

Native Seeding

Management Recommendations after Seeding

MassDOT contracts typically provide one growing season of care for native seeding. Following the end of the contract, seeded areas will continue to require some level of care for optimal habitat or visual display. The amount of care required will be dependent on the aesthetic expectations and the intended function. The higher the expectation, the more maintenance will be required. For instance, a naturalized grassland restoration will need less care than a highly visible “pollinator meadow” where the expectation is for few weeds and a more colorful display.

Areas seeded with native species do not need fertilizers or irrigation. Care is primarily weed management. The extent of management required will be dependent on a variety of other factors, such as weed seeds in the soil, proximity to weeds on adjacent properties, whether proper seed mixes and practices were followed during construction, how quickly the seeded species germinate and fill in the seeded area.

A small percent of non-aggressive “weeds” in seeded areas is natural, and should not be considered a concern. For instance, clover, non-aggressive grasses, fleabane, crabgrass, and most annual weeds are not generally problematic to the long-term ecological or visual integrity of the meadow.

Care may be considered in terms of two phases: the **Establishment Phase** during which more management may be required and **Long-Term Management**. Recommendations in this document are for a more naturalized aesthetic with the primary care being weed management.

Establishment Phase

The Establishment Phase is typically 3 years. During this phase, most native perennial grasses and flowers put energy into developing deep root systems rather than into above ground growth. For this reason, the plants will be small during the first year of growth. The stand will likely have a sparse and weedy appearance as opposed to an area seeded with turf grasses (*Photo 1*). The sparse aboveground foliage may make the site more susceptible to weeds. Typically, most of these weeds are annuals (successional species) and disappear as the seeded species establish and fill in.

By year 3, the seeded species should have well-established root systems and be tall and dense enough to shade out weeds. Early establishing flowers such as partridge pea, black-eyed Susan, and coreopsis typically begin to flower in the 2nd year (*Photo 2*). Some flowers may take 3-4 years to show up.

When assessing the weediness of native seeding, it’s important to distinguish between common weeds that will disappear over time (i.e., crabgrass and foxtail) and invasive or aggressive weeds that will remain problematic if not removed (i.e., mugwort, white sweet clover, and spotted knapweed) so that management can be prioritized.



Photo 1. Leominster: Year 2 after dormant seeding previous October. Seeded species are small (not distinguishable in the photo), there are gaps in coverage, and there is a high percentage of early successional weeds. A clump of spotted knapweed (pink flowers), and invasive non-native species, can be seen in the background. Photo 2015 August.

Weed Management During Establishment (first 3 years after seeding)

- ◆ **Mowing to Control Weed Growth.** During the first year of management (typically under MassDOT contract warranty), cutting during July or early August will help manage early season weeds so that the native species, many of which grow during the warmer months, will have better access to sunlight. This should be a high cut—no lower than 4 inches. A brush hog mower or string trimmer may be required as conventional lawn mowers cannot achieve the appropriate height. A high cut may be done as often as needed to control weeds until the desired species are established.
- ◆ **Cutting for Weed Seed Management.** Mowing or weed-whacking may be used for targeting specific areas or specific weeds to prevent plants, particularly annuals, from going to seed and spreading. Cutting should be done prior to the target plants setting seed.
- ◆ **Manual methods** are effective for removing select weeds if populations are small and if the roots of perennials can be completely removed. If soil is loose, weeds can be hand-pulled. However, a spade or tools specific for weeding are recommended to fully remove root systems. Weeds with extensive roots systems or that are well-established, such as mugwort, are unlikely to be managed by hand pulling alone as fragments of root that remain in the soil will re-sprout. Repeat weeding may be used to deplete plants in those cases.
- ◆ **Targeted herbicide** can be used to kill select weeds when the roots cannot be removed by manual methods and the species will resprout (i.e., mugwort or Japanese knotweed). Herbicide is the most cost-effective management if the target population is extensive (*Photo 3*). Areas of treatment may need to be overseeded (see Repair and Overseeding under Long-Term Care). Herbicide treatment should only be done by a licensed and knowledgeable applicator.
- ◆ **Annual Cutting** to manage woody species is not usually required during establishment. However, if required, it may be done at the end of the year or early the following spring. Cutting in spring is recommended to preserve nesting habitat for beneficial insects.



Photo 2. Sterling: Second year following seeding the previous spring. Early establishing flowers (partridge pea, black-eyed Susan, and coreopsis) are blooming. There is a high percentage of weed species, including chicory which was introduced to the site as a species in the mix. Photo 2019 August.

Long-Term Care—Weed Management

By the third year, depending on species and environmental factors, plants typically have established sufficient root systems and foliage density to create a self-sustaining meadow (*Photo 4*). Long-term care will be weed management, particularly of invasive species. If the plan is for the meadow to eventually convert to forest, weed management of herbaceous weeds is less critical. Care expected would be as follows:

- ◆ **Inspect:** Similar to any planting project, seeded areas should be monitored for invasive or very aggressive plant species. It's essential to address these species while populations are small and they can be eradicated. Inspect the meadow in late June or July when plants are more easily identifiable. This will allow for removal prior to seed production and, if used, allow time to plan for herbicide treatment in late August which is the optimal time to treat many invasive species.
- ◆ **Annual Cut:** If the goal is to maintain the area as meadow, the area should be cut as needed to control woody species. Typically, an annual cut is done at the end of the year (after October 15) or early the following spring. If woody species are not problematic, a cut can be done every other year or as needed. Mowing more frequently than once a year or mowing too early (before October 15) will remove flowers and prevent re-seeding of desired species. Cutting in spring is recommended to provide winter habitat for pollinators and other insects.
- ◆ **Periodic Removal of Weeds:** Periodic pulling or herbicide treatment of invasive or very aggressive plants is necessary to prevent larger infestations. Weeds should be removed while populations are small and before they produce seed. Recommendations are as follows:
 - Late spring (June-July) to remove cool season weeds
 - Mid-summer (August) to remove warm season weeds
 - Timing for herbicide treatment should be determined by a licensed and knowledgeable applicator as the timing will depend upon the species targeted and the herbicide used. Incorrect application is ineffective and costly.
- ◆ **Repair and Overseeding:** Disturbed areas that result in bare soil should be repaired to prevent invasion and colonization by weed species. Roadsides in particular are susceptible to weed invasion due to soil damage from errant vehicles, drainage or utility work, and scalping or rutting from mowing equipment. To repair bare areas:
 - Rake disturbed soils.
 - Apply layer of loam or topdress with compost to ensure seed to soil contact.
 - Once soil is prepared, **overseed with the original mix. Do not use a cheap off-the-shelf mix.** A cheap mix may introduce undesirable species to the meadow. Once introduced, undesirable species will be difficult and costly to manage and remove.
 - The list of species specified in the project contract will be available from MassDOT. The custom mix or a similar mix should be available from select suppliers.

SCHEDULE (GENERAL WORK WINDOWS)

	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV
INSPECT								
ANNUAL MOW								
WEED—HAND PULL								
HERBICIDE TREATMENT*								
REPAIR/OVERSEED								

Woody Plant Management

Herbaceous Management

*Depends on species targeted and method of treatment

Established Seeded Meadows



Photo 3. Leominster: Fifth year following seeding. Native grasses are well established. However, mugwort is spreading even in areas of well-established native grass. Photo 2019 August.



Photo 4. Sterling: Fourth year following seeding. Native wildflowers and grasses are well-established with high percentage of blooms. Area mowed, weeded, and treated with herbicide years 2-4. Photo October 2021 .