

■ Pasture Development

When developing a pasture, one must first decide on the intended season of use for the pasture (i.e. spring grazing, summer grazing, full season grazing) and the soil type you are dealing with. Once you have fully recognized your objectives for the land being developed and classified the soil type, see the section “Forage Suitability Groups” for recommended alternatives for plant species to seed. The following guidelines are suggested for spring pasture, summer pasture, fall pasture, and full-grazing season pasture.

Spring Pasture Development

Spring pasture will normally comprise exotic (tame) cool-season grasses that reach grazing readiness by early to mid May. See the “Forage Suitability Group” section on those species that can be grown on the soil type in your area. Recommended cool-season grasses include: crested wheatgrass (early May), intermediate or pubescent wheatgrass (mid May), meadow brome grass (early to mid May), and smooth brome grass (early to mid May). Legumes (alfalfa, clover) may be added for potential improvement of diet quality, soil fertility, and overall long-term productivity of the stand.

Summer Pasture Development

Summer pasture will normally comprise native warm-season grasses or a mixture of native warm and cool-season grasses for summer use (June-September). This section will concentrate on warm-season grass options. See the section that follows for a detail description of full-grazing season pasture options that includes mixtures of both warm and cool-season plants. Grazing readiness for warm-season grasses usually occurs during the second to third week of June. See the “Forage Suitability Group” section on those species that can be grown on the soil type in your area. Recommended warm-season grasses include: big bluestem (can be either seeded alone or with a mixture of other warm-season grasses), side-oats grama (recommended as a part of a warm-season grass mixture), and switchgrass (recommended to be seeded alone).

Fall Pasture Development

Fall pasture will normally comprise exotic (tame) cool-season grasses for fall use (October-December). See the “Forage Suitability Group” section on those species that can be grown on the soil type in your area. Recommended cool-season grasses include: altai wildrye (seeded alone, October-mid November) and Russian wildrye (seeded alone, October-December). Note: Altai wildrye is usually 50 to 100 percent more productive than Russian wildrye; however, Russian wildrye has a 2 to 3 percent higher crude protein content than altai wildrye in November and December. Neither grass will

support sufficient nutritional quality for a lactating cow after mid October.

Full-grazing Season Pasture Development

The first step a rancher must decide is whether to plant a native or exotic (tame) grass/legume mixture. It is recommended NOT to mix native and exotic grasses together due to palatability (taste) differences, highly competitive nature of exotic grasses, and the difficulty of properly managing these native/exotic mixtures.

Full-grazing season pastures will normally comprise either: 1) a native cool- and warm-season grass mixture or 2) an exotic cool-season grass/legume mixture using a proper rotational grazing system (June-October). Grazing readiness for cool- and warm-season grass mixtures usually occurs in late May to early June. See the "Forage Suitability Group" section on those species that can be grown on the soil type in your area.

Recommended cool- and warm-season grass options for a full-season seed mixture include a combination of the following: big bluestem, side-oats grama, blue grama, prairie sandreed, and switchgrass for warm-season grasses; and western wheatgrass and green needlegrass as cool-season grasses. The rancher should try to achieve a balanced mixture of warm- and cool-season grasses to maintain the full season of grazing. Legumes that could be added to the mixture include: purple and white prairie clover, cicer milkvetch (light rate), and crown milkvetch.

Recommended cool-season exotic grasses and legume options for a full-season seed

mixture include the following: smooth brome-grass and alfalfa, meadow brome-grass and alfalfa, smooth and meadow brome-grass and alfalfa, and intermediate/pubescent wheatgrass and alfalfa. Sweetclover can be added to all mixtures at 5 percent if desired. Note: bloat (a deadly condition associated with ruminant animals) must be addressed before grazing pasture with over 30 percent alfalfa. Ranchers must learn how and when to graze alfalfa, particular with animals unaccustomed to grazing alfalfa. Once ranchers gain experience in managing grazing animals on alfalfa safely, the risk of bloat is reduced and potential returns from higher livestock performance achieved.

