

Alternative Summer Annual Forage Crops

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Summer Annuals

- All have nitrate toxicity potential
- Sorghums have prussic acid potential
 - Sorghums should NOT be fed to horses
- Seed supply is low (if any)
- Late plantings result in low yields



Pearl millet

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



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



Photoperiod-Sensitive Cultivars

- Sustain more consistent growth over a longer-growing season
 - Remain vegetative stage into September (until daylength is < 12 h 20 min.
- This trait may negate or lessen the need for staggered plantings.
 - Otherwise, managed the same way
- Some research indicates quality may be lower than the conventional cultivars.
- Some companies claiming their cultivars are photosensitive when they merely mature later.



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Other Summer Annuals

- Browntop Millet
 - 4000-7000 lbs/acre
- Foxtail Millet
 - 3000-5000 lbs/acre
- Proso Millet
 - 2000-4000 lbs/acre
- Red River Crabgrass
 - 4000-7000 lbs/acre
- Teff
 - 2000-3000 lbs/acre
- Forage Soybean
 - 4000-7000 lbs/acre



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.



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



Summer Annual Establishment

Table 1. Planting dates and seeding rates for selected warm season annual grasses.

Species	Planting Dates*	Seeding Rate	
		Drilled	Broadcast
Pearl Millet	Mtn: May 1 - July 1	10-15	25-30
	Pied: Apr. 15 - July 15		
	CP: Apr. 1 - Aug. 1		
Sorghum x Sudan Hybrids	Mtn: May 1 - July 15	15-20	20-25
	Pied: Apr. 15 - Aug. 1		
	CP: Apr. 1 - Aug. 15		
Sudangrass	Mtn: May 1 - July 1	20-25	30-40
	Pied: Apr. 15 - July 15		
	CP: Apr. 1 - Aug. 1		
Forage Sorghum	Mtn: Apr. 25 - May 15	15-20	20-25
	Pied: Apr. 15 - May 15		
	CP: Apr. 15 - June 1		
Browntop Millet	Mtn: May 1 - July 15	15-20	20-25
	Pied: Apr. 15 - Aug. 1		
	CP: Apr. 1 - Aug. 15		

* Mtn = Mountain and Limestone Valley; Pied = Piedmont; CP = Coastal Plain

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Insect Management

See Pest Management Handbook



Chinch bugs

Nitrate in rations fed to dairy cattle.

Classes of Livestock	Max. Nitrate (ppm) in Total Ration (DM Basis)
Calves to 6 months of age	700
Calves 6 months to breeding age	1000
Bred heifers	1500
Lactating dairy cows (postpartum & up to 180 d pregnant)	1500
Lactating dairy cows (last trimester of pregnancy)	2500

Smith and Guthrie, 1997

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



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