Practice: 324 - Deep Tillage

Scenario: #1 - Deep Tillage less than 36 inches

Scenario Description:

Compacted layers caused by tillage operations or restrictive soil layers such as hardpans (duripans) in the root zone restrict plant growth through adverse soil conditions. Deep tillage fractures the compacted zone below the restrictive soil layer to improve soil structure. Restricted layer is less than 36 inches in depth.

Associated Practices: Conservation Crop Rotation (328), Residue and Tillage Management - No-Till/ Strip Till/ Direct Seed (329), Cover Crop (340), Residue Management, Seasonal (344), and Nutrient Management (590)

Before Situation:

Soil layers have been compacted by shallow tillage operations or soils have a hardpan (duripan) layer that is restricting root growth and impacting water infiltration in the soil. A typical 40 acre field is compacted through conventional tillage or heavy trucks to assist with the harvest of row crops (onions, sugar beets, potato, corn silage). Soil structure is reduced, aggregate strength is weak, and soil biological activity is low. Soil organic matter is not adequate and the water holding capacity of the soil is limited for the desired root zone.

After Situation:

A penetrometer and visual observation of limiting root growth is used to measure soil compaction. Penetrometers are used to identify the severity (psi) of the compaction and the depth of the restrictive layer. Deep tillage operations such as subsoiling, paratilling, or ripping are preformed to relieve compaction at depths less than 36 inches. The fractured zone will permit root penetration below the restrictive soil layer.

Scenario Feature Measure: Acre

Scenario Unit: Acre

Scenario Typical Size: 40

Scenario Cost: $926.65 **Scenario Cost/Unit:** $23.17

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Ripper or subsoiler, 16 to 36 inch depth	1235	Deep ripper or subsoiler, (16-36 inches depth) includes tillage implement, power unit and labor.	Acre	$20.74	40	$829.60
Labor						
Specialist Labor	235	Labor requiring a specialized skill set: Includes Agronomists, Foresters, Biologists, etc. to provide additional technical information during the planning and implementation of the practice. Does not include NRCS or TSP services.	Hour	$97.05	1	$97.05