LOUISIANA HOME LAWN SERIES

A guide to maintaining a healthy Louisiana lawn

Compaction & Aerification

What is soil compaction?

Soil compaction occurs when a downward force, such as pedestrian or vehicular traffic, decreases the air space (pore space) between soil particles. Compaction is common on sports fields or other places pedestrians or vehicles frequently travel. Compaction occurs more readily in fine-textured soils with higher clay and silt compositions and when adequate soil moisture is present but can also occur on coarser textured soils such as sand..

Compacted areas

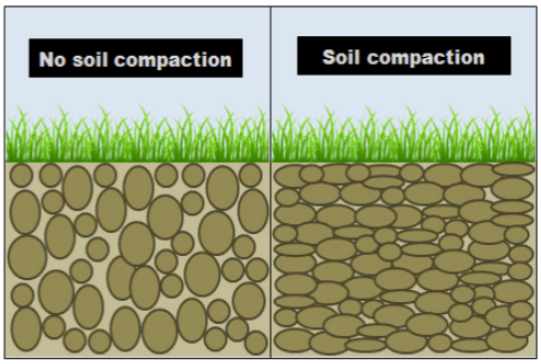
Impacts of soil compaction

- Reduced water infiltration and percolation (downward movement of water in the soil).
- Reduced oxygen in the soil.
- Creates a physical barrier to root growth.
- Poor root growth results in poor shoot growth because of limited nutrient and water uptake.
- Overall reduced turfgrass tolerance to stresses.
- Can lead to increased thatching or mat development in laterally growing turfgrass species.

Is your soil compacted?

There are a few ways to determine if your soil is compacted.

First, look for visual indicators. These include poor turfgrass growth with areas becoming less dense or balding; indicator weeds, such as goosegrass (Galium aparine), annual bluegrass (Poa annua) and dallisgrass (Paspalum dilatatum), may be present; as well as poor water infiltration can occur.



Compacted areas

Second, you can use physical methods to check for compaction. The first is a measure of soil bulk density. Soil bulk density measurements are typically performed by a laboratory. A less scientific but simpler method is inserting something like a knife or a screwdriver into the soil that is nonsaturated but is also not extremely dry. If the sharp object can easily be pushed into the soil with little resistance, then compaction is less likely. However, if resistance does occur, then the soil may be compacted.

How to reduce soil compaction

Reduce soil compaction in your home lawn by aerification. There are several methods of aerification but two common aerification systems are:

A hollow tine aerifier, which uses a series of hollow metal tubes to remove cores from the turf. These holes in the soil allow air and water to enter the soil.

Solid tine aerification systems consist of solid tines. These solid tines penetrate the soil and disrupt the soil, allowing better air and water flow into the soil. This type of aerification does not remove cores from the soil and cleanup is minimal.

Hollow tine aerification

Timing and frequency

Aerify home lawns only when the turfgrass is actively growing and will have a suitable period to recover, typically three to four weeks. For warm-season grasses, aerification is typically performed in late spring or early summer. Soil moisture also influences the timing of aerification. Very dry soils are too difficult for aerators to penetrate the soil, and saturated or wet soils lead to increased turf damage.

Aerify your lawn every one to three years depending on the soil type and forces that may cause compaction. Heavily trafficked lawns should have aerification performed more often than less trafficked lawns.

Hollow tine aerifier with cores removed

Post-aerification care

If using hollow-tine aerification, you can remove the extracted cores from the area or chop cores and work the soil back into the turfgrass. Regardless of the aerification method used, the lawn needs to be fertilized, irrigated and mowed to stimulate new shoot growth. Irrigation will aid in preventing the turfgrass from drying out. This is also a good time to make adjustments in the soil pH with lime or sulfur, depending on soil test results, or to add organic matter.

Pre-aerification

Post-aerification

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