

CT Forage and Biomass Planting – 512

Conservation Practices Job Sheet		<i>Lifespan – 5 years</i>	
Producer:		Location:	
Farm, Tract and Field(s):		Planner:	
Program:		Date:	



Definition

Forage and Biomass Planting refers to the establishment of adapted and/or compatible species, varieties, or cultivars of herbaceous species suitable for pasture, hay, or biomass production.

Purpose

These practices are commonly used for one or more of the following purposes:

1. Improve or maintain livestock nutrition and/or health.
2. Provide or increase forage supply during periods of low forage production.
3. Provide erosion control.
4. Improve soil and water quality.
5. Improve plant vigor and health.
6. Produce feedstock for biofuel or energy production

Where used

This practice applies to all lands suitable for the establishment of herbaceous species for forage or biomass production. This practice does not apply to the establishment of annually planted and harvested food, fiber, or oilseed crops.

Criteria, Considerations, and Specifications

The Criteria, Considerations, and Specifications used to plan this practice shall be in concurrence with the CT Field Office Technical Guide and follow the CT Conservation Practice Standard for Forage and Biomass Planting, Practice Code 512.

Resource Management System

A Resource Management system is a combination of conservation practices and resource management, for the treatment of all identified resource concerns for soil, water, air, plants, and animals, within a conservation management or planning unit that meets or

exceeds the quality criteria in the FOTG for resource sustainability.

Forage and Biomass Plantings are applied as part of Conservation Management Systems for crop, hay, and pasture lands. Forage and Biomass Plantings are often planned and are part of Conservation Crop Rotations (328), Stripcropping (585), and Prescribed Grazing (528) Systems. The practices associated with Forage and Biomass Planting will vary by land use, but may include: Nutrient Management (590), Waste Recycling (633), Brush Management (314), Prescribed Grazing (528), and Herbaceous Weed Control (315).

Planting Procedures

The following elements will be addressed in the plan to meet the intended purpose:

1. Site Preparation
2. Fertilizer Application (if applicable)
3. Seedbed/Planting Bed Preparation
4. Methods of Seeding/Planting
5. Time of Seeding/Planting
6. Selection of Species
7. Type of legume inoculants used (if applicable)
8. Seed/Plant Source
9. Seed Analysis
10. Rates of Seeding/Planting
11. Supplemental Water for Plant Establishment (if applicable)
12. Protection of Plantings (if applicable)

Planting Dates

Schedule plantings during periods when soil moisture is adequate for germination and establishment. For most of Connecticut, seeding dates are April 15 to June 15, and August 15 to September 15. In coastal areas the fall seeding dates may be extended to October 1, and spring seedings may be established after April 1, if conditions are suitable.

Soil Fertility

Soil tests samples should be sent to an appropriate soil test lab, such as the University of Connecticut Soil Nutrient Analysis Laboratory. Follow recommended soil sampling procedures. Soil samples should be pulled from the top 4 to 6 inches of topsoil in the fall prior to planting. Follow soil test result recommendations. Apply lime during first tillage operation or at the time of planting. Apply fertilizer just before or at time of planting. Consider split applications of nitrogen to maximize plant uptake and fertilizer use.

Killing existing sod

To kill or subdue the existing vegetative cover, tillage or a combination of tillage and herbicide applications can be used. Herbicide use is often recommended where weed pressure is a concern and where planting will be done with no-till equipment. Surface and ground waters should not be exposed to herbicides. It may be advisable to hire professional assistance if chemical controls are being considered.

To kill the established cover with an herbicide, first mow the field as soon as the field is dry enough to drive on. One to two weeks later, spray the grass with a contact systemic herbicide according to label instructions. Two weeks later, inspect the treated area and spot treat where needed. The last non-selective herbicide application should take place at least one week prior to planting.

No-Till Plantings

Through no-till methods, seed can be drilled into an existing plant cover. No-till plantings may have advantages over tilled plantings by reducing soil erosion and compaction, and by maintaining soil structure and moisture levels. Killing the existing cover with herbicides is suggested only when the vegetation is primarily composed of undesirable plants. Otherwise, mow the stand down to 3 to 4 inches prior to planting.

