

## Core removal

A question commonly asked is whether or not to remove cores that result from aerifying. Cores do not have to be removed if thatch control, temporary compaction reduction, or air and chemical entry are desired and the underlying soil is acceptable. If the root-zone mixture (soil) present is acceptable then the cores should be broken up by lightly verticutting or dragging the area with a mat, brush, or piece of carpet and the remaining debris blown off or picked up with a follow-up mowing. Before soil cores are matted, they should be allowed to dry enough so they easily crumble between fingers. If cores are too dry when matted, they are hard and not easily broken up. If they are too wet, they tend to smear and be aesthetically undesirable. Recent advances in mechanization allows quick and easy windrowing of soil cores and their subsequent mechanical removal. In the past, these operations were very time and labor consuming. Following coring, light topdressing may be needed to help smooth the playing surface. Topdressing will be discussed later in this publication.

## Frequency of cultivation

Frequency of core cultivation should be based on intensity of traffic the turf is exposed to as well as to the soil makeup, hardness of the soil surface, and degree of compaction. Areas receiving intense, daily traffic such as golf greens, approaches, landing areas, aprons and tees require a minimum of 3 to 4 core aerifications annually. Additional aerifications may be needed on exceptionally small greens where traffic is more concentrated, areas consisting of heavy soils high in silt and/or clay that do not drain well, or soils exposed to saline or effluent water use. Such areas may need aerification with smaller diameter tines (3/8 inch or less) every 4 to 6 weeks during the active bermudagrass growing months. Failure to maintain an aggressive aerification program in such situations will probably result in poorly drained soils, thin grass stands, and continued problems with algae and moss. Bermudagrass should only be aerified when the turf is actively growing and is not subjected to heat, cold and water stress. Topdressing and irrigation immediately following aerification may reduce desiccation potential, but may not be totally effective during periods of hot temperatures. Less intense traffic areas should be aerified on an as-needed basis. Most golf course fairways should be aerified twice yearly with the first timed in mid-spring once the bermudagrass is actively growing

and the chance of a late freeze has passed. The second aerification should be in late summer. If the area is to be overseeded with ryegrass, then the second aerification should be timed approximately 4 to 6 weeks prior to seeding. Aerification is not recommended within 6 to 8 weeks before the first expected frost in north Florida in order to allow enough time for bermudagrass recuperation before cold weather ceases growth.

Solid-tines are sometimes used for coring instead of hollow-cone tines. Solid tines do not remove soil cores and may compact soil along the sides and bottom of the holes more severely than hollow tines. The uplifting and jarring of soil using solid tines is claimed by many manufacturers to improve soil aeration. However, unless the soil's bulk density is reduced by removing the soil cores, areas receiving solid tine aerification will probably enjoy only temporary benefits.

## Recent developments

Two recent developments in aerification technology involve the introduction of deep tine cultivators (Fig. 7) that are able to extract a 3/4- to 1-inch diameter core to a depth of 8- to 12-inches and the use of high pressure water injection aerifiers. Deep tine units enable the superintendent to relieve the soil compaction layer that develops when traditionally used aerifiers penetrate constantly to 3 inches. Soil profiles consisting of many undesirable layers that develop with the use of different materials for topdressing are also penetrated. This enhances water penetration, soil aeration and rooting. The soil profile of an undesirable green can also be improved by topdressing following deep aerification with desirable soil.

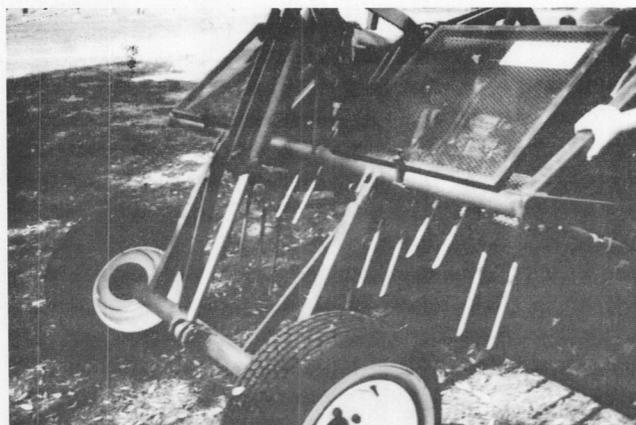


Fig. 7. Deep tine aerifier which extracts soil cores 8 to 12 inches deep.