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INFORMATION

- Overall, this meta-analysis indicated the following. 1) N fertilization and straw addition increased microbial necromass accumulation in semi-arid and cool climates, whereas NT/RT and cover crops were more effective at doing this under humid vs. semi-arid conditions [an important finding for the humid midsouthern U.S.]. 2) Microbial necromass accumulation was closely connected with the amount of living microbes in the soil and with SOC content. Thus, conservation management practices applied to cropland soils increase microbial biomass, which in turn enhances necromass formation and accumulation, thereby supporting the buildup of SOC.
- In conclusion, all commonly used conservation management practices except biochar addition increased microbial necromass accumulation in cropland soils. However, the quantity of the increase was dependent on climate and edaphic conditions at the cropping site.

When soil health is discussed, it invariably leads to/should lead to determining ways to enhance the soil microbial population that is instrumental in maintaining healthy and productive soils. The above information lends further credence to the importance of 1) the soil microbial population for enhancing C sequestration in soil, and 2) the need to apply conservation agricultural practices over a long period (~> 10 years) in order to realize their full potential for improving the environment of soil that is used to grow crops.

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