

Soil Quality Enhancement Activity - SQL02 – Continuous Cover Crops



Continuous Cover Crops

Growing continuous *seasonal* cover crops of grasses, legumes or forbs following all annual crops during all the non-crop production periods of the rotation.

Continuous cover cropping is applicable to conventional, specialty and organic crop production systems.

Land Use Applicability

This enhancement is applicable on cropland.

Benefits

Growing seasonal cover crops during all non-crop periods between annual crops reduces wind and water erosion. Cover crops also restore and maintain soil productivity and soil quality over a wide range of climates and crop species. They do so by increasing organic matter, improving soil fertility, breaking pest cycles and providing habitat for soil macro-fauna, such as earthworms.

Criteria

Implementation of this enhancement requires continuous cover crops during the non-crop production period of the rotation. The cover crops must meet 2 or more of the following criteria:

1. High bio-mass cover crops for erosion control and increased soil organic matter improvement.
 - Plant a cover crop with a growth potential to produce a minimum of 2,000 lbs/acre (dry weight) above ground bio-mass when terminated by harvest, frost, mowing, tillage, crimping, and/or herbicides in preparation for the following crop.
2. Legume cover crops for biological nitrogen fixation.
 - Plant a leguminous cover crop between two primary crops in the rotation, or plant a leguminous crop that replaces one of the primary crops. This enhancement does not apply to legumes that are normally part of the crop rotation. It shall be seeded at a rate recommended by the NRCS Field Office technical Guide. Estimate nitrogen credits from the leguminous crop and base any additional N applications according to the guidelines of the Land Grant University.
3. Non-leguminous cover crops to capture and recycle residual nitrogen.
 - Plant a cover crop with a growth rate and rooting depth sufficient to scavenge excess nitrogen from the root zone of the previous crop. Seed the cover crop at the rate recommended by the NRCS Field Office Technical Guide. Reduce the nitrogen recommendation for the following crop by the amount of nitrogen estimated to have been scavenged and recycled by this cover crop.



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This enhancement does not apply to the same acres on which a leguminous cover crop is applied.

4. Cover crops for weed suppression.

- Plant a cover crop with the chemical and physical characteristics necessary to suppress or compete with the identified target weed species. Leave cover crop residues on the soil surface to maximize the allelopathic (chemical) and mulching (physical) effects. Select cover crops as recommended in the NRCS Field Office Technical Guide or from the Land Grant University as appropriate.

5. Biodiversity improvement with cover crops.

- Plant cover crop species with the characteristics to attract beneficial insects such as pollinators and/or predator insects, serve as trap crops for damaging insects, and/or provide natural bio-fumigation for soil dwelling pests. Select cover crops to meet the planned objective as recommended in the NRCS Field Office Technical Guide or from the Land Grant University as appropriate.

Documentation Requirements

- Crop rotation records, including rotation length in years, crops and cover crops planted.
- Sequence and description of operations for each crop and cover crop including harvest, tillage, nutrient placement and planting/seeding



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NH State Supplement SQL02 – Continuous Cover Crops

Cover Crop Recommendations

1. **High bio-mass cover crops for erosion control and increased soil organic matter improvement.**

Species	Rate ^{a,b} lbs/acre	Latest Seeding Date*	
		North	South
Winter Rye	120	Sep 15	Oct 1
Triticale	120	Sep 15	Oct 1
Spring /Winter Wheat	120	May 31/Sep 15	May 31/Oct 1
Spring/Winter Barley	120	May 31/Sep 1	May 31/Sep 15
Spring/Winter Oats	120	May 31/Sep 1	May 31/Sep 15
Annual Ryegrass	20-30	Sep 1	Sep 15
Sorghum Sudangrass	40-50	Jun 15	Jun 15
Japanese Millet	30-35	Jun 15	Jun 15
Pearl Millet	30-35	Jun 15	Jun 15

2. **Legume cover crops for biological N Fixation.**

Species	Rate lbs/acre	Latest Seeding Date*	
		North	South
Red Clover	10-15	May 31/Aug 25	May 31/Sep 1
White Clover	8-12	May 31/Aug 25	May 31/Sep 1
Hairy Vetch	30-35	Aug 15	Sep 1
Field Pea	120-140	May 15	Apr 30
Crimson Clover	30	Jun 1	Jun 1
Subterranean Clover	30	Jun 1	Jun 1
Lupine	100	Jun 1	Jun 1
Soybean	100-120	Jun 30	Jun 30
Cowpea	120-140	Jun 30	Jun 30

