

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.

Conditions Where Enhancement Applies

This enhancement applies to all crop land use acres.

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 at your local NRCS Field Office.
2. If perennial plants are used and 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 specifications provide by your local NRCS Field Office.
4. No deep tillage is allowed to remove compacted layer.

Adoption Requirements

This enhancement is considered adopted when the selected deep rooted cover crop has been grown in a given rotation on the land use acre.



United States Department of Agriculture
Natural Resources Conservation Service

2012 Ranking Period 1

Documentation Requirements

1. Written documentation for each year describing the following items:
 - a. Deep rooted crop(s) used and dated planted.
 - b. 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.

North Dakota Requirements

Acceptable legume species include, but are not limited to: Alfalfa, Beets, Canola, Corn, Radish (oils seed or forage), Safflower, Sorghum, Sugarbeet, Sunflower, Sweet Clover, and Turnips.

North Dakota Recommendations for CSP Cover Crop Enhancements

Refer to the ND NRCS 340 Standard and Specifications and the ND-NRCS-305 Cover Crop Workbook for species recommendations and planning guidance.

Use of Legume Cover Crops as a Nitrogen Source – ENR12

Acceptable legume species include, but are not limited to:

Alfalfa	Hairy Vetch
Sweet Clover	Soybean
Edible Beans	Cowpea
Peas	Berseem Clover
Lentil	Medic

Continuous Cover Crops - SQL02

Specific NRCS cover crop recommendations will be based on the identified purposes and resource needs as discussed with the client.

Use of Cover Crop Mixes – SQL04

Specific NRCS cover crop mixture recommendations will be based on the identified purposes and resource needs as discussed with the client.

Use of Deep-Rooted Crops to Breakup Soil Compaction – SQL05

Acceptable legume species include, but are not limited to:

Alfalfa	Sorghum
Beets	Sugarbeet
Canola	Sunflower
Corn	Sweet Clover
Radish (oils seed or forage)	Turnips
Safflower	

Plant an Annual Cover Crop Species That Will Scavenge Residual Nitrogen - WQL10

Acceptable species include, but are not limited to:

Annual Ryegrass	Safflower
Barley	Sunflower
Canola	Triticale
Oat	Turnip
Radish	Wheat
Rye	Winter wheat