

Forage Conference at GCA Convention

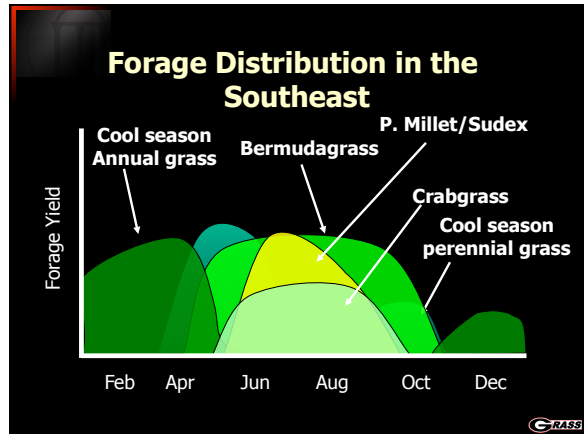
Overview of Warm Season Annual Forage Options



Overview of Warm Season Annual Forage Options



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




Plan on Incorporating a Summer Annual into Your System

(and book your seed early!)




Graze it, don't hay it!

Summer Annuals

- Best if grazed
- Hay making problems
- Baleage is a good option
- Prussic acid problems
- Nitrate toxicity problems



Dr. Dennis Hancock
Extension Forage Agronomist




Forage Conference at GCA Convention

Overview of Warm Season Annual Forage Options


Forage Sorghum

Adaptation	Warm climates of the southeastern U.S. Best on well drained, sandy soils. Drought tolerant.
Qualities	High yielding, fast growing. Thick stems are difficult for haying but makes excellent quality silage. Not ideal for grazing.
Establishment	Seed should be drilled 1 - 1 1/2 in. deep at 6 - 8 lb/acre or broadcast at 10 - 12 lb/acre in April - June (whenever soil temps at 2 in. reach 65° F).
Varieties	4Ever Green, Grabow 865, AF7401




Sudangrass

Adaptation	Warm climates of the southeastern U.S. Best on well drained, sandy soils. Moderate drought tolerance.
Qualities	Medium yielding, fast growing. Thinner stems but still difficult for haying.
Establishment	Seed should be drilled 1 - 1 1/2 in. deep at 10 - 15 lb/acre or broadcast at 20 - 25 lb/acre in April - June (whenever soil temps at 2 in. reach 65° F).
Varieties	AS9301, Sudan Headless, Trudan Headless



Sorghum x Sudangrass Hybrids

Adaptation	Warm climates of the southeastern U.S. Best on well drained soils. Drought tolerant.
Qualities	High yielding, fast growing. Thick stems make it difficult for hay.
Establishment	Seed should be drilled 1 - 1 1/2 in. deep at 15 - 20 lb/acre or broadcast at 25 - 30 lb/acre in April - June (whenever soil temps at 2 in. reach 65° F).
Varieties	AS5201, AS6401, Extra Graze bmr, SS220BMR, Super Sugar, Sweet Six BMR Dry Stalk




Sorghum x sudan

- **High yield potential**
- **High quality**
 - **Brown mid-rib (BMR) hybrids**
- **Harder to manage under grazing**



Pearl Millet

Adaptation	Warm climates of the southeastern U.S. Best on sandy soils. Drought tolerant.
Qualities	Medium to high yielding, slightly slower growing than the sorghums. Thinner stems, prolific tillering, tolerates low soil pH.
Establishment	Seed should be drilled 3/4 - 1 in. deep at 12 - 15 lb/acre or broadcast at 25 - 30 lb/acre in April - June (whenever soil temps at 2 in. reach 65° F).
Varieties	Tifleaf 3, SS635



Pearl Millet

- **More productive in drought conditions**
- **Can develop toxic nitrate levels**
- **No prussic acid toxicity concerns**
- **Less palatable (alkaloids)**
- **BMR trait (?)**
- **Easier to manage under grazing**
 - **Irrigated pasture**



Dr. Dennis Hancock
Extension Forage Agronomist

Forage Conference at GCA Convention

Overview of Warm Season Annual Forage Options

Summer Annual Forage Production in GA

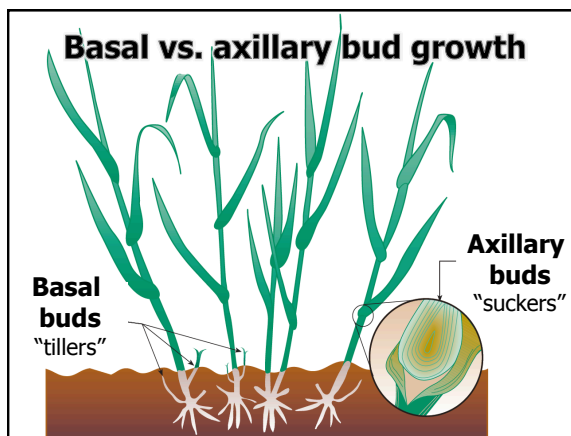
Forage Type	DM lbs/acre			
	2013		2014	
	Tifton	Griffin	Tifton	Griffin
Forage Sorghum				
Highest yield	17,200	20,200	14,200	14,800
Lowest yield	8,400	10,000	7,200	7,400
Sorghum x Sudangrass				
Highest yield	19,067	15,229	15,842	15,594
Lowest yield	10,721	9,326	8,351	9,360
Pearl Millet				
Highest yield	17,130	12,050	12,165	14,056
Lowest yield	13,235	7,980	8,355	10,968

*Adopted from the University of Georgia's, Statewide Variety Testing Program at Griffin and Tifton, Ga.