Seedbed Preparation for Conventional Planting

Disk and/ or harrow the field to break up existing vegetation, bury plant residues, and incorporate fertilizer. If tillage is done early, emerging weeds can be controlled with a contact herbicide or a light harrowing or disking before seeding. During tillage, remove all woody plants and vines to prepare a clean seed bed.

For conventional planting, the seedbed should be firm and free of rocks, weeds, and soil clods. The seedbed is considered firm enough when a footprint penetrates $\frac{1}{4}$ to $\frac{1}{2}$ inch deep. Recently tilled ground should be packed with a coil or roller packer prior to seeding.

Conventional Planting

An advantage of a tilled bed is that it allows for use of a variety of planting equipment such as band, billion-cultipacker, and drill seeders. When using mechanical seeders, ensure seed placement at a depth of $\frac{1}{4}$ to $\frac{1}{2}$ inch.

Broadcasted seed has a very low survival rate. If broadcasting is used, seeding rates must be increased to compensate for expected mortality. Seed should be packed after broadcasting to improve soil-seed contact.

Seeding Mixture

Select a mix suited for the soils and intended use (hay, pasture, or biomass). The mix should contain at least two forage species. The pure live seed (PLS) seeding rate should be a minimum of 10 pounds per acre for mechanical plantings. Suitable seeding mixtures may be found in published Field Crops Guides or Agronomy Guides for Northeastern states, such as the ones published by Penn State, University of Vermont, and Cornell University. Ensure the mix is free of invasive species.

Certification

Producer should communicate with a Natural Resources Conservation Service (NRCS) conservationist prior and during implementation activities. The following information should be used for documentation:

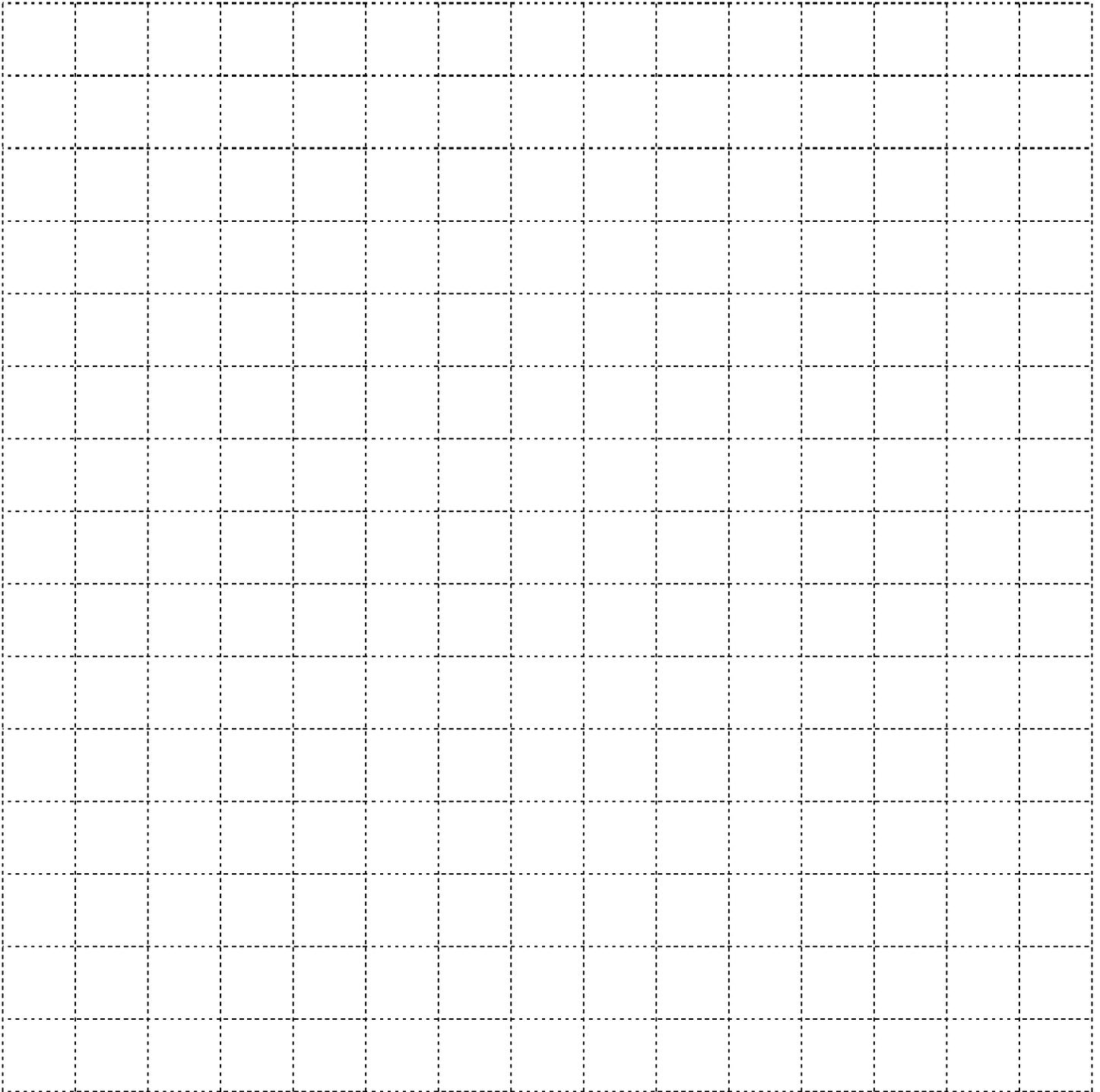
1. Soil Test Results.
2. Lime and Fertilizer Application and/or Manure Application Records.
3. Seed Label from the purchased mix.
4. Seeding Dates

