

**Vermont State Supplement, Soil Quality Enhancement Activity – SQL05 – Use of Deep Rooted Crops to Break up Soil Compaction**  
**Vermont Supplemental Information in Blue Font**

**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. [See VT Deep Rooted Crops List.](#)
- 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. [Refer to and follow VT NRCS Cover Crop \(340\) standard and associated Job Sheet. Seek assistance from NRCS in proper management.](#)  
[http://www.vt.nrcs.usda.gov/technical/Conservation\\_Practices/Index.html](http://www.vt.nrcs.usda.gov/technical/Conservation_Practices/Index.html)
- No deep tillage is allowed to remove compacted layer.

**[Vermont Accepted Deep Rooted Crops List](#)**

**Non-Legume**

[Sorghum-sudan grass](#)

**Brassicac**

[Forage Radish](#)

**Legumes**

[Alfalfa](#)

[Sweet clovers](#)

**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.