

TURF MAINTENANCE: WHAT'S AHEAD

- **Water: Recycling a must, not a choice**
- **Equipment: Cost is secondary**
- **Grasses: Higher prices predicted**
- **Fertilizers: Prices on slight decline**

By Fred V. Grau

In this day of far-flung operations, it is not easy to get the answers to the problems of supplies, prices, service and new developments, but we've made an effort by talking to leading superintendents in strategic areas. We shall try to develop a consensus on several points and hope that we score at least 51 per cent. Obviously, we will not be infallible and cannot be correct on every item, but perhaps we can offer reasonable guidelines.

Water

Irrigation dominates the talk at conferences, in bull sessions and in board rooms. Automation is the name of the game. The goal is saving labor, uniform distribution, water when and where needed and better control. The emphasis is on perfection of equipment, installation and performance. Cost seems to be secondary. Those systems that are built on "lowest bid" seem to end up with leaks, blowouts and other assorted headaches. Herein lies a lesson, often learned at great cost.

Another consideration is that of supply. Will there be enough water to go around? Will there be water

when needed? What will happen when water runs short and turf needs are restricted?

Yet another item is that of water management. Are systems operators being trained to utilize the installations to the best advantage? In many cases the best turf occurs where there isn't quite enough water. Profligate use of water adds to already existing headaches, encourages *Poa annua* and clover, necessitates more frequent mowing, creates a need for additional fertilizer and often increases compaction. It seems odd, but when a new system is installed, there is a tendency to over-use it for a while, at least.

Clubs are getting smart. Instead of buying pipe here, sprinkler heads there and monitor systems somewhere else, they are looking for the outfit that can do the whole job. Then, when something goes wrong, there is no buckpassing. Responsibility and service are fixed in one spot.

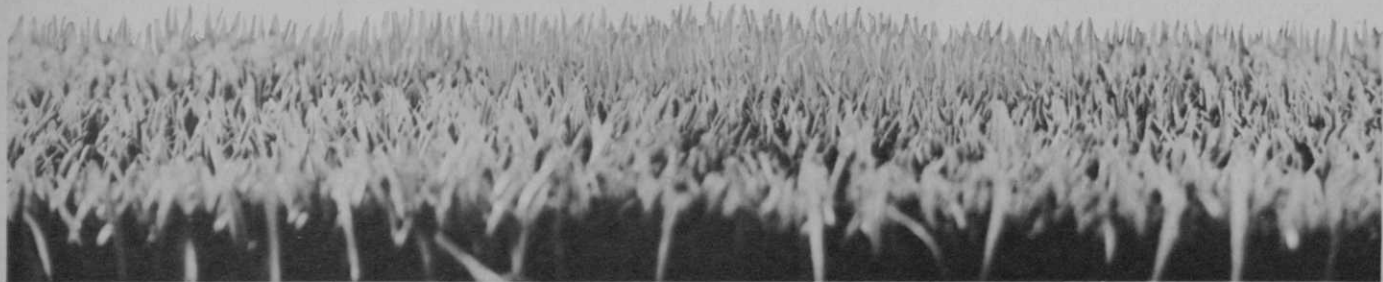
Equipment

The hottest thing going today is the triplex putting green mowers. There

are three manufacturers and each claims certain points of superiority. One of the best discussions on pros and cons took place at Tifton, Georgia, Turfgrass Conference. Pictures, slides, movies, live demonstrations and panels left participants with the firm conviction that these mowers are here to stay. The biggest hang-up was the potential danger of broken oil lines and the resulting damage to the turf. This has happened and will happen again. Flushing with detergent and soaking up the oil with top-dressing have minimized damage. Labor saving is the big selling point. It seems that no one has any trouble training operators.

The question of cost was brushed off as insignificant. Superintendents are going to have them high cost or no. Turf quality is as good or better as with the narrow walk-behind motorized mowers. Adjustment takes a bit more skill but that presents no problem.

An attachment for pulverizing aerator cores looks very good, especially when the soil in the greens is good enough to go back as top dressing. There are soils, however,



that deserve to be removed and replaced with lighter material.

Thatch removal equipment is improving every year. For this we salute the manufacturers' engineers. Thatch is a constantly recurring problem that, when excessive, complicates the job of turfgrass management.

I couldn't leave equipment without a word of commendation for two items: 1) the scarifier-seeder, which reduces the quantity of seed required, cuts overseeding into established turf without interfering with play and practically guarantees a stand; 2) the hydraulic seeder, which is a versatile machine that can rapidly apply, in water, practically any material used on turf.

With virtually all equipment, the cost continues to rise, due to many factors, some hidden. There seems to be no problem of supply, but more and more superintendents are buying where they are sure they can get adequate service.

Grasses

It was interesting to hear Dr. Glenn Burton state that none of the newer strains of vegetative warm-season grasses have been shown to be as good as those now in wide use (Tifgreen, Tifway and Tifdrawf). The heavy loss of turf in spring, 1970, was not repeated in spring, 1971. The answers still are not clear but temperature variations seem, to have been largely responsible.

Among the cool-season grasses there is widespread interest in the fine-textured turf-type ryegrasses. Pelo and Pelo-Mora have done a fine job as companions to the newer bluegrasses. Manhattan is newer, and seed supplies seem to be plentiful. The same holds true with the newest release, Pennfine. With the interest in Pennfine for overseeding bermuda greens in the South we will need quantity seed production to meet the demand. The price of the superior (elite) ryegrasses holds in the \$.65 to \$.85 range and no one seems to object as long as they do a better job at lower seeding rates than

ordinary ryegrasses.

