

DROUGHT WATCH

What farmers
can do during
drought conditions

Supplemental Or Emergency Forage Crops

Farmers are becoming increasingly concerned about the inadequate amount of forage that their traditional crops will produce under the dry conditions currently existing around the state.

What can be done to increase forage production this summer? If adequate rain does begin to fall in the near future, proper fertilization (especially nitrogen) of existing grass forages will help maximize their production during the remainder of the growing season. In addition, several "emergency forage crops" can still be planted that may help farmers increase the amount of stored forage available this winter.

Summer-annual grasses, which maintain relatively high levels of production during hot and dry conditions, will provide additional forage if we get some rain. Factors to consider when deciding which emergency forage crop to grow are: crop use (silage, hay, or grazing), seed availability and cost, optimum seeding and harvest dates, and relative yield and quality.

Summer-annual grasses grow

best at relatively high temperatures (80 degrees F) and can produce under conditions of limited moisture.

Sorghum is grass which has been bred for both grain and forage production. The grain sorghum types are relatively short growing (less than 6 feet) and provide moderate yields when harvested as a forage. Forage sorghum, on the other hand, grows tall (6 to 15 feet) and has the potential for high yields. Like corn, sorghum hybrids are classified into maturity classes. Late-maturing sorghum types yield more than earlier-maturing types, but may not reach maturity before a killing frost. The sorghums are usually harvested only once and used for silage or green-chop production. Some producers have seeded 90 lb. per acre of soybeans along with grain sorghum to improve forage quality.

Sudangrass usually grows between 3 and 8 feet high and has stems about 1/4 inch in diameter. Solid stands of sudangrass grow shorter than when seeded in rows. Sudangrass will regrow following each harvest until cool temperatures or lack of moisture inhibit growth.

Sorghum-Sudan Hybrids or Sudax resemble sudangrass but are taller, have larger stems and leaves, and give higher yields. Hybrids tend to be coarser than sudangrass and vary in yield and growth characteristics depending on their parents. Like sudangrass, sorghum-sudangrass hybrids will regrow after each harvest unless environmental conditions are restrictive.

Millet has smaller stems and is more leafy than the sorghum, sudangrass, or sorghum-sudangrass hybrids. Pearl millet will regrow after harvest but not as rapidly as either the sudangrass or sorghum-sudangrass hybrids. German or Foxtail millet, however, does not regrow after harvest. Millet yields are usually lower than sorghum-sudangrass hybrids.

Establishment

Summer annuals should be planted by the end of June. However, seedings may be made as late as July 15 in emergency situations, but yields will be reduced because of limited moisture in the summer and cool temperatures during the fall.

Forage and grain sorghum planted for forage should be planted in rows to facilitate harvest and minimize lodging. Avoid planting the sorghums too deeply as emergence problems may occur when planted deeper than one inch in most Pennsylvania soils. Also, avoid seeding rates above 10-12 pounds per acre since they can increase the risk of lodging, particularly with the tall forage sorghum types. Fewer herbicides are labeled for grain and forage sorghum than corn so select fields where weeds can be controlled with labelled herbicides. When using Lasso or Dual, be sure to use seed that has been treated with the appropriate safener. When planting after a failed

corn crop, be sure that the herbicides used on the corn are labelled for sorghum.

The other summer annual species can be broadcast seeded and cultipacked or seeded with a grain drill into a well-prepared seed bed (Table 1). Solid seedings result in finer and shorter plants which are desirable for silage and grazing. Wider row spacings (20 to 36 inches) allow for cultivation and results in better regrowth and

more uniform production throughout the season. Row spacing itself, however, has relatively little effect on total forage production.

Plant sudangrass, sorghum-sudangrass hybrids, and millets 1 inch deep in medium to heavy soils and 1 1/2 inches deep on sandy soils. If the soil is dry and rain is not anticipated before seedling emergence, cultipack the seedbed to maximize seed-to-soil contact and moisture conservation.

Table 1. Suggested seeding rates for summer-annual grasses in Pennsylvania.

Seeding Method	Soil moisture expectations	
	Dry	Moist
	— lb./acre —	
Rows	8	12
Grain drill	10	15
Broadcast	20	30

Table 2. Silage yield and nutrient content of summer-annual grasses.

Species	Dry matter yield t/acre	Crude protein		Total digestible nutrients
		----- %	-----	
Hybrid corn	5.46	8.2	64.9	
Forage sorghum	4.50	8.3	61.1	
Sudan-grass	4.15	12.2	58.5	
Millet	3.75	10.1	56.4	

Fertilization

For forage production, fertilize grain and forage sorghums using soil test recommendations. In lieu of a soil test, fertilize similar to corn silage. Fertilization of the other summer-annual grasses, should be similar to other annual grass crops. Apply sufficient nitrogen (40 to 80 lb./acre) at planting to insure establishment and stimulate plant development. Another 50 pounds of nitrogen after the first harvest is also recommended for optimum production. Crude protein content of these grasses is directly related to rate of nitrogen fertilization. However, caution must be exercised to avoid nitrate poisoning when high rates of nitrogen fertilizer or manure are applied.

Utilization

Both the grain and forage sorghums are most frequently used for silage or green chop in a single cut system, although they can be grazed if desired. Silage should be cut when the grain is in the medium to hard dough stage. Under most conditions, corn silage will produce higher silage yields and quality (Table 2). The sorghums will produce similar or higher yields than corn silage on droughty soils.

The other summer-annual grasses can be used for grazing, green chop, silage or hay. The best time to graze is when the plants are between 18 and 30 inches tall (6 to 8 weeks after planting). Grazing when the plants are less than 18 inches tall will delay regrowth and

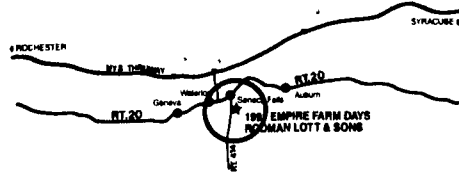
(Turn to Page C4)

August 6,7,8



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