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win wider acceptance if they want it, Bove told how the Southern California GCSA staged a tournament last fall that still is the talk of the lower West Coast golf community. "I've had a hundred compliments on the way we ran that affair," said the retired Marine major. "Several club officials have asked me why we waited so long to get something like it started. We've already been asked by six clubs to hold the 1965 S.C.GCSA tournament at their course. That proves that people want to recognize us. So, the proposition is: 'Do we want to go to the trouble of being recognized?'"

#### Satire and Beauty

One of the best productions of the convention was offered by Tom Mascaro, who used his faithful projector in presenting one of his distinctive illustrated speeches. Mascaro was in a fine satirical mood as he led off with a series of slides that must have been assembled in Appalachia. Tornado-torn buildings, lean-tos and outhouses were suggested as models for clubhouses and outbuildings that are to be constructed in the future. Prototypes of home-made, steam operated equipment were shown along with several turf-tearing methods that are guaranteed to cut down on mowing. Mascaro then got in a plug for the GCSA pension plan by showing his collection of tombstones and graveyards.

But in a more serious and less grisly vein, the West Point executive switched to a "Courses Can Be Beautiful" theme. Formal and semi-formal gardens that have been planted at various courses throughout the country, the use of exotic plants, colorful landscaping and the beautifying of swimming pool areas were offered as examples of the artistry that can be introduced at a club. Mascaro's final suggestion: "Dig into local history and see if you can't come up with something that is worthy of an historical marker on your course. You'll get many miles of publicity out of it."

#### Break Other Leg

In the GCSA's "Little Theater" production, Tom Leonard, who had fallen off a horse only a short time before con-

vention week and broken a leg, insisted on going on. Before the skit was over, the make-believe committee that had summoned Tom to explain why the cutworms, nematodes, red thread, gophers, etc., had crowded the players off the course, broke, in effect, Leonard's other leg.

You can imagine a bungler like Tom, who adopted the name of "Clem" for the drama, explaining an endless series of blunders to a cold, uncompromising committeeman such as Paul Weiss. The latter's whip snapped, cracked and popped as he excoriated poor Clem. The audience hissed. But Clem was sacked and a new breed of supt., Dave Miller, who has a scientific explanation for everything, was hired to replace him. But don't be too sure that was a happy ