

Grass Seed & Establishment Guide



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At the Madison Conservation District, we believe healthy landscapes support healthy communities. Our mission is to promote a sustainable, productive, and healthy environment through locally-led conservation efforts. Helping landowners incorporate native plants into their properties is one way we can work toward that goal together.

This guide is designed to help you get started. It provides practical guidance for selecting a seed mix, preparing your site, seeding, and caring for your new planting as it becomes established. It also includes examples of native seed mixes selected with Madison Valley conditions in mind.

Why Plant Native?

Native grasses can be a worthwhile investment in your landscape. While native seed mixes may cost more upfront than some non-native species, they can provide long-term benefits for your property and the surrounding environment.

Adapted to local conditions. Native grasses are suited to Montana's climate, soils, and growing conditions. Once established, many require less supplemental water and maintenance than non-native plants.

Support wildlife. Native grasslands provide food, cover, and habitat for insects, birds, and other wildlife while adding plant diversity to your landscape.

Protect soil and water. Many native grasses develop deep, extensive root systems that help hold soil in place, improve water infiltration, and reduce erosion, especially on slopes and along streambanks.



Seed Establishment & Site Preparation

Successful native grass establishment starts with good site preparation. Factors such as site conditions, timing, available moisture, weed competition, and good seed-to-soil contact can all influence how well your seed establishes.

This guide provides practical tips to help you prepare your site, plant your seed, and give your native grasses the best possible start.

1.) Identify Site Characteristics and Objectives

Successful seeding starts with understanding your site and what you want to accomplish. Consider factors such as sunlight, soil type, moisture availability, slope, elevation, and existing vegetation. These conditions can all affect how well plants establish and continue to thrive.

Choosing a seed mix that is well suited to your site and goals can improve establishment, reduce long-term maintenance needs, and create a more resilient landscape.

2.) Site Preparation

Healthy plants start with a healthy seedbed. Proper site preparation helps create the conditions seeds need to germinate and develop strong roots. Avoid over-compacting the soil, which can limit root growth, reduce water infiltration and air movement, and harm beneficial soil organisms.

If disturbed soils are compacted, ripping and shallow tillage can help loosen the soil and create space for roots, water, and air. After tilling, firm the soil without over-compacting it. A firm seedbed helps provide good contact between the seed and soil and makes it easier to maintain the proper planting depth. A properly prepared seedbed should be firm enough that when you step on it, your boot sinks no more than ½ inch. Avoid working the soil when it is too wet, as wet soils are especially prone to compaction.

Seed Establishment & Site Preparation

2.) Site Preparation *continued*

Control existing vegetation before seeding. Grasses, weeds, and other established vegetation can compete with new seedlings for moisture, nutrients, and sunlight. Without adequate control, new plants may struggle to establish or the seeding may fail. Depending on the site and the type of vegetation present, existing vegetation can be controlled through chemical or mechanical methods, depending on landowner preference.

3.) Seeding Methods

There are several ways to plant grass or wildflower seed, and the best method depends on the size, terrain, and goals of your site.

Broadcast Seeding: Broadcast seeding involves evenly spreading seed across the soil surface by hand or with mechanical equipment, such as a broadcast spreader. After seeding, lightly rake the area to help incorporate the seed into the soil and improve contact between the seed and soil.



Drill Seeding: Drill seeding uses specialized equipment, such as a double-disk drill, to place seed directly into the soil at a consistent depth. This method can provide more precise seed placement and is often a good option for larger, accessible sites. However, drill seeding creates rows that may not be desirable in some landscaping situations.



Seed Establishment & Site Preparation

4.) Timing

When you seed matters. The availability of moisture changes throughout the year, and having enough moisture at the right time can make a big difference in seed establishment.

Fall seeding is generally preferred. Aim to seed in October or just before the ground freezes. Fall seeding allows seeds to experience natural winter conditions that can help break dormancy and prepare them to germinate in the spring. Spring snowmelt can also provide moisture during early establishment, reducing the need for supplemental watering.

Spring seeding can also be successful. If seeding in the spring, wait until after snowmelt and weed treatment is complete, but aim to seed no later than May 15. Spring-seeded areas may require supplemental watering, particularly during the early stages of establishment. The seedbed should be moist, but not saturated after seeding. Avoid summer seeding when possible. Seeding during June and July is generally not recommended unless reliable irrigation is available. Hotter and drier conditions can make it difficult for new seedlings to get established.

Newly planted seed can be vulnerable to wildlife, particularly with broadcast seeding. Fall planting just before the ground freezes can reduce the amount of time exposed seed is available before winter.

5.) Seeding

Plant seeds shallowly. Most native grass and wildflower seeds establish best when planted about ¼ to ½ inch deep. Avoid planting seeds too deeply, as many native species need to be just below the surface.

