

Landowner: _____

Tract: _____

INTRODUCTION

Cover crops, as well as green manure crops, can provide critical protection to soil resources, as well as enhance soil quality.

This job sheet is designed to assist conservation planners with 1) recording the seed mixes and seeding methods utilized to establish cover crops and green manures; and 2) documenting how the cover/green manure crop will be terminated.

SEEDBED PREPARATION

Prepare a suitable seedbed adequate for the species to be planted and method of planting. This may vary from conventional planting to no-till. No seedbed preparation is required if seeding the cover crop prior to harvest of the primary crop.

Seeding Method

If seeding the cover crop prior to the harvest of the primary crop, it can either be broadcast at the same time or immediately following the last row crop cultivation, or aerial seeded into the growing crop later in the growing season.

If seeding after the harvest of the primary crop, in the fall, or prior to the planting of the next crop in the spring, the cover crop may be drilled, broadcast or aerial seeded and incorporated with light, shallow tillage to cover the seed.

Rate and Date of Seeding

To produce maximum growth, fall-seeded crops should be planted as soon as possible after crop harvest. Spring seeded cover crops can be seeded as early as possible depending on the primary crop to be planted. A growth rate of 10 plants per square foot is considered a successful seeding. Table 1 lists species, seeding rates, and dates. Seeding rates are based on Pure Live Seeds.

Fertilization

Cover crops usually follow heavily fertilized crops and do not require fertilization. A fall-planted fibrous-rooted grass or small grain will scavenge leftover nitrogen from the previous crop. Legume cover crops will add nitrogen to the system for the following crop.

Seed Mixtures for Cover Crops

The seeding mixture used will depend on the purpose. Grasses commonly used for cover crops include annual cereals (rye, wheat, barley, oats, buckwheat), annual or perennial forage grasses such as rye grass, and warm season forages like sorghum and sudangrass. Table 2 provides more information on the performance and roles of cover crops.

Termination

During the cover crop planning process, determine how and when the cover crop will be terminated. Consider the planting dates and growth habits of the crop that will follow when selecting a cover crop and the method of termination, such as winter freezing, mowing, tillage, chemical, or roller crimping.



Table 1
Common Cover Crops Recommended for Planting in Wisconsin

Species	Seeding Rate Drill / Broadcast	Seeding Date (statewide)	Planting Depth (inches)
GRASSES			
Annual Ryegrass (<i>Lolium multiflorum</i>)	22-33 lbs/ac	4/10-6/1, 8/1-9/1	¼ to ½
Barley, Spring (<i>Hordeum vulgare</i>)	55-83 lbs/ac	4/10-6/15, 7/15-8/15	¾ to 1½
Japanese Millet (<i>Echinochloa frumentaceae</i>)	22-28 lbs/ac	6/1-7/15	½ to ¾
Sorghum-Sudangrass (<i>Sorghum bicolor</i> x <i>S. bicolor</i> var. <i>Sudanese</i>)	28-33 lbs/ac	6/1-7/15	½ to 1½
Sudangrass (<i>Sorghum biclor</i>)	28-33 lbs/ac	6/1-7/15	½ to 1
Pearl Millet (<i>Pennisetum glaucum</i>)	22-28 lbs/ac	6/1-7/15	½ to ¾
Wheat, Spring (<i>Triticum aestivum</i>)	65-165 lbs/ac	4/10-6-15,7/15-8/15	¾ to 1½
Barley, Winter (<i>Hordeum vulgare</i>)	55-75 lbs/ac	8/15-9/15	¾ to 1½
Cereal Rye, Winter (<i>Secale cereale</i>)	60-185 lbs/ac	7/15-10/15	¾ to 1½
Oats (<i>Avena sativa</i>)	33-110 lbs/ac	4/10-9/1	½ to 1
Wheat, Winter (<i>Triticum aestivum</i>)	65-165 lbs/ac	8/1-10/1	¾ to 1½
Triticale, Winter (<i>Triticale triticosecale</i>)	65-165 lbs/ac	8/1-10/1	¾ to 1½
NON-LEGUMES BROADLEAF			
Buckwheat (<i>Fagopyrum esculentum</i>)	50-65 lbs/ac	5/15-8/1,	½ to 1
Oilseed Radish(<i>Raphanus sativus</i>)	11-22 lbs/ac	4/10-6/15, 7/15-8/15	½ to ¾
Sunflower (<i>Helianthus annus</i>) (part of a mix)	1-2 lbs/ac	6/1-7/15	1 to 1½
Chicory (<i>Cichorium intybus</i>) (part of mix)	1-2 lbs/ac	4/10-6/1, 8/1-9/1	½ to ¾
Rapeseed/Canola (<i>Brassica napus</i>)	2-6 lbs/ac	4/10-6/15,8/1-8/15	½ to ¾
Forage Turnips (<i>Brassica rapa</i>)	1-5 lbs/ac	4/10-6/15,7/15-8/15	¼ to ½
LEGUMES			
Alfalfa (<i>Medicago sativa</i>)	13-16 lbs/ac	4/15/-6/1,8/1-8/30	¼ to ½
Berseem Clover (<i>Trifolium alexandrinum</i>)	9-17 lbs/ac	6/1-8/1	¼ to ½
Cowpea (<i>Vigna unguiculata</i>)	55-99 lbs/ac	6-1-7/15	1 to 1½
Field Pea (<i>Pisum sativum</i>)	65-100 lbs/ac	4/10-6/15	1 to 1½
Hairy Vetch (<i>Vicia villosa</i>)	17-28 lbs/ac	4/10-6/15, 7/15-9/15	1 to 1½
Peas, Winter (<i>Pisum sativum</i> subsp. <i>arvense</i>)	65-100 lbs/ac	8/1-9/1	1 to 1½
Red Clover (<i>Trifolium pretense</i>)	9-13 lbs/ac	4/10-8/15	¼ to ½
White Clover (<i>Trifolium repens</i>)	7-9 lbs/ac	4/15/-6/1,8/1-8/30	¼ to ½
Crimson Clover (<i>Trifolium incarnatum</i>)	11-17 lbs/ac	6/1-8/1	¼ to ½
RECOMMENDED COCKTAIL MIXTURES			
Forage/Oilseed Radish(50%)	6-11 lbs/ac	8/1-9/1	¾ to 1
Peas, Winter (50%)	33-50 lbs/ac		
Cereal Rye, Winter (50%)	30-93 lbs/ac	7/15-9/15	½ to 1½
Hairy Vetch(50%)	9-14 lbs/ac		
Annual Ryegrass (60%)	13-20 lbs/ac	4/10-6/1, 8/1-9/1	¼ to ½
Oilseed Radish (40%)	5-9 lbs/ac		
Berseem Clover (50%)	5-9 lbs/ac	6/1-8/1	½ to ¾
Oats (50%)	17-55 lbs/ac		
Oats (60%)	20-66 lbs/ac	4/10-6/15, 7/15-9/1	½ to ¾
Oilseed Radish (40%)	5-9 lbs/ac		
Oats (60%)	20-66 lbs/ac	6/1-6/15, 8/1-9/1	¼ to ½
Peas, Winter (40%)	26-40 lbs/ac		
Oilseed Radish	6-11 lbs/ac	8/1-9/1	¾ to 1
Hairy Vetch	9-14 lbs/ac		

