

Example of Biological, Physical & Chemical disturbances on Soil Health

No-Till (biodiversity with minimal soil disturbance drives soil health)



Cover Crop mix (grasses, legumes & brassicas): Soil building/nutrient cycling



Crop Rotation (Soil building/nutrient cycling)

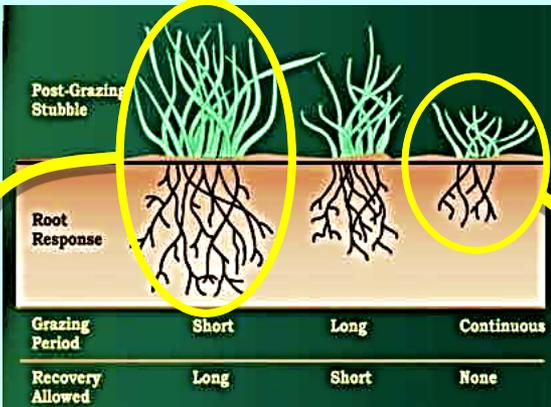


Soil Health Planning Principles:

- Use plant diversity to increase the diversity in the soil biota
- Keep a living root growing throughout the year
- Keep the soil covered as much as possible
- Manage more by disturbing less
- Livestock integration where applicable

Biological Disturbance (e.g., Grazing)

Overgraze: to graze land excessively, to the detriment of the land and its vegetation.



Physical Disturbance (e.g., Tillage)



Soil tillage can increase soil erosion and CO2 emission (i.e., reducing soil carbon pool), & it disrupts ecosystem processes (i.e., negatively affects the Soil Food Web).

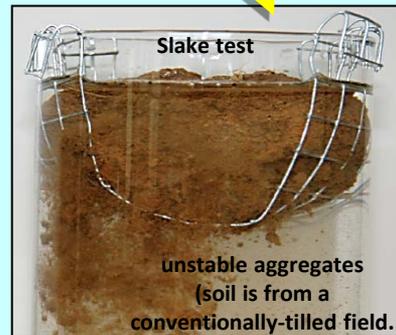
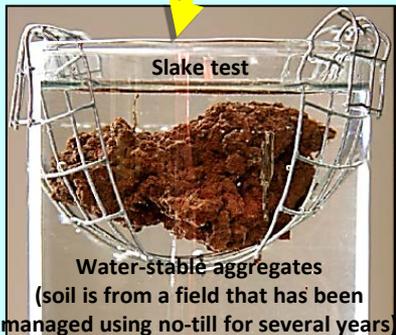
Chemical Disturbance (e.g., Fertilizer)



Excessive N fertilizer applications' can hasten soil organic matter decomposition. Therefore, when used, incorporate the 4R concept: Right fertilizer source at the Right rate, at the Right time and in the Right place.



Crumbly soils (left) have more pores & channels than cloddy soils (right). Pores & channels allow air and water to move into the soil.



Additional Soil disturbances that affect the SFW: Drought, Salinity, Broad-spectrum pesticides, monocultures, fire, compaction, erosion, water-saturated soil, fallow, etc.

Tests/observations to consider in evaluating soil health: NRCS Soil Quality Test Kit, Solvita Respiration test, Slake test, number of earthworms/square foot, rooting depth, soil stratification, % SOM, soil tilth/structure, Soil Food Web analysis, soil temperature, other (e.g., soil tissue analysis, standard soil tests, plant vigor, yield/quality, etc.)