

Pasture and Hay Planting

Cool Season Grass Establishment

WV Conservation Practice Job Sheet

Code 512



DEFINITION

Establishing native or introduced forage species. This practice applies on cropland, pasture, hayland, and other lands where the establishment of cool season grasses are needed and feasible for forage production and/or conservation.

PURPOSE

This job sheet should be used to establish cool season grass stands and mixed stands of grass and compatible legumes as part of a conservation plan for livestock. This should be used to establish adapted and compatible species, varieties, or cultivars.

This can also be used to improve or maintain livestock nutrition and/or health, extend the grazing season, reduce soil erosion, improve water quality, balance forage supply and demand during low periods of low forage production, and increase carbon sequestration.

Planting Dates

March 15 – April 15

August 15 – September 15

Methods of Seeding and Requirements

Stands may be established either by conventional, no-till, or frost seeding methods.

When seeding by *conventional methods*, plowing and disking should be done deep enough to kill all existing vegetation and to incorporate lime and fertilizer into the top 4 – 6 inches of soil. Any existing rills and gullies should be eliminated and a firm seedbed prepared. The surface should be reasonably smooth, free of ridges, rocks, and other obstructions.

The seeding may be done with a drill, cultipacker-seeder, cyclone seeder, hydro-seeder, or other suitable equipment. The seed should be covered a depth of ¼ to ½ inches in a firm seed bed. A roller or cultipacker will ensure a good seed to soil contact.

When seeding by *no-till methods*, eliminate competitive vegetation by heavy grazing, mowing and/or herbicides.* When pure stands of alfalfa are planted, competitive growth must be well controlled.

Undesirable species should be controlled by applying a suitable herbicide at least two weeks before the seeding date.

Insecticides* should be applied to control potential insect infestations. This is especially needed when pure stands of alfalfa are seeded.

Seed must be placed in firm contact with the mineral soil at a depth of ¼ to ½ inches. Depth control bands or other controls should be used to ensure proper placement of seed. **Packer wheels are essential.**

When using the *frost seeding method*, refer to *West Virginia University Extension Service Fact Sheet – Frost and Walk-in Clover Seedings*.

Seed Requirements

All seed and materials shall be labeled and meet state seed quality law standards. (*WV Code – Chapter 19, Article 16*)

Legume seed shall be inoculated with the proper, viable rhizobia before planting. FOTG Reference – Penn State Agronomy Fact Sheet 11 - Inoculation of Forage and Grain Legumes

<http://croproil.psu.edu/extension/facts/agfact11.pdf>

Seeding Materials and Rates

Specified seeding and plant material rates shall be consistent with documented guidance in *Table 1 of the standard or an approved FOTG Reference*.

Lime requirements should be based on a soil test. Lime will be applied to correct pH within the range for each species as follows:

Alfalfa and Birdsfoot trefoil 6.5 – 7.0

All other legumes, smooth bromegrass, bermudagrass, reed canarygrass, orchardgrass, switchgrass, big bluestem, and caucasian bluestem 6.0 – 7.0

Apply fertilizer based on results of soil tests made by West Virginia University, other land grant institutions, or competent private laboratories. For general recommendations in the absence of a soil test, use information contained in current Field Office Technical Guide Reference – “The Agronomy Guide, Pennsylvania” or the NRCS Plants Data Base (<http://plants.usda.gov>) Fact Sheets.

OPERATION AND MAINTENANCE

Livestock shall be excluded until the plants are well established.

Always allow enough time for establishment prior to harvest or disturbance of the stand.

Growth of seedlings or sprigs shall be monitored for water stress. Water stress may require reducing weeds, early harvest of any companion crops, irrigating when possible, or replanting failed stands, depending on the severity of drought.

Invasion by undesirable plants shall be controlled by cutting, using a selective herbicide, or by grazing management by manipulating livestock type, stocking rates, density, and duration of stay.

Insects and diseases shall be controlled when an infestation threatens stand survival.

Evaluate forage stands each season or as needed to determine management inputs needed to achieve the desired purpose(s).

Specifications

Site-specific requirements are listed on the specification sheet. Additional provisions are entered on the job sketch sheet. Specifications are prepared in accordance with the NRCS Field Office Technical Guide and the Pasture and Hay Planting practice standard (512). Information on this job sheet is considered to be part of the conservation plan.

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Client:	Farm #:	A no-till drill is available from this Conservation District office: ☐ YES ☐ NO Phone: (____) _____
Field(s):	Tract #:	
Prepared By:	Date:	

Purpose (check all that apply)	
<input type="checkbox"/> Establish adapted and compatible species, varieties, or cultivars.	<input type="checkbox"/> Balance forage supply and demand during periods of low forage production.
<input type="checkbox"/> Improve or maintain livestock nutrition and/or health.	<input type="checkbox"/> Reduce soil erosion and improve water quality.
<input type="checkbox"/> Extend the length of the grazing season.	<input type="checkbox"/> Increase carbon sequestration.

