

Soil Quality Enhancement Activity – SQL05 – Use of deep rooted crops to break up soil compaction



Enhancement Description

This enhancement is for the use of deep rooted crops to break up compacted soils and improve soil quality. Deep rooted crops can be perennial plants like alfalfa or annual plants like forage radish.

Land Use Applicability

Cropland

Benefits

Soils can have naturally occurring compacted layers (hard pans) or those that have been created through tillage or other farming activities. Deep rooted crops with large taproots can alleviate the effects of soil compaction by penetrating the compacted layer, creating pore space that allows air, water and crop roots to penetrate deeper in the soil profile. Eliminating soil compaction through the use of deep rooted crops increases infiltration, reduces surface runoff, improves soil tilth and overall soil quality. It also eliminates the need for sub-soiling with a plow, thus saving fuel, reducing erosion and enhancing water quality.

Criteria

1. The selected crop must be one that has been identified as having the capability of alleviating soil compaction (state specific lists are available in NRCS Field Office Technical Guide).
2. If perennial plants are used, once established, they must be maintained annually by proper fertilization and mowing/harvesting.
3. Annual crops should be seeded early enough in the fall to allow for adequate growth to occur prior to winter (Follow NRCS 340 standard).
4. No deep tillage is allowed to remove compacted layer.

Documentation Requirements

1. Written documentation for each year of this enhancement describing the following items:
 - a. Deep rooted crops used and dated planted.
 - b. Cash crop planted and method used.
1. A map showing fields where the enhancement is applied.
2. Photographs of a representative number of fields showing deep rooted crops.

Indiana CSP Enhancement Supplemental Information

SQL05 – Use of Deep Rooted Crops to Breakup Soil Compaction

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
3. SARE- *Managing Cover Crops Profitably*-
<http://www.sare.org/publications/covercrops.htm>

Criteria

IN List of acceptable crops:

1. A cover crop or cover crop mix, with no less than 50%, of the following: annual ryegrass, barley, cereal rye, triticale, wheat, brassicas, radish, rape, or any legume.
2. A winter cereal grain crop, with a legume or a non-legume with a tap root system (i.e. brassicas) inter-seeded or seeded within 2 weeks of harvest, as a cover crop.
3. Any perennial crop, with a 30% legume composition, which is maintained for at least 24 months.