

TIPS for Fighting Weeds on Small Acreages in Montana

A scenic view of a Montana farm. In the foreground, there is a wooden fence and some wildflowers. In the middle ground, there is a barn and a house. In the background, there are mountains under a clear sky.

*For **individual landowner copies** please contact your local weed coordinator.*

see page 3 of booklet.

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Vegetation

Healthy vegetation wards off weeds!!!!!! It is your **best** tool to prevent weed infestations. We've highlighted this theme over and over because it is so important. *If you have healthy, desirable plants, do all that you can to maintain them.* It is much easier and less expensive to maintain healthy plants than it is to restore them.



The healthy vegetation in this pasture prevents noxious weeds from becoming a problem.

Montana's range plants have evolved with use from wildlife and domestic livestock. These plants are generally healthier when grazed (but not over-grazed). If livestock grazing is part of your land use goals, you must properly manage grazing to maintain desirable plants, which can then out-compete weeds. If you don't graze livestock, realize that a healthy plant community will attract wildlife. Excessive build-up of vegetation over time may create a fire hazard. To maintain plant vigor and minimize fire potential, a mowing program should be initiated. Please refer to the mowing section that describes how to maintain desirable vegetation while impacting noxious weeds during mowing operations.

Vegetation Strategy or Game Plan

Just as you need a game plan to control your weeds, you need a strategy to nurture healthy, desirable plants. First, identify the desirable plants growing on your acreage.

Use the plant and grasses identification charts in Appendix E on pages 55 and 56. If noxious weeds have dominated your land for years, you may have few desirable plants left.

When to Revegetate

If you have a newly disturbed site, YOU NEED TO REVEGETATE.

If you have tried controlling your weeds for one or two growing seasons and your healthy and desirable plants don't respond, then you should consider revegetating your property.

Revegetation can be costly and takes a lot of patience. Success depends on many environmental factors.

In the event you want to contract this out, the following information will help you get the job done at a fair price.

Revisit your land uses and follow these six steps to promote healthy vegetation:

- evaluate your site,
- eliminate weeds,
- choose your plants/seeds,
- prepare your site,
- apply the seed, and
- protect and manage desirable plants.

SEED IMMEDIATELY AFTER SOIL DISTURBANCE!

Bare soil creates a “vacuum” in which weeds will become the established species unless healthy seed is put in place for competition.

STEP 1 Evaluate Your Site

To start down the path to having healthy plants, ask yourself the following questions:

- Do your land use practices encourage healthy, desirable plants? If not, revegetating your site will not solve your weed problem. You may need to change how you use your land.
- What vegetation is on the site now? If it's not what you want, how hard will it be to change it?

- How much precipitation or water do you have? Is it an irrigated or non-irrigated site? The amount of precipitation or water available to your plants will determine what plant species will grow at your site.

PRECIPITATION

What is the **minimum** annual precipitation you can count on? During drought years, the lack of precipitation will greatly affect what you can do with your vegetation.

- What is your soil type? Is it sandy, loam/silt or clay, or clay? Is it compacted? Match the soil type to the plant species. See Appendix B on page 49 to judge your soil type.

- What different conditions exist at your site? Is there a stream or wetland? Are there dry south-facing slopes? Are there moist and cool north-facing slopes? Are there flat areas or swales? Categorizing your land into different climate/condition zones will help determine what type of seed needs to be planted. Different plant species are needed for wet areas as compared to dry south-facing slopes.

STEP 2 Eliminate Weeds

ADDRESS ANY WEED PROBLEMS

FIRST. As you remove weeds, desirable plants may recover on their own because more sunlight, water, and nutrients are now available.

- Eliminate weed competition by implementing options discussed in previous chapters.

BE PATIENT

It may take one or two growing seasons for your acreage to recover on its own after weed control, so please be patient. Immediate revegetation is needed on disturbed sites only. Do not rush to revegetate sites where some desirable plants exist.

