

## Soil Quality Enhancement Activity – SQL02 – Continuous cover crops



### Enhancement Description

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.

### Landuse Applicability

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.

### Conditions Where Enhancement Applies

This enhancement applies to all acres of annually planted cropland. These acres can be organic, transitioning to organic, or non-organic.

### Criteria

Implementation of this enhancement requires continuous cover crops during the non-crop production period of the rotation. For the purposes of this enhancement, the cover crop shall not be grazed. Further, 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 3,000 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.
  - Growth potential lists for selected cover crops are available in “Managing Cover Crops Profitably, 3<sup>rd</sup> Edition” (Sarrantonia, 1998).
2. Legume cover crops for biological nitrogen fixation.
  - Plant a leguminous cover crop between two primary crops in the rotation. 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.
- Consider reducing the nitrogen recommendation for the following crop by an estimated amount based on the site conditions both before and during the cover crop's growing period, the cover crop species, and the termination phase of the cover crop.

*Note: 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 and seeding rates 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.

**Adoption Requirements**

This enhancement is considered adopted when two or more of the criteria are met on land use acreage.

**Documentation Requirements**

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

## Indiana CSP Enhancement Supplemental Information

### **SQL02 – Continuous Cover Crops**

#### **General guidance and references:**

1. Seeding rates, seeding dates, species selection and approved mixes are found in the IN-FOTG- Section IV-[340-Cover Crop Standard](#), Job Sheet and/or the IN Seeding Tool
2. Frost dates- USDA –NASS-  
[http://www.nass.usda.gov/Statistics\\_by\\_State/Indiana/Publications/Annual\\_Statistical\\_Bulletin/0405/pg16.pdf](http://www.nass.usda.gov/Statistics_by_State/Indiana/Publications/Annual_Statistical_Bulletin/0405/pg16.pdf)
3. SARE- *Managing Cover Crops Profitably*-  
<http://www.sare.org/publications/covercrops.htm>

#### **Criteria**

1. **High bio-mass cover crops for erosion control and increased soil organic matter improvement.** Dry matter estimates can be found on page 67 of SARE- *Managing Cover Crops Profitably- 3<sup>rd</sup> edition*. Summer and fall seeded cover crops that will be terminated by frost will be planted a minimum of 45 days prior to the normal (50% probability- USDA-NASS) first frost for your county. Over wintering cover crops will be terminated no earlier than 10 days prior to normal (50% probability- USDA-NASS) last frost date for your county in the spring. Any cover crop reaching the reproductive stage (boot-grasses & first bud-legumes or forbs) of growth is acceptable.
2. **Legume cover crops for biological nitrogen fixation.** Cover crop or no less than 50% of a cover crop mix shall be a legume.
3. **Non-leguminous cover crops to capture and recycle residual nitrogen.** Cover crop or no less than 50% of a cover crop mix shall be at least one of the following: Annual Ryegrass, Barley, Cereal Rye, Oats, Triticale, wheat, sudangrass, sorghum-sudangrass, millet, brassicas, radish, rape, turnip. They will be planted no later than: 5 days after crop harvest in the fall or 10 days after manure application in the summer. The Nitrogen credit will be at least 10#/ac.
4. **Cover crops for weed suppression.** Refer to charts on pages 66-72 in SARE- *Managing Cover Crops Profitably*
5. **Biodiversity improvement with cover crops.** Refer to charts on pages 66-72 in SARE- *Managing Cover Crops Profitably*