescue is the base
- A lot of poor-quality and/or expensive hay being fed
 - Hay availability is problematic
- Difficulty in establishment – fall 2006 & spring 2007



Overgrazing During Drought


- Plants slow way down and go dormant
- Drought rarely kills most pasture species.
 - But can if combined with poor fertility, overgrazing, or pests...
 - Competition w/ warm-season species
- Overgrazing reduces reserves (carbohydrates) and root growth



Drought Tolerance

| Species | Water Use Efficiency | Max. Root Depth |
|----------------------|----------------------|-----------------|
| | DM lbs/inch | inches |
| Coastal Bermudagrass | 1646 | 78 |
| Pensacola Bahiagrass | 1194 | 79 |
| Tall Fescue | 1064 | 48 |
| Ladino Clover | 480 | 38 |
| Red Clover | 436 | 45 |

From: Southern Forages, as adapted from Doss et al. (1960; 1962; 1963)




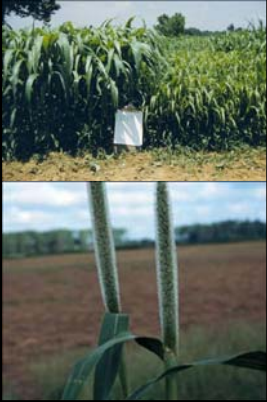
Dr. Dennis Hancock
Extension Forage Agronomist

Grazing Herd Management during Drought:

Forages


Summer Annuals

- Best if grazed
- Hay making problems
- Tolerates low soil fertility
- Do better if high fertility
- Prussic acid problems
- Nitrate toxicity problems
- Too mature = low quality



Pearl millet

- Medium to high yielding, slightly slower growing
- Thinner stems, not as difficult to dry
- No prussic acid problems
- Tolerates lower soil pH
- Seed supply is low



Summer Annuals


Sorghum species

- All have prussic acid and nitrate toxic potential
- NOT for horses!
- Less drought tolerant than pearl millet




Summer Annuals

- Forage sorghum
 - High yielding, fast growing
 - Thick stems, difficult to dry for hay
- Sudangrass
 - Medium yielding, fast growing
 - Thinner stems, difficult to dry for hay
- Sorghum x sudan hybrids
 - High yielding, fast growing
 - Still have thick stems and difficult to hay




Summer Annual Establishment

- Plant anytime after April 15th
 - Plan on 3 harvests per year
 - Later plantings = few harvests
- Seeding
 - Seed can be broadcast or
 - Planted in rows - narrow (< 15 in.) or wide (≤ 36 in.)
 - Planting depth of ½ to 1 inch.



Summer Annual Fertilization

- 60 - 80 lbs of actual N/ac at planting
- 60 - 80 lbs N/ac after each harvest
- Requires significant P and K
 - Follow soil test recommendations
 - K is really important under drought conditions
- Pearl millet is less sensitive to low soil pH



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Summer Annual Harvesting

- Hay Production (good), baled silage (better), or grazing (best)
- Sometimes difficult to tell if it is dry enough to bale
 - Must be below 15% Moisture if round baled
- Grazing = boot stage
 - Usually 18-22 inches in height
- Hay/baleage = early head
 - Usually 30-40 inches
- Cutting height at or above 8 inches (CRITICAL)
 - Cutting too low will clip below the growing point.



Emergency Forage Base

| | 2005 Total (3 cuts) | 2006 Total (4 cuts) |
|--------------------------------------|---------------------|---------------------|
| SORGHUM/SUDAN ----- Dry lbs/ac ----- | | |
| SS 211A | 26813 a | 12944 a |
| Summergrazer III | 22053 b | 11405 b |
| SS 220 BMR | 19246 c | 10731 b |
| PEARL MILLET | | |
| Tifleaf 3 | 17441 a | 10728 a |
| SS 635 | 17273 a | 9309 b |
| Pennleaf | 16602 a | 8826 b |



Summer Annual Varieties

Selection Criteria:

1. Yield Production

- Sorghum x Sudans
 - Recommended varieties: SS-211A, Summergrazer III, SU2LM
- Pearl Millet
 - Tifleaf 3, SS-635, SS-501, Pennleaf

www.georgiaforages.com for more data.



Summer Annual Forage Quality

| | Forage sorghum | Pearl millet | Tropical corn |
|-----|----------------|--------------|---------------|
| CP | 12.9 | 14.3 | 8.3 |
| ADF | 36 | 35 | 33 |
| NDF | 61 | 59 | 55 |
| WSC | 2.7 | 2.0 | 6.5 |

Ward et al., 2001. J. Dairy Sci. 84:177-182



BMR (Brown Mid-Rib)

- Brown mid-rib describes a prominent characteristic of low-lignin summer annuals: the mid-rib of their leaves are brown.
- Lower lignin should result in greater digestibility.
- This is true, but it lowers standability and, in many cases, yield.
- BMR varieties are good to use, but not necessarily best for Georgia conditions.



