

SOIL TILLAGE INTENSITY RATING

Soil Tillage Intensity Rating (STIR) is an index used to evaluate the kind, severity and number of ground disturbing passes on soil quality. This is an important index because soil quality is the capacity of a soil to perform functions critical to its intended use. In other words, how well a soil does what we want and need it to do.

STIR is based on four components that impact the kind and severity of soil disturbance. The Revised Universal Soil Loss Equation, Version 2 (RUSLE2) is the official tool used by the Natural Resources Conservation Service to evaluate the STIR.

STIR RATING COMPONENTS

- Operational speed of tillage equipment.
- Tillage type.
- Depth of tillage operation.
- Percent of the soil surface area disturbed.



STIR ratings range from 0 to 200. A low STIR value, indicates less overall disturbance to the soil layer. A low STIR value would be associated with a cropping system that has a reduced risk of sheet, rill and wind erosion, an increasing amount of soil organic matter, improved water infiltration rates, lower soil carbon losses and improved soil consolidation conditions, summarized as better soil health. By definition, no-till operations require a STIR value of 20 or less AND no more than 30% of the surface disturbed by planting, nutrient applications or other associated surface disturbing practices. Low disturbance manure incorporation can fit within the definition of no-till when managed appropriately.

WAYS TO IMPROVE (LOWER) A STIR VALUE

- Reducing tillage or converting to a no-till system.
- Eliminating full width tillage.
- Adding perennial crops (alfalfa/grasses) to rotation.