

sprinkler heads big enough to water not only the fairways but well into the roughs, eat up large quantities of water and require thousands of feet of 4", 7", and 8" pipe. Each electronic field controller costs about \$500 and requires literally miles of hydraulic tubing or electric wires, all of which must be carefully buried. This type of system costs from \$180,000 to \$240,000, depending on location, terrain, rocks or trees, and the mood of the bidders.

In windy areas, it is usually desirable to install a double row system to be sure everything is always green. And "it takes green to make green" — about 80% more than a single row system.

Oh, it's possible to cut drastically the costs of a watering system. Let the roughs be natural color; don't water the first 100 yards from tee to fairway, etc., etc. (See "Urban Land" - May 1980 - "Future Golf Courses - The Economy and the Ecology".) But what do you really want; and what are you willing to pay for?

The Greens

Fifty years ago, golf at country clubs was a sport and exercise. It still is, except the carts have taken most of the exercise out. But it has become far more popular with everyone, especially with women. The average number of rounds per week has probably doubled. "And we want smooth greens, like on T.V.; not those slow, bumpy kind with bare spots." Okay. So pay for them!

Until about 25 or 30 years ago, most greens were built by shaping an area to some sort of configuration, finding the best topsoil available and blending it with equal parts of sand, adding a little peat and planting it. For the first two or three years (long enough for the developer to sell out, or the contractor to leave the country), the greens held up well. Then the greens started failing. Disease, fungus, bare spots, "won't hold a shot", all started showing up.

"Must be something the superintendent is doing wrong", said the developer, the contractor, or the so-called "golf course architect". "They were great for even two or three years after we left." So they were, while they were compacting every time someone walked on them. Finally, the compaction was so great that air could not get to the grass roots, and the rest is history.

Thanks to the USGA, through its

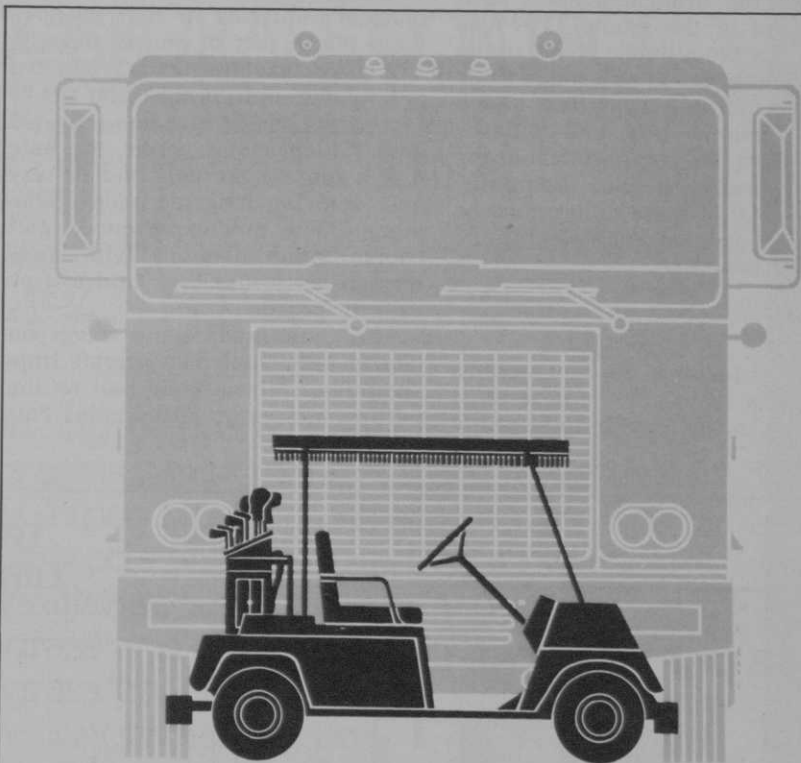
"Green Section", and to many universities, the problems were analyzed, and solved. Far more sand, a gravel blanket under the sand, sub-drains to remove excess water, etc. and the problems virtually disappeared. And so did the dollars! Today, a properly constructed green which will stand up to low mowing, high traffic, and adverse weather, costs from \$9,000 to \$12,000 each, or

up to \$240,000 or more per course. But good greens are the heart of any good golf course. This is not the place to economize.

