

Forage Options: Warm-season Grasses

Use these warm summer grasses for emergency hay crops during drought.

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Hay and certain forage supply may be short during dry growing conditions. Emergency hay crops to consider include sudangrass, sorghum x sudan hybrids, and hay millets.

Planting dates for crops such as hay millets, sudangrass, sorghum x sudan is mid to late June. These crops are warm season grasses and develop rapidly under warm, moist conditions.

Foxtail Hay Millets

Foxtail millets are grown primarily for short season emergency hay crops. Several landraces have been developed over time and are grown in North Dakota. Foxtail millets would be the best choices for emergency hay. Proso millets are slightly inferior to foxtail hay millets for hay. Planting foxtail millets can be delayed until mid June into the first week of July. When used for emergency hay production, late planting is usually encountered.

Plant into moist soil about 1 inch deep. Shallower seeding may be desirable on heavy textured soils with good moisture. Germination is fairly rapid, but early seedling vigor is lacking.

Foxtail millets have low seedling vigor and, in general, are poor competitors with weeds. A seeding rate of 15 to 25 pounds per acre is recommended. The higher rates are recommended in eastern North Dakota with the higher rainfall potential. In western North Dakota, 15 pounds is adequate on weed free fields.

Harvest millets for hay in the late boot to early bloom growth stage. Any delay after full head emergence will reduce quality. Bristles become hard as maturity approaches and may cause sore mouth, lump jaw, and eye infections when fed to livestock. Hay protein content is highest when the ratio of leaves to stems is high. Curing foxtail millet requires attention as light stands tend to sun dry rapidly after cutting, while heavy stands, especially of the German type, cure at a slower rate. If expected yield levels are greater than 1 ton per acre, crimping will help the curing process. Potential yield of foxtail millet is influenced by moisture relationships.

Research trial yields from North Dakota Research Centers ranged from 2.1 to 3.2 tons per acre, with German millets having the most consistent yields for the hay millets.

Sudangrass and Sorghum-Sudan Crosses

The best time to plant sudangrass or sorghum-sudan crosses is late May or early June. If emergency forage is required, planting can be delayed until late June. Forage yields will be reduced with late planting.

The seeding rate varies considerably depending on the sorghum type. Sudangrass and sorghum-sudan crosses grown in 6 to 7 inch row spacings should be seeded at 25 to 30 pounds per acre. Forage sorghum varieties, hybrids, and crosses grown in 30 inch or wider row spacings should be seeded at 5 to 8 pounds per acre. There has been some information from commercial sources suggesting much lower seeding rates. This may be true for some specific hybrids, but low seeding rates may result in thin stands and lower forage yields. A well prepared, firm, moist seedbed is best, although acceptable stands may be established with stubble-planting equipment. Plant 1 to 1.5 inches deep on medium and heavy textured soils and 1.5 to 2 inches deep on sandy soils.

Both Piper and Trudan are older traditional varieties of sudangrass. New sudangrass varieties with "BMR" (Brown Mid Rib leaf characteristic) are now available and have been shown to be of better feeding value than the older, traditional varieties.

A harvestable hay crop 50 to 72 inches tall can be anticipated in about 60 to 75 days after emergence, depending on environmental conditions. Under good moisture conditions, sudangrass can grow to 6 to 8 feet tall, but forage quality decreases with advancing maturity. An early harvest (end of July or very early August) will normally permit a second harvest and maintain a higher forage quality.

Be careful when harvesting sudangrass for hay to make sure the forage is dry. The coarse stem will often retain enough moisture to cause the hay to mold even though it appears adequately dried. Always use a hay conditioner to crimp the sudangrass stem to enhance drying. When tall material is harvested, reduce the swath width by half to reduce the quantity of material in the windrow.

Sudangrass is also used as a warm-season pasture forage. When used as pasture, however, there is potential for HCN or prussic acid poisoning. Only graze once the crop is 20 to 24 inches or taller as a minimum for safety to livestock. Don't graze if sudangrass is under any moisture stress. HCN is not a problem in sudangrass hay.

Warm Season - Forage Trials - 2001 (all locations)		
Variety	2001 Avg	3 Yr Avg
German millet	3.0	3.2 (2 yr Avg)
Manta millet	2.5	-
Red proso millet	2.4	2.1
Siberian millet	2.4	2.3
Tifleaf pearl millet	2.7	2.8
Piper sudangrass	3.6	-
Forage sorghum	4.9	4.8
Sorghum x sudan	3.6	3.1

Warm Season - Forage Trials - 2001 (continued)	

	Yield (tons per acre DM basis)				
Variety	Carrington*	Dickinson*	Langdon	Williston	Minot
German millet	4.0	1.9	3.4	2.7	3.0
Manta millet	2.2	1.9	2.4	2.6	3.3
Red proso millet	2.4	1.9	2.1	2.1	3.6
Siberian millet	2.1	1.9	2.5	2.6	3.1
Tifleaf pearl millet	2.3	1.9	2.9	1.6	4.9
Piper sudangrass	5.5	2.4	3.6	2.1	4.3
Forage sorghum	8.1	2.2	4.4	2.1	7.6
Sorghum x sudan	5.2	2.3	3.8	2.4	4.2
Mean	2.9	2.0	3.1	2.3	4.3
LSD %	0.4	-	0.7	NS	-
*two harvests, NS = Not Significant.					



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