BMP No. 2
Vegetative Establishment of Silviculturally Disturbed Areas

Establishment of grass and herb cover on disturbed areas, including roads, trails, and landings, is used to stabilize the soil and reduce damage to downstream areas from sediments and runoff.

Minimum Requirement:

> Revegetate erodible or severely eroded areas, such as logging roads, skid trails, and log landings, as soon as possible. Revegetation should be sufficient to adequately control or significantly abate erosion from the site.

This BMP uses both temporary cover species and a mixture of permanent species to revegetate disturbed areas.

- **Temporary cover species** are those that come up quickly and vigorously and act to provide a rooting mass until the permanent mixtures take hold.
- **Permanent mixes** are a combination of compatible grass and legume species that will become established and grow for a number of years on a site until natural seeding can occur.

Prepare for Seeding

Smooth and shape the site to permit the use of equipment for seedbed preparation. **Seedbed preparation** is generally needed and can be accomplished by practices such as disking. In cases where this is not practical and the soil surface is glazed or crusted, the surface should be roughened before lime, fertilizer, and seed are applied.

Using the Seeding Tables

Use the following tables to help determine what temporary species (Table 2-1) and permanent mixes (Tables 2-2 to 2-5) to use. **In all cases, a temporary species is to be used with a permanent mix**. Each species or mix has a specific seeding date.

- **Species:** The species or mixes in **bold** are generally the most effective.
- **Seeding dates:** For permanent mixtures, seeding dates are for the entire mixture. For example, the seeding dates in Table 2-2 recommend that mixture "a" be seeded between February 1 and May 1, or between August 1 and October 15.
- **When seeding must be accomplished outside of the recommended seeding windows, it is recommended that seeding rates be increased by 50 percent and mulch be used.**
- **Seeding rates:** lbs/ac/pls. refers to *pounds of pure live seed per treated acre* (see Determining Pure Live Seed section). Some species come with germination or purity information. Make the appropriate adjustment in seeding rates (see infor-

Table 2-1—Temporary Cover Crop Species

Species	Seeding Rates (lbs/ac/pls[1])	Recommended Seeding Dates
winter wheat[2]	35	Oct. 15 - March 1
grain rye	35	Oct. 15 - March 1
spring oats	35	Oct. 15 - March 1
foxtail millet	12	May 1 - July 15
Japanese millet	15	May 1 - July 1
pearl millet	10	May 1 - July 1
annual ryegrass	5	Aug. 1 - Oct. 15
browntop millet	15	May 1 - July 1
cereal rye (Aroostook)	25	Sept. 15 - Oct. 15

1 pls: pure live seed (see Appendix 1 in this BMP).

2 Species in **boldface type** are primary recommendations.

mation in Mulching, Fertilizer, and Seeding Section of this BMP).

- **Special considerations:** Some mixes have special light requirements or restricted seeding dates. Consider these special needs when selecting a mix.

Table 2-2—Mixtures for Slopes Less than 10 Percent

	Species Mixture	Seeding Rates (lbs/ac/pls[1])	Seeding Dates for Mixture[2]	Special Considerations
a.	**orchard grass**[3]	8	Feb. 1 - May 1 Aug. 1 - Oct. 15	
	red clover	6		
b.	**orchard grass**	8	Feb. 1 - May 1 Aug. 1 - Oct. 15	
	ladino clover	2		
c.	timothy	4	Feb. 1 - May 1 Aug. 1 - Oct. 15	
	ladino clover	2		
d.	**orchard grass**	10	Feb. 1 - May 1	No fall planting due to lespedesa
	Kobe or Korean lespedesa	10		
e.	switch grass	1	May 1 - June 30	For open canopy conditions only. A good seed bed is required. No fall planting due to lespedesa.
	big bluestem	2		
	indiangrass	2		
	red clover	4		
	Korean lespedesa	5		
f.	little bluestem	3	May 1 - June 30	No fall planting due to lespedesa
	side-oats gramma	3		
	Korean lespedesa	5		

1 pls: pure live seed (see Appendix 1).

2 The seeding dates were developed for the mixture and not the individual species. For example, it is recommended that mixture "a" be seeded between February 1 and May 1 or between August 1 and October 15.

3 Mixtures in **boldface type** are primary recommendations.

Table 2-3—Mixtures for Highly Erodible Areas (Areas Exceeding 10 Percent Slope)

	Species Mixture	Seeding Rates (lbs/ac/pls)[1]	Seeding Dates[2] for Mixture	Special Considerations
a.	**Kentucky 31 fescue**	30	Feb. 1 - May 15 Aug. 1 - Oct. 15	High seedling and plant vigor on droughty, exposed sites. The endophyte-free fescue is more valuable for wildlife and is acceptable on lesser slopes.
	flatpea[3]	30		
b.	**Kentucky 31 fescue**	30	Feb. 1 - May 15 Aug. 1 - Oct. 15	High seedling and plant vigor on droughty, exposed sites. The endophyte-free fescue is more valuable for wildlife and is acceptable on lesser slopes.
	birdsfoot trefoil	10		
c.	**creeping red fescue**	20	Feb. 1 - May 15 Aug. 1 - Oct. 15	**For use in shaded areas.**
	white clover	2		
d.	switch grass	8	May 1 - June 30	For open canopy conditions only. Switch grass is a native.
	partridge pea	5		

1 pls: pure live seed (see Appendix 1).

