

SOLID TINE VS. CORING TINE

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With turf managers and golf course superintendents aerifying year-round for different specific reasons these days, here is a brainteaser question to answer: Should you use solid or coring tines? The answer depends first on what **style aerifier** you're using and then the problems being addressed.

Some say that solid tines cause compaction, but they don't quite have their facts straight. It's not the solid tine that causes compaction, but the machine it's attached to. Solid tines are available for both **“straight-up-and-down” (SUD) or “heave action” aerifiers**. An SUD aerifier with solid tines can do more damage than good. Even with coring tines the SUD technology is obsolete compared to heave action machines. In fact, an adjustable-depth heave action aerator is the best all around machine choice.

A **heaving action machine** actually slices into the soil profile with a slight lifting action. The tine is in a heaving motion at the bottom of the stroke, thus not creating any hardpan. This creates pore space and increases the cation exchange capacity of the soil. This is how it loosens without pulling a core.

SUD aerifiers with solid tines can be used as a shallow pin spiker (possibly on hydrophobic greens or “in season” athletic fields) but are really only good for opening the surface during high stress times, allowing for quick water and air penetration with minimal disturbance to the surface or sub-surface. Again, this is only opening the surface, not relieving compaction. Be careful not to use this method too much or an even more serious problem will develop. The SUD aerifier will create a “sheep's-foot roller” effect and a really bad hardpan layer in the soil profile. I've seen these hardpan layers so severe that not only was there a toxic gas build-up underneath, but the soil also had a toxic chemical layer. So when using **SUD aerifiers**, whether going deep or shallow, you should generally **avoid using solid tines** and stick to coring tines for compaction relief.

Solid tines can effectively be used, adjusted to any depth, with “heaving-type” aerifiers – the deeper the better. With little or no damage to the turf, these newer designed machines will relieve general compaction as well as relieve the shallow hardpan and toxic layer created by the SUD machines. Solid tines ranging from 3/16 to 1 inch in diameter and 6 to 16 inches in length, and can be used any time the ground has sufficient moisture for penetration. Avoid aerifying any ground (with any style machine) in bone dry condition, or excess damage to the turf and machinery will occur. The old mentality of bone dry “shatter-tining” has been effectively replaced with today's newer technology.

Turning to the subject of coring tines, they are used for thatch removal, topdressing, and soil amending. Although 90-95% of thatch removal is accomplished through a good verticutting/topdressing program, an important 5-10% of thatch is removed by pulling cores. This is especially helpful during hot, high stress times when the thatch can become

hydrophobic and repel irrigation water. Ironically, in high traffic areas such as the center sections of sportsfields or cart path traffic areas, a certain amount of thatch retention is recommended. Most turf managers would love to have some thatch in these areas to help protect the crowns of the plants and prevent players from making a muddy “pig pen” of the area during wet conditions.

Another advantage in using a coring tine is to bring soil to the surface for topdressing. This can be cost affective for multiple athletic fields and fairways.

Lastly, soil amending through deep tine aerifying with coring tines has been successful for many years now. Through core removal and heavy topdressing, a soil profile can me modified over time without taking the area out of play or spending excessive amounts of money. Care should be taken to either alternate between solid and coring tines, or perform several extra topdressing applications since the densely compacted soil that is being removed is hard to completely replace with a single topdressing. This will prevent a “sinking” affect of the turf area being cored. You may even consider exclusively using solid tines for soil amending since they will generally heal faster and create less mess. Your turf will love you for it, and the channels created with the deep tine make a permanent chimney of sand allowing water and roots to penetrate with ease and flourish.

As you can see, the choice between solid and coring tines varies with the machine design, the problem being addressed, and the desired outcome. There’s a time and place for both. For more tips on aeration, visit our website at www.commercialturfandtractor.com to download our article “Everything You Always Wanted to Know About Aerifying But Was Afraid to Ask”.