Count on it.

# Aerification Options and Your Cultivation Objectives

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What is often called aerification is technically a form of cultivation, and because turfgrass is a perennial crop, we don't have the luxury of cultivating the way they do annual agronomic crops. Cultivation is important because it relieves compaction, creates macro-pores for water infiltration and gas exchange, and mixes soil with plant material thereby aiding in the decomposition of organic matter. Cultivation in turfgrass is performed for four basic reasons: compaction relief, thatch management, penetration through soil layering, and soil modification.

It is important to ask yourself "What is my objective?" before you can decide which tool to use for cultivation. Cultivation choices include core or hollow tines, solid tines, slit tines, water injection, linear, and deep tines, both hollow and solid. When possible, core cultivation is generally your best choice because it fulfills all the basic requirements of cultivation. It helps relieve compaction by removing a core of soil; manages thatch by removing some of the thatch and mixing the removed soil with the thatch; creates channels through soil layers that may have been created during construction, topdressing or from laying sod, these channels provide for better water infiltration and gas exchange; and allows for soil modification by topdressing with a different soil (usually a sand) and dragging it into the holes.

It can be challenging to schedule necessary core cultivation practices on athletic fields, but it is essential to maintaining healthy turfgrass. There is also the common misperception by the users that you are ruining the field when performing core cultivation, however, a method for breaking up the cores through vertical mowing or using a drag mat can reduce the cores to a size that is not as objectionable.

When it is not possible to perform core cultivation, the solid or slit tine cultivation is a good temporary alternative. These methods are temporary solutions however because they create macro-pores by compressing the soil out of the way of the tine. This compression creates a macro-pore, but also causes compaction all around the hole. As the soil relaxes the hole will fill back again. If solid tines are used exclusively, it will eventually lead to an increase in soil compaction.

If thatch removal is your main objective, vertical mowing or linear cultivation may be the best method for you. Linear cultivation differs from vertical mowing in that the blades tend to be wider, spaced further apart, and are capable of penetrating into the soil at shallow depths. Linear cultivation provides the opportunity to cut continuous narrow slits in the turfgrass surface. It can also be used with overseeding by opening avenues to the soil where the seed has a better opportunity for germinating.

If always performed to the same depth, all forms of cultivation can lead to the development of a cultivation pan (A compacted zone just beneath the depth of the tines.). Therefore, it is important to occasionally vary the depth of cultivation. The deep tine cultivator is well suited for this, having the capability of penetrating to depths of 8-12 inches. The deep tine cultivator is also good at relieving highly compacted areas.

Cultivation is a key component to producing high quality playing surfaces. Cultivate as often as possible. If equipment or labor is not available to cultivate an entire field as often as you would like, concentrate your activities on the high wear areas such as the center of football fields, the goal mouths of soccer fields, and the sidelines where players stand. In addition to cultivation, sand topdressing is an important component of creating a safe, smooth, well drained playing surface. If your budget allows, topdress your fields.

Research is currently being conducted to determine the compaction patterns that develop on athletic fields and the proper practices for alleviating the stress as well as development of equipment to assist with handling the cultivation cores.