

## A Floundering Resource

by Tony Rzdzki, Asst. Supt.  
Cantigny Golf Club

A few weeks ago I ran into an old acquaintance of mine, John Maguire. John Maguire is the mechanic at Sunset Ridge Golf Club and president of the Midwest Association of Golf Course Mechanics. Remember that fledgling organization that attempted to spring to life in 1986?

After recently attending the NCTE meeting at Pheasant Run and seeing the equipment getting more sophisticated, then seeing the great response once again by the mechanics to their seminars (over 150 attended); I felt once again, as John does, that we have to carry this knowledge further. The monthly meetings that John proposed two years ago can be an invaluable aid to all of us.

John is still trying hard to get this group started, but he has run into a few obstacles along the way.

It seems that many of the mechanics have had a hard time getting away from work once a month to attend these meetings. Some of the guys have to leave work without pay. Some of the superintendents think that John is trying to form a union! Nothing is further from the truth. I think that if we can overcome these few stumbling blocks, everyone involved will be greatly rewarded.

Face it. Not all mechanics are that good that they know everything about every place of each machine at your shop. At a monthly meeting the host or another mechanic can demonstrate some phase of his operation that he excels at. The one on one, give and take in a very informal atmosphere, where the mechanics can learn to repair or maintain something better, makes this organization an ideal "training association".

It sure beats the down time you would have on a machine if your mechanic could fix it. He would also become more familiar with the other guys. If he has a problem he can call someone that he knows for help. Superintendents and assistants are also welcome to participate at meetings that may interest them.

John has planned to try to work at locating better prices on 'generic' parts rather than relying on manufacturers inflated prices on bearings, seals, lubricants, and the like. He already has a list of mechanics with their specialties, and many other ideas to help us all do a better job. It's a share that this resource has to flounder!

Presently, John Maguire is the solo member of the M.A.G.C.M. But he has a lot of heart and he told me he won't be dismayed by what has already happened.

John Maguire needs your help. He needs mechanics and superintendents to work together at this project and get this organization started. In the long run we will all greatly benefit from a couple of hours spent once a month.

*Editor's Note:* **The Bull Sheet** supports this effort completely and will print articles that will help all concerned. John Maguire's phone number is (312) 446-5222.

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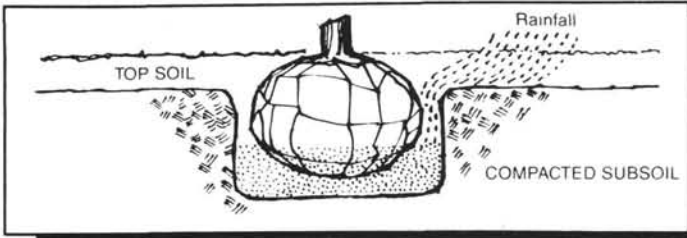
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## PLANTING SITE MODIFICATIONS

Urban planting sites are often characterized by artificial soil horizons with dense, compacted subsoils and very thin topsoil layers. On this type of site, water is often in excess and oxygen is unavailable in sufficient quantities to support root growth or even for roots to survive (4,5). Water cannot easily infiltrate into the subsoil and eventually flows to the lowest

**Fig. 3.** Water cannot penetrate subsoils and flows laterally to the lowest point. Planting holes fill up with water and suffocate the root systems.



point, the planting hole, where it can remain for weeks, suffocating the root systems (Fig. 3). Some of these planting holes never dry out. Above ground symptoms (chlorosis, leaf scorch and twig dieback) resemble drought stress (4) and the trees are often watered, compounding the problem.

When trees are planted on this type of site, the fine root system must develop near the surface where oxygen is most available. There are few roots at the bottom of the hole where soil conditions are the most waterlogged, most oxygen starved and least conducive to root growth. A more effective method of promoting root regeneration might be to redesign a better planting hole. Figure 4 illustrates that as the top of the hole is enlarged, with the sides sloping towards the base of the root ball at a progressively more oblique angle, the amount of backfill soil with favorable growing conditions (near the surface) increases rapidly. Since the diameter of the hole decreases with depth, effort is concentrated in the upper soil layers which are most favorable for root growth.

