United States Department of Agriculture
Natural Resources Conservation Service

# PASTURE AND HAY PLANTING

## Winter and Summer Annual Forage Planting

## Virginia Conservation Practice Job Sheet 512(d)

**Definition of Practice**
Establishing a stand of winter or summer annual forage as part of a resource management conservation plan.

**Purpose**
This practice should be used to establish winter and/or summer annual forages as part of a conservation plan for livestock. This practice may 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 periods of low forage production, improve soil quality, and increase carbon sequestration.

**Conditions where Practice Applies**
This practice applies on cropland, pastureland, hayland, and other lands where winter or summer annual forages are needed for pasture or hay.

**Establishment Specifications**
Depending on the species and desired use, winter or summer annual forages may be established in either spring or fall throughout Virginia. However, planting dates and adapted species vary widely across the state. See Table 1 for dates, seeding rates, and species. See Page 3 for specific establishment recommendations for your farm.

Stands of winter or summer annual forage may be established by conventional or no-till methods. Regardless of the seeding method used, care should be taken to avoid planting the seed too deep. Avoid planting or cultipacking in wet soil since it may result in placing the seed too deep. If soil erosion is a concern during the establishment period, then it is highly recommended to use a no-till method of planting. This will protect the soil in the field and reduce the potential off-site effects of soil erosion.

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. Lime and fertilizer applications will be applied according to the recommendations of an approved soil testing facility. Any rills and gullies should be eliminated. The surface should be reasonably smooth, free of ridges, rocks, and other obstructions and a firm seedbed prepared. A dry, firm seedbed is critical to avoid planting seed too deep and to ensure good seed-to-soil contact. The seeding may be done with a drill, cultipacker seeder, cyclone seeder, hydro-seeder, or other suitable equipment. The seed should be planted to a depth of 1/8 to 2 inches (depending on the species) in a firm seedbed. A roller or cultipacker will ensure a good seed-to-soil contact. Cultipack or roll the seeded area only once to ensure good seed-to-soil contact and the proper seeding depth. Conventional seeding may be used for establishment on areas that have been recently cropped, where weedy competition will be reduced, and where the risk of soil erosion is minimal.

Use of adapted and compatible species, varieties, or cultivars is important to the success of the planting. Seed will conform to minimum state standards for purity, germination, and other features. Seed tags and other information may be requested by an NRCS representative to verify seed quality. Never compromise seed quality.

When seeding by *no-till methods*, care needs to be exercised with no-till drills to ensure correct seed flow and seeding depth. Calibrate the drill and when planting, check the seeding depth often to avoid planting too deep. Do not pull the drill too fast. Seed must be placed in firm contact with the mineral soil at a depth of 1/8 to 2 inches depending on the species seeded. Depth control bands or other controls should be used to ensure proper placement of seed. ***Packer wheels are essential.*** Eliminate competitive vegetation by heavy grazing, mowing and/or herbicides. 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.

**Weed Control before Planting**

Weed control is critical to ensuring a good stand of winter or summer annual forage. In most situations, control should begin prior to the seeding and seedbed operations. Either conventional seedbed preparation or herbicide applications or both may be used to control weeds prior to establishment. When using pesticides, consult your local Virginia Cooperative Extension (VCE) agent for specific pesticide recommendations or the VCE Pest Management Guide located @ http://www.ext.vt.edu/pubs/pmg/. Always follow the label instructions when using pesticides.

**Operation and Maintenance**

After planting, competition control remains an important part of establishing winter or summer annual forages. Post emergent herbicides may also be used during the establishment period as recommended by your local extension agent. Livestock shall be excluded until the plants are well established. Allow enough time for establishment prior to harvest or disturbance of the stand. 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 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 grazing period. Insects and diseases shall be controlled when an infestation threatens stand survival. Evaluate forage stand to determine management inputs needed to achieve the desired purpose(s).

## Specifications

Site-specific requirements are listed on this specification sheet. This job sheet is provided as a component of a resource conservation plan. Plan maps, location of fields to be planted, complementary conservation practices and measures, grazing schedule, other relevant information and additional specifications may be included. Specifications are prepared in accordance with the NRCS Field Office Technical Guide. See Conservation Practice Standard *Pasture and Hay Planting* (512).

