

Post Herbaceous Seeding Management Technical Note

The establishment of a native herbaceous plant community may take 3 to 5 years with diligent management. Without early management of the vegetation during this critical time, weeds and woody plants will displace the emerging and newly established native plants resulting in a weedy plant community that will persist for many years. The goal after seeding native plants is to reduce unwanted plants (weeds) and stimulate establishment and growth of the native plants until the native plant community is established.

A variety of early management techniques include frequent mowing, herbicide use, manual maintenance (hand pulling, hoeing, and girdling), prescribed burning, and irrigation to control unwanted plants while promoting native plants.

Note: The purpose of this technical note is to provide general information on post seeding management utilizing these management techniques. If planning post seeding management for a planting enrolled in a particular program (EQIP, WRE, CRP, etc.), always refer to the applicable program guidance to ensure all planned practices adhere to program requirements.

Native Herbaceous Plant Establishment and Weeds

Weed control in a newly seeded native planting should be a high priority in early reconstruction management. Fast growing annual weeds can form a closed canopy over native perennial seedlings in less than 30 days, reducing light to a fraction of full sunlight. Low light intensity stunts native seedlings' development, making them susceptible to winter mortality.

Perennial weeds can also negatively impact native plant establishment. Of most concern to resource managers are the perennial weeds that displace native plants and invade established herbaceous plantings. Perennial weeds and native perennial plants share many similar traits. Both produce seed, spread vegetatively and occupy the same root zone and above ground space. Some perennial weeds form dense colonies that eliminate native plants. Methods to control such perennial weeds must be used carefully because they may also have the same effect on native perennials.

Establishment mowing

Plants that are allowed to grow high enough to create a closed canopy during the first few years of a planting will reduce germination, growth, and survival of perennial plants (Williams et. al. 2007), which can create long-term maintenance problems. Frequent mowing is an effective technique to prevent a weed canopy from forming in a new native planting. Mowing can be done with any type of mower as long as the mower deck can be raised at least 4 inches. Some practitioners prefer using a flail type mower because the biomass is cut into smaller pieces and does not leave a windrow (thick layer of thatch) on the surface. As a general rule of thumb, do not let the weeds and other vegetation get taller than knee high in the first growing season. Mow to a height of 4 to 6 inches whenever the vegetation grows 12 to 18 inches high in the first growing season. Don't be concerned about damaging the natives by mowing. Most native herbaceous seedlings will grow below the 4 to 6 inch mow height in the first growing season. The frequency and duration of mowing depends upon the weed density and climate conditions during the growing season. In an average precipitation year in Georgia, mowing may typically be needed every three weeks during the first growing season. This frequent mowing regime will curtail the growth and seed set of weeds while preventing thatch build-up that can smother native seedlings.

Mowing in the second growing season depends upon the density of persistent perennial and biennial weeds. To avoid damaging the native plants, mowing height should never go below 12 inches in the

second growing season. Time between mowing treatments can be monthly or longer depending upon the weed pressure. For scattered weed patches, consider spot mowing or hand pulling to minimize the impact upon developing native plants. If there is a flush of tall rank biennial weeds, it is important to mow or pull just prior to flowering to severely curtail or eliminate the plants ability to flower and go to seed.

By the third growing season, most of the vegetative growth throughout the site should be native plants and mowing should not be needed. If there is a threat of a weed canopy in Year 3, a stand evaluation should be conducted to determine if there are adequate numbers of native plants remaining in the site. If native plant establishment is less than 1 plant per square foot, it is recommend that more prairie grasses and forbs be added to the stand (see 327 Conservation Cover Herbaceous Planting Site Preparation Draft Technical Note).

Note:

Mowing is only partially effective at controlling persistent perennial weeds and woody plants. It will eliminate seed production and reduce weed canopy if implemented at the right time during the growing season, but will have little effect or, in some cases, increase rhizominous spread. In those circumstances, herbicides may be needed to control persistent perennial weeds.

Herbicides

Herbicides, when used carefully at rates listed on the label, can be very effective at controlling persistent perennial weeds and woody plants. Careless application will result in killing native species. Just how many weeds are considered 'weedy' in a native planting is a matter of personal preference, but addressing weed issues early can save heartache later on. There will be less damage to native plants if chemical control is used within the first few years of a seeding, when weeds are less abundant and can be spot sprayed. Waiting until the weeds are abundant in the planting can turn spot spraying into blanket spraying which is extremely damaging to natives. States require certification testing and licensing to purchase and apply certain pesticides. Contact your State Department of Agriculture to obtain more information on pesticide certification. Always read and follow label directions. The following are some strategies to minimize damage to native plants when using herbicides to control unwanted plants.