Table 2
Identification and Comparison of Performance and Roles of Each Specie

Species	Use ¹	Attribute Ratings ²										
		N-Source	Soil Builder	Erosion Fighter	Weed Fighter	Pest Fighter	N-Scavenger	Grazing	Quick Growth	Non-Fragile Residue	Pollinator	Deep Rooted
Alfalfa (Medicago sativa) ³	C	4	3	3	3	1	2	3	3	1	3	4
Annual Ryegrass (Lolium multiflorum)	C	0	3	3	2	2	3	4	4	2	0	1
Barley, Spring/Winter (Hordeum vulagre)	C	0	3	3	3	1	3	3	3	4	0	1
Berseem Clover(Trifolium alexandrinum) ³	C	4	2	2	2	1	1	4	2	1	3	1
Buckwheat (Fagopyrum esculentum)	C	0	2	3	3	1	3	1	4	0	4	1
Canola/Rape (brassica napus)	C	0	2	3	2	1	3	4	4	1	3	2
Cereal Rye, Winter (Secale cereale)	C	0	4	4	4	3	4	4	4	4	0	1
Chicory (Cichorium intybus)	E	0	2	2	2	0	2	3	2	1	2	3
Cowpea (Vigna unguiculta)	C	3	2	2	2	0	2	3	3	1	2	1
Crimsom Clover (Trifolium incarnatum)	E	3	2	3	2	1	2	4	3	1	4	1
Field Pea (Pisum sativum)	C	2	2	2	1	1	1	2	3	1	2	1
Forage Turnips (Brassica rapa)	C	0	1	3	2	0	3	4	3	1	1	1
Forage/Oilseed Radish (Raphanus sativus)	E	0	2	3	3	1	4	3	3	1	3	3
Hairy vetch (Vicia villosa)	C	4	2	2	3	2	1	0	2	1	2	1
Japanese Millet(Echinochloa frumentaceae)	C	0	3	3	3	3	3	3	4	4	1	3
Oats (Avena sativa)	C	0	3	3	3	2	3	4	4	2	0	1
Pea, Winter (Pisum sativum subsp. arvense)	C	2	2	2	1	1	1	2	3	1	2	1
Pearl Millet (Pennisetum glaucum)	C	0	3	3	4	2	3	4	4	4	1	2
Red Clover (Trifolium pretense) ³	C	4	3	3	3	1	2	4	3	2	4	3
Sorghum-Sudangrass (Sorghum bicolor x S. bicolor var.-Sudanese)	C	0	4	4	4	2	4	4	4	4	2	3
Sudangrass (Sorghum bicolor)	C	0	4	3	4	3	4	4	4	4	2	2
Sunflower (Helianthus annus)	E	0	2	2	2	1	3	1	3	3	3	3
Triticale, Winter (Triticale triticosecale)	C	0	3	3	3	2	3	4	3	4	0	1
Wheat (Spring/Winter) Triticum aestivum	C	0	3	3	3	2	3	4	3	4	0	1
White Clover (Trifolium repens) ³	C	2	2	1	1	2	3	3	3	3	2	0

¹Use: C=Common Use – considerable state knowledge regarding species use.

E=Emerging Use – limited state knowledge regarding species use.

²Attribute Ratings: 0=Poor, 1=Fair, 2=Good, 3=Very Good, 4=Excellent

³Legumes such as alfalfa and red clover may cause bloating of ruminant animals. Take necessary precautions to prevent bloat when grazing cover crops that contain these legumes.

SEEDING MIXTURE

Minimum Pure Live Seed (PLS) Rate Per Acre and Total Pounds of Seed Needed

Tract _____		Field _____		Acres _____
Species	Seeding Date	Rate Per Acre (lbs.)	Seeding Method	Termination Method

Tract _____		Field _____		Acres _____
Species	Seeding Date	Rate Per Acre (lbs.)	Seeding Method	Termination Method

Tract _____		Field _____		Acres _____
Species	Seeding Date	Rate Per Acre (lbs.)	Seeding Method	Termination Method

Failure to plant this seed mixture as specified may result in loss of program benefits.