

**SEEDING GUIDELINES  
LOLO NATIONAL FOREST**

A. Soil Preparation

1. Compacted soil will be scarified by ripping prior to reseeding (e.g. landings, road surfaces, skid trails, staging areas etc.)
2. Soil on areas to be seeded shall be left in a roughened condition favorable to the retention and germination of seed. A minimum of ½ inch of surface soil shall be in a loose condition, unless otherwise specified.
3. Areas to be seeded, which are damaged by erosion or other causes, shall be restored prior to seeding. Except for slopes intentionally left in a roughened condition, all areas to be seeded shall be finished and then cultivated to provide a reasonably firm but pliable seedbed (applies to gently sloping ground). In all areas, care will be taken to assure a good seedbed.
4. When scarification is required to break up compacted surfaces, soils shall be ripped to a depth of not less than 6 inches (but best in the 10 to 12 inch range), with rippers not more than 16 inches apart or specified in contracts. Care should be taken to rip or subsoil rather than plow the areas.

B. Seeding Seasons

No application work shall be done during extremely dry, windy or rainy weather. No seed shall be applied to frozen ground. Seeding should occur within 7 days of final grading, ripping or other disturbing activities.

C. Application Methods for Seed and Fertilizer

1. The kinds of seed and amounts to be applied in terms of Pure Live Seed (PLS) are shown in the seed mixtures. Seed mixture rates are for broadcast seeding.

Pounds of seed to be furnished per acre shall be obtained by dividing the pounds of PLS required per acre by the product of the percent purity and percent germination.

Example:

$$\left( \frac{\text{Pounds of Pure Live Seed Per Acre}}{\text{Percent Purity} \times \text{Percent Germination}} \right) = \text{Pounds of Commercial Seed Per Acre}$$

2. Fertilizer shall be furnished and applied to all areas that require vegetation establishment. Areas that require vigorous growth will need initial fertilization and re-fertilization after 3 years is recommended.

For example, an application of 200 pounds per acre of 10-16-10 or 17-17-17 or 16-16-16 would provide the needed fertilization. The best way to apply fertilizer is 100 pounds per acre at the time of seeding and 100 pound per acre the following spring after germination and before the end of the rainy season, normally prior to June 15. A one-time application of 200 pounds can be done but will not give the maximum benefit to the young plants.

When fertilizer and seed are applied from the same bin, they should not be mixed for more than a few hours (4 hours is the maximum). Periods longer than 4 hours will destroy germination of the seeds. It is preferred not to mix the two, but to apply the two items from separate bins or in separate operations.

D. Application of Mulch

Mulch maybe applied as vegetative or wood cellulose mulch on all areas seeded.

1. Vegetative Mulch -

- a. Vegetative mulch shall be applied after seeding and fertilizing is completed. The mulch shall be applied uniformly at the rate of 2,000 pounds per acre. Mulch material shall be clean straw or grass hay. **Hay and straw will be certified weed free.**
- b. Asphalt maybe used as a binder for vegetative mulch and shall be applied at the rate of 200 gallons per acre. It shall be evenly distributed over the mulch material as it emerges from the blower discharge. Asphalt adhesive materials shall not mark or deface structures, appurtenances, pavements, utilities, or plant growth.

2. Wood Cellulose Fiber Mulch -

Wood cellulose fiber mulch and fertilizer or paper mulch, and fertilizer may be applied in one operation by means of hydraulic equipment that uses water as the carrying agent. A continuous agitator action that keeps the materials in uniform suspension must be maintained throughout the distribution cycle. The discharge line shall provide an even distribution of the solution to the seedbed. Application shall start at the top of the slopes and work downward. If necessary, the use of extension hoses may be required to reach the extremities of the slopes. The rate of application shall be 2,000 pounds of wood cellulose mulch per acre.

E. Care During Revegetation

The contractor shall be responsible for protecting and caring for seedbed areas until final acceptance of the work. Any damage (surface erosion or gullies to seeded areas caused by construction operations shall be repaired, which may include reseeding and re-fertilizing.