Pennstar Kentucky bluegrass is the newest on the market. It has been exhaustively performance-tested, and superintendents are ordering it whenever they can find it. There was reluctance to talk about prices because supply is short. One can justify the higher cost of bluegrasses, such as Pennstar, Merion, Fylking and Prato, on the basis of lower seeding rates needed, superior performance, aggressiveness, lower disease incidence, less *Poa annua*, higher tolerance to drought, tolerance to closer mowing and superior appearance.

No one seems to be "blowing the horn" for bentgrasses or fescues. The newer ones do not apparently rate accolades perhaps because of their more limited use. Penncross seems to be very big, wherever bent greens can be grown. Charles Danner converted bermuda greens to Penncross greens in one winter without any tearing or ripping of any kind. He made it sound easy.

We must remember that the smoke pollution problem has created a crisis in the grass seed fields of the Pacific Northwest. No longer can seed growers burn off their stubble to control pests and to get rid of the thatch. Without burning seed yields go down and the price the grower must get for his seed goes up. The superintendent must learn to live with higher seed prices.

Fertilizers

No item used on turf is in better supply. Prices hold steady—are perhaps even down a little. One big problem is the multiplicity of brands, analyses, claims and counter claims. Many mixed ("complete") fertilizers are used by superintendents, who have no idea how the material has been formulated. The source of nitrogen determines to a large degree how the material best should be used yet seldom is the essential information on the bag. As long as higher authorities over the superintendent insist on buying on the basis of price-per-ton, regardless of nutrient content or

percentage of water-insoluble nitrogen, fertilizer use remains in the dark ages. Emphasis today is on reduced labor requirements which brings slow-release sources of N sharply into focus. Soluble nitrogen is lower in cost per pound of N but labor requirements are sharply higher. Also there is a higher loss from leaching and from volatilization, particularly with urea (45 per cent). Burning turf no longer is necessary and cannot be tolerated.

Potash usage, particularly sulfate of potash, is beginning to receive the attention it deserves. Cost, when related to the benefits, is ridiculously low. Potash improves turf quality in several ways—lower disease incidence, greater drought tolerance, improved cold hardiness, stiffer blades and improved color and playing quality including wear resistance. Potash can be derived from potassium nitrate, sulfate of potash magnesia, muriate of potash and sulfate of potash. Sulfur-bearing potash materials cost slightly more but they carry a big plus value because of the sulfur they contain. Sulfur is a vital element in soils, contributing to the health of micro-organisms, giving turf deeper color and lower incidence of disease. Now a Salt Lake firm produces a super-fine particle size in sulfate of potash that lends itself to spray systems with no particles to clog nozzles. There is a growing tendency to apply sulfate of potash in quantities to yield poundage of K equal to the N used. Supply no longer is a problem; prices are reasonable.

The latest development in urea-form is a product (38-0-0) with hard granules of uniform size, dust-free, suitable for distribution with a spinner or with any other type of spreader.

Coated fertilizers are very much in the limelight because of the potential for varying the resin coating to yield a product that can be programmed for definite time-release patterns of 3, 6, 9 and 12 months duration. We shall watch this development.

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Pesticides

The Environmental Protection Agency (EPA) has aroused deep concern over the fate of some of our standby turf protectants. Because the regulations vary so greatly from state to state we shall not dwell on the subject here and now. Careful studies indicate virtually no contamination of the environment from the use of mercury, arsenic, cadmium and others. Turfgrass soils are rich in organic matter which acts as a highly-effective filter, especially for heavy metals. For the most part superintendents can secure permits to continue to use the time-honored materials which have given good results with no known contamination.

Lime

The widespread generous use of lime, high calcium and dolomitic types contribute in a large measure to the good health of turf and to the minimal contamination of the environment from pesticides. Lime does many

things besides supplying Ca and Mg. With generous use of lime (high-lime arid regions excepted) we find a lower incidence of disease, stronger healthier root systems, improved color and wearing qualities of the turf.

Lime supplies are unlimited and prices seem to hold remarkably steady. Most superintendents maintain a ready supply of hydrated (sprayable) lime for use during hot weather. Reports indicate a growing confidence in hydrated lime as a home remedy against summer stresses. It can't be considered a fungicide, but it beats the tar out of fungal hyphae.

Sand greens

Time was and still is in some places that a sand green was just that. It was built of sand which had been more-or-less oiled, then before putting, the sand would be smoothed with a section of pipe to facilitate the roll of the ball. My first game of golf was played on sand greens.

Now a sand green might mean a Purr-wick green (all sand) or a green built to United States Golf Assn. specifications. In 1946 at Beltsville,

Humbert and Grau studied and published results on 1) easy-to-keep greens, and 2) hard-to-keep greens. The answer was deceptively simple. The more sand, the easier the greens were to keep. Some greens are being built on a blend of 80 per cent sand (by volume) and 20 per cent peat. No soil is involved. The reports are encouraging. Those that are built of 100 per cent sand with a plastic sheet to create a perched water table are under study and they look promising.

The faster the percolation the greater will be the leaching of soluble nutrients. This focuses attention squarely on the materials of lower solubility—ureaform, sulfate of potash and natural organics.

Recycling

As we learn to recycle our wastes and to reuse water, many of our current shortages will become non-existent. Processes are being developed that will convert most of our wastes into usable products, that will keep the ecosystem intact. We will be hearing of these developments in due time. Even now some turfgrass areas are being irrigated with effluent water. This is only a beginning. □



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