How Do We Diagnose and Manage Soil Compaction? (A09-wolkowski164308-Oral)

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Abstract:

The need to conduct field operations in a timely and productive manner has given rise to soil compaction concerns. Pressure from wheel traffic and tillage consolidate the soil and may destroy the soil structure. Compaction effects are long-term and are not quickly ameliorated by natural forces. The symptoms of compaction are visible by examining the response of the soil and crops. Compacted soils have imperfect drainage and massive structure. Compaction effects cause uneven plant growth and malformed root systems. Nutrient deficiencies, especially K, can develop in response to poorer soil aeration. Compaction almost always causes a yield loss. Excavate the soil to examine the soil structure and evaluate root distribution. A cone peentrometer can be used to measure the resistance to peneteration, however it should only be used to make a relative comparison. Be sure to note the depth at which compaction occurs. Often subsoiling is considereed when compaction problems are severe. Before deciding to subsoil it is important to diagnose the existence of compaction and to record the depth of the restrictive layer. Soil compaction problems will continue to be an issue in modern agriculture.

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