What have we spent so far? Let's see:

1. Rough Grading	\$125-400,000
2. Watering System	\$180-440,000
3. Greens	\$180-240,000
Totals	\$485-1,080,000

Continues on page 44



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Make the green the focal point

The third general use for using framing trees is to create a spectacular view of the green. (See 2C) Here great caution must be used in the initial location of the trees so that many years down the road the trees' branches will not interfere with a properly hit ball from the cut fairway onto the green. Here we have to consider the branching habit as it comes out of the ground. We also must know the ultimate height of the tree, whether it will be a single trunk tree or a multiple trunk tree, an extremely narrow tree, and will the debris from the tree throughout the season cause troubles on the putting surface? All of these things must be taken into account when placing any tree near the green.

Roots

Another factor is the root systems of various trees. There is a great variation in the growth habit of the

root systems of different species. The willows, maples, and mulberries, for example, have extremely aggressive root systems that travel great distances beyond the drip line of the tree. They are right up on the surface and, many times, above the surface. It is obvious that trees with such root systems should never be used near the greens.

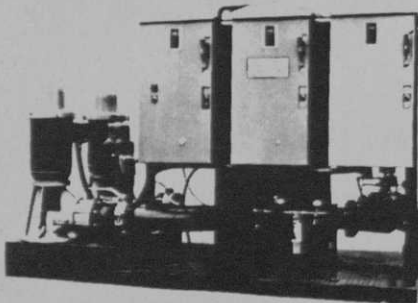
Trees also have what we call "teleological" abilities in that we give them the quality of human thought. The classic example is the green that is irrigated and the tree that sits 75 feet away from it in a non-irrigated area. Given enough years, the bulk of the root system will find its way over into the irrigated area of the green. Now any experienced golf course superintendent will know enough not to use that kind of tree near the green.

Also, how many times have you had to clear your own private little "boulevard" from your ball on the putting surface up to the hole? This

debris could be created by maple seeds or ash seeds from trees as far away as 200 feet or more, if they are floating on the prevailing breezes that are blowing towards the green. They spin such as little helicopter blades. We have even seen oak trees whose large overhanging branches actually hang over the putting surface. When the acorns fall, being heavier than air, they drop straight down on the putting surface. Other trees have a habit of constantly "pruning" themselves of small twigs. These are no trees to have near a green because, even though the twigs are heavier than air, a strong wind can blow them a good 50-75 feet before they land.

The conclusion of "Carefully chosen trees. . ." will appear in the February issue.

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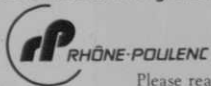
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"Hey, we still don't have fairways, roughs, fairway drainage, bunkers, maintenance equipment, a maintenance barn, sand in the traps, a service road, cart paths, water fountains, restrooms - - - how do you expect us to play golf on something like this?"

I don't. Dig deeper! And if you think I'm going to design you a beautiful place to play golf "for free", you're nuts! The butcher, the baker, and the electricity-maker are already breathing down my neck! They need money for gasoline!

So you're looking at \$1 million up, probably up to \$1.5 million if you really want "class". But that's only \$3,000 per membership in a 500 member club. You'll still have to bring a picnic lunch because you forgot the clubhouse.

What can be done to reduce these ever rising costs before the game of golf meets the same fate as the 16 cylinder Cadillac? We can all do something, if we really want to.

What we can not do is:

- Change the cost of maintenance equipment, maintenance buildings (only slightly), sand, fertilizer, labor, sprinkler heads, electronic controllers, bulldozers, bricks, or lumber.
- On a given piece of extremely flat, extremely hilly, heavily wooded, or rocky terrain, wave a magic wand and end up with the Augusta National.

We can:

- Take a good look at what we *really* want in a golf course and what the members *can afford*. The golf course architect usually does *not* control the cost of the course to an extent more than 20 percent. He can't change the costs of the dozers, sand, sprinkler heads, or contractors' labor costs, any more than you can. He can (and some occasionally do) *oversell* the amount of earth moving necessary,

the area to be watered, the size of the greens, the number of traps, etc. But a competent golf course architect tries to reflect in his design the desires or necessities of the owner or members, tempered by the architect's experience with the end results in appearance, engineering, and agronomy, and not at all least - the game of golf.