F. Monitoring

Seeded areas should be checked after allowing sufficient germination period. Sites with poor germination or low application rates should be reseeded or over seeded to provide the desired soil protection. *Note any noxious weed species, new invaders and the weed extent within the seeded areas.*

**Seed Mixture 1: DRY WARM SITES (AREAS SUBJECT TO SEVERE NOXIOUS WEED INVASION)**

Site Conditions: 12 to 25 inches PPT; relatively long growing season; south and west slopes; moderately coarse to medium soil textures and somewhat droughty to very droughty. These sites have a high potential for weed invasion. The following seed mix was developed to give a maximum of competition and shade to noxious weeds. It reflects the latest information we have on desirable plant competitive ability with weeds. It will change as we learn more. It is recommended for roadsides or other sites where we anticipate a threat of noxious weed invasion. Other Considerations: These areas are generally used as winter range by wildlife and are typically low elevation sites.

Range of Habitat Types:

All Pipo H.T.

Psme, Agsp, Feid, Caru-Agsp, Caru-Arur, and low elevation Phma-caru.

SEED MIXTURE 1		Pound/PLS 1/Per Acre
Annual Ryegrass	Lolium multiflorum	5.0
Mountain Brome	Bromus marginatis	3.0
Crested Wheatgrass	Agropyron cristatum	4.0
Sheep Fescue	Festuca ovina	3.0
Pubsecent Wheatgrass	Agropyron intermedium (trichophorum)	5.0
		TOTAL 20.0*

\* Where harsh site conditions or weed concerns exist, seed 25-30 lbs/acre.

This is a species that can be added if chemical weed treatment is not used on the area.

Yellow Sweet Clover<sup>2/</sup> Melilotus officinalis 2.0

1/ - PLS = Pure Live Seed

2/ - Legume seed shall be inoculated with approved cultures in accordance with instructions of the manufacturer. The inoculum used for hydraulic seeding shall be four times that recommended for dry seeding. Inoculum shall be stored and handled in accordance with instructions of the manufacturer.

**Seed Mixture 2: RELATIVELY DRY-MOIST AND MODERATELY COOL SITES**

Site Conditions: 20 to 40 inches PPT; mid elevation slopes that have a wide range of moisture and temperature conditions which vary generally by aspect; moderately coarse to medium soil textures. These sites are subject to dry periods during the summer and cuts can be very droughty. These sites have a moderate potential for weed invasion.

Range of Habitat Types:

Psme/Phma-phma, Caru-caru, Libo, Vagl, Vac, Syal

Abgr, Xete

Inclusions of wet sites may occur but should be small.

SEED MIXTURE 2		Pound/PLS 1/Per Acre
Annual Ryegrass	Lolium multiflorum	5.0
Crested Wheatgrass	Agropyron cristatum	3.0
Pubsecent Wheatgrass	Agropyron intermedium (trichophorum)	5.0
Mountain Brome	Bromus marginatis	3.0
Tall Fescue	Festuca arundinaceae	2.0
Hard Fescue	Festuca ovina var. duriuscula	2.0
		TOTAL 20.0*

\* Where harsh site conditions or weed concerns exist, seed 25-30 lbs/acre.

This is a species that can be added if chemical weed treatment is not used on the area.

Yellow Sweet Clover<sup>2/</sup> Melilotus officinalis 2.0

1/ - PLS = Pure Live Seed

2/ - Legume seed shall be inoculated with approved cultures in accordance with instructions of the manufacturer. The inoculum used for hydraulic seeding shall be four times that recommended for dry seeding. Inoculum shall be stored and handled in accordance with instructions of the manufacturer.

**Seed Mixture 3: MOIST AND COOL-COLD SITES**

Site Conditions: 35 to 60+ inches PPT; mid to high elevation slopes that are generally non-droughty. These sites may have some wet inclusions and have a relatively short growing season. Soils are generally acidic and range from moderately coarse to medium textured.

Range of Habitat Types:

Abgr/Clun, Libo  
 Thpl/Clun  
 Abla/Libo, Clun, Xete, Vaca, Vagl  
 with inclusions of:  
 Abla, Mefe, Gatr, Caca  
 Tsme/Xete

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Range of Habitat Types:

Abgr/Clun, Libo  
 Thpl/Clun  
 Abla/Libo, Clun, Xete, Vaca, Vagl  
 with inclusions of:  
 Abla, Mefe, Gatr, Caca  
 Tsme/Xete

SEED MIXTURE 3		Pound/PLS 1/Per Acre
Annual Ryegrass	Lolium multiflorum	5.0
Redtop	Agrostis alba	1.0
Sanberg Bluegrass+	Poa secunda	3.0
Canada Bluegrass +	Poa compressa - Reubens	3.0
Hard Fescue	Festuca ovina var. duriuscula	3.0
Mountain Brome	Bromus marginatis	3.0
		TOTAL 18.0*

\*Where site conditions warrant, seed 20-25 lbs/acre.

