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Soil management and soil health

Soil health is defined as the soils capacity to meet an ecosystems function under various environments and land managements. The soil matrix is a dynamic and living ecosystem that promotes human sustainability and supports food production. Defining soil as a "dynamic and living ecosystem" indicates that soil is not a lifeless medium rather, it is filled with many organisms that work together in their environment. Improving our knowledge of soil health aids in evaluating management that maintains land sustainability and reduce degradation. Soil management can vary depending on soil type, environmental conditions, cultural practices, and human needs. Management practices can influence soil organic matter (SOM), soil structure stability, nutrient dynamics, productivity, and microbial diversity. One of the important components of soil health is SOM that can influence soil functionality and diversity through its impact on soil physical, chemical, and biological properties. High percentages of SOM is within the first few centimeters of the soils surface that can be negatively influenced by environmental conditions such as erosion (water and wind) and drought conditions. The SOM can also be impacted by anthropogenic activities including tillage practices, fallow frequency, and residue removal. Management with no-tillage, reducing tillage, maintaining crop residue, organic amendments, and reducing fallow frequency was found to replenish SOM, enhance soil microbial diversity, and improve sustainability. The Native Americans that first inhabited this land leave us with this wisdom "Treat the earth well: it was not given to you by your parents, it was loaned to you by your children".

Biography

Mikha completed her PhD in 2003 at Kansas State University. She is a reserch soil scientist at the USDA-ARS conducting research to develop best management practices and crop residue management for increasing soil organic matter, enhancing soil health, and improving sustanability for crop land and eroded soils. She is author and coauther of more than 60 publications that include referee journals, proceedings, and book chapters and has been serving as an editorial board member of repute Agronomy and Soil Science Society of American Journals. She is serving as president of the Colorado Chapter of the Soil Water Conservation Society.

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