Is it really necessary to have 60 to 160 sand traps? They're awfully pretty. But at \$1,500 per trap and \$200 plus per year maintenance, couldn't we really get by with 18 to 24 traps, strategically placed, along with tree traps, mounds, and grass bunkers?

Do you really have to have "wall to wall" watering? Would not a single row system with roughs of native or improved different grasses, actually give more "character" to the course? Do you have to water and maintain the first 100 yards of fairway? Where winds are significant, or where roughs crack badly when dry, could not a few extra sprinkler heads be placed in the important hitting areas instead of trying to maintain verdant roughs from tee to green? Remember, water is growing more critical every day, and pumping charges are eternally higher.

Do you have to see the ball land on every shot? Could you not walk up a 10 or 12 percent slope once in a while if it were not too long (chances are you're in a golf cart anyhow), or do you insist on easy slopes?

Your golf course architect can only do so much by changing his design.

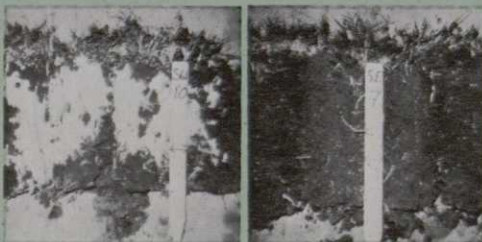
It's possible to reduce costs only so far by reducing the amount of cut and fill, size of greens, and sand traps, until your new "country club" course begins to look like the old one, with bare fairways, hard greens that go out with the first heat wave, etc., at a cost ten to twenty times more. Granted, a good architect will get you a lot more for your money than a mediocre one, a part-timer architect, or a touring pro. That's his business.

You are the only ones who can reduce golf course construction costs. Get together with a good golf course architect and find out what basic costs cannot be reduced significantly, and what costs are being added solely because of your desires to "keep up with the Jones"! (No pun intended, Trent!) If you can afford it, fine! But don't blame the architect if you want a Cadillac for a Chevy price.

