

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.

**ALABAMA SUPPLEMENT TO ENHANCEMENT SQL05 USE OF DEEP ROOTED CROPS
TO BREAK UP SOIL COMPACTION**

The use of deep rooted cover crops can be used to breakup soil compaction and improve soil quality. This enhancement requires using a deep rooted cover crop listed below. If the selected cover crop is a perennial it must be properly maintained with fertilization and mowing and or harvesting. Annual cover crops should be managed to allow adequate growth to breakup soil compaction. Additionally, no deep tillage can be used to eliminate soil compaction. Refer to the NRCS Conservation Practice Standard Cover Crops, 340, for information on planting dates and rates.

Documentation Requirements:

1. For each year of this enhancement, written documentation describing the deep rooted cover crop used, and the cash crop planted and the method of planting.
2. A map showing fields where the enhancement is applied.
3. Photographs of a representative number of fields showing the deep rooted crops.

Annual Deep Rooted Crops		Perennial Deep Rooted Crops
Turnip		Alfalfa
Radish		Bahiagrass
Canola		
Sorghum-sudangrass		
Barley		
Wheat		
Rye		
Ryegrass		
Cowpeas		
Hairy Vetch		
Red Clover		
Sweet clover		

References:

Managing Cover Crops Profitably, 3rd Edition

<http://www.sare.org/publications/covercrops/covercrops.pdf>

Cover crops and rotations. D.W. Reeves

http://www.ars.usda.gov/SP2UserFiles/Place/64200500/csr/ResearchPubs/reeves/reeves_94e.pdf

NRCS, Conservation Practice Standard Cover Crops (340)

<http://efotg.sc.egov.usda.gov/references/public/AL/340rev04.pdf>

ALABAMA SUPPLEMENTAL INFORMATION FOR THIS ENHANCEMENT

SQL05 - Use of Deep Rooted Crops to Break up Soil Compaction

Documentation Form

Producer Name:				Date:	County:
Tract Numbers	Field Number(s)	Deep Rooted Crop Planted	Planting Date	Cash Crop Planted	Planting Method Used

Attach map showing fields and acreage where enhancement applied. Also, attach representative photographs of deep rooted crop plantings.

The supplied documentation accurately reflects the implementation of this enhancement.

SIGNATURE: _____