

RANGE PLANTING SPECIFICATIONS

NATURAL RESOURCES CONSERVATION SERVICE

SEED SELECTION

A pure stand or mixture of species will be used depending on the producer's objectives and the needs of the land. Mixtures of adapted native species are preferred. Mixtures can provide a more balanced year-round forage supply and meet the needs of the land for cover and erosion control. See [Appendix 1 Planting Rates For Louisiana By MLRA's](#) for seeding/planting rates, dates and adaptation. Seeding rates for individual species in mixtures should be calculated by multiplying the full seeding rate for each species by the percentage of the total mixture represented by that species.

Normally no more than four species are practical in a seeding mixture. Mixtures of native and introduced species may be used if species are compatible in grazing preference and/or management needs.

SEED SOURCE

All seed and planting materials will be labeled and meet state seed quality law standards. Seeding rates will be determined based on pure live seed (PLS) or percent germination information found on the seed tag (Table 1). Percent PLS can be computed using decimal values with the following equation.

$$\% \text{ PLS} = [(\text{Percent germination} + \text{Percent hard seed}) \times \text{Percent purity}] / 100.$$

Use certified seed of locally adapted and proven cultivars of commercially available seed. Locally harvested or commercially available local ecotypes seed that come from sources within a 200 mile radius of the seeded area can be used with approval from area or state specialists. Local eco-types should be used when trying to restore or enhance historic grasslands.

Legume seed shall be inoculated with the recommended strain of Rhizobia bacteria for the species being planted. Do not use chlorinated water with legume seed inoculant as a sticking agent. Chlorine can kill the Rhizobia bacteria. Soft drinks (colas) containing sugar make excellent sticking agents for inoculating legume seed.

SEEDBED PREPARATION

Limit soil disturbing activities to the minimum needed to prepare a suitable seedbed. Consider using no-till drills when establishing native grasses and/or legumes on sites with an erosion hazard.

Weed pressure or competition from introduced sod forming grasses (i.e. bermudagrass or bahiagrass) can cause stand failure. In these areas, it will be necessary to chemically control vegetation with herbicide. Herbicides need to be labeled specifically for this purpose (non-cropland) and applied according to label directions and LSU AgCenter recommendations and according to Pest Management (595) specifications.

To prepare a seedbed, use equipment and methods that will result in a clean, firm seedbed without excessive weed competition. For soils with good physical condition, use a one-way disk, tandem disk, or other equipment to break or mix at least the top 3 inches of soil. Lightly disk, harrow, sweep, or use chemicals about one month prior to planting to eliminate any living vegetation should it exist. If the seedbed is not firm at planting time, firm it with a cultipacker, roller, or similar implement.

On fields which have a history of compaction, use a chisel plow or similar implement capable of operating at least 1 to 2 inches below the compacted zone to shatter the compacted layer. More complete destruction of the compacted layer is achieved when deep tillage is performed in the fall

when soils are usually their driest. Prior to planting the desired vegetation, lightly disk, harrow, sweep, or use chemicals to eliminate any living vegetation should it exist.

Prepared seedbeds should be firmed with a roller or cultipacker after tillage operations are complete, but prior to seeding. Loose uneven seedbeds are a major cause of poor stands. Shoes or boots should not sink more than ½ inch into a properly prepared seedbed. Seeds sown on the surface without coverage or greater than ½ inch deep have little chance of germinating and developing into seedlings. If seed are surface broadcast, cover the seed immediately with a roller or cultipacker, spike-tooth harrow, or similar implement no deeper than ¼ inch.

Surface drainage will be installed as needed. Old terraces or other conditions which pond water or causes concentrated flow will be drained, repaired, or leveled and smoothed before seedbed preparation. Gullied, rilled, or rough sites will be smoothed and shaped to permit the use of tracked or wheeled equipment for establishment and maintenance of vegetation.

All loose roots or other obstructions that will interfere with establishment and maintenance of vegetation must be removed from the surface. Any brush should be removed and the area smoothed to the extent necessary to perform required seedbed preparation, planting, and subsequent management practices (see 314-Brush Management).

ESTABLISHMENT METHOD

A grass seed drill equipped with double disk openers and depth bands followed by a cultipacker, press wheels, or drag chains is the preferred seeding method. Seed should be planted 1/8 to 1/2 inch deep if adequate moisture is present, or 1/2 to 3/4 inch deep if soil surface is dry. Distance between rows should not exceed 12 inches in most cases. Eastern gamagrass should be planted in 30 to 38 inch rows at a depth of one inch.