Genetic Traits

Trait	Description and Significance
BMR	Brown midrib, reduced lignin content and higher forage digestibility
PPS	Photo-period sensitive, delay flowering provides flexibility in harvest management
BD	Brachytic dwarf increases the leaf to stalk ratio by shortened internode distance
MS	Male sterile produce no grain and thus sugar and protein stay in leaves
DS	Dry stalk is dry at boot stage for direct harvest



Dr. Dennis Hancock
Extension Forage Agronomist




Forage Conference at GCA Convention

Overview of Warm Season Annual Forage Options



Crabgrass

Adaptation	Warm climates of the southeastern U.S. Tolerates poor drained soils. Not drought tolerant.
Qualities	Easy to grow, fills in gaps in the field. 4000-7000 lbs DM/acre
Establishment	Seed should be drilled 1/4 in. deep at 4 - 6 lb/acre or broadcast at 4 - 6 lb/acre in March - May.
Varieties	Red River, Quick and Big, Mogo



Crabgrass

Item	Harvest interval, days		
	21	35	49
Yield, dry lbs/ac	2,610	6,668	8,898
	% DM		
CP	15.6	14.3	11.0
NDF	61.3	66.6	69.8
ADF	35.7	38.9	42.7
TDN	62.6	59.1	54.8




Beck et al., 2007 J. Anim. Sci.
Common crabgrass; Hay harvest residual height = ~2 inches;
Regrowth after early July cutting.

Dr. Dennis Hancock
Extension Forage Agronomist

Forage Conference at GCA Convention


Overview of Warm Season Annual Forage Options

Other Summer Annuals

 <ul style="list-style-type: none"> • Japanese Millet <ul style="list-style-type: none"> ▪ 5000-8000 lbs/a 	 <ul style="list-style-type: none"> • Brown Top Millet <ul style="list-style-type: none"> ▪ 4000-7000 lbs/a
 <ul style="list-style-type: none"> • Proso Millet <ul style="list-style-type: none"> ▪ 3000-5000 lbs/a 	 <ul style="list-style-type: none"> • Foxtail Millet <ul style="list-style-type: none"> ▪ 4000-6000 lbs/a

Source: UHV, Nebraska

Teff – More for Hay Production



Oregon

Ohio

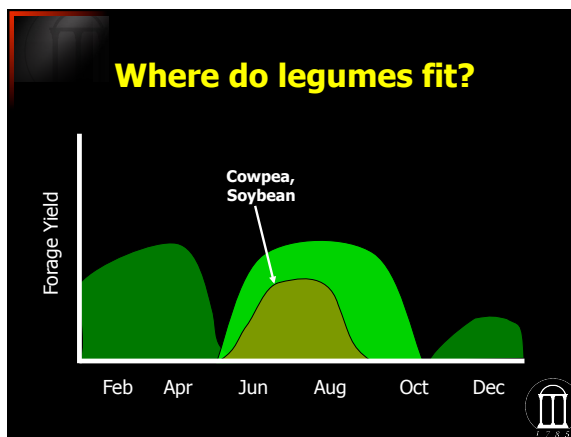
Teff – warm season annual grass

Not so good in...

Georgia



Teff – warm season annual grass




Forage Soybean



Forage Soybeans

- Essentially same as row crop soybeans.
 - Some use of RR soybeans for weed control.
- Adapted to a wide range of soils, but most productive on soil pH > 6.0 and fertile.
- Yields range from 2-3 tons/a.
- Sometimes grown with summer annuals, but contributes little N or forage quality to the crop.
- Cut when pods are 90% full.



Dr. Dennis Hancock
Extension Forage Agronomist

Forage Conference at GCA Convention

Overview of Warm Season Annual Forage Options

Cowpeas ("Iron & Clay Peas")

- Similar to soybeans, but lower yields
- Adapted to a wide range of soils, but most productive on soil pH > 6.0 and fertile.
- Yields range from 1-2 ½ tons/a.
- Sometimes grown with summer annuals, but contributes little N or forage quality to the crop.
- More commonly grown as a wildlife attractant.






