



Soil Conditioning Index (SCI)

What is it?

How can I improve my score?

What is a Soil Conditioning Index?

Soil Conditioning Index (SCI) is a tool that can predict the consequences of cropping systems and tillage practices on the trend of soil organic matter. It provides a means to evaluate and design conservation systems that maintain or improve soil condition. Organic matter is a primary indicator of soil quality and an important factor in carbon sequestration and global climate change.

SCI gives an overall rating taking into consideration biomass production, field operations, and erosion rates. If the rating is negative, the level of soil organic matter is predicted to decrease under the system. If the rating is positive, the level is predicted to increase under the system. Values near zero suggest the organic matter will be maintained near the current level. An upward trend in SCI will be an outcome of land management decisions based on improving the soil resource.

RUSLE2 is the official NRCS tool that is used to calculate SCI.

Goal of the Soil Conditioning Index

To increase the SCI (Soil Conditioning Index) through improved management of the cropping system that builds organic matter, reduces tillage and controls erosion.

Components of the Soil Conditioning Index

OM is Organic Material: This component accounts for the effect of organic material returned to the soil. Organic material from plant or animal sources may be either (a) grown and retained on the site, or (b) imported to the site.

FO is Field Operations: This component accounts for the effect of field operations which stimulate organic matter breakdown. Tillage, planting, fertilizer application, spraying and harvesting crush and shatter plant residues and aerate or compact the soil. These effects increase the rate of residue decomposition and affect the placement of organic material in the soil profile.

ER is Erosion: This component accounts for the effect of removal and/or sorting of surface soil material by the sheet, rill and/or wind erosion processes which are predicted by water and wind erosion models. It does NOT account for the effect of concentrated flow erosion such as ephemeral or classic gullies. Erosion contributes to loss of organic matter and decline in long-term productivity.

Things You Can Do To Increase Your Score (Scores range from -2 to +2, +2 being the best)

- ◆ Raise crops that produce high amounts of residue that is retained on the field.
- ◆ Utilize cover crops when possible to increase organic matter.
- ◆ Utilize manure or crop mulch to add organic matter to the soil.
- ◆ Limit the number of tillage operations.
- ◆ Limit the amount of soil disturbance each operation creates.
- ◆ Minimize the amount of wind and water erosion occurring on the field.
- ◆ Use production techniques that will increase crop and residue production.