Legume seed shall be inoculated with appropriate bacteria

3. Non-leguminous cover crops to capture and recycle residual nitrogen

Species	Rate ^{a,b} lbs/acre	Latest Seeding Date*	
		North	South
Winter Rye	120	Sep 15	Oct 1
Triticale	120	Sep 15	Oct 1
Spring /Winter Wheat	120	May 31/Sep 15	May 31/Oct 1
Spring/Winter Barley	120	May 31/Sep 1	May 31/Sep 15
Spring/Winter Oats	120	May 31/Sep 1	May 31/Sep 15
Annual Ryegrass	20-30	Sept	Sep 15
Sorghum Sudangrass	40-50	Jun 15	Jun 15
Forage Radish	10-20	Aug 15	Aug 25
Forage Turnip	10-15	Aug 15	Aug 25
Oilseed Rape	10-20	Aug 15	Aug 25
Mustard	10-15	Aug 15	Aug 25
Arugula	4	Aug 15	Aug 25

4. Cover crops for weed suppression

Species	Rate ^{a,b} lbs/acre	Latest Seeding Date*	
		North	South
Winter Rye	120	Sep 15	Oct 1
Triticale	120	Sep 15	Oct 1
Spring /Winter Wheat	120	May 31/Sep 15	May 31/Oct 1
Spring/Winter Barley	120	May 31/Sep 1	May 31/Sep 15
Spring/Winter Oats	120	May 31/Sep 1	May 31/Sep 15
Annual Ryegrass	20-30	Sept 1	Sept 15
Sorghum Sudangrass	40-50	Jun 15	Jun 15
Japanese Millet	30-35	Jun 15	Jun 15
Pearl Millet	30-35	Jun 15	Jun 15
Forage Radish	10-20	Aug 15	Aug 25
Forage Turnip	10-15	Aug 15	Aug 25
Oilseed Rape	10-20	Aug 15	Aug 25
Mustard	10-15	Aug 15	Aug 25
Arugula	4	Aug 15	Aug 25
Buckwheat	75-90	Jun 1-Aug 1 ^c	May 15- Aug15 ^c
Hairy Vetch	30-35	Aug 15	Sept 1
Subterranean Clover	30	Jun 1	Jun 1
White Clover	8-12	May 31/Aug 25	May 31/Sep 1
Soybean	100-120	Jun 30	Jun 30
Cowpea	120-140	Jun 30	Jun 30

5. Biodiversity improvement with cover crops

Species	Rate ^{a,b} lbs/acre	Latest Seeding Date*	
		North	South
Forage Radish	10-20	Aug 15	Aug 25
Forage Turnip	10-15	Aug 15	Aug 25
Oilseed Rape	10-20	Aug 15	Aug 25
Mustard	10-15	Aug 15	Aug 25
Arugula	4	Aug 15	Aug 25
Forage Radish	10-20	Aug 15	Aug 25
Hairy Vetch	30-35	Aug 15	Sept 1
Subterranean Clover	30	Jun 1	Jun 1
Red Clover	10-15	May 31/Aug 25	May 31/Sep 1
White Clover	8-12	May 31/Aug 25	May 31/Sep 1
Lupine	100	Jun 1	Jun 1
Cowpea	120-140	Jun 30	Jun 30

* North = Coos, Grafton, and Carroll counties, South = all other counties

^aFor cereal grains that are broadcast and disked into the soil, increase seeding rate by 30%

^bFor cereal grains mixtures, decrease seeding rate of grain by 30%

^c Seeding dates represent the range of dates (*i.e.* plant any time between Jun 1 and Aug 1)

Use lower rates for drilling, higher rates for broadcast seeding

References

Björkman, T. 2008. Cover Crops for Vegetable Growers. Cornell University New York Agricultural Experiment Station. <http://www.nysaes.cornell.edu/hort/faculty/bjorkman/covercrops/why.html>

Clark, Andy (ed.). 2007. Managing Cover Crops Profitably, 3rd ed. Sustainable Agriculture Network, Beltsville, MD. <http://www.sare.org/publications/covercrops/covercrops.pdf>