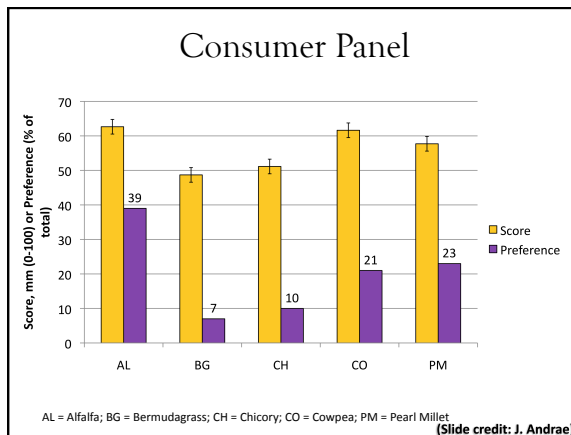
Photo Credit: Dr. Twain Butler



Cowpea




(Slide credit: J. Andrae)



Annual Lespedezas

- Striate, Korean, and common lespedeza
- Adapted to a wide range of soils and fertility levels
- Yields are relatively low and easily crowded out



IPNI © 2007 Southern Forages


Other Warm Season Annual Legumes

- Alyceclover
- Annual peanut
- Hairy indigo
- Kudzu
- Lablab (sweet hyacinth bean)
- Velvetbean

These species are:

- Relatively expensive to establish,
- Difficult to establish,
- Provide relatively low yields, and/or
- Are not very tolerant of grazing

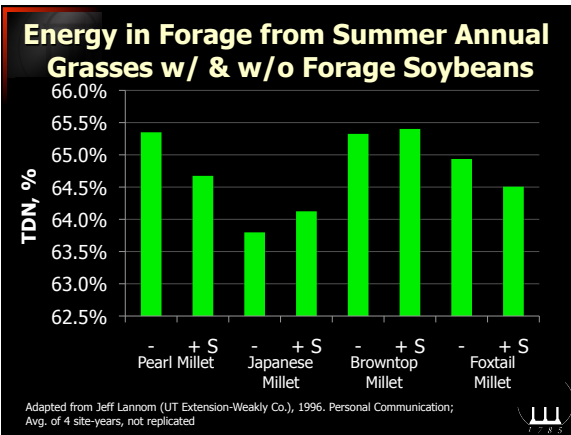
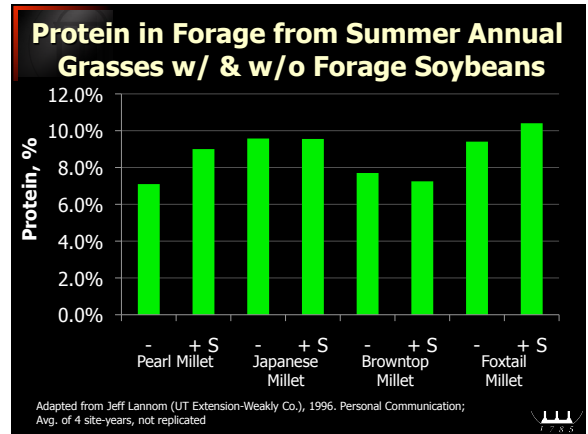
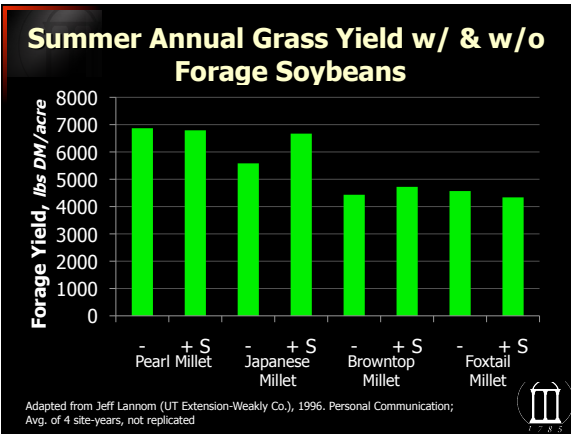
Production generally relegated to specific niche situations.



Dr. Dennis Hancock
Extension Forage Agronomist

Forage Conference at GCA Convention

Overview of Warm Season Annual Forage Options



Leaf Rust Reduces Yield, Digestibility, and Sugars, but Increases Protein

	Yield	IVDMD	CP	Total Sugars
Leaves	-36.4%	-17.8%	10.0%	-48.3%
Stems	-36.9%	-4.2%	14.6%	-75.8%
Total Forage	-36.8%	-7.3%	12.1%	-64.4%

Adapted from Monson et al., 1986, Crop Sci. 26: 637-639

White Sugarcane Aphid Damage on Sorghums

- Attacks everything in Sorghum family
 - (inc. FS, SxS, Sudangrass, and Johnsongrass)
- Yield losses 50-80%+
- Treatment threshold: 25% of leaves w/ 50+ aphids/leaf in pre-boot stage and beyond

www.georgiaforages.com

THE UNIVERSITY OF GEORGIA
COLLEGE OF AGRICULTURAL & ENVIRONMENTAL SCIENCES

FORAGES

GeorgiaForages.com Email Updates

UPCOMING - Georgia Grazing School - 2010
 NEW! 2010 Supplement Use Control Sheet and Entry Form
 NEW! Georgia Forages.com Update Email - September 2010
 Stocking Tall Fescue for Fall and Winter Grazing
 Forage Production for Mixed Grazing Systems

Dr. Dennis Hancock
 Extension Forage Agronomist



Forage Conference at GCA Convention

Overview of Warm Season Annual Forage Options



Dr. Dennis Hancock
Extension Forage Agronomist