Drills used for seeding native plants should be equipped with an agitator in the seed hopper and extra large seed delivery tubes for handling native grasses. Native seeds which have been debarbed or are smooth in nature can be used in conventional drills. If legumes and/or forbs are included in the seeding mixture, the drill should be equipped with a small seed attachment.

Use of a broadcast seeder, broadcasting seed by hand, and aerial seeding are acceptable methods of seeding where conditions permit seed to be placed in contact with mineral soil on a firm seedbed and where uniform seed distribution can be achieved. Loose uneven seedbeds are a major cause of poor stands. Shoes or boots should not sink more than ½ inch into a properly prepared seedbed. Regardless of method, it will be necessary to use a cultipacker, press wheels or similar techniques following broadcast seeding to aid coverage of seed. Seeds sown on the surface without coverage or greater than ½ inch deep have little chance of germinating and developing into seedlings.

FERTILITY

Plant nutrients and soil amendments necessary for establishment of the cover shall be applied according to specifications in the conservation practice standard, Nutrient Management (590).

MAINTENANCE

Prescribed burning of native grasses forbs and legumes can improve vigor and stand density, control weeds and diseases, and set back plant succession. Spring burning with fire can be used to control winter weeds and promotes rapid regrowth of native warm season grasses. Burning should be performed before the grass begins to recover from winter dormancy (typically before March 1). Prescribed burning shall be avoided during the primary nesting season for ground nesting birds in Louisiana. Prescribed burning shall be performed in accordance with the standard, Prescribed Burning (338) and an approved burn plan shall be prepared.

If prescribed burning is not an option, haying the native grass stand once every three years will remove thatch buildup, encourage dense growth, maintain an upright growth habit and remove

nutrients that are contained in the vegetation. Haying shall be carried out in accordance with Forage Harvest Management (511). Hay bales should be removed from the native grass stand in a timely manner.

Mowing is an optional weed control measure during the establishment year and in subsequent years for residue management. Mowing in mid-summer to a height just above the grass seedlings will help reduce weed competition and encourage seedling growth. Mowing should coincide with grassland bird nesting period. Exceptions may be granted when activities are necessary to facilitate the establishment of desirable cover.

WEED CONTROL

Herbicides. Chemicals used must be federally and locally registered and must be applied in accordance with registered uses, label directions and all applicable laws, regulations, and policies and according to Pest Management (595) specifications. Pre-emerge herbicides may be used as appropriate prior to germination of desired species. When post-emerge herbicides are used, native grass seedlings should be in the 3 to 5 leaf stage. Weed control is needed when there are 3 or more weeds per square foot or when they form a canopy of 50% or more.

Mechanical. Weeds should be mowed when they reach a height of 6 to 8 inches. Mowing height should be above the height of the seeded plants. Mowing should not be done when daily maximum air temperature exceeds 95 degrees to avoid dehydration of seedlings.

Grazing. Flash grazing by livestock can be an effective method of weed control for annual grasses and forbs. It requires high concentrations of livestock to be used for a short time (usually 1 to 3 days) to graze weeds when they are palatable and readily eaten. This technique will not be used later than July 15 except when unusual growing conditions promote excessive summer weed production.

Flash grazing will not be used when soils are wet and boggy or when hoof-action will damage seedlings. Grazing will cease immediately at the first signs of damage to seeded plants.

MANAGEMENT

Seedlings should not be grazed the first year following seeding during the establishment period. Light grazing may be possible during the first dormant season following seeding if plants are sufficiently established so that they will not be damaged or destroyed. In some cases it may be necessary to defer grazing for part or all of the second growing season to ensure establishment.

Flash grazing for weed control is a possible exception to these grazing restrictions. Seeded areas should be protected from burning until well established. Protect seeded areas from insect damage.

Following establishment, management should be implemented to ensure full development and maintenance of a satisfactory stand of the seeded species. Grazing should be in accordance with forage budgets, grazing management plans and prescribed grazing standards.

CRITERIA FOR DETERMINING STAND ESTABLISHMENT

Evaluate plantings at the end of the first growing season. If stand is questionable, it will be necessary to re-evaluate during the first half of the second growing season. Make final determinations by June 1 of the second year.