1. Spray only the persistent perennial weeds and woody plants. Over time, native plants will exclude most other weeds from the planting.
2. Spray when the natives are dormant. Some cool season weeds remain green into fall and can be sprayed after most native plants are dormant.
3. Use herbicides that are species specific. Some herbicides work better than others on individual weed and woody species. The Nature Conservancy has an extensive list of weeds and methods of controlling them on the web at tncinvasives.ucdavis.edu
4. Spray the weeds at the proper stage of plant development. The label will indicate at what stage of development the weed species is most susceptible to the effects of the chemical. 'Rosette to bud', 'Up to 5 leaf stage', '1 to 3 leaf stage before vining', and 'boot to early seedhead stage' are some examples of specific label recommendations for optimum spraying times.
5. Apply the herbicide at the rate specified by the label. The herbicide application rate will vary according to the weed species and severity of infestation.
6. Use spot spraying. To minimize over-spraying onto non-target plants, use a hand wand instead of boom sprayer. A backpack sprayer with a spray wand extension allows the operator to place the nozzle tip very close to the weed and minimizes over-spraying.

7. Use boom spraying only on large, dense weed patches.
8. Avoid creating drift when spraying. Lower the spray pressure and increase the nozzle orifice size to reduce spray drift. Don't spray on windy days. Consider spraying in the early morning or early evening when the winds tend to be calm.
9. Cut rather than foliar spray woody plants. Many brush herbicides require complete coverage when foliar sprayed. There is the potential for excessive over-spraying onto non-target plants. A cut stump herbicide to prevent the stump from resprouting can be applied precisely to where it is needed without damaging surrounding vegetation.
10. Do not apply a herbicide to a cut stump that is actively flowing with sap. Sap flow will cause the herbicide to run off the cut stump into the soil and kill nearby vegetation. This is often referred to as 'the ring of death'.

Stump Stick

Volunteer trees are a pesky nuisance in native herbaceous plantings. It doesn't matter whether a planting is a multiple acre field or a backyard native garden, undesirable trees and shrubs will find their way in. One method to remove volunteer trees is by hand cutting and treating the cut stump with an appropriate herbicide listed for that use on the label. Tree size will determine what piece of equipment to use. Loppers and hand pruners can be used for trees less than 0.5 inches in diameter, a gas weed whip with a brush blade can handle trees up to 2 inches in diameter and a chain saw should be used for anything larger than 2 inches diameter. It's a labor-intensive activity but it is highly effective and minimizes negative impacts to surrounding flora and fauna. To precisely apply herbicide to the cut stump and minimize off target movement of herbicide, the Tallgrass Prairie Center has developed the "stump stick". The stump stick has many advantages: it is made entirely of PVC so it's resistant to herbicides that are acid and salt formulations, it is simple to construct and materials to make it cost less than \$15.00. The stump stick is easy to handle and applies herbicide on the cut surface of a plant without over-application to non-target plants. The best part is that you don't have to bend over to apply the herbicide — saving a backache after a full day of cutting trees! For more information on the stump stick visit the following website: www.tallgrassprairiecenter.org.

Note:

Always wear protective clothing and gloves to guard against thorns and plant compounds that can cause severe skin reactions.

Prescribed Burning

Some native plant communities, such as prairies and longleaf pine savannas, are ecologically adapted and require periodic fire to remain healthy. These native plant communities should be burned as soon as the site can carry a continuous fire. Proper use of prescribed fire will accelerate growth of most fire-adapted native plants and deter cool-season weeds and small woody plants. Typically, there is not enough fine fuel (grass leaves) to carry a fire in a one or two year old planted herbaceous planting due to frequent mowing. By the end of third growing season however, there should be enough grass growth to carry a fire. The first prescribed fire on a newly reconstructed native planting often is done in the spring to stimulate the warm-season prairie grasses. The management objectives should determine frequency and timing of prescribed fires for subsequent prescribed burning.

Caution - Prescribed burning should only be conducted by trained and experienced personnel. To learn more on prescribed burning visit the Georgia Natural Resources and Conservation Service (NRCS) website at <http://www.nrcs.usda.gov/wps/portal/nrcs/site/ga/home/> to access information on Prescribed Burning.

Irrigation

Irrigation can be an important management tool. Once a seed germinates, there is a critical phase of development between emergence and the time the seedling develops its first true leaf. While the plant is still in this cotyledon stage, it cannot survive an extended period of drought. If rainfall is not adequate, seedlings will benefit from being watered 1 to 2 inches every three days during the first growing season (Morgan 1995). Irrigation increases the probability that the plants will survive into the second growing season and beyond.

Fertilizers

Fertilizers are not recommended for native plantings. Most plants including natives benefit from fertilizers, but weeds benefit more, making fertilizers a poor management strategy. Fertilizing a newly planted herbaceous stand will disproportionately favor opportunistic weedy species. Most native species are well adapted for nutrient poor soil. In some cases, fertilization may also damage or kill native seedlings.

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