AGR-231

University of Kentucky
College of Agriculture,
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Pearl Millet

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The primary benefits of pearl millet are that it does not contain prussic acid and is not susceptible to the sugarcane aphid. Dwarf varieties are available, which are leafier and better suited for grazing.

Pearl millet is better adapted to slightly acidic soils and soils with a lower water holding capacity than sorghum, sudangrass or sorghum-sudangrass hybrids. For more information on soil types see AGR-217: *Determining Soil Texture by Feel.* A pH of 5.5 to 6.5 is required for maximum production. Phosphorus and potassium should be applied according to soil test. For more details on fertilizing warm season forages like pearl millet, see AGR-1: *Lime and Nutrient Recommendations.* In the absence of a soil test, apply 60 to 80 lb/A of P_2O_5 and 70 to 100 lb/A K_2O prior to seeding. Apply 60 to 80 lb/A of actual nitrogen at seeding and 40 to 60 lb after each cutting or intensive grazing if regrowth is desired. Do not apply nitrogen at the onset of drought conditions.
`Pearl millet should be planted after there is no chance of frost when the soil temperature has reached at least 65°F. Pearl millet is more sensitive to cold stress than sorghum and may be killed by low temperatures in early spring when sorghum is not. It can be either conventionally or no-till seeded. Seed can be broadcast at rate of 25 to 30 lb/A onto a fine, but firm seedbed and then cultipacked to ensure good soil-seed contact. When seeding using a grain drill, reduce seeding rate to 15 to 20 lb/A. Seeding depth should be between ½ and 1 inch. Seeding depths greater than 1 inch should be avoided.

Pearl millet grows rapidly and will provide grazing in as little as 45 to 60 days. Unlike *Sorghum* species, there is no concern with prussic acid poisoning, so grazing can begin when plants reach a height of 18 inches. To avoid nitrate poisoning do not apply excessive amounts of nitrogen fertilizer. Do not graze drought stressed or slow growing plants. For more information on nitrates see ID-217: *Forage-related Cattle Disorders—Nitrate Poisoning.*

If regrowth is desired, do not graze shorter than 6 to 10 inches. Regrowth should be managed in the same manner. Pearl millet can be cut for hay, ensiled, or used for green-chop. Cut for hay or wilted silage once stands reach 30 to 40 inches.

Figure 1. Pearl millet in head stage.

Pearl Millet Facts

Common Name: Pearl millet

Scientific Name: *Pennisetum americanum*

Origin: North-central Africa

Growth Characteristics: Erect, leafy, annual grass that grows 3-8 feet tall

Adaptation: All of Kentucky

Major Uses: Excellent summer grazing, can be used for hay and silage

Drought Tolerance: Very good, better adapted to sandier soils than *sorghum* species

Soil Drainage: Well drained to somewhat poorly drained

Weight per Bushel: 45-55 pounds

Number of Seed per Pound: 86,000

Seeding Rate: 25-30 lb/A broadcast or 15-20 lb/A drilled

Seeding Date: When there is no chance of frost and when soil temperature is at least 65°F

Seeding Depth: ½ to 1 inch

Time to First Grazing: 45-60 days

Expected Yield: Hay—2 to 4 tons DM per acre, silage—6 to 12 tons/acre at 65% moisture

Soil pH: Optimum pH is 5.5 to 6.5, better adapted to lower pH than *Sorghum* species

Fertilization: Apply phosphorus and potassium according to soil test; nitrogen, 60-80 lb/A at establishment and 40-60 lb/A after each intensive grazing or cutting when regrowth is desired.

Seasonal Distribution: 90% of growth in June, July, and August

Grazing Management: Start grazing at 18 inches tall. Graze to a height of 6 to 10 inches. Manage regrowth in same manner.

Hay or Wilted Silage Management: Cut when plants reach a height of 30-40 inches and leave a 6 to 10 inch stubble. Use mower-conditioner to crush stems.

Forage-related Disorders: *Nitrate poisoning.* To avoid nitrate poisoning do not apply excessive amounts of nitrogen fertilizer. Do not graze drought stressed or slow growing plants. For more information on nitrates see ID-217: *Forage-related Cattle Disorders–Nitrate Poisoning.*

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