If the planting hole is only 25 percent larger in diameter than the root ball, with vertical sides (Fig. 4A), the backfill material volume is equivalent to only 67 percent of the root ball volume. Up to two-thirds of the soil available for root growth is often waterlogged. If roots are unable to penetrate the compacted site soil, the root system may never be able to regenerate

to even 10 percent of its original size within this planting hole. The abrupt impenetrable vertical interface with the compacted site could act to promote circling roots, just as in container grown plants.

If the surface diameter of the planting hole is expanded to twice (Fig. 4B) or three times (Fig. 4C) the diameter of the root ball, with sloping sides, the backfill volume increases to 150 and 400 percent of the root ball volume, respectively. The well-aerated surface soil increases up to 10 fold in volume. The majority of this good backfill soil is in the well-aerated upper layers and a large interface is created with the compacted soil, giving greater opportunity for roots to penetrate cracks and crevices in the otherwise impenetrable, poorly aerated soil. The sloped walls also serve to direct growing root tips up to the surface rather than in a circling direction.

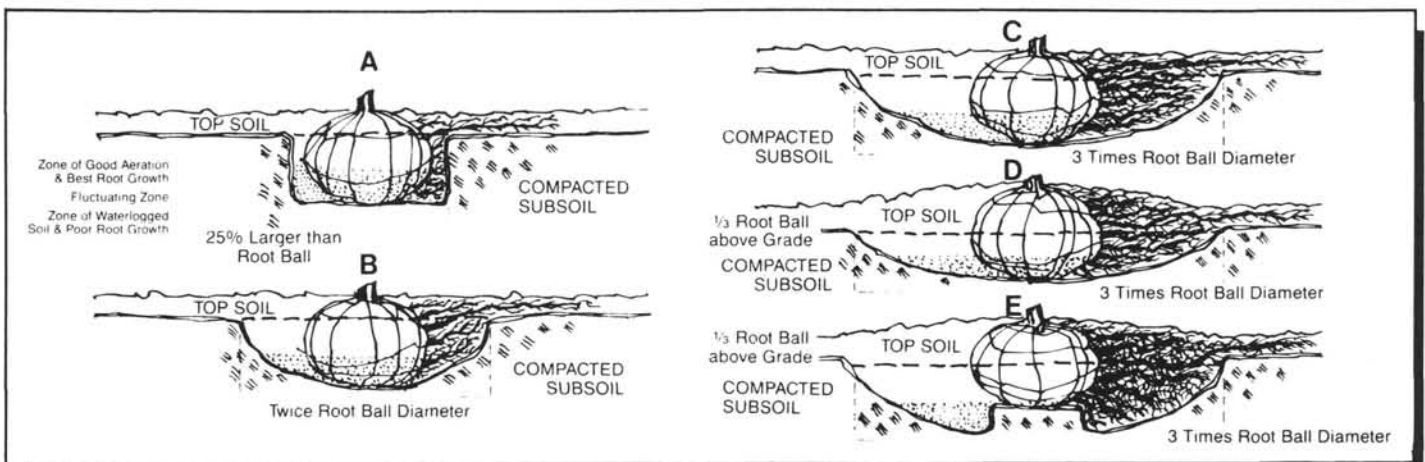
On very wet sites, the root ball can be planted so that at least one third is above grade (Fig. 4D). This will keep the majority of the root system out of saturated soil even during very wet periods. Paterson (4) has recommended placing the root ball on a pedestal of compacted soil to avoid settling. This would also elevate the root ball out of the wet soil at the bottom of the hole (Fig. 4E).

## SIGNIFICANCE TO THE NURSERY INDUSTRY

Trees are subject to tremendous stress when transplanted because of the extremely small amount of root system typically moved with the plant. Reducing the severity and duration of this stress can be achieved by either root pruning to produce a more dense, concentrated fine root system which can be included within the root ball, and/or modifying the planting hole to encourage fine root development in the shallow, well-aerated backfill soil. While it is recognized that these practices will increase the cost of planting, it is very likely that increased survival rates will offset these costs. The improved professional image resulting from higher quality plantings cannot be measured in dollars and cents.

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