Managing Compaction in Urban Soils

Properties of Healthy Soil

Healthy soils have empty spaces between soil particles and soil aggregates. The empty spaces allow for air which is necessary for root growth. It also allows for water infiltration, which is important for drainage and for the soil's ability to hold water. Plants need this held water to use between watering and rainfall.

Causes of Compaction and How to Prevent

1. Repeated mixing – be careful how and when you till to prepare the soil for planting. Do not over-till or till the soil when wet. Purchased soils are usually finely ground and vulnerable to compaction.

2. Repeated traffic of people or vehicles - the weight of people and vehicles packs the soil. When reutilizing vacant land, consider sources of repeated traffic such as a pedestrian cut-through or long-term parking of vehicles. Prevent damage to the soil by limiting the traffic of people and vehicles in non-cultivated areas and establishing walking paths around the cultivated areas in the garden.

Fixing Soil Compaction

Organic matter is the glue that holds together large soil aggregates. Having large aggregates is what allows for plentiful space for air and water. Adding organic matter will improve soil compaction over time. Do not add sand to the soil, this will not improve compaction.[4]

Deep or coarse tilling can be helpful to initially break compacted soil and incorporate organic matter. Use a garden fork, however, if this cannot break the surface, the site may require machinery with a subsoiler attachment. Some cover crops also target compaction, like tillage radish.

Test

Compaction is an observable condition. Hard, difficult-to-dig ground, pooling water after rain, and little or no plant growth. It can sometimes prevent you from testing for other soil contaminants. Until the soil can be tested, take precautions when working the soil. For more information on precautions to take with contaminated soil **see dirt.osu.edu.**