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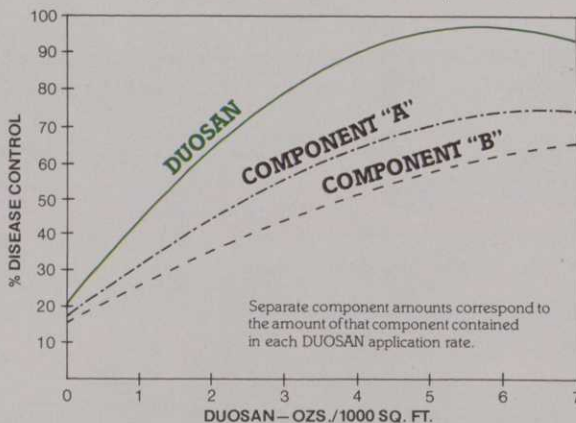
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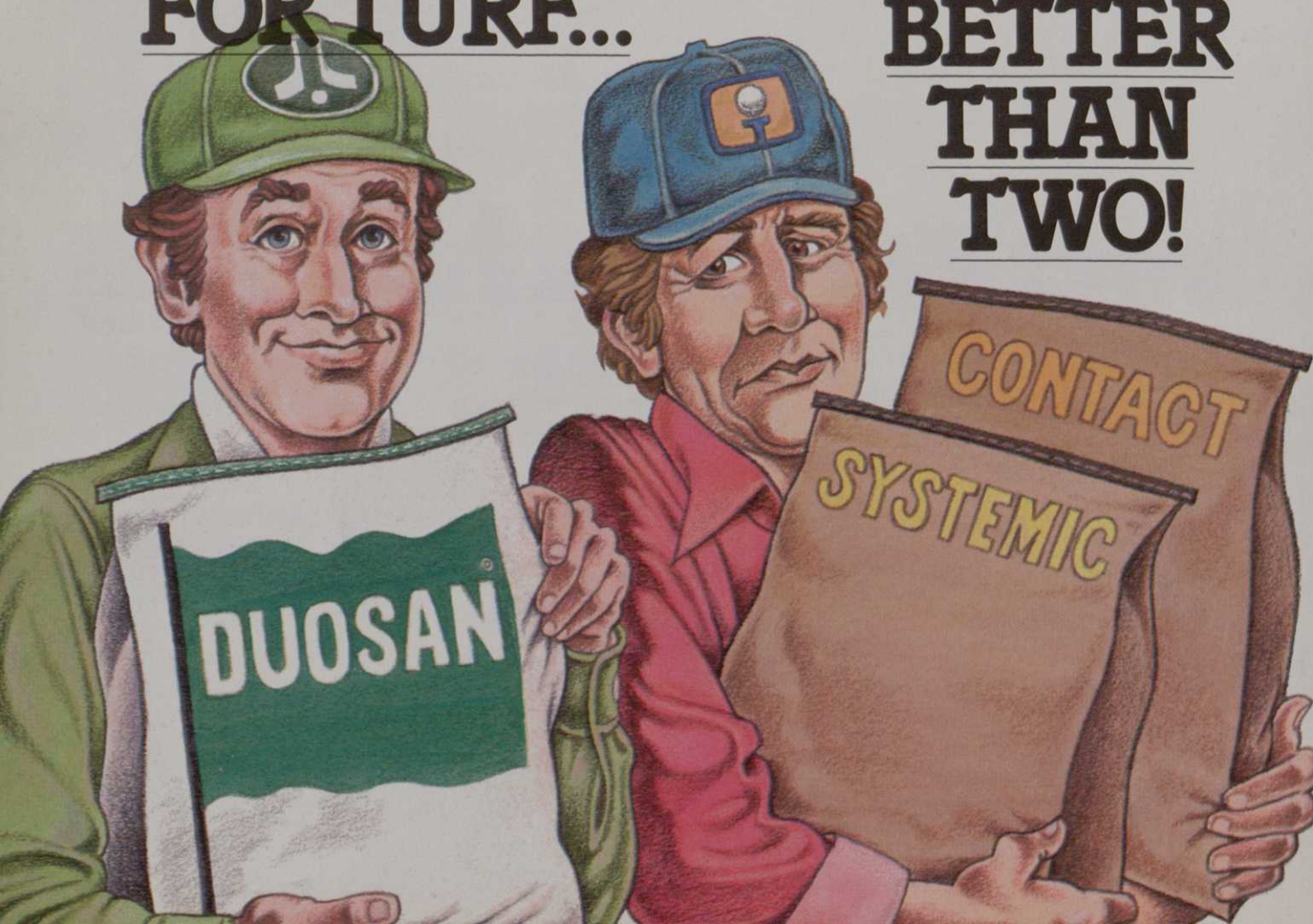
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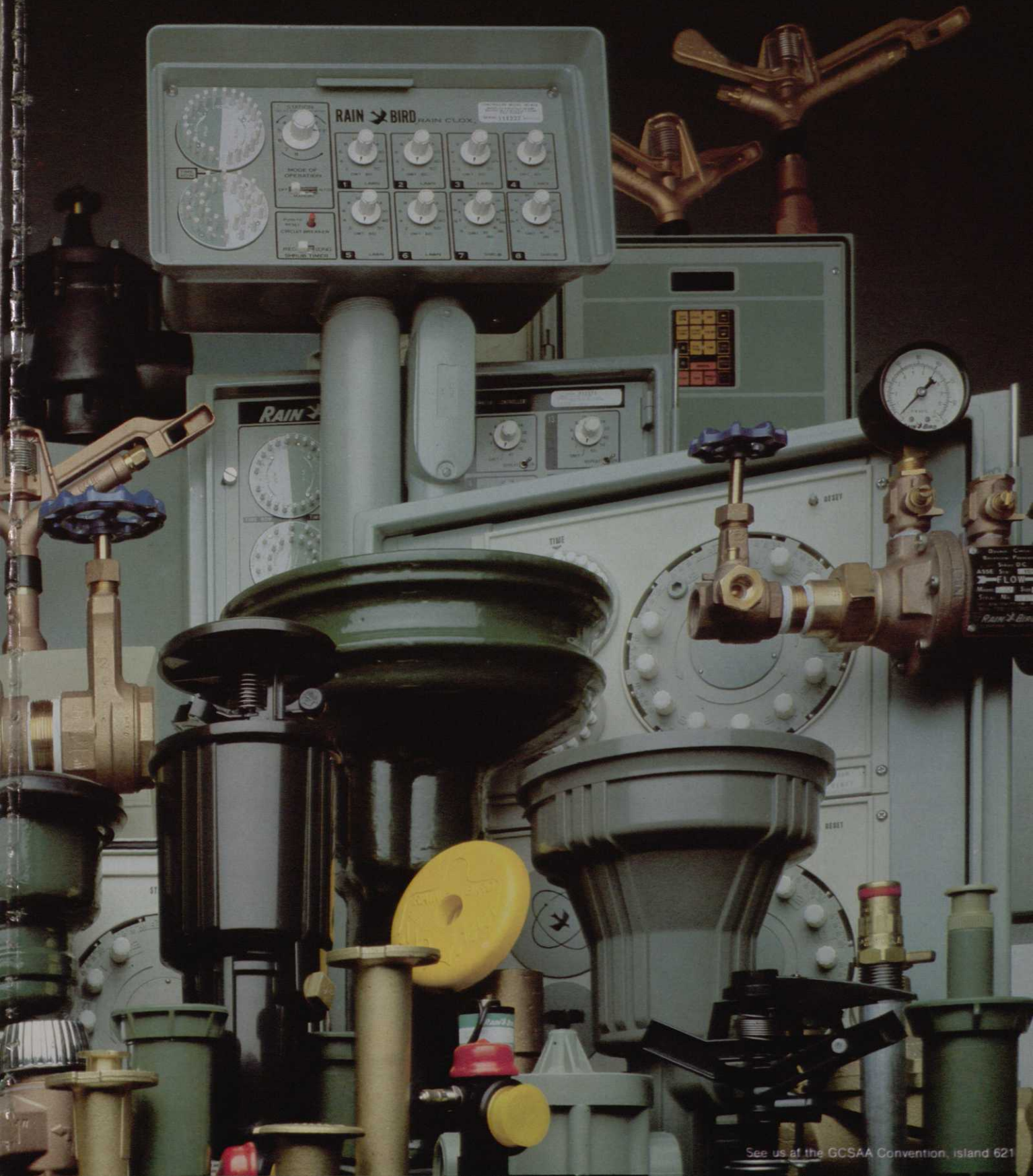