+ Substitutes, if necessary:

Clover is a species that can be added if chemical weed treatment is not used on the area.

Tall Fescue	Festuca arundinaceae	4.0
Yellow Sweet Clover2/	Melilotus officinalis	1.0

1/ - PLS = Pure Live Seed

2/ - Legume seed shall be inoculated with approved cultures in accordance with instructions of the manufacturer. The inoculum used for hydraulic seeding shall be four times that recommended for dry seeding. Inoculum shall be stored and handled in accordance with instructions of the manufacturer.

Appendix A

NATIVE GRASS SEED MIXES

Developed by Skip Barndt, Soil Scientist and Jack Greenlee, Botanist  
Lolo National Forest

Seed mix 1 - Dry, warm sites (HG 1 & 2)

Site conditions: 12 to 25 inches PPT; relatively long growing season; south and west slopes; moderately coarse to medium soil textures and somewhat to very droughty. These sites have a high potential for weed invasion.

Other considerations: These areas are generally used as winter range by wildlife and are typically low elevation sites.

Range of habitat types:

All PIPO h.t.'s

PSME/AGSP, /FEID, /CARU-AGSP, /CARU-ARUV, and low elevation /PHMA-CARU

Name	Species	Cultivar	Pounds PLS 1/Acre
Annual rye	<i>Lolium multiflorum</i>		4.0
Slender wheatgrass	<i>Elymus trachycaulus</i>	Revenue	4.0
Bluebunch wheatgrass	<i>Psuedoregneria spicata</i>	Secar	4.0
Mountain brome	<i>Bromus marginatus</i>	Bromar	3.0
Idaho fescue	<i>Festuca idahoensis</i>	Joseph	3.0
Rough fescue	<i>Festuca scabrella</i>		3.0
Prairie junegrass	<i>Koeleria macrantha</i> 2		1.0
			Total 22.0*

\*Where harsher sites conditions or weed concerns exist, seed 25lbs/acre.

- 1 PLS = Pure Live Seed
- 2 Not the turf variety Barkoel
- 3 Seeding rate for drilling

**Seed mix 2 - Relatively dry-moist and moderately cool sites, and moist and cool-cold sites (HG 3, 4, 5, 6)**

Site conditions: 20 to 60+ inches PPT; mid-elevation to high elevation slopes that have a wide range of moisture and temperature conditions. Soils range from moderately coarse to medium textured, and they may be acidic. Some sites are subject to dry periods during the summer and can have very droughty road cuts, while other higher elevation sites may have some wet inclusions and experience a relatively short growing season.

Range of Habitat Types:

PSME/PHMA-PHMA, /CARU-CARU, /LIBO, /VAGL, /VACA, /SYAL

ABGR/XETE

ABGR/CLUN, /LIBO

THPL/CLUN

ABLA/LIBO, /CLUN, /XETE, /VACA, /VAGL, with inclusions of ABLA/MEFE, /GATR,

and /CACA

TSME/XETE

Name	Species	Cultivar	Pounds PLS 1/Acre
Annual rye	<i>Lolium multiflorum</i>		4.0
Mountain brome	<i>Bromus marginatus</i>	Bromar	4.0
Slender wheatgrass	<i>Elymus trachycaulus</i>	Revenue	4.0
Hard fescue	<i>Festuca ovina v. duriscula</i>	Durar	3.0
Sandberg bluegrass	<i>Poa secunda</i>	Canbar	2.0
Blue wildrye	<i>Elymus glaucus</i>		4.0
			Total 21.0*

\*Where harsher sites conditions or weed concerns exist, seed 25lbs/acre.

1 PLS = Pure Live Seed

**\*\*THIS IS THE LATEST UPDATE OF THE LOLO SEEDING GUIDELINES. PLEASE USE IN CONTRACTS AND FORCE ACCOUNT PROJECTS.**

Jpc  
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