

Establishing a stand of grass requires proper planning and attention to detail. Perennial grasses differ in establishment requirements compared to annual grain crops. Five keys to successful grass seeding and establishment are presented in the following narrative. Adhering to these guidelines will greatly improve your chances of a successful grass stand.

### Key #1—Seeding Date

Grasses should be seeded when soil moisture and temperature are optimum for germination. Grasses are designated either “cool” or “warm” season based on their growth cycle. Cool-season grasses can be planted when temperatures are cooler and day lengths shorter. Warm-season grasses need warmer temperatures and longer day lengths to grow. Following are recommended planting dates for cool-season and warm-season grasses in Michigan.

Table 1 Michigan Recommended Planting Dates for Pasture and Hay		
Area	Cool Season Grasses	Warm Season Grasses
Upper Peninsula	May 1—June 15 June 25—August 1	May 15—June 30
Northern Lower Peninsula (North of U.S. 10)	April 20—June 10 July 15—August 10	May 10—June 15
Southern Lower Peninsula (South of U.S. 10)	April 10—June 5 July 15—August 15	May 5—June 15
See Technical Standards for how irrigation, mulch, dormant seeding, frost seeding, other intended use, species, and variety may affect planting date.		



### Key #2—Seedbed

A proper seedbed is firm and free of competing vegetation. Correct firmness is when an adult footprint is only slightly visible on the prepared bed prior to the seeding operation. The seedbed can be firmed, if needed, by pulling a commercial or homemade packer or roller. A firm seedbed is essential for proper seeding depth. A loose, fluffy bed will place seeds too deep for proper germination. Seed requiring light for germination will be hindered by deep planting. Seed that germinates but does not have enough nutrient reserve for the shoot to reach the surface is also hindered by deep planting. Most species should be planted at a shallow depth of ¼ to ½ inch. Larger seeds can be planted up to 1 inch deep. Most seedings are too deep if you cannot see a few seeds on the soil surface.

Grasses can be successfully seeded into a tilled or no-tilled seedbed, provided weeds are controlled and residue is managed prior to planting. Weeds compete with seedlings for moisture and light. Optimum control comes with several years of weed management prior to seeding. At seeding time, there should be no actively growing weeds. Weeds can be controlled with tillage and/or herbicides applied before or just after seeding. Like weeds, companion crops can compete with the seeded species for water and light. Unless erosion is a problem, companion crops are generally not recommended in grass seedings.

Residue affects seeding depth and seed soil contact. Tillage, fire, and mowing can be used to manage residue prior to seeding. Tolerable residue amounts are dependent on seeding equipment to be used. Residue should be harrowed to spread extra chaff and straw. Late summer and dormant seedings are best planted into standing stubble.

### Key #3—Seed Placement

The seeding equipment should provide proper seed depth, uniform seeding rate, and good seed to soil contact. Grass seed can be broadly cate-

Table 2 Michigan Grass Seeding Rates						
Applicable Technical Standards						
	Con-servati-on Cover 327	Filter Strip 393	Pasture and Hay-land 512	Criti-cal Area Plant-ing 342	De-velop-ment al Spe-cies	Recom-mende-d Plant-ing Depth (inches)
Recommended Seeding Rates (lb PLS/acre)						
<b>Cool Season Grasses</b>						
Bottlebrush					1-20	0.25-0.5
Creeping red fescue				20-40*		0.25-0.5
Garrison creeping foxtail		6-10*				0.25-0.5
Intermediate wheatgrass	8	8-12*				0.25-0.5
Kentucky bluegrass	2-10		15	5-20*		0.25-0.5
Orchardgrass	3-8	2-15*	8	1-10*		0.25-0.5
Perennial ryegrass			30	5-6*		0.25-0.5
Redtop	2-6	1*	6	1-3*		0.5
Reed canarygrass		10*	8	10*		0.25-0.5
Smooth brome-grass	2-8	6-30*	16	15-30*		0.5-1
Tall fescue		15-25*	10	10-30*		0.25-0.5
Tall wheatgrass		8-12*				0.25-0.5
Timothy	2.5-5	2.5-10*	4	2-4*		0.25-0.5
Wildrye spp.					1-20	0.25-0.5
* = Bulk seeding rate						
<b>Warm Season Grasses</b>						
Big bluestem	2-3	2-20*	10	2-5		0.25-0.5
Eastern gamagrass		8	10			0.5-1
Indiangrass	2-3	2-15	10			0.25-0.5
Little bluestem	2	2*	8	2-5		0.25-0.5
Prairie sandreed				5	5	0.25-0.5
Switchgrass	2-5	5-10	5-8	2		0.25-0.5
Note: Seeding rate ranges under each standard are based on the proportion of each species in a given seed mixture. Refer to listed technical standards for recommended seeding mixes.						

gorized into three types: fluffy or chaffy, smooth small seed, and smooth large seed. Grass drills are equipped with separate boxes to properly place and meter each of the three seed types. Picker wheels and agitators in the fluffy/chaffy box and oversized feeder tubes keep rough coated seed flowing evenly. Depth bands on grass drills are essential for planting depth control. Press/packer wheels contribute to close seed/soil contact. Free flowing grass seed (e.g. bromegrass) can be successfully planted with a small grain drill if proper, shallow, and consistent seeding depth is maintained.

Drills should be calibrated to determine seeding rate. Seeding rate can be determined by counting dropped seeds after traveling a given distance on a hard surface, collecting seed from openers after traveling a given distance, or turning the drive wheel on the drill and collecting seed from openers. Contact the local NRCS office for additional information. See Table 2 for seeding rate ranges and planting depth of recommended grass species.

#### Key #4—Seed Quality

All seed must meet the requirement of the States' seed laws. The seed should be tested for purity and germination. Purity specifies any weeds and inert matter in the seed lot. Germination is an indication of the percentage of seed that will sprout and grow. Seed is usually purchased and planted on a Pure Live Seed (PLS) basis. This is calculated by multiplying purity by germination (including dormant). A high PLS usually indicates high quality seed. Seed of adapted species and recommended cultivars within the species should be planted. Your local NRCS office can provide information on adapted species, cultivars or varieties, and seeding rates. See Table 2 for seeding rate ranges and planting depth of recommended grass species.



Seed with awns or other appendages is called "fluffy" or bearded. Debearded seed has part or all of the appendages removed and is more flowable. Flowability depends on degree of debearding.

#### Key #5—Fertility Management & Weed Control

Plant nutritional needs should be addressed and weeds should be controlled for a successful grass seeding. Nutritional needs should be met by applying lime and fertilizer according to a soil test recommendation.

Weeds compete for moisture and light with young seedlings. Competitive weeds can be controlled by clipping or chemically. Dense residue clippings should be removed from the seeded area. Weeds should be controlled with herbicides before they reach 4 inches tall. Carefully read and follow all instructions on pesticide labels.

**The two main reasons grass seedings fail are planting too deep and lack of weed control.**

**For more information, contact:**  
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## Five Keys to Successful Grass Seeding in Michigan

- ☞ Seeding Date
- ☞ Seedbed
- ☞ Seed Placement
- ☞ Seed Quality
- ☞ Fertility Management & Weed Control

