

Stop 5. Understanding Soil and Amendments used in Athletic Fields

Dr. Jim Crum

Understanding soil properties and their contribution to the quality of the surface of athletic fields is important to the field manager. Soil texture, bulk density, porosity, water holding, infiltration, hydraulic conductivity, clay mineralogy, the calcining process, and soil amendments will be discussed today.

Some important terms that will be used are:

Soil texture: % sand, silt, and clay

Sand – 2 - .05 mm Silt - .05 - .002 mm Clay - < .002 mm

Bulk Density: weight per unit volume soil general reported at g/cc or lbs/ft³

Porosity: The volume of pores in a soil divided by the bulk volume of the sample.

Infiltration: The entry of water into soil.

Percolation: The downward movement of water through soil.

Hydraulic Conductivity: represents the ability of soil to conduct water.

Water Holding: related to the amount and size of pores in soil.

Calcined Clay: clay fired at high temperatures to harden and change their properties.