United States Department of Agriculture
Natural Resources Conservation Service

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 for Use of Deep Rooted Crops to Break up Soil Compaction

- 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).
- If perennial plants are used, once established, they must be maintained annually by proper fertilization and mowing/harvesting.
- Annual crops should be seeded early enough in the fall to allow for adequate growth to occur prior to winter (Follow NRCS 340 standard).
- No deep tillage is allowed to remove compacted layer.

Documentation Requirements for Use of Deep Rooted Crops to Break up Soil Compaction

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

TENNESSEE SUPPLEMENTAL INFORMATION FOR THIS ENHANCEMENT

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

Deep Rooted Crops
alfalfa
forage chicory
red clover
forage radish

Documentation Form

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