

Early Successional Habitat Management (647)

Conservation Practice Job Sheet

Establishment of Warm Season Grasses



USDA Natural Resources Conservation Service
New Jersey

Client Name:

Date:

County:

Assisted by:

Tract #:

NRCS Field Office:

Phone :

Introduction

Native warm season grasses (WSG) such as switchgrass, little bluestem, big bluestem, deertounge, indiagrass and others provide unique habitat for many species of wildlife including grassland birds, small game, wild turkeys, and more. WSG are species that put on most of their growth during the hot summer months (July – September). These grasses can provide nesting habitat, feeding areas (on the grasses themselves as well as the abundant invertebrates they attract), and important winter cover. WSG stand up all winter, even after heavy rains and snows and can continue to provide good habitat into early spring. WSG are adapted to low pH, low moisture and low fertility conditions and do well with little inputs such as lime and fertilizer. WSG are difficult to establish and the establishment period often is 2-3 years or longer. Once established WSG can last for many years with little maintenance.

Site Conditions and Site Prep

WSG are adapted to a wide variety of soils and site conditions. Some species will do well on very droughty, shallow, soils and other species require a deeper, more moist soil condition (see table 1). Most species do well in low fertility situations. The most important factor in establishment of WSG is the existing cover on planting sites and controlling competition from other vegetation.



In sites with dense cool season sod or dense weed populations that often occur on “idle” cropland, this competition must be controlled prior to seeding. Cool season grasses and some weeds, if not

eliminated prior to seeding, will usually re-occur and out compete young WSG that do not have good seedling vigor in their first year. Row crops or small grains are ideal sites for WSG establishment since the sites have had some weed control prior to WSG seeding. Cool season grasses and weedy fields can be planted to an annual row crop such as corn or small grains the year to WSG seeding as site preparation.

If not cropped the year before WSG seeding, cool season grasses and weedy fields must be plowed and disked or treated with a systemic herbicide such as Roundup (glyphosate) in late summer or early fall prior to spring seeding. These sites will also usually require additional weed control (herbicides, disking, mowing) during the seeding year. Plateau herbicide provides control of cool season grasses and many weeds, has both pre-emergent and post emergent activity, does not harm most WSG and is commonly used in WSG establishment. Plateau may damage switchgrass and coastal panicgrass and should not be used in establishing pure stands of either grass.

Soil Amendments

WSG benefit from reduced weed competition on low pH and low fertility sites. On fertile sites, cool season grasses and weeds will have advantages over WSG. All sites to be seeded to WSG should have a soil test prior to seeding. Do not apply lime if the pH is 5.0 or higher. Do not apply any fertilizer before planting or at planting time. If soil tests reveal very low levels of P or K, apply P and or K in the second growing season at rates recommended by soil test.

Seeding

Most WSG seeds have long awns or beards that make seeding through

conventional seed drills difficult or impossible. Several no-till native grass seeders are available in New Jersey from the US Fish & Wildlife Service and other conservation groups. Switchgrass deertounge and coastal panicgrass do not have awned seeds and can be seeded with conventional seed drills that handle grass seed.



No-till seeding WSG into crop residue, fallow fields or sod killed by herbicides can be effective, especially on steeper slopes where plowing and disking can create an erosion hazard. Placing seed at the proper depth is critical, especially in no-till seedings. Seed placed too deep or too shallow may not germinate. Seed should be planted only 1/8"-1/4" deep. Up to 30% of the seeds planted may be seen on the soil surface immediately after the drill has passed. If no seeds are visible on the soil surface you are probably seeding too deep. Very heavy residue at planting time may make exact seed placement difficult. Heavy residue can be mowed or disked prior to seeding to provide easier conditions for placement of seed with a no-till drill. No-till drills can also be used on plowed and disked seedbeds as long as the seedbed is firm prior to planting. Seedbeds can be firmed by cultipacking before seeding.

WSG can be broadcast seeded with spinner spreaders on a conventionally prepared seedbed but seeding rates should be increased about 50% for

broadcast seeding. Broadcast seedings must be cultipacked after seeding to ensure good soil to seed contact. In fact cultipacking twice after broadcast seeding is recommended, with the second pass at a 90 degree angle to the first pass.

Seeding rates depend upon the purpose of the seeding (filter strip, forage use, wildlife, aesthetics), site conditions and seeding methods used. Seeding rates in table 1. assume a seeding for wildlife purposes, the seed is drilled and seed amounts are "pure live seed". Only purchase seed from a reputable seed dealer and seed that is certified. A seed analysis tag should appear on any certified seed purchased. The tag will show the percent purity and the germination rate. From these percentages one can calculate the weight of seed needed to provide a pound of pure live seed. For example, a seed lot which has an 80% germination rate and is 90% pure has a PLS percentage of 72% ($.90 \times .80 = .72$). If you need to plant 5 pounds per acre of PLS you would need about 7 pounds of this seed (5 divided by $.72 = 6.9$). Grass species should be purchased and bagged separately and they can be mixed on-site at seeding time.

