

Annual Crops for Hay, Pasture and Silage

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Annual crops can be a valuable part of the regular farm or ranch forage program. They are often used to provide temporary or supplemental forage for hay, pasture and silage while perennial crops are being established. In addition, they are the only choices available for emergency use during years of short moisture or when stands or perennial forages are lost due to winter-kill and/or injury.

The annual forage crop selected will depend on its growth season, intended use and the date at which planting can be completed (Table 1). Annuals such as oats and rye are cool-season crops which germinate and grow best during the cool weather of spring and early summer. Warm-season annuals such as millet and the sudan-sorghum complex grow best when planted in late spring or about 10 to 14 days after corn is normally planted.

Table 1. Growth Season and Best Use of Selected Annual Forage Crops.

Crop	Growth Season		Use		
	Cool	Warm	Hay	Pasture	Silage
Corn		X			X
Foxtail millet		X	X		
Oats	X		X	X	X
Oats - field peas	X		X		X
Pearl millet, forage		X	X	X	X
Rape ¹	X			X	
Rape - Oats ¹	X			X	
Rye, winter	X			X	
Rye, spring	X			X	
Soybeans		X	X		X
Soybeans-sudan		X			X
Sudangrass		X	X	X	X
Sorghum		X			X
Sorghum-sudan hybrids		X			X

¹swine and sheep

Annual forages will perform best when planted during the normal planting period based on their growth season. Late plantings will provide satisfactory yields if conditions are favorable for growth.

A date of planting study at Fargo (Table 2) with warm-season forages shows similar dry matter yield responses when planting was delayed over a 3-week period. Generally, highest yields were obtained during the late May and early June planting dates. Yields were maintained at relatively high levels through the mid-June planting date in 1975.

Table 2. Dry Matter Silage Yield of Warm-Season Forages by Planting Date. Fargo, N.D. 1975.

Crop	Tons Dry Matter/Acre			
	May 21	May 27	June 4	June 11
Corn				
Early 18,000	4.0	4.5	4.2	4.6
Late 18,000	4.7	5.0	4.5	5.7
Early 24,000	4.7	4.2	5.3	5.2
Sumax (Sorghum)	8.1	8.0	8.7	8.2
NK 145 (Sorg x Sudan)	6.5	7.0	5.9	6.8
Piper sudan	4.1	4.5	5.2	4.5

Delaying planting past the normal planting period will usually decrease forage yields. A 1980 study at Fargo using hay type millet and Piper sudangrass (Table 3) shows that forage yield is reduced substantially when planting is delayed until July 1 or later. Do not plant unless soil moisture is adequate for germination and continued growth.

Table 3. Dry Matter Yield of Millet and Sudangrass by Planting Date. Fargo, N.D. 1980.

Planting Date	Tons Dry Matter/Acre	
	Hay Millet	Piper sudan
June 21	2.8	2.4
30	1.8	1.7
July 10	1.8	1.5
21	1.7	1.1

Select the annual forage crop that will best serve your individual needs and/or has the greatest potential based on local conditions (Table 4). Certain annuals are best used for grazing; others for silage and several may be used for either hay, pasture or silage in an emergency.

43
7
781
186



Table 4. Temporary or Emergency Crops for Forage.

Crop	Use	Planting Date	Seeding Rate/Acre	Harvest Stage	Comments
Corn	Silage	Mid-May to early June	18 to 20,000 plants	kernels well dented or glazed	Use hybrids that provide high grain and silage yield.
Foxtail millet - Common, German Siberian, Hungarian (var. Empire, Manta, White Wonder)	Hay Pasture	Late May and June	15 to 25 lbs.	Graze: 6-inches Hay: early heading	Better hay crop than pasture. Shallow rooted and slow regrowth. Use high seeding rate in high moisture areas or where weeds are a likely problem. See Circular R-635.
Oats - med. to late maturity varieties	Hay Pasture Silage	Early spring to mid June	2½ bus.	Graze: 6-inches Hay or silage: early milk to soft dough	Early maturing varieties lower yielding. Fertilize for high yields. Provides a 50-60 day grazing season.
Oats and field peas	Hay Silage	Early spring	1½ bus. oats 35 lbs. peas	Oats in early milk to soft dough	Feeding value about equal to corn silage, especially for dairy cows. Plant early as peas do best during cool weather.
Pearl millet, forage type	Hay Pasture Silage	Late May and June	15-20 lbs	Graze: 18-24 in. Hay: before heading Silage: heading	Plant shallow 0.5 in. Does not contain prussic acid glucoside. May be difficult to cure as hay. May lower butterfat in dairy. Good animal performance with growing animals and beef cattle.
Rape, Dwarf Essex	Pasture	May and June	5-7 lbs.	Late summer or when 8 to 10-inches tall	Rape may sensitize light-skin animals. Excellent sheep and swine pasture. Will cause off flavor in milk. Remove dairy cows 2 hours before milking.
Rape and oats - use early oat variety	Pasture	May and June	1¼ bus. oats 5 lbs. rape	Oats 6-inches tall	
Rye, Winter (any hardy variety)	Pasture	August	1½-2 bus.	6-inches	Graze moderately in spring and/or fall if stand is intended for grain. Remove livestock in spring as soon as the first stem joint elevates one-inch above soil surface. May cause off flavor in milk. Remove dairy cows 2 hours before milking. Oats is a superior forage for spring seeding.
Rye, Spring (Var. Gazelle)	Pasture	Early Spring	2 bus.	6-inches	
Soybeans	Hay Silage	Late May to mid-June	2 bus.	Early podding and/or before lower leaves brown.	A good protein hay. Sometimes difficult to cure. Plant only in areas where soybeans are adapted. If mixed with sudan, plant in separate operation for best results.
Soybeans and sudangrass	Silage	Late May and June	1 bus. soybeans. 8 lbs. sudan	When grass is about about 24-inches	
Sudangrass - Piper or sudan hybrids	Hay Pasture Silage	Late May and June	25 to 30 lbs.	Graze: Sheep, 12-14 in. Cattle, 18-24 in. Hay: early heading Silage: dough stage	Sudangrass (Piper) and sudan hybrids lowest in prussic acid content for grazing. Do not graze sorghum or sorghum-sudangrass hybrids until completely killed by frost and forage has dried. Sorghum and sorghum-sudangrass hybrids higher yielding for silage. If sudangrass is used for hay, two crops are sometimes possible from early seeding and/or early first cutting. Often difficult to cure for hay. Use crimper if available. See Circular R-207.
Sorghum or sorghum-sudangrass hybrids	Silage	Late May and June	5 to 8 lbs. in wide rows	Dough stage or after frost	
Wheat, winter	Pasture	Fall	¾ to 1 bus.	6-inches	If grain crop is to be harvested, remove grazing animals as soon as crop begins to joint.