Method of Making Determinations. Refer to Grazing Lands Technical Note Number 2: *Criteria For Determining Stand Establishment: Range Planting*

Table 1. Multiplication factors used to determine bulk-seeding rate using percent germination and purity.

% Purity	% Germination																		
	100	95	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10
100	1.0	1.1	1.2	1.2	1.3	1.4	1.5	1.6	1.7	1.9	2.0	2.3	2.5	2.9	3.4	4.0	5.0	6.7	10.0
95	1.1	1.2	1.2	1.3	1.4	1.5	1.6	1.7	1.8	2.0	2.2	2.4	2.7	3.1	3.6	4.3	5.3	7.1	10.6
90	1.2	1.2	1.3	1.4	1.4	1.5	1.6	1.8	1.9	2.1	2.3	2.5	2.8	3.2	3.8	4.5	5.6	7.5	11.2
85	1.2	1.3	1.4	1.4	1.5	1.6	1.7	1.9	2.0	2.2	2.4	2.7	3.0	3.4	4.0	4.8	5.9	7.9	11.8
80	1.3	1.4	1.4	1.5	1.6	1.7	1.8	2.0	2.1	2.3	2.5	2.8	3.2	3.6	4.2	5.0	6.3	8.4	12.5
75	1.4	1.5	1.5	1.6	1.7	1.8	2.0	2.1	2.3	2.5	2.7	3.0	3.4	3.9	4.5	5.4	6.7	8.9	13.4
70	1.5	1.6	1.6	1.7	1.8	2.0	2.1	2.2	2.4	2.6	2.9	3.2	3.6	4.1	4.8	5.8	7.2	9.6	14.3
65	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.4	2.6	2.8	3.1	3.5	3.9	4.4	5.2	6.2	7.7	10.3	15.4
60	1.7	1.8	1.9	2.0	2.1	2.2	2.4	2.6	2.8	3.1	3.4	3.8	4.2	4.8	5.6	6.7	8.4	11.2	16.7
55	1.9	2.0	2.1	2.2	2.3	2.5	2.6	2.8	3.1	3.4	3.7	4.1	4.6	5.2	6.1	7.3	9.1	12.2	18.2
50	2.0	2.2	2.3	2.4	2.5	2.7	2.9	3.1	3.4	3.7	4.0	4.5	5.0	5.8	6.7	8.0	10.0	13.4	20.0
45	2.3	2.4	2.5	2.7	2.8	3.0	3.2	3.5	3.8	4.1	4.5	5.0	5.6	6.4	7.5	8.9	11.2	14.9	22.3
40	2.5	2.7	2.8	3.0	3.2	3.4	3.6	3.9	4.2	4.6	5.0	5.6	6.3	7.2	8.4	10.0	12.5	16.7	25.0
35	2.9	3.1	3.2	3.4	3.6	3.9	4.1	4.4	4.8	5.7	5.8	6.4	7.2	8.2	9.6	11.5	14.3	19.1	28.6
30	3.4	3.6	3.8	4.0	4.2	4.5	4.8	5.2	5.6	6.1	6.7	7.5	8.4	9.6	11.2	13.4	16.7	22.3	33.4
25	4.0	4.3	4.5	4.8	5.0	5.4	5.8	6.2	6.7	7.3	8.0	8.9	10.0	11.5	13.4	16.0	20.0	26.7	40.0
20	5.0	5.3	5.6	5.9	6.3	6.7	7.2	7.7	8.4	9.1	10.0	11.2	12.5	14.3	16.7	20.0	25.0	33.4	50.0
15	6.7	7.1	7.5	7.9	8.4	8.9	9.6	10.3	11.2	12.2	13.4	14.9	16.7	19.1	22.3	26.7	33.4	44.5	66.7
10	10.0	10.6	11.2	11.8	12.5	13.4	14.3	15.4	16.7	18.2	20.0	22.3	25.0	28.6	33.4	40.0	50.0	66.7	100.0

To use this chart, simply cross reference the % germination down to the corresponding % purity. Example: The recommended rate of bermudagrass is 20 pounds of Pure Live Seed (PLS) per acre. The source of bermudagrass has 70% germination and 80% purity. Multiply the desired PLS (20) by the number from table (1.8). 36 pounds of bermudagrass would be needed to plant 20 pls pounds.