Preferred seeding dates for native grasses are different than for conventional cool season grass seedings. WSG do not start to grow until soil temperatures are above 50 degrees. Generally this is during the month of May in New Jersey. Seedings can be successful into June if good soil moisture is present. Generally weed competition is greater earlier in the spring. Late spring plantings with herbicide applications, at planting time, will have fewer weed problems. Late spring plantings can run the risk of a dry summer period, which can cause stress to the young seedlings. Fall seedings cannot be done as with conventional

grass/legume plantings in August and September. Any fall planting must be done after the growing season in late October or November. These will be dormant season plantings and will not germinate until late spring of the following year.

Seeds of some WSG species require a freeze/thaw cycle to break seed dormancy. Most of this dormant seed will not germinate until the year after seeding. Fall seedings of WSG (Late October-November) will ensure all seed will go through this freeze/thaw cycle before germination of the stand the following spring. Fall seedings may need additional weed control in the spring to ensure any competing weeds or cool season grasses are controlled when the WSG seeding germinates in May and June.

Weed Control After Seeding

Remember WSG are very slow to establish. Do not expect to see much of a stand during the first growing season. Monitor weeds for competition. Do not let cool season grasses and weeds get taller than 12" high. To control weeds, mow at a height of about 4"-6". This should allow sunlight to reach the soil surface and not damage the young warm-season grass seedlings. Management in second and third years will consist of further monitoring of weeds and the new WSG seedlings.



If dense competition from cool season grasses persists, treat with an herbicide such as Round-up or Plateau or mow very closely before the warm-season grasses growth begins (in April or early May). Later in the spring or summer continue to mow stands to control competition at a height of 8"-10". If dense weed competition persists in the fall of year two treat with an herbicide such as Round-up or Plateau or mow very closely.

If weed problems continue into the third year, continue to treat as above with herbicides or mowing. Remember if establishment is for wildlife, some weeds are acceptable. Established stands should be mowed at least once every other year. Prescribed burning is a good alternative to mowing. Mowing and burning should be done in late winter or very early spring to provide the best wildlife habitat. The stand will continue to fill out and become more dominant with this management as time goes on. Many warm-season grass stands will thrive for many years once you get past the difficult established process.

Table 1. Some Warm Season Grasses – Characteristics, Site Requirements and Seeding Rates

WSG Species	Seed Type/ Drill Needed	Height at Maturity	Wildlife Value	Soil pH Preference	Soil Moisture Regime	Seeding Rate(PLS)/Ac. Alone / In a Mix
Switchgrass	Hard/Conventional Drill	3'-7' depending on variety	High Value food, winter cover, nesting sites	Moderately acidic to moderately basic	Moist sites to dry sites	8 lbs. / 2 lbs.
Coastal Panicgrass	Hard/Conventional Drill	3'-5'	High Value food, winter cover, nesting sites	Strongly acidic to slightly basic	Dry sites to droughty sites	8 lbs. / 2 lbs.
Indiangrass	Fluffy/Native Grass Drill	4'-7'	Medium Value Winter cover, nesting sites	Slightly acidic to slightly basic	Dry sites to droughty sites	5 lbs. / 3 lbs.
Little Bluestem	Fluffy/Native Grass Drill	2'-3'	Medium Value Winter cover, nesting sites	Slightly acidic to weakly basic	Dry sites to droughty sites	4 lbs. / 2 lbs.
Big Bluestem	Fluffy/Native Grass Drill	6'-8'	High Value food, winter cover, nesting sites	Slightly acidic to weakly basic	Moist sites to dry sites	6 lbs. / 3 lbs.
Deertounge	Hard/Conventional Drill	1'-3'	Medium Value food, nesting sites	Strongly acidic to slightly basic	Dry sites to droughty sites	8 lbs. / 2 lbs.
Sideoats Grama	Fluffy/Native Grass Drill	1'-2'	Medium Value Winter cover, nesting sites	Neutral to weakly basic	Dry sites to droughty sites	4 lbs. / 2 lbs.

Planting Plan for Warm Season Grasses

Landowner:

Assisted By:

Tract Number:

Primary Purpose of Planting:

Recommended Planting Date:

Wildlife Species Targeted:

Site Prep. Needed:

Soil Amendments Needed:

Herbicides/Tillage Used:

Grass/Forb Species	Cultivar (if any)	Acres to Seed	Lbs. / Acre	Total Lbs. Needed	Comments
Nurse Crops Used					

Attach aerial photo of planting site showing field locations of all plantings

Practice Checkout:

Amount completed: _____ units

Mark as-built location on plan map and attach photos.

Remarks _____

This practice meets NRCS standards and specifications

Yes

No

Check out completed by: _____ Date: _____

Certified by: _____ Date: _____