Forage and Biomass Planting– Plan View

Landowner _____

Tract & Field No. _____

Scale 1"= _____ ft. (NA indicates sketch not to scale: grid size=1/2" by 1/2")



Forage and Biomass Planting Plan

Field(s)	Dominant Soil Type (Include texture and drainage)	Planting Method (See Page 3 of Job Sheet)	Species Seeding Rate-Seed Mix (Pounds of Pure Live Seed)	Total Planting Rate (PLS/ac)	Acres	Total Seed Needed (PLS)

Additional Specifications and Notes (Fact Sheets and other guidance documents provided should be listed here):

1. _____

2. _____

3. _____

4. _____

Operation and Maintenance

Follow Operation and Maintenance requirements of practice standard and Operation and Maintenance plan.

The life of the practice can be assured and usually increased by developing and carrying out a good operation and maintenance program that includes well timed harvesting, record-keeping, soil management, and pest management. Management Plan shall be developed according to the standards and specifications for NRCS practices Forage Harvest Management (511) and Prescribed Grazing (528).

Note: Any changes to this plan must be approved by the NRCS representative managing the project.

Concurrence of Participant:	
_____	_____
Participant	Date

Plan Certification:	
_____	_____
NRCS	Date

Forage and Biomass Planting Records

Field(s) ID	Planting Method & Date	Seed Mixture	% of PLS in Mixture	Acres Planted	Pounds of Seed Used	Total PLS (lbs) Planted

Nutrient Application Rate per Acre According to Soil Test Recommendations:

Fields	Acres	Limestone	Phosphorus <i>Lbs. (P2O5)</i>	Potassium <i>Lbs. (K2O)</i>	Nitrogen <i>Form & Lbs.</i>	Manure <i>Tons/ac</i>	Soil Test <i>Lab</i> <i>Number</i>

Attach manure analysis if available. For more detailed soil sampling instructions, visit:
<http://www.soiltest.uconn.edu/factsheets/quesAgronomicGrowers.pdf>

Implementation Notes:

Practice Certification Statement:

I have inspected the implementation of this practice and certify that it has been implemented according to the practice standards and specified in this job sheet.

Certified by:	Title:	Date
---------------	--------	------

Note: Failure to follow the recommendations in this Job Sheet may result in loss of program benefits. Any changes to this plan must be approved by the NRCS representative managing the project.

The United States Department of Agriculture (USDA) prohibits discrimination in its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs and marital or familial status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication program information (Braille, large print, audiotape, etc.) should contact the USDA Office of Communications (202) 720-2791.

To file a complaint of discrimination write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice or TDD). USDA is an equal opportunity provider and employer.