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## BUILDING ROOT SYSTEMS

Between September and May the cool-season turfgrasses in the Mid-Atlantic Region will be initiating new root growth. The proper management practices of the golf superintendent at this time can enhance maximum root development. It is particularly important to encourage the strongest root growth in the fall since these roots will live longer than those formed in the spring. The following are suggestions to encourage maximum root development.

**Watering** - Try to restrict watering the greens from September through May. This will encourage the roots to forge deeply into the soils. Frequent watering will induce shallow rooting. Never water to soften the greens for the golfers. Besides being detrimental to the roots, this practice encourages **Poa annua**.

**Aeration** - Compacted soils are one of the major reasons for limited root growth on putting greens. By aerating the greens at least once every fall and spring, soil compaction is reduced. This also encourages better air and water movement in the top of the soil profile.

**Vertical Mowing** - For optimum playing conditions and agronomic management, the thatch layer on greens should be no greater than 1/4 inch. If thatch is greater, the blades of a vertical mower should be set into the thatch at this time. Thatch reduces turfgrass rooting by restricting fertilizer, air, and water movement to the soil where it will benefit the plant.

**Fertilization** - By fertilizing with a complete fertilizer at the rate of 1/4 pound nitrogen per 1,000 square feet every three to four weeks in the fall, the roots greatly benefit. Fertilizer at this time is consumed largely by the roots instead of the leaves and stems. Do not over-fertilize or apply fertilizer in the early spring of the year, particularly in March, April, and early May. This will over-stimulate the plant, reducing root growth. Potassium sulfate applications at the rate of 1 1/2 pounds

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from the bag per 1,000 square feet also help roots in the spring and fall.

**Herbicides** - The preemergent herbicides used for crabgrass, goosegrass, and **Poa annua** control have side effects on the roots. Are you using these materials wisely? Remember, the grass leaves and stems are not as easily affected by these materials, so injury is not readily visible.

**Air and Light Quality** - Greens which have poor air and light quality were hardest hit by the high temperatures of this past summer. Improve these factors by removing trees and branches along the lines of the prevailing winds and of the rising and setting sun, and the whole turf plant will benefit. This is an excellent time to accomplish tree work.

Building a good root system now will pay off in reducing summer management problems. The greens will require less water, thus lessening the chances of crabgrass and goosegrass germinating. There appears to be a direct correlation between the strength of the root systems and the invasion of these weeds in our region.

All golf courses were reporting increased play in 1980 in the region, and we expected heavy play this fall. To provide the best playing conditions at this time on the greens, be sure to lightly vertical mow and topdress the greens once every 15 to 25 days if climatic conditions are favorable. Also, the greens should be mowed as frequently as possible, preferably five to six times weekly, and the Wiehle or grooved rollers should be attached to the mowers.

Patrick O'Brien

Are you in need of an assistant on your golf course. If so, contact **Loren Nagy**, 112 Syril Dr., Geneva, Ill. 60134, phone 312 - 232-4121. Presently assistant at Villa Olivia C.C.