After seeding, lightly rake and roll the area to help incorporate the seed into the soil and provide good contact between the seed and soil.

Seed Establishment & Site Preparation

5.) Seeding *continued*

Consider adding a light layer of organic mulch. Clean straw or hydromulch (wood fiber mixed with water and other additives) can help hold moisture, reduce erosion (especially on windy sites) and protect seeds from birds. Apply mulch evenly and no more than $\frac{3}{8}$ inch thick. A light application is important because many seeds need access to light to germinate.

6.) Post-Seeding

Keep the seedbed moist while seeds are getting established. For the first several months after seeding, provide light, frequent watering as needed. The top layer of soil should stay moist, but not saturated. Avoid heavy watering that can wash away seed, cause erosion, or leave the soil waterlogged.

Depending on weather and site conditions, you may need to continue watering through the first growing season. Once established, most native seed mixes should require little to no supplemental irrigation, as they are selected for their suitability to local conditions.

7.) Maintenance and Weed Management

Be patient—native plants take time to establish. Many native grasses can take 2–3 years to become fully established. It is normal to see weeds during the first year, especially in recently disturbed soil. With proper care, native plants should become better established and better able to compete with unwanted vegetation over time.

Early weed control is important. Managing weeds while native plants are getting established can help reduce competition for moisture, nutrients, and sunlight. Depending on the site and the weeds present, control methods may include mowing, hand-pulling, and careful herbicide application. Monitor the site regularly and address weeds before they become well established or produce seed.

Seed Establishment & Site Preparation

7.) Maintenance and Weed Management *continued*

Mowing: Mowing can be an effective way to control annual and biennial weeds and prevent them from producing seed. For many weeds, mowing is most effective just before flowering, before seeds have developed. Set mower blades high (approximately 8–10 inches) to remove taller weed stems and seed heads while minimizing damage to young native grasses. Mowing may be needed several times during the first two years while native plants are establishing. However, mowing alone may not control every weed. Some species can adapt by flowering below the mower blade height, so consider combining mowing with other appropriate weed-control methods when needed

Hand-pulling: Hand-pulling can be an effective, though labor-intensive, way to manage weeds. It works particularly well for small or scattered infestations of tap-rooted weeds, such as spotted knapweed. Remove as much of the root as possible to prevent the plant from regrowing. Hand-pulling is less effective for weeds with creeping or extensive root systems, which can be difficult to remove completely. In some cases, disturbing these roots can encourage additional growth and make the infestation more difficult to manage.



Spot spraying: Spot spraying can be an effective way to control individual weeds or small infestations while minimizing treatment of surrounding vegetation. Use herbicides carefully to avoid damaging desirable native plants. Select products appropriate for the target weed and follow all label directions, including application rates, timing, and safety precautions. When possible, avoid herbicides with long residual activity in the soil, particularly when treating newly seeded areas, as some products may interfere with the establishment of desirable plants.

Recommended Seed Mixes

Developed for the Madison Valley

Riparian Seed Mix

This mix is designed for revegetating disturbed areas across variable moisture and slope conditions.

Species Composition:

Species	Suggested Cultivar	Composition	Drill Rate (lb/ac)	Broadcast Rate (lb/ac)
Slender Wheatgrass	Pryor	10%	0.75	1.5
Streambank Wheatgrass	Sodar	25%	1.75	3.5
Thickspike Wheatgrass	Critana	25%	1.75	3.5
Basin Wildrye	Trailhead	20%	1.5	3.0
Blue flax	Appar	10%	0.4	0.8
Western Yarrow	Great Northern	10%	0.1	0.2
Total Seeding Rate:			6.25 PLS lbs/ac	12.5 PLS lbs/ac

This six-species mix balances early establishment with long-term persistence. Slender and thickspike wheatgrasses provide quick initial cover in variable moisture conditions. Basin wildrye and streambank wheatgrass contribute drought tolerance, soil stability, and diverse structure. Western yarrow and blue flax provide stability and pollinator resource.

Valley Seed Mix

Designed for the Madison Valley with full sun and moderate to low soil moisture in lower elevations. Consider adding alfalfa where grazing may be a land use objective.

Species Composition:

Species	Suggested Cultivar	Composition	Drill Rate (lb/ac)	Broadcast Rate (lb/ac)
Prairie Sandreed	Goshen	15%	1.25	2.5
Nevada Bluegrass	Opportunity	20%	1.0	2.0
White Prairie Clover	Antelope	10%	1.0	2.0
Slender Wheatgrass	Pryor	10%	1.5	3.0
Bluebunch Wheatgrass	Anatone or Goldar	20%	2.75	5.5
Thickspike Wheatgrass	Critana	25%	3.5	7.0
Total Seeding Rate:			11.0 PLS lbs/ac	22.0 PLS lbs/ac

This six-species mix emphasizes structure and long-term resilience. Slender wheatgrass and thickspike wheatgrass establish quickly and provide early canopy development. Prairie sandreed adds upright stature, warm-season productivity, and strong summer presence. Bluebunch wheatgrass contributes drought tolerance, deep roots, and persistence across variable conditions. White prairie clover establishes well while providing nitrogen and pollinator resources.