Nitrate in forage fed to beef cattle.


| Forage Nitrate (ppm dry forage) | Guidance |
|---------------------------------|--|
| < 4500 | Safe to feed with adequate feed and water |
| 4,500 to < 6,500 | Safe under most conditions, but if feeding pregnant animals limit to half (1/2) ration |
| 6,500 to < 9,000 | Limit to half (1/2) ration |
| 9,000 to < 15,000 | Limit to third (1/3) ration |
| 15,000 to < 18,000 | Limit to quarter (1/4) ration |
| > 18,000 | Potentially lethal, very risky |



Grazing Herd Management during Drought:


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Other Options

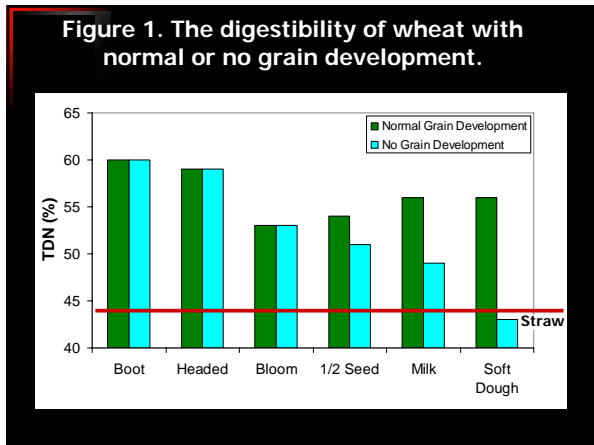


Other Summer Annuals

- Browntop Millet
 - 4000-7000 lbs/acre
- Italian Millet
 - 3000-5000 lbs/acre
- Red River Crabgrass
 - 4000-7000 lbs/acre
- Forage Soybean
 - 4000-7000 lbs/acre



Virginia Tech Weed ID Guide
Source: http://www.ppvs.vt.edu/scott/weed_id/panna.htm





Ammoniation of Hay

Robert E. Stewart and Kevin Miles
Extension Animal Scientists

Many of the forages fed to beef cattle in the Southeast are traditionally low in crude protein and energy when harvested. Strategies are low-quality grass hay, crop residues and multiple-cultured forage hay. Cattle can use these forages, but performance may be limited by low digestibility and reduced conversions. These forages usually require supplemental protein and energy in order to feed a balanced ration.


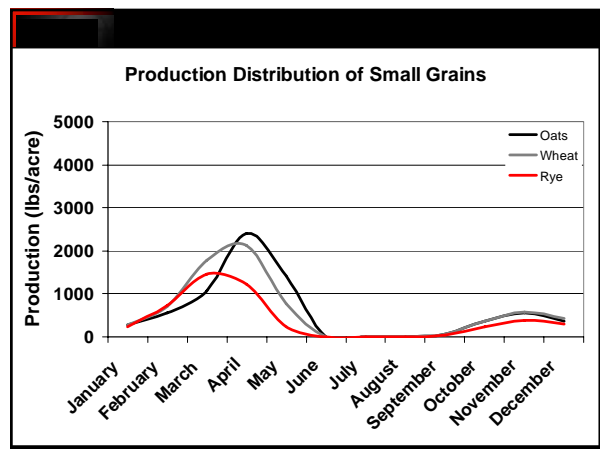
- Inc. CP (+ 6 – 7% points)
- Inc. TDN (+ 7 – 20% pts)
 - Urea addition inc. CP but not TDN
- Cost: \$25-35/ton DM

Winter Annual Forage Systems

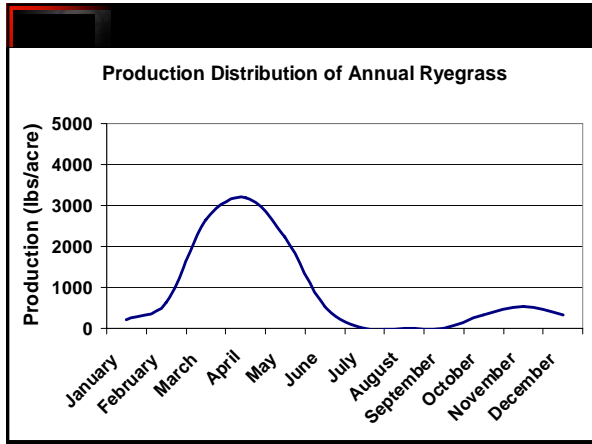
| Species | Avg. Annual Yield* |
|-----------|--------------------|
| | lbs DM/ac |
| Ryegrass | 10,632 |
| Oats | 7,098 |
| Wheat | 7,111 |
| Rye | 4,853 |
| Triticale | 5,625** |

* Average of top performer in each of last 3 yrs. of variety trial data (Griffin, GA).
** 2005-06 was first year triticale was included.

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Feeding Losses

| Method | 1 day | 7 day |
|------------------|-------|-------|
| ---- % Waste---- | | |
| Unrolled | 12.3 | 43.0 |
| Ring | 4.9 | 5.4 |



Feeding Losses

| Item | % Waste |
|---------|---------|
| Ring | 6 |
| Trailer | 11 |
| Cradle | 15 |






Recovering from the Drought

- Dormancy break can be very rapid.
- Nitrate issues
 - Rains will cause rapid N-release and uptake
 - High nitrate levels for first 3 – 7 days.
- Monitor the amount of weed competition.

Drought Recovery

- Allow the pasture to recover
 - Leave sufficient grazed stubble
 - Tall Fescue: 2 - 3 in.
 - Bermudagrass: ~2 in.
- Not too soon!
 - Target height to start grazing
 - Tall Fescue: 4 - 8 in.
 - Bermudagrass: 4 - 8 in.
- Reintroduce pastures slowly

QUESTIONS?

www.georgiaforages.com

