

Cover Crop

Conservation Practice Specification Guide

MA-340



WINTER RYE PHOTO COURTESY OF CORNELL UNIVERSITY N.E.O.N. PROGRAM

GENERAL SPECIFICATIONS

Plans and specifications for the establishment of cover crops or green manure crops shall be prepared for each site or management unit according to the Criteria and Considerations and Operations and Maintenance procedures described in this standard, and shall be recorded on specification sheets, job sheets, in narrative statements in the conservation plan, or other acceptable documentation, in coordination with any other existing or required conservation systems.

When this practice is used to specify the vegetative component of another practice (e.g., grassed waterway, filter strip, etc.), plans and specifications shall meet the requirements of both standards to achieve the intended purpose of the practice. The completed work shall be checked and documented to verify that the practice was completed according to the drawings and specifications of both standards. Documentation shall be in accordance with the section "Supporting Data and Documentation" in both standards.

ESTABLISHMENT

Cover crops may be established mid-season in conjunction with the final cultivation of the main crop, just prior to canopy closure. Cover crops

may also be broadcast and harrowed into the soil following harvest, provided that the date of seeding is no later than the dates specified in Table 2. Cover crops that are established with a grain drill are much more effective and economical than those established via broadcast.

Species Selection

Selection of single species or a combination of species depends on the local climate, intended use, and management resources of the farm. A combination of Winter Rye—Hairy Vetch is very effective as a soil cover and additional nitrogen source, however, this combination requires timely spring plow-down due to Winter rye's vigorous spring growth. Other combinations include Oats—Hairy Vetch, Oats—Red clover, Italian (Annual) Ryegrass—White clover, and Timothy—alfalfa. It is advisable to trial unfamiliar combinations on a small-scale basis to determine if they are suited to the location.

Green Manure Crops

Whereas winter cover crops are planted primarily to prevent soil erosion and capture excess nutrients, green manure crops are grown during the mid-season primarily to increase soil organic matter, suppress weeds, and to improve soil structure and tilth.

Green manure crops such as Buckwheat should be mown or incorporated into the soil before flowering so that it does not become a weed problem.

Sudax, a vigorous warm season grass, should be seeded in June. If sown mid-season, Sudax may be mown several times when it reaches a height of approximately 3 feet. Sudax will regrow 2-3 times during the growing season if 4-6" of stubble is left (above the 2nd growth node of the plant). If Sudax is incorporated in the fall, winter cover crops should be planted thereafter.

Seeding Dates

To produce maximum growth prior to frost, sow winter cover crops as soon as possible after crop harvest. Some cover crops can be sown at the same time or immediately following last cultivation of row crops. If pre-emergent

herbicides were used on the main crop, the cover crop shall be compatible with the herbicide.

If the main goal is to maximize nitrogen uptake following the main season crop, cover crops should be planted no later than the dates indicated in Table 1 shown below. Follow the seeding rates presented in Table 2 on the following page.

Seeding dates for cover crops for soil erosion prevention (which meets NRCS Resource Management System Quality Criteria) are presented in Table 2 on the following page.

Seeding rates for all cover crops and the optimum seeding dates for green manure crops are also presented in Table 2.

Table 1. Seeding Dates for Maximum Nutrient Recovery		
Common Resource Area	Geographic Area	Latest Seeding Date
CRA 143	Berkshires	August 15
CRA 144A	Central and Eastern MA	September 1
CRA 144B	Berkshires Foothills and Worcester Hills (NW)	August 25
CRA 145	Connecticut River Valley	September 1
CRA 149	SE MA, Cape Cod, and Islands	September 15

OPERATION AND MAINTENANCE

The operator will inspect and calibrate equipment prior to use to insure proper rate, distribution and depth of planting material.

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

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.

REFERENCES

- Building Soils for Better Crops. 3rd Ed. Magdoff, F. and H. van Es. Cover Crops. 2009. Sustainable Agriculture Network Handbook Series; Book 10. National Agriculture Library. Beltsville, MD.
- Hargrove, W.L., ed. Cover Crops for Clean Water. SWCS, 1991.
- Herbert, S.J., F.X. Mangan, G. Liu, J. Daliparth, A.V. Barker, and L.J. Moffitt. 1995. Nitrate leaching in alternate cover crop systems. P. 71-74. "Clean Water-Clean Environment-21st Century" Proceedings. Vol.II. Nutrients. ASAE Publ. 2-95.
- Managing Cover Crops Profitably, 3rd Ed Sustainable Agriculture Network. 2007.. Handbook Series, Book 9. Beltsville, MD: National Agricultural Library.
- New England Vegetable Management Guide. 2010-2011. Howell, J.C., A.R. Bonano, R. Hazzard, and M.B. Dicklow, editors.
- Reeves, D.W. 1994. Cover crops and erosion. p. 125-172 In J.L. Hatfield and B.A. Stewart (eds.) Crops Residue Management. CRC Press, Boca Raton, FL

Table 2. Planting Dates & Seeding Rates (Drilled) for Soil Erosion Prevention <i>(If seed is broadcast and disked, increase the seeding rate by 20%)</i>							
Cover Crop Species	Seeding Rates		Latest Seeding Date by Common Resource Area (CRA)				
	Pounds / Acre	Bushels / Acre	CRA 143	CRA 144A	CRA 144B	CRA 145	CRA 149
Cereal Grains (Pure Stands)							
Barley	120	2	Sept 1	Sept 15	Sept 10	Oct 1	Oct 15
Winter Rye	110	2					
Winter Wheat	120	2					
Oats	100	2	Aug 15	Sept 1	Aug 25	Sept 15	Oct 1
Cereal Grains (Seeded with Legumes)							
Barley	40-50	1	Aug 15	Sept 1	Aug 25	Sept 1	Sept 1
Winter Rye	30-40	1					
Winter Wheat	30-40	1					
Oats	50-60	1	Aug 1	Aug 15	Aug 1	Aug 15	Aug 15
Legumes (Pure Stands and Seeded with Grains) <i>Seeding Dates for Pure Legume Stands</i>							
Alfalfa	15-25	¼	Aug 15	Sept 1	Aug 25	Sept 1	Sept 1
Field Pea	60-80	1					
Hairy Vetch	30-40	½					
Red Clover	10-15	¼					
White Clover	10-12	¼					
Grasses							
Annual Ryegrass	30-40	½	Aug 15	Sept 1	Aug 25	Sept 15	Oct 1
Smooth Bromegrass	15	½					
Orchardgrass	10	½					
Main Season Green Manure Crops							
Oats	100-150	2-3	June 15	June 1	June 15	May 15	May 1
Sudangrass and Sudax	30-40	1	June 30	June 15	June 15	June 15	June 15
Buckwheat	60-70	1-2	June 30	July 15	July 15	July 15	July 15