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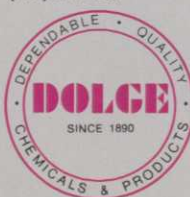
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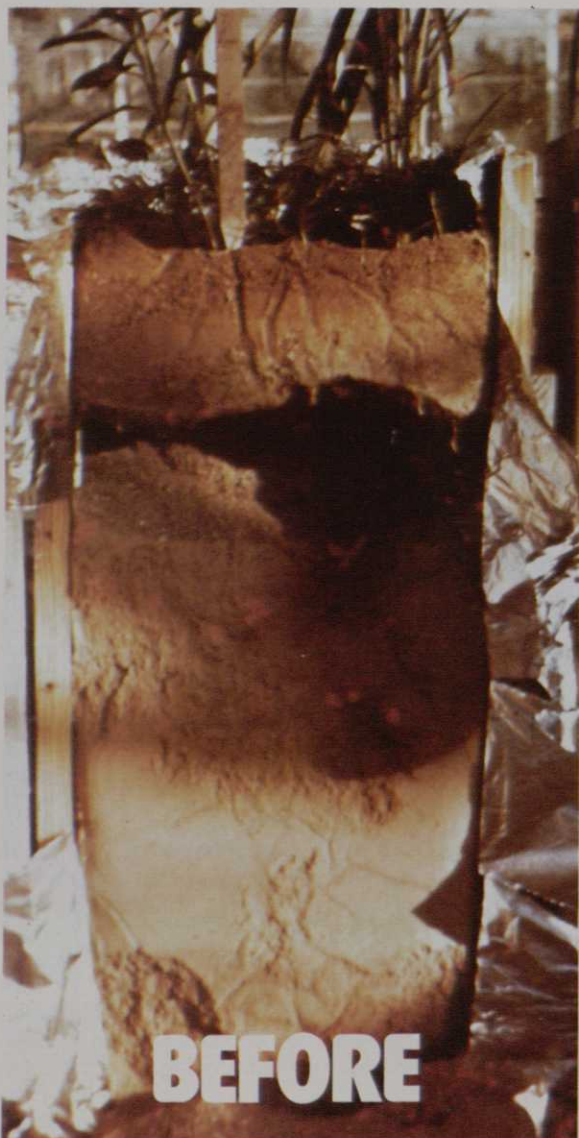
faster.) The before and after photographs below clearly show the results.

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