| | | |
|---|---|---|
| **Client:** | **Farm #:** | A no-till drill is available from the SWCD office:<br>☐ YES ☐ NO |
| **Field(s):** | **Tract #:** | |
| **Prepared By:** | **Date:** | Phone: (_____)_____ |

| **Purpose** (check all that apply) | |
|---|---|
| ☐ Establish adapted and compatable species, varieties, or cultivars. | ☐ Balance forage supply and demand during periods of low forage production. |
| ☐ Improve or maintain livestock nutrition and/or health. | ☐ Reduce soil erosion and improve water quality. |
| ☐ Extend the length of the grazing season. | ☐ Improve soil quality. |
| ☐ Increase carbon sequestration. | ☐ |

| **Specifications** | **Field _____** | **Field _____** | **Field _____** |
|---|---|---|---|
| **Seed Mixture and Rate** | | | |
| **Lime** (tons/acre) | | | |
| **Fertilizer** (tons/acre) | | | |
| **Planting Method** | | | |
| **Site Preparation Method** | | | |
| **Site Preparation Treatment Date** | | | |
| **Herbicide** (if known & applicable) | | | |
| **Herbicide Application Dates** | | | |
| **Planting Date(s)** | | | |
| **Total Area Planted** (acres) | | | |

## **Site Preparation** (select method)

**A. Site Preparation for No-Till Method**

☐ Graze heavy or mow as low as possible to remove as much of the existing vegetation as possible. **Additional requirements:**

☐ Apply an approved herbicide to kill existing vegetation at the rate recommended by the Virginia Cooperative Extension Service in the fall on or by _____ (date). Where dense sods exists, 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. *All Herbicide applications should be performed when vegetation is actively growing.* **Additional requirements:**

☐ The site will be prepared by grazing followed by an application of herbicide as recommended by the Virginia Cooperative 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. *All Herbicide applications should be performed when vegetation is actively growing.* **Additional requirements:**

**B. Site Preparation for Conventional Method**

☐ The seedbed should be prepared by disking and/or plowing to a depth of 4-6 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:**

☐ The site will be prepared by grazing followed by a disking and/or plowing to a depth of 4-6 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:**

## **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. . *Packer wheels are essential.* Check depth of seed frequently during planting. Depth control bands or other controls should be used to ensure proper placement of seed.

**Additional requirements:**

☐ **Conventional tillage -** Seed may be broadcast if accomplished in a uniform manner. A roller or cultipacker should be used to ensure good seed-to-soil contact. No more than ⅓ of the seed should be visible on the soil surface. Seeding depth should never exceed recommendations in table 1. If planting with a drill check depth of seed frequently during planting.

**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:**

If needed, an aerial view may be provided. Other relevant information, complementary practices and measures, and additional specifications may be included. See Conservation Plan for field and practice locations.

| Additional Notes, Specifications, Requirements, etc. |
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**For more information concerning this practice contact:**

_____ **at** _____

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## Recommended Seeding Dates

| Forage | Seeding Rate | Coastal Plain | Southern Piedmont | Mountain/Valley Northern Piedmont | Desired pH | Seeding Depth |
|---|---|---|---|---|---|---|
| **Winter Annuals** | | | | | | |
| Oats, winter | 65-80 | 9/25-10/15 | 9/1-10/1 | Not recommended | 6.0-6.5 | 1”-2” |
| Oats, spring | 65-80 | Not recommended | 3/1-4/1 | 3/15-4/15 | 6.0-6.5 | 1”-2” |
| Annual ryegrass | 15 in mixtures<br>30 alone | 9/15-11/15 | 9/1-11/1 | 8/15-10/15 | 5.8-6.2 | 1/4”-1/2” |
| Wheat | 150 for grazing | One week before to one week after first killing frost in fall. | | | 5.8-6.2 | 1”-2” |
| Rye | 90-100 for grazing | 2 to 4 weeks after first killing frost in fall | | | 5.8-6.2 | 1”-2” |
| Barley | 120 | 2 weeks before first average killing frost in fall | | | 6.0-6.5 | 1”-2” |
| Triticale | 120 | One week before to one week after first killing frost in fall. | | | 5.8-6.2 | 1”-2” |
| **Summer Annuals** | | | | | | |
| Crabgrass | 6 | 4/1-5/15 | 4/15-5/15 | 5/1-6/1 | 5.8-6.2 | 1/8”-1/4” |
| Millet, Pearl | 15 drilled<br>30 broadcast | 4/1-6/15 | 5/1-6/15 | 5/15-6/15 | 5.5-6.5 | 1/2”-1” |
| Millet, Foxtail | 15 drilled<br>30 broadcast | 4/1-6/15 | 5/1-6/15 | 5/15-6/15 | 5.8-6.2 | 1/2”-1” |
| Sorghum, forage | 20 with drill or corn planter | 1-2 weeks after corn planting; soil needs to be at least $60^0$F at seeding depth throughout germination. | | | 5.8-6.2 | 1”-2” |
| Sudangrass | 20 in rows<br>35 broadcast | 2 weeks after corn planting; soil needs to be at least $60^0$F at seeding depth throughout germination. | | | 5.8-6.2 | 1/2”-1” |
| Sorghum-sudangrass | 30 in rows<br>40 broadcast | 2 weeks after corn planting; soil needs to be at least $60^0$F at seeding depth throughout germination. | | | 5.8-6.2 | 1” |

Table 1