



# FORAGE FACTS

*Publication Series*

## SUMMER ANNUAL FORAGES: SELECTION AND PRODUCTION CHARACTERISTICS

### INTRODUCTION

Summer annual forages are warm-season grasses that tolerate hot, dry weather and are adapted to most areas of Kansas. They include forage sorghums, sudangrass, sorghum-sudangrass hybrids, hybrid pearl millet, and foxtail millet. Selecting a type or variety of summer annual should be based on the needs and location of the individual livestock program because they have different growth characteristics which influence how they are used.

#### TYPES OF SUMMER ANNUALS

Sorghum-sudangrass hybrids, the most common annual grass in Kansas, can produce high forage yields, but over 50 percent of the yield production is stem. Consequently, the plants are better suited for silage, haying, or grazing.

Forage sorghums mature late in the growing season and produce high yields with limited regrowth ability, which makes them best suited for one-cut silage operations.

Sudangrass produces less forage than most other summer annuals, but their small stems, extensive tillering, and rapid regrowth potential are ideal for grazing and haying operations.

Hybrid pearl millet has high forage quality and regrows rapidly which makes it ideally suited for haying and grazing operations. However, it is sensitive to overgrazing, and at least 8 inches of stubble is necessary for regrowth.

Foxtail millet has low quality and palatability, and forage yields are relatively poor. It is shallow-rooted and easily pulled out of the ground when grazed.

#### PRODUCTION CHARACTERISTICS

Summer annuals should be planted when the soil temperature reaches 70° to 75° F. Hybrid pearl millet and foxtail millet seeds are particularly intolerant of cold, wet soils and should not be planted until late May or early June. It usually takes four to six weeks after planting before summer annuals can be used.

Optimum planting depth of summer annual grasses varies with soil type and moisture, but generally is 1 to 1½ inches. Hybrid pearl millet and foxtail millet have small seeds and should be planted ¾ to 1 inch deep. Germination is enhanced by covering the seed with moist soil to provide firm seed-to-soil contact.

Seeding rates for summer annuals are relatively high because only 65 to 70 percent of the seeds normally emerge. When drilling in narrow rows, hybrid pearl millet and forage sorghums should be planted at 10 to 20 pounds per acre; foxtail millet planted at 15 to 30 pounds per acre; and sudangrasses and sorghum-sudangrass hybrids planted at 20 to 25 pounds per acre. Seeding rate of forage sorghums planted in wide rows is 4 to 6 pounds per acre. Producers should use lower seeding rates in dry areas and higher rates in irrigated areas.

Summer annual forages have nutrient requirements similar to grain sorghum and must be fertilized according to soil test recommendations to be productive. Nitrogen is the nutrient most lacking for optimum production. On nitrogen deficient soils, 30 to 40 pounds of nitrogen per acre should be applied for each expected ton of dry matter production. Split applications provide better nutrient distribution and reduce the potential for nitrate or prussic acid toxicity. To minimize nitrate accumulation potential, application rates should be based on a profile nitrogen soil test and previous crop and manure credits.

Phosphorus, potassium and other nutrient applications should be based on soil test recommendations. Because phosphorus does not appreciably move in the soil, it should be applied either preplant or banded at seeding. Lime is recommended if the soil pH is 6.0 or less in the eastern third of the state, or less than 5.5 in other areas.

Rapidly growing summer annual grasses are competitive with weeds that emerge after seeding. Cultivation can control weeds if row spacing is adequate. Herbicides are an alternative for problem weed species, although there are few herbicides labeled for weed control in most summer annual forages. Atrazine may be either soil-applied or foliar-applied on forage sorghum

and sorghum-sudan hybrid. Other herbicides are brand specific and should not be applied unless specifically approved on the label.

Insect infestation problems vary throughout the state and from season to season. Greenbugs can cause statewide damage to sorghums and sudangrasses, but hybrid pearl millet is highly resistant to greenbug damage. 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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