Spoons or tines?

It's a question that faces many landscape managers. Proper aeration is an important turf management practice, one with numerous benefits. Finding the right aerator for a particular job can be the key to proper aeration.

There are two basic types of coring devices: the open spoon tine and the closed, hollow tine. With aeration, says Paul Harder of Prescription Turf Services, Middleton, Mass., the primary concerns should be the number of cores per square foot and the depth.

From a turf management standpoint, he doesn't see much difference between the two types of tines. However, he does say the open tines are more useful when doing slicing or overseeding because they bring up more soil which acts as a top dressing.

The major difference seems to be cosmetic. The hollow tine makes a cleaner hole. "I favor the hollow tine because it does a neater job," Harder says. "When the job is done it looks clean."

Jerry Faulring of Hydro-Lawn in Gaithersberg, Md., echos this feeling. He has used both, and, he says they do a comparable job. Again the only difference is cosmetic.

"A spoon kicks out the core better," says Stan Zontek of the USGA Green Section in West Chester, PA.

Brian Bossard, field manager at San Diego's Jack Murphy Stadium, prefers spoons. "They keep clean better." He adds, though, that hollow tines make a cleaner hole. He uses half-inch hollow tines on the stadium field.

The depths of hollow and open don't seem to vary much either, notes Harder. Penetration depth is dependent of soil conditions at the time of aeration. If the ground is hard, neither type of tine will penetrate well.

A problem arises just below that aeration zone, though, Zontek says. At about four inches deep, researchers have found a layer of compaction caused by the aeration. A task for researchers in the future, Zontek says, will be to develop an aerator that can break up that layer.

He says slicers with blades much like Bowie knives, nine-inches long, are being experimented with in Europe.

And while the perfect aerator has yet to be developed, a number of researchers are taking a poke at it. Results should be coming out soon.

—Jeff Sobul

ing problem of soils with unlike physical properties.

The greater the porosity the more room for the roots to grow and develop. In a tightly compacted clay undersoil, roots have very little room to grow. The roots prefer to stay at the surface in the porous peat or loam soil brought in with the sod. Core aerification creates large pore spaces which rapidly fill in with turf roots. This greatly increases the turf's vigor, drought tolerance and overall health.

Large core aerification units are available for vast turf areas such as parks and fairways. On the home lawn, a smaller unit is needed to maneuver the equipment in tight places. The unit should also be capable of being raised or lowered for driving over sidewalks and curbs.

To properly core aerify, the unit must have the capability of penetrating deeply. The soil should be moist to provide the deepest penetration. Dry soil does not permit this and aerating wet soil can make quite a mess.

Heavy, fine-textured clay soils are more difficult to penetrate than sandy loam soils. Many core aeration units are on the market, but you must select the one which is capable of penetrating the particular soil to be aerated.

Drum-type aerators work fine as long as enough weight is provided.

Roots do not grow in soil; roots grow in spaces between soil particles.

The punch-type aerators are not dependent on weight and usually offer the best aeration; however, it requires more maintenance to keep them operating.

With the sod fully opened, overseeding efforts will provide excellent results because the seeds will come into contact with the soil. The soil cores brought to the surface are broken up by rains and provide a top dressing rich in soil microorganisms which biodegrade thatch into valuable plant nutrients.

The soil brought to the surface also makes a favorable seedbed into which new varieties can be incorporated. This process should not be called dethatching, but more appropriately thatch modification. The intermingling of the soil with the thatch favors decomposition and alters the physical structure of this organic layer. With soil core removal water can now penetrate the surface easily, fertilizer can more more readily to the root system and gases and heat exchange can take place. New varieties of turf can be incorporated for a move away from the less desirable monoculture and toward better disease resistance.

With warm-season grasses, the benefits also include a source of new plantings. Each soil core removed contains viable nodes which can give rise to new plants. These sprigs can be collected and used to establish grass in problem areas or in new places where vegetation is needed.

Golf course superintendents have established nurseries by collecting these plugs, piling them two to three inches deep, raking them level, rolling, fertilizing and watering. New growth begins immediately.

Core aerification done on a routine basis can help to restore many declining turf situations. Coring should be considered before reaching for a solution on the chemical shelf.

Shatter core aeration

Shatter core aeration (solid tines) is relatively new. It involves the penetration of the thatch soil zone without the removal of a core. This can be used as an immediate remedy to a severe thatch layer or poorly drained tight soil to open up the surface and allow for infiltration of water, nutrients or pesticides.

It does not relieve compaction but it has a shattering effect which, depending on soil type, may stimulate growth. More research work needs to be done in this area and more reports from the field are needed to assess the benefits to turf from shatter core aeration.

At some point all turf professionals must deal with the challenge of declining turfgrass. By sharing ideas at seminars, field days and conventions, we can keep up with our growing and everchanging field and upgrade the professionalism in turfgrass management. **LM**