Aerification Principles for Sports Turf

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Grooving: Grooving is obtained by vertical rotating power driven blades that cut continuous slits through the soil. These units can do considerable dethatching if blade spacing is close and are often used for renovation. Some systems provide opportunity to inject materials into the groove. Generally this practice is most effective with a slightly dry soil.

Slicing: Slicing is conducted by vertical rotating knives or discs that are not power driven and rely on equipment weight for penetration. These units do not dethatch but produce minimal disruption to the playing surface and can generally be used throughout the year. The soil should be moist for slicing and some units provide material injection.

Spiking: Spiking is accomplished by solid tines or flat, pointed blades that are not power driven and penetrate the turf and soil surface. The depth of penetration is generally shallow (fi - 1 inch). This is a mild cultivation practice and the effects may last for a few days and is sometimes used with reseeding. Since this practice produces little disruption it can be done throughout the year and is generally most effective in a moist soil.

Sub-aerification: Sub-aerification refers to subsurface cultivation by means of vibrating blades. The unit generally cuts slices into the turf on six to

eight inch spacing. The blades vibrate to shatter compacted layers and thus perform best in moderately drier soil. This equipment generally produces minimal surface disruption and some units have injection capabilities. If surface compaction is the problem, these units are not as effective as many other options.

High pressure water or air injection: These units use high pressure to force water or air into the soil displacing soil particles randomly. Like other systems that use vibration as a means of cultivation, these units perform best in a moderately dry soil. Both types of systems offer the potential to inject other materials into the soil, both are relatively slow, and both create a relatively small surface opening.

Aerification timing: Very little research has been done regarding cultivation and sports fields. Ideally timing should be based on the level of plant growth limitation, the effect on the playing surface, and scheduling. Timing generally coincides with the beginning of the more active growth periods. For cool season grasses, most cultivation is generally done early to mid spring and late summer to late fall. Warm season grasses are generally cultivated from early spring to mid summer. On severely compacted areas, more frequent cultivation may be needed. The larger the continued on page 14

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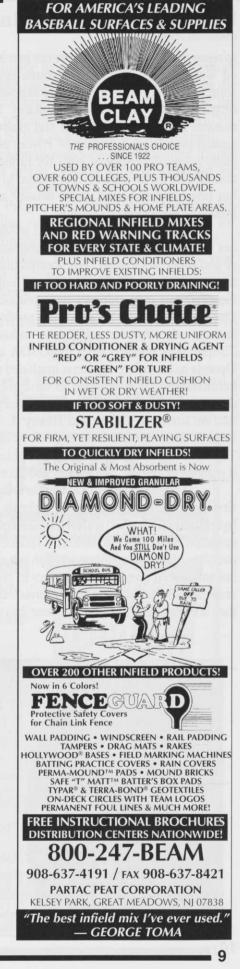
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