Guidelines for seeding

Seedbed preparation:

The seedbed must be essentially free of competing vegetation, firm enough to permit seed placement at the desired depth, and protected against erosion. A firm seedbed should hardly reveal adult footprints. Seeding may be done into standing stubble from the previous crop provided that weeds and volunteers of the previous crop are properly controlled, and an appropriate seeding drill is used that can properly penetrate the crop residue and place the seed at the proper depth while achieving good seed-soil contact.

Seeding equipment:

A drill designed to seed grass is highly recommended. These drills have agitators and feeder mechanisms to provide a uniform flow of

seed at the desired rate. They are equipped with double disc furrow openers with depth bands or other depth control devices.

Grain drills may be used to seed most of the tame grass species, legumes and some native grasses. Having a properly prepared, firmly packed seedbed is critical to achieving successful stands when using a grain drill.

Seeding dates:

	Southern 1/3 of ND Northern 2/3 of ND	Southern 2/3 of MN Northern 1/3 of MN
■ Cool-season grasses		
Spring	Before May 10	Before May 20
Late summer	Aug. 10 to Sept. 15	Aug. 10 to Sept. 1
Late fall (dormant) ¹	After Nov. 1	After Oct. 20
■ Warm-season grasses		
Spring	May 10 to June 15	May 10 to June 15
■ Legumes		
Spring	Before May 10	Before May 20
Late summer	Aug. 10 to Aug. 25	Aug. 10 to Aug. 25
Late fall (dormant) ¹	After Nov. 1	After Oct. 20

¹Soil temperatures should be below 40 degrees F for three consecutive days to minimize risk of seed germination.

Seeding rates:

Most grass species in North Dakota and western Minnesota are seeded at a rate of 25 to 30 seeds per square foot. The lower rates are generally recommended in western North Dakota or on drier sites. The higher rates are generally recommended in eastern areas on sites with more favorable moisture conditions. Adjustments are made for some species based on seed size,

seedling vigor, and seed conditioning. These rates are for drill planting with a row spacing of 12 inches or less, the recommended row spacing for most grass planting purposes. Seeding rates are shown in pure live seed (PLS) pounds per acre.

Species/Variety	lb/ac PLS
■ Introduced Grasses	
Bromegrass	
Meadow	13.5 - 16.5
Smooth	6.5 - 8.0
Fescue	
Hard	3.0 - 4.0
Foxtail	
Creeping	3.5
Wheatgrass	
Bluebunch/Quackgrass Hybrid	10.0 - 14.0
Crested	6.0 - 7.0
Intermediate	8.5 - 10.0
Pubescent	8.5 - 10.0
Siberian	6.0 - 7.5
Tall	11.0 - 13.5
Wildrye	
Altai	16.0 - 19.0
Dahurian	8.5 - 10.0
Mammoth	20.0 - 24.0
Russian	6.0 - 7.5

Species/Variety	lb/ac PLS
■ Native Cool-Season Grasses	
Canarygrass	
Reed	3.5
Needlegrass	
Green	6.0 - 7.5
Wheatgrass	
Bluebunch	8.0 - 9.5
Slender	5.0 - 5.5
Streambank	7.0 - 8.5
Thickspike	7.0 - 8.5
Western	8.0 - 10.0
Wildrye	
Basin	8.0
Beardless	7.5 - 8.5
Canada	6.5 - 7.5
■ Native Warm-Season Grasses	
Bluestem	
Big	6.0 - 7.5
Little	4.0 - 4.5
Sand	9.5 - 12.0
Buffalograss	
(bur)	23.0 - 26.0
Cordgrass	
Prairie	7.0
Grama	
Blue	2.0 - 2.5
Sideoats	6.0 - 7.5
Indiangrass	5.5 - 7.0
Sandreed	
Prairie	4.0 - 5.0
Switchgrass	3.5 - 4.5

Tip: Legumes seeded during the late fall (dormant) seeding period may be subject to injury if early germination occurs followed by a late spring freeze, reducing stand establishment.

Tip: If cool and warm-season grasses are mixed, use the recommended seeding dates that correspond to the dominant grass type.