Cover Crop (340)
Conservation Practice Job Sheet
Natural Resources Conservation Service – Idaho **January 2012**

Definition
A cover crop is a crop that is not harvested or generally grazed but is grown to benefit the soil and/or other crops in numerous ways. Benefits include: reduced soil erosion, improved soil quality, reduced weed and insect/nematode pressures. Cover crops are grown during or between primary cropping seasons. Legume crops fix atmospheric nitrogen into a form plants and microorganisms can use. In areas with nitrogen ground water problems non-legume species can recycle existing soil nitrogen and can reduce the risk of excess nitrogen (N) leaching into ground water.

Purpose
Cover crops function by:

- Reducing erosion from wind and water.
- Sequester carbon in plant biomass and soils to increase soil organic matter content.
- Capture and recycle excess nutrients in the soil profile.
- Promote biological nitrogen fixation and reduce energy use.
- Increase biodiversity.
- Weed suppression.
- Soil moisture management.
- Minimize and reduce soil compaction.

Condition Where Used
Cover crops are used on all lands requiring vegetative cover for natural resource protection and or additions of nutrients and organic matter.

Resource Management System

Cover crops are normally established concurrently with other practices as part of a resource management system for a conservation management unit. They should be annually installed when vegetative material is needed as green growth of residue to protect an area against wind and water erosion or to enhance the nutrient and organic contents of the soil resource. When mixing cover crop species generally split rate at in half, several combinations can be split 60/40.
A cover crop is considered part of the crop rotation. Cover crop residue shall not be burned.

Wildlife

Cover crops can enhance wildlife objectives, depending on the vegetative species used and management practiced. Using native or adapted vegetative species can improve the wildlife values of a cover crop as well as biodiversity. Avoid mowing during nesting periods.

Operation and Maintenance

Terminate cover crop as late in the summer or fall as possible allowing adequate vegetative growth to protect against erosion during critical erosion stages.
When managing for soil nutrient additions, incorporate leguminous cover crops just before or at full bloom. To eliminate potential insect or disease infestations associated with growing green tissue (the green bridge) cover crops should be terminated at least two-three weeks prior to planting the next crop. If established for wildlife habitat, avoid termination during the nesting period of ground-nesting wildlife. Control undesirable weed species. Fertilize to soil test recommendations to maintain a vigorous stand. Only particular strains of rhizobium provide optimum nitrogen production for each group of legumes. Rhizobium is purchased by type or legume group. If seed is not inoculated when purchased coat the seed with milk, weak sugar water or a commercial sticking agent to help the material stick to the seeds.

Table 1 and 2 list single species seedings recommendations. Mixing species can greatly increase biological diversity. See Agronomy Tech Note #56 Cover Crops for additional information.

Specifications

Additional provisions are entered on the job sheet. Specifications are prepared in accordance with the NRCS Field Office Technical Guide. See practice standard Cover Crop, code 340. Additional references are cited on the standard.

Table 1. Legume cover crop species with associated agronomic data.

Species	Life Cycle	Potential Fixed Nitrogen (lbs /A)	Seeding Rate (lbs /A)	Seeding Depth (inches)	Rhizobium Inoculant Type
Legumes					
Annual medic*	SA	40-100	10-20	1/4 to1/2	A
Berseem clover*	SA	60-90	10-20	1/4 to1/2	R
Crimson clover*	SA	50-60	10-20	1/4 to1/2	R
Austrian peas	SA / WA	30-100	70-120	1 to 2	C
Hairy vetch	WA	60-180	30-60	1/4 to1/2	C
Sweetclover (yellow)	B	70-90	4-10	1/4 to1/2	A
Alfalfa	P	50-150	10-20	1/4 to1/2	A
White clover	P	60-100	4-8	1/4 to1/2	B
Medium red clover	P	60-70	6-12	1/4 to1/2	B
Alsike clover	P	60-70	3-6	1/4 to1/2	B

Table 2. Non Legume cover crop species with associated agronomic data.

Species	Life Cycle	Seeding Rate (lbs /A)	Seeding Depth (inches)
Buckwheat*	SA	35-70	1/4 to1/2
Forage turnips	SA	3-5	1/4 to1/2
Forage radish	SA	12-25	1/4 to1/2
Oilseed radish	SA	12-25	1/4 to1/2
Mustards (White)	SA	8-16	1/4 to1/2
Mustards (Oriental)	SA	8-16	1/4 to1/2
Canola / Rape	SA/WA	8-16	1/4 to1/2
Annual ryegrass	SA	15-30	1/4 to1/2
Barley	SA / WA	50-100	1 to 2
Rye*	SA / WA	Not recommended	1 to 2
Triticale	SA / WA	60-120	1 to 2
Wheat	SA / WA	60-120	1 to 2
Oats	SA	50-100	1 to 2
Sudangrass	SA	35-70	1 to 2

*Cover crops currently not commonly used in Idaho
Notes:
Life cycles: P = perennial, WA = winter annual, SA = summer annual, B = biennial
Nitrogen values vary depending on cover crop densities and date of planting

Landowner_____Field#_____Tract#_____

Purpose (check all that apply)	
_ Reduce erosion from wind or water	_ Capture and recycle nutrients in the soil profile
_ Increase soil organic matter	_ Soil moisture management
_ Weed suppression	_ Increase biodiversity
_ Promote biological nitrogen fixation and reduce energy use	_ Minimize and reduce soil compaction
Tillage Management: __Conventional /Mulch till or __No till **Primary Resource Concern:** __Erosion or __Soil Quality	

Planned Operation Layout	**Field __**	**Field __**	**Field __**
Soil Map Unit(s)			
Soil Conditioning Index (Before/After)	/	/	/
Soil Condition Index -Planned organic matter sub factor (WEPS or RUSLE2)			
Soil Loss (Before/After) (WEPS or RUSLE2)	/	/	/
Plant Materials (species / cultivars)	**Seeding Rate** (Lbs/acre pure live seed)	**Seeding Date**	**Termination Date**
Field 1			
Field 2			
Field 3			

Fertilization	**Field __**	**Field __**	**Field __**
N credited for following crop			
N Fertilizer per Soil Test (lbs/acre)			

Seedbed preparation
Prepare a firm, weed-free seedbed. Cultivate seedbed and leave firm so that an average person's tracks are not more than 1/2" deep. No-till plantings may also be completed. Additional requirements:

Planting Methods
Drill (preferred) or broadcast uniformly over the area based on Tables 1 and 2, Additional requirements:

Operation and Maintenance
Perform all seedbed preparation and planting operations in a manner that will minimize erosion until cover is established. Control weeds in the cover crop, if necessary, by mowing or herbicide application. Terminate cover crop as late as possible to maximize plant growth while retaining adequate soil moisture for the subsequent crop. To avoid insect or disease infestations associated with green tissue, terminate cover crop at least 2-3 weeks prior to planting the next crop.

Additional Specifications and Notes

Certification:
The producer has received a copy of the practice specification and understands the contents and requirements. I (planner) certify that this practice has been installed /applied in accordance with NRCS standards and specifications. Planner: _____ Producer: _____ Date: _____ Date: _____