2 The seeding dates were developed for the mixture and not the individual species. For example, it is recommended that mixture “a” be seeded between February 1 and May 1, or between August 1 and October 15.

3 Mixtures in **boldface type** are primary recommendations.

Table 2-4—Mixtures for Wet or Poorly Drained Areas

	Species Mixture	Seeding Rates (lbs/ac/pls)[1]	Seeding Dates[2]	Special Considerations
a.	**redtop**	7	Feb. 15 - June 30 Aug. 1 - Oct. 1	
	alsike clover or **birdsfoot trefoil**[3]	6		
b.	switch grass	8	May 1 - June 30 Aug. 1 - Oct. 1	For open canopy conditions only.
	alsike clover or birdsfoot trefoil	6		

1 pls: pure live seed (see Appendix 1).

2 The seeding dates were developed for the mixture and not the individual species. For example, it is recommended that mixture “a” be seeded between February 15 and June 30, or between August 1 and October 1.

3 Mixtures in **bold face type** are primary recommendations.

Table 2-5—Mixtures for Establishing Native Species

	Species Mixture	Seeding Rates (lbs/ac/pls)[1]	Seeding Dates[2]	Special Considerations
a.	switch grass	2.0	May 1 - June 30	For open canopy conditions only.
	indiangrass	2.0		
	big bluestem	1.5		
	little bluestem	1.5		
	partridge pea	5.0		

1 pls: pure live seed (see Appendix 1).

2 The seeding dates were developed for the mixture and not the individual species. For example, it is recommended that mixture "a" be seeded between February 1 and May 1, or between August 1 and October 15.

Mulching, Fertilizing, Liming, and Seeding

- **General fertilization** at a rate of 70 to 80 pounds of nitrogen (N), 120 pounds of phosphorus (P_2O_5), and 120 pounds of potassium (K_2O) per acre is normally adequate.
- **For native grasses**, no more than 40 to 50 pounds of nitrogen should be applied at planting to avoid excessive competition. Two to three tons of agricultural ground limestone per acre are generally adequate where liming is indicated.
- **Work the fertilizer and lime into the soil** with a harrow, disk, or rake operated across the slope.
- **Mulch** will aid in most situations. Table 2-6 provides information on amounts and coverage of mulch. It is particularly important in the following situations:
  - Areas which are steep, eroding, or are difficult to revegetate.
  - Seeding outside the seeding dates.

Table 2-6—Mulching Materials, Rates, and Uses

Mulch Material and Quality	Rate Per 1000 Sq. Ft.	Acre	Remarks
a. small grain straw, tall fescue straw, or hay	75-100 lbs (1½-2 bales)	1½ tons (60-80 bales)	Spread uniformly. Leave 10-20% of the area exposed. Subject to wind blowing unless left moist or tied down.
b. wood fiber cellulose air-dried, non-toxic, and no growth-inhibiting substances	37-41 lbs	1600-1800 lbs	Apply with a hydro-mulcher. No tie-down is required. Packaged in 100 lb. bags.
c. tree bark air-dried, non-toxic, and no growth-inhibiting substances		6-12 tons	Resistant to wind blowing. Decomposes slowly.

See Appendix 1 in this BMP for determination of land area where mulching is needed.

Determining Ground Area and Pure Live Seed

Table 2-7—Road and Trail Surface Area Determination for Fertilizer, Seed, Lime, and Mulch

Road Length (feet)	Road Width (feet)				
	8	10	12	14	18
	acres				
50	.01	.01	.01	.02	.02
100	.02	.02	.03	.03	.04
250	.05	.06	.07	.08	.10
500	.09	.12	.14	.16	.21
750	.14	.17	.21	.24	.31
1000	.18	.24	.28	.32	.41
1500	.28	.34	.41	.48	.62
2000	.36	.48	.56	.64	.83
5000	.92	1.15	1.38	1.16	2.07
5280	.97	1.21	1.45	1.70	2.18

Determining Acreage for Irregularly Shaped Areas

To determine acreage and pounds of seed for other areas, such as log landings or denuded areas, use the following procedure:

1. Measure the width across the area in several locations and determine the average width.
2. Measure the length of the area in several locations and determine the average length.
3. Multiply the average width by the average length to get the square feet of disturbed area.
4. Divide the square feet of disturbed area by 43, 560 feet per acre to get the acreage.
5. Multiply the acreage of the area by the recommended amount of seed per acre to determine the amount of seed required.

Determining Pure Live Seed

Pure Live Seed is determined by multiplying percent germination by percent purity. Divide result into recommended pounds of seed per acre which gives the bulk seed needed. Example: fescue may have 98 percent purity and 80 percent germination. If you need to seed 40 pounds per acre of pure live seed, the procedure would be:

0.98 purity x 0.80 germination = 0.784

$$\frac{40 \text{ lb/ac}}{0.784} = \textbf{51 lb of seed needed}$$

Regulatory Requirements for BMP No. 2

(See Appendix A for Explanations)

- All silvicultural operations: **(410 KAR 5:026, 5:029, 5:030, and 5:031)**
- Activities near high-quality waters and outstanding national resource waters: **(401 KAR 5:029, 5:030, and 5:031)**
- Activities near wild rivers: **(KRS 146.200 et seq. and 401 KAR 4:100-140)**