

Summer Annual Forages: Selection and Production Characteristics

FORAGE FACTS MF-2871

Management

Introduction

Summer annual forages are warm-season grasses that tolerate hot, dry weather and are adapted to most areas of Kansas. Although most species should not be planted until the soil temperature reaches 70 degrees to 75 degrees Fahrenheit, some can be used by 4 to 6 weeks after planting. Summer annual forages include forage sorghums, sudangrass, sorghum-sudangrass

hybrids, hybrid pearl millet, and foxtail millet (a.k.a. Italian, German, Hungarian, or Japanese Millet). Selecting a type of summer annual should be based on the needs and location of the individual livestock program because they have different growth characteristics that influence how they are used. The following table summarizes characteristics of the most commonly used summer annual forages used in Kansas.

Forage Sorghum	Sudangrass	Sorghum-sudangrass Hybrids	Hybrid Pearl Millet	Foxtail Millet
Strengths				
yield, better quality with brown midrib (BMR) hybrids, may have better yield with photo-period sensitive (PS) hybrids	rapid regrowth (leave 6 to 8-inch stubble), small stems, extensive tillering,	yield, regrowth, better quality with brown midrib (BMR) hybrids	rapid regrowth, quality, greenbug resistant, extremely low potential for prussic acid toxicity, drought resistant, high leaf to stem ratio	short growing season/late planting, no prussic acid toxicity, drought resistant, can plant in August for emergency forage
Weaknesses				
limited regrowth, no grain yield with PS hybrids, BMR trait may result in more lodging with delayed harvest, potential for nitrate and prussic acid toxicity, susceptibility to chinch bugs	yield, potential for nitrate and prussic acid toxicity, poor leaf retention after heading	potential for nitrate and prussic acid toxicity, susceptibility to chinch bugs, poor leaf retention after heading	sensitive to overgrazing (maintain 8-inch stubble), potential for nitrate toxicity, susceptibility to chinch bugs	quality, palatability, yield, shallow rooted, uproots easily when grazed, awns can injure livestock (sore mouth)
Uses				
silage, hay – harvest at mid to late dough, increase seeding rate for hay	grazing, hay – harvest before heading to maximize quality	grazing, hay – harvest before heading to maximize quality	grazing, hay – harvest before heading to maximize quality, cut whenever growth reaches 40 to 50 inches.	grazing, hay – always harvest before heading to maximize quality and to avoid livestock injury from awns
Planting Date				
Northwest: May 15 – June 10 Southeast: May 1-15; June 5-25 Rest of state: May 15 – June 20	Northwest: May 15 – July 1 Rest of state: May 20 – July 10	Northwest: May 15 – July 1 Rest of state: May 20 – July 10	June 1 – July 1 (does not tolerate cold, wet soils)	June 1 – July 1 (does not tolerate cold, wet soils)

Forage Sorghum	Sudangrass	Sorghum-sudangrass Hybrids	Hybrid Pearl Millet	Foxtail Millet
Seed Depth (depending on soil type and moisture conditions)				
1 to 1½ inches	1 to 1½ inches	1 to 1½ inches	¾ to 1 inch	¾ to 1 inch
Seeding Rates (assumes 65 percent to 70 percent emergence)				
Narrow rows (pounds/acre): 10 to 20 Wide rows: 4 to 6 or similar to grain sorghum if seeds/acre	Narrow rows (pounds/acre): West: 10 to 15 Central: 12 to 20 East: 20 to 30 Irrigated: 30	Narrow rows (pounds/acre): West: 10 to 15 Central: 12 to 20 East: 20 to 30 Irrigated: 30	Narrow rows: (pound/acre) West: 5 to 15 Central: 10 to 20 East: 10 to 20 Irrigated: 10 to 20 Wide rows: 10	Narrow rows: 15-30 pounds/acre (lower rates in dry environments, higher rates with more rainfall or irrigation)

Fertility

- Nutrient requirements are similar to grain sorghum. Fertilize according to soil test recommendations.
- Apply 30 to 40 (Central and West) or 40 to 50 (East) pounds of nitrogen per acre for each expected ton of dry matter production.
- To minimize nitrate accumulation potential, base nitrogen application rates on previous crop and manure credits and a profile nitrogen soil test if following a legume or a poor-yielding crop.
- Split nitrogen applications provide better nutrient distribution and reduce potential for nitrate or prussic acid toxicity. Apply half before planting and half after first cutting or four weeks after start of grazing.
- Apply phosphorus either preplant or banded at seeding because it does not move appreciably in the soil
- Apply lime if the soil pH is 6.0 or less in the eastern third of the state, or less than 5.5 in other areas.

Weed Control

- Rapidly growing summer annual grasses are competitive with weeds that emerge after seeding.
- Cultivation to control weeds if row spacing is adequate.
- Few herbicides are labeled for weed control in most summer annual forages.
- Atrazine may be either soil-applied or foliar-applied on forage sorghum hybrids.
- Other herbicides are brand specific and should not be applied unless specifically approved on the label.

Insect Pests

- Insect infestation problems vary throughout the state and from season to season.
- Greenbugs can damage sorghums and sudangrasses, but hybrid pearl millet is highly resistant.
- Chinch bugs are often a problem in central and eastern Kansas, particularly during dry seasons or if the summer annual is planted into wheat stubble. Heavy infestations or destructive insects may necessitate spraying with an approved insecticide. Follow label directions carefully when applying insecticides.

Other Publications

Producers should refer to the annual K-State Research and Extension publication, *Chemical Weed Control for Field Crops, Pastures, Rangeland, and Noncropland*, for recent information on herbicides for summer annual forages. *Nitrate and Prussic Acid Toxicity in Forage*, MF-1018; *Prussic Acid Poisoning* (Forage Fact Sheet Series); *Nitrate Toxicity* (Forage Fact Sheet Series); *Summer Annual Forages*, MF-1036

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