Seeding Recommendation Reference (Check One)	
<input type="checkbox"/> <i>Table 1</i> (Seed Mixtures and Rates per Acre)	<input type="checkbox"/> FOTG Reference Virginia Cooperative Extension Agronomy Handbook – Part II Forage Crops http://www.ext.vt.edu/pubs/agronomy/part2.pdf , Pages 33 and 34.
<input type="checkbox"/> FOTG Reference, Penn State Agronomy Guide - Recommended Forage Mixtures and Seeding Rates (Table 1.8 – 5). http://agguide.agronomy.psu.edu/cm/sec8/table1-8-5.cfm	<input type="checkbox"/> FOTG Reference WVU Extension Service Fact Sheet – Forage Species Adapted to the Northeast http://www.caf.wvu.edu/~forage/forglvst/5823.pdf
<input type="checkbox"/> <i>West Virginia University Extension Service Fact Sheet – Frost and Walk-in Clover Seedings.</i> http://www.caf.wvu.edu/~forage/5312.htm	<input type="checkbox"/> Other – Approved by the Resource Section.

Layout	Field _____	Field _____	Field _____
Seed Mixture and Rate (List from the above references) lbs/acre			
Target Animal Species			
Lime (tons/acre)			

Fertilizer (tons/acre)			
Planting Method ¹			
Site Preparation Method ²			
Site Preparation Treatment Date			
Herbicide (if known & applicable)			
Herbicide Application Dates			
Planting Date(s)			
Total Area Planted (acres)			

¹ Identify how the field is to be established: **No-Till Drilled** or **Conventional** (disked and drilled or broadcast), **Frost Seeded**.

² List the site preparation method to be used: **Grazing, Herbicide, Mechanical, Annual Row Crop** or any appropriate combination. Refer to the "Site Preparation" section of this job sheet for instructions.

Site Preparation (select method)
<p>A. Site Preparation for No-Till Method</p> <p><input type="checkbox"/> Graze heavy or mow as low as possible to remove as much of the existing vegetation as possible. Additional requirements:</p> <p><input type="checkbox"/> Apply an approved herbicide to kill existing vegetation at the rate recommended by the West Virginia University Extension Service in the fall on or by _____ (date). Where dense sods exist, apply a second application on remaining vegetation after spring green-up once vegetation has reached 4-6 inches on or by _____ (date). Follow all label precautions and directions. Wait a minimum of two weeks or as directed by the product label and plant. <i>All Herbicide applications should be performed when vegetation is actively growing.</i> Additional requirements:</p> <p><input type="checkbox"/> The site will be prepared by grazing followed by an application of herbicide as recommended by the West Virginia University Extension Service on or by _____ (date). Follow all label precautions and directions. Wait a minimum of two weeks or as directed by the product label and plant. <i>All Herbicide applications should be performed when vegetation is actively growing.</i> Additional requirements:</p>
<p>B. Site Preparation for Conventional Method</p> <p><input type="checkbox"/> The seedbed should be prepared by disking and/or plowing to a depth of 3 inches. After disking, make at least one trip over the field using a cultipacker to firm the seedbed. Ensure that the seedbed is dry and firm to obtain the proper planting depth. Wet soils should not be cultipacked or planted. Additional requirements:</p> <p><input type="checkbox"/> The site will be prepared by grazing followed by a disking and/or plowing to a depth of 3 inches. After disking, make at least one trip over the field using a cultipacker to firm the seedbed. Ensure that the seedbed is dry and firm to obtain the proper planting depth. Wet soils should not be cultipacked or planted. Additional requirements:</p>
<p>C. Site Preparation for Frost Seeding Method</p> <p><input type="checkbox"/> In the fall, graze the pasture or hay field to remove excess forage growth. Additional requirements:</p>

Planting Method (select method)

- No-Till Drill** - Establish vegetation according to the specified seeding rate of _____ lbs/acre. Seed must be placed in firm contact with the mineral soil at a depth of ¼ to ½ inches. Depth control bands or other controls should be used to ensure proper placement of seed. *Packer wheels are essential.* Check depth of seed frequently during planting.

Additional requirements:

- Conventional tillage** - Seed may be broadcast if accomplished in a uniform manner. No more than ⅓ of the seed should be visible on the soil surface. Seeding depth should never exceed ¼ inch. A roller or cultipacker should be used to ensure good seed to soil contact.

Additional requirements:

- Frost Seeding** - Spread the seed during the winter when freezing and thawing of the ground is producing frost action with ice crystals coming out of the ground. This is usually between late January and late February when the snow is off the ground. If there is not sufficient frost action after applying the seed, allow your cattle to walk the pastures to tread the seed into the soil surface. Only do this when the soil is firm so that the cattle will not punch the soil and push the seed too deep into the soil.

Additional requirements:

Operation and Maintenance

Follow the procedures and methods for Operation and Maintenance as outlined in this job sheet.

Livestock shall be excluded until the plants are well established. Control undesirable plants by cutting, selective herbicide, or by grazing management by manipulating livestock type, stocking rates, density, and duration of stay. Insects and diseases shall be controlled when an infestation threatens stand survival. Evaluate forage stands each season or as needed to achieve the desired purpose(s).

Inspect and calibrate all equipment.

Growth of seedlings shall be monitored for water stress. Water stress may require reducing weeds, early harvest of any companion crops, irrigating when possible, or replanting failed stands, depending on the severity of the drought.

Additional requirements:

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If needed, an aerial view or a side view of the practice can be shown below. Other relevant information, complementary practices and measures, and additional specifications may be included.

Additional Notes, Specifications, Requirements, etc.

For more information concerning this practice contact:

_____ at _____

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