Recommended Seed Mixes

Developed for the Madison Valley

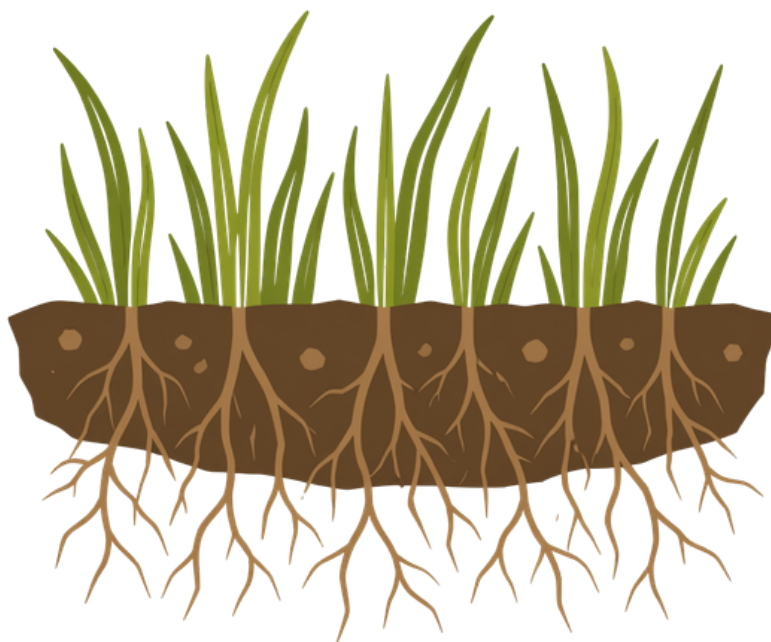
Upland / Forested Seed Mix

Developed for partially shaded woodlands and forest openings and understories where there are cooler temperatures and additional moisture than the valley.

Species Composition:

Species	Suggested Cultivar	Composition	Drill Rate (lb/ac)	Broadcast Rate (lb/ac)
Bluebunch Wheatgrass	Anatone or Goldar	15%	1.0	2.0
Mountain Brome	Garnet or Bromar	25%	2.5	5.0
Thickspike Wheatgrass	Critana	25%	1.75	3.5
Big Bluegrass	Sherman	15%	0.5	1.0
Slender Wheatgrass	Pryor	10%	0.75	1.5
Blue Flax	Appar	10%	0.5	1.0
Total Seeding Rate:			7.0 PLS lbs/ac	14.0 PLS lbs/ac

This six-species mix balances shade tolerance, early establishment, and long-term persistence in forested settings. Thickspike wheatgrass and slender wheatgrass provide dependable early cover and biomass. Bluebunch wheatgrasses contribute deep rooting, drought tolerance, and soil stabilization. Big bluegrass adds fine-textured cover adapted to cooler mountain climates. Blue flax is a quick establisher providing a pollinator resource.



Collaboration in Conservation

The development of this guide and the Native Grass Seed Cost Share Program would not have been possible without the knowledge, resources, and support of our community partners in conservation.

We are especially grateful to the **Bridger Plant Materials Center**, particularly Monica Pokorny, Plant Materials Specialist, and Bradley Holliday, Community Agriculture Specialist. Their expertise, guidance, and persistence in helping us develop seed mixes suited to the Madison Valley have been invaluable.

We are also grateful to the Montana Conservation District network. The knowledge and ideas shared by conservation districts across the state have helped inform this work, with particular inspiration from the **Gallatin Conservation District, Lewis and Clark Conservation District**, and **Flathead Conservation District**.

Finally, we would like to recognize **Grow Wild**, a nonprofit organization based in Big Sky. Their ongoing work to promote native landscapes and stewardship throughout the Gallatin Valley and beyond has helped provide inspiration and a framework for expanding native plantings in the Madison Valley and communities across Montana.

This is not a comprehensive list of everyone who has contributed to this work, but **we are grateful to all of our partners and colleagues who continue to share their knowledge and support local conservation efforts.**

Additional Resources

Want to learn more about native landscapes? Check out the resources below for additional tips, information, and guidance.

- [Grow Wild Landowner Toolkit](#)
- [MSU Extension Native Plants for Montana's Home Gardens](#)
- [Creating Native Landscapes in the Northern Great Plains and Rocky Mountains](#)
- [When the Prairies Meet the Mountains... An Introduction to Using Montana Native Plants](#)
- [MSU Extension Madison-Jefferson Counties](#)

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