STEP 3 Choose Your Plants and Seeds

Make educated choices when selecting plants and seeds. Choose plants and seed mixes that will meet your objectives and are well suited to the conditions of your site. Bear in mind your property's available moisture/precipitation, growing season, sun exposure, and soil types. Most plants and seeds are sold with an explanation of the conditions in which they will grow best. You will also have to

choose between **native** or **non-native** plants, and decide whether you want a **mix** or a **monoculture**.

- **Natives** are plants that are indigenous (*may be local or original*) to the area. They have evolved and adapted to the environmental conditions of that area. If you wish to maintain a “historical” appearance, native species are a good choice. Natives can be more difficult to reestablish, but they may be more durable over time. Native seeds tend to be expensive, and not all native species may be commercially available.



Slender wheatgrass, a native grass, provides quick cover on dry hillsides.

- **Non-native** plants are species that evolved or developed elsewhere and have been introduced to an area. Non-native plants may look similar to natives and can provide similar habitat. Non-natives usually establish more quickly, can be very competitive with noxious weeds, and are less expensive than natives.



Russian wildrye, a non-native species, is preventing the establishment of the spotted knapweed on the right.

USE TEST PLOTS

Trying to grow plants on your property is a bit of an experiment. You might spend \$300 on seed that you plant over 5 acres, only to find that it didn't work. To avoid wasting both time and money, **start small and work up**. Begin by planting small test plots so you can see the results, and then expand the successful plots.

SHOULD I PLANT A **MIX** or **MONOCULTURE**? A monoculture is a single plant species, while a mix is a combination of several species.

Some plants tend to dominate a mix and are better planted as a monoculture. Other species are poor weed competitors alone, but can suppress weeds as part of a mix.

- If a natural look is desired, a mix may provide better habitat for desirable insects, birds, and wildlife.
- An aggressive monoculture may be best for erosion control on a harsh, dry, disturbed site.
- For non-irrigated land, dormant seeding and drought-tolerant species are recommended.



Think before you plant.

It pays to think ahead. A fast-establishing monoculture may prevent weeds early on, yet it might not meet your long-term needs. Replacing it with other vegetation may prove costly and time consuming. Using the "Test Plot" method may be helpful.

Seed Suggestions

DRYLAND GRASSES

Some suggestions for mostly dryland grasses, both native and non-native, are listed below. Remember, just as there is no single “magic” weed control method, there is not a single plant species that will solve everyone’s problems. Choose the species that meets your needs. **(A chart with more information on each of these is contained in Appendix E).** SPECIES CHOICE: Some species germinate and establish more rapidly than others. Some examples of native and non-native vegetation include:

IN ORDER OF GERMINATION SPEED (fastest first):

Native

- Slender wheatgrass
- Big blue bluegrass
- Thickspike wheatgrass
- Western wheatgrass
- Streambank wheatgrass
- Bluebunch wheatgrass

Non-native

- Perennial ryegrass
- Crested wheatgrass
- Pubescent wheatgrass
- Intermediate wheatgrass
- Russian wildrye

WARNING: Canada and Kentucky bluegrass and smooth brome provide quick cover but can be invasive in native grasslands, perennial gardens, and landscapes.

SHRUBS AND WILDFLOWERS

Wildflowers and shrubs are more difficult to establish than grasses. If your weed infestation is heavy, wait 2 to 4 years after seeding grasses before transplanting shrubs and wildflowers. If your weed infestation is low, add shrubs and wildflowers to a grass seed mix (but not greater than 1% to 5% of the mix or more than a half-pound per acre).



Caution: Some herbicides may harm shrubs, wildflowers, and other broad-leaved plants. See the herbicide section for responsible chemical use.

Good native shrub choices:

- Big basin sagebrush
- Wood’s rose
- Rubber rabbitbrush

Good native weed-competing wildflowers:

- Blue Flax
- White yarrow
- Blanketflower



Where can I get the seeds I want to plant?

Seed sources vary across the state. Compare products and prices at your local ranch supply store, agricultural seed dealer, and nurseries. Most seed suppliers sell seed mixes formulated to work in your area. Seed dealers or nurseries may be able to blend your own specialized seed mix. Your local weed coordinator/extension agent can help you find sources.

