

Effects of NRCS Conservation Practices - National

Deep Tillage

Performing tillage operations below the normal tillage depth to modify adverse physical or chemical properties of a soil.

Code: 324

Units: ac.

AL-Aso Land
 O-Other
 W-Water
 D-Developed
 FS-Farmstead
 Pr-Protected
 P-Pasture
 R-Range
 F-Forest
 C-Crop

Typical Landuse: C F R P Pr FS D W O AL

<u>Soil Erosion</u>	<u>Effect</u>	<u>Rationale</u>
Soil Erosion - Sheet and Rill Erosion	0	Not Applicable
Soil Erosion - Wind Erosion	0	Not Applicable
Soil Erosion - Ephemeral Gully Erosion	0	Not Applicable
Soil Erosion - Classic Gully Erosion	0	Not Applicable
Soil Erosion - Streambank, Shoreline, Water Conveyance C	0	Not Applicable
<u>Soil Quality Degradation</u>		
Organic Matter Depletion	-4	Deep tillage can bury the organic horizon and reduce the organic matter content by diluting it with subsoil materials. The mixing and inversion action of deep moldboard plows, or the lifting and fracturing of deep rippers increases the oxidation of organic matter.
Compaction	5	Ripping breaks up compaction, improves plant soil moisture, promotes root growth, and soil structure.
Subsidence	-1	Deep tillage causes mixing and aeration. Histosols are subject to subsidence if drained and tilled. Deep tillage will increase oxidation of organic soils.
Concentration of Salts or Other Chemicals	2	Improved infiltration and porosity leaches salts. Deep plowing will bury and dilute the contaminant.
<u>Excess Water</u>		
Excess Water - Seeps	-2	Deep tillage may temporarily increase soil water content.
Excess Water - Runoff, Flooding, or Ponding	0	Not Applicable
Excess Water - Seasonal High Water Table	2	Deep ripping a tillage pan or fragipan can remove a perched water table in the root zone.
Excess Water - Drifted Snow	0	Not Applicable
<u>Insufficient Water</u>		
Insufficient Water - Inefficient Use of Irrigation Water	2	Increases infiltration and reduces runoff.
Insufficient Water - Inefficient Moisture Management	2	Deep tillage increases infiltration and reduces runoff.
<u>Water Quality Degradation</u>		
Pesticides in Surface Water	0	Not Applicable
Pesticides in Groundwater	0	Not Applicable
Nutrients in Surface water	1	Increase in infiltration may be negated by the increased erosion of the bare and loosened soil conditions that result from the deep tillage method.
Nutrients in Groundwater	-2	Deep ripping increases infiltration resulting in greater leaching potential.
Salts in Surface Water	1	Deep ripping increases infiltration, reducing runoff and erosion.
Salts in Groundwater	0	Not Applicable
Excess Pathogens and Chemicals from Manure, Bio-solic	0	Not Applicable
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Excessive Sediment in Surface Water	0	Not Applicable														
Elevated Water Temperature	0	Not Applicable														
Petroleum, Heavy Metals and Other Pollutants Transport	0	Not Applicable														
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<u>Air Quality Impacts</u>																
Emissions of Particulate Matter (PM) and PM Precursors	-2	Intensive tillage can increase emissions of particulate matter.														
Emissions of Ozone Precursors	-1	Intensive tillage can increase emissions of NOx and VOC from tractor engines.														
Emissions of Greenhouse Gases (GHGs)	-1	Intensive tillage can release stored soil carbon as carbon dioxide.														
Objectionable Odors	0	Not Applicable														
<u>Degraded Plant Condition</u>																
Undesirable Plant Productivity and Health	2	Enhanced root growth and the reduction of concentrated contaminants improves plant health and vigor.														
Inadequate Structure and Composition	0	Not Applicable														
Excessive Plant Pest Pressure	0	Not Applicable														
Wildfire Hazard, Excessive Biomass Accumulation	0	Not Applicable														
<u>Fish and Wildlife - Inadequate Habitat</u>																
Inadequate Habitat - Food	0	Not Applicable														
Inadequate Habitat - Cover/Shelter	0	Not Applicable														
Inadequate Habitat - Water	0	Not Applicable														
Inadequate Habitat - Habitat Continuity (Space)	0	Not Applicable														
<u>Livestock Production Limitation</u>																
Inadequate Feed and Forage	2	Forage production may be enhanced by increasing rooting depth and vigor.														
Inadequate Shelter	0	Not Applicable														
Inadequate Water	0	Not Applicable														
<u>Inefficient Energy Use</u>																
Equipment and Facilities	0	Not Applicable														
Farming/Ranching Practices and Field Operations	0	Not Applicable														
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