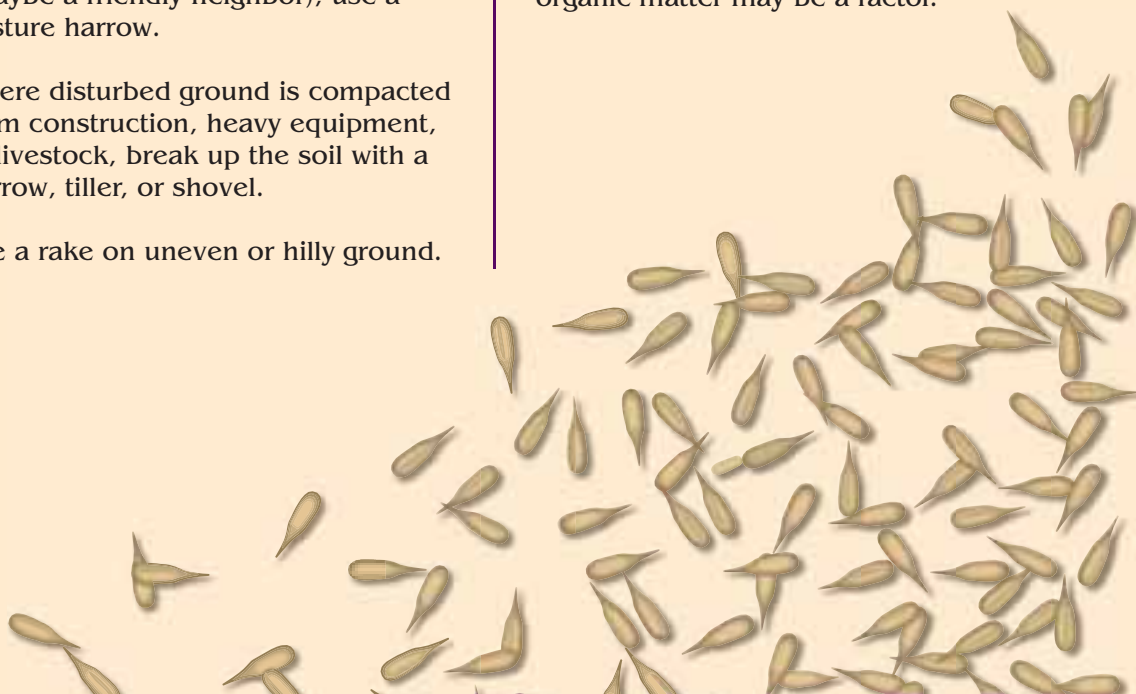
No matter what species you choose to plant, your most important action will be to select viable seed that is weed free. One of the best ways to determine this is to look at the seed label. Federal and state laws mandate that seed must have a complete analysis label or tag. Here is some key information to look for on the seed label/tag: Origin, lot number, certification number, germination (high percentage), dormant/hard seed, total viability, and the test date. Understand that no seed can be totally pure, but it should be certified noxious weed seed free.

STEP 4 Prepare Your Site

Prepare your property so that seeds will get a good start. Rough up the soil so that the seeds will be in contact with the soil and nutrients. This creates pockets so that seeds won't be washed away. Methods for site preparation include:

- Drag a piece of chain link fence with old tires on top for weight. This can be done by hand or behind an ATV.
- If you have access to farm equipment (maybe a friendly neighbor), use a pasture harrow.
- Where disturbed ground is compacted from construction, heavy equipment, or livestock, break up the soil with a harrow, tiller, or shovel.
- Use a rake on uneven or hilly ground.

- Some areas may have nuisance plants such as cheatgrass, field penny grass, and kochia. To remove these use a non-selective herbicide (see herbicide section). Be careful – this will kill all plants.
- In areas with poor soil, you may need to add topsoil or organic matter to provide good growing conditions. Depending on the size of the area you need to treat, the cost of topsoil or organic matter may be a factor.



STEP 5 Apply the Seed

When to plant: Spring or late fall? Some species require up to four months of cold, moist conditions for best germination. These species are best planted in the fall right before or after the first snow. Seed planted in the fall should be protected from rodents, insects, and runoff by raking it in, drill seeding, or mulching.

If you did not seed in the fall, seed in early spring, as soon as possible after the snow leaves and before the area “greens” up. This allows the seeds to take advantage of as much spring moisture as possible. The best window for this occurs roughly between the beginning of March and the end of May, depending on your local climate. Late spring and early summer seedings are generally not effective because the seeds cannot take advantage of spring moisture.

How to plant:

- Seed can be broadcast by hand, with a broadcast seeder, or with a seed drill.
- The basic rule of thumb is to seed at 12.5 pounds per acre. However, if you are broadcast seeding or seeding where weeds are plentiful, seed at 20 pounds per acre.
- After seeding, drag a pasture harrow or old tires over the site, to put seed in contact with the soil. NOTE: IF GRASS SEEDS ARE COVERED BY TOO MUCH SOIL (more than half an inch), THEY MAY NOT GROW.



STEP 6 Protect and Manage Desirable Plants

Treat your vegetation as an investment. The following tips will help protect this valuable resource.

- Irrigate lightly for the first 7 to 14 days after seeding, if possible.
- Place weed free mulch over seedings where possible.
- Implement good land use practices.
- Continue to control weeds.
- Let pastures rest and recuperate by using good grazing practices. Don't graze immediately after revegetating.



Vegetation

The following tables provide some possible vegetation choices for your property. Your plant selection should be based on realistic expectations for your land and your local climate. If you are unable to make a vegetation choice for your property, this information will help you work with local resource professional(s), and compare products and prices at your local ranch supply store, agricultural seed dealer, and nurseries. Most seed suppliers sell seed mixes formulated to work in your area. Seed dealers or nurseries may be able to blend your own specialized seed mix. Your local weed coordinator/extension agent can help you find sources for this.

Additional choices and information on vegetation:

- *MontGuide fact sheet #199811/Agriculture, Rehabilitation of Weed-Infested Rangeland*, by James S. Jacobs, Michael F. Carpinelli, and Roger L. Sheley, can be obtained from your local Montana State University (MSU) Extension Agent or from their website at <http://www.montana.edu/wwwpb/pubs/mt9811.pdf>
- *Creating Native Landscapes in the Northern Great Plains and Rocky Mountains*, by the USDA/Natural Resource Conservation Service (NRCS). Contact your local NRCS office, call 406-587-6842, or email: publications@mt.usda.gov

Native Grass

NATIVE Grass	Type & Size	Soil	Precipitation Zone	Germination Rate	Establishment Rate	Variety	Comments
Slender wheatgrass	Bunchgrass ②	Sandy loam Clay loam	<13"	Fast	First year	Pryor	Drops out in 3 to 7 years; dominates mix first 3 years if >2 lbs/acre if monoculture.
Thickspike wheatgrass	Rhizomatous ②	Sandy loam	<13"	Fast - Moderate	1 to 2 years	Banek Critana	Dominates mix if > 2lbs/acre rate; aggressive spreader; competes with knapweed once established; 10 lbs/acre if monoculture.
Streambank wheatgrass	Rhizomatous ②	Sandy loam to Loam	<13"	Moderate	2 years	Sodar	Best for harsh, dry sites but needs water for germination; more drought tolerant than Thickspike though closely related; 10 lbs/acre.
Bluebunch wheatgrass	Bunchgrass ②	Sandy to Clay loam	<13"	Slow	2 to 4 years	Goldar	Most common native in Missoula Valley; good in a mix; weak weed competitor; fall seeding; seed heavily - 14 lbs/acre.
Western wheatgrass	Rhizomatous ②	Loam to Clay	13-15"	Moderate	2 years	Rosana	Good weed competitor in heavier/moist soil; mix with Thickspike and Slender; 12 lbs/acre.
Big blue bluegrass	Bunchgrass ②	Sandy loam Loam	<13"	Fast	First year	Sherman	Taller and much more aggressive than Sandberg bluegrass; good in mix with Bluebunch; 6 lbs/acre.
Basin wildrye	Bunchgrass ③	Sandy loam Clay loam	<13"	Slow	3 to 5 years	Trailhead	Best on moist sites and heavier soils; spindly first 2 years, then very persistent and aggressive; good mixed with 25% to 40% Western; 3' to 7' tall; good for wildlife; 12 lbs/acre.
Green needlegrass	Bunchgrass ②	Sandy loam Clay loam	13-15"	Moderate	2 years	Lodorm	Hard seed coat; plant in fall; reported better than Western and Bluebunch for weed suppression; good in mix; 12 lbs/acre.
Mountain brome	Bunchgrass ②	Clay loam Loam	>18"	Moderate - Fast	2 to 3 years	Gamet	Good substitute for Slender and Thickspike at elevation >4000'; seed in fall; 20 lbs/acre; short lived.

SIZE KEY: ① <8" ② 12" to 30" ③ >30"

Other good native species for "creating a grassland" (<10% of mix) but poor weed competitors are:

IDAHO FESCUE - 3 to 4 years to establish; greens up in November; attracts herbivores

PRAIRIE JUNEGRASS - warm-season bunchgrass, common

SANDBERG BLUEGRASS - fills in on disturbed sites but not aggressive; "High Plains" cultivar to be released soon

ROUGH FESCUE - long-lived on heavier/moist soils

Non-native Grass

NON-NATIVE Grass	Type & Size	Soil	Precipitation Zone	Germination Rate	Establishment Rate	Variety	Comments
Pubescent wheatgrass	Rhizomatous ②	Sandy loam	13"-15"	Fast	First year	Manska Luna Rush	Reportedly best weed competitor; good in mix with 10% alfalfa (Ladak 65, Spredor 3); handles harsh site better than intermediate; 14 lbs/acre.
Russian wildrye	Bunchgrass ①	Loam Clay Loam	<13"	Slow	2 to 3 years	Bozoisky	Plant as monoculture; takes over mix; reportedly competes very well with knapweed after first 2 years; best if drill seeded; 12 lbs/acre; slow to establish.
Intermediate wheatgrass	Rhizomatous ②	Loam Clay Loam	14"-15"	Moderate	1 to 2 years	Oahe Rush	Vigorous stand after 2 years; possible alternative to smooth brome on weedy site with horses; 14 lbs/acre.
Hard fescue	Bunchgrass ①	Sandy loam Loam	<13"	Fast	First year	Durar	Aggressive; forms monoculture after 4 to 5 years; not good in clay soils; plant as monoculture or with sheep fescue; competitive with knapweed; 6 lbs/acre.
Sheep fescue	Bunchgrass ①	Sandy loam	<13"	Fast	1 to 2 years	MX-86 Covar (from Europe)	Like Hard fescue but will invade bare soil areas; though a native species, no North American selections are available; 6 lbs/acre.
Big blue bluegrass	Bunchgrass ②	Sandy loam Loam	<13"	Fast	First year	Sherman	Taller and much more aggressive than Sandberg bluegrass; good in mix with Bluebunch; 6 lbs/acre.
Crested wheatgrass	Bunchgrass ① ③	Loam Clay Loam	<13"	Fast	First year	Roadcrest Ephraim	Slightly rhizomatous; good on harsh site, rocky hillside; best weed control if kept lightly mowed or grazed (early); some cultivars considered invasive; 8 lbs/acre.
Siberian wheatgrass	Bunchgrass ②	Loam Clay Loam	<13"	Fast	First year	Vavilov	Same as Crested wheatgrass but shorter in height; 12 lbs/acre.
Perennial ryegrass	Treat as an annual; may winterkill ②	Loam Clay Loam	<16"	Very Fast	First year	Variety not specified	Can be planted spring or early fall for winter cover; requires irrigation for germination; short lived; not winter hardy; 10 lbs/acre. Good in mixes with Pubescent and Russian wildrye up to 20%.

SIZE KEY: ① <8" ② 12" to 30" ③ >30"

Other weed-competitive species are Kentucky and Canada bluegrass and smooth brome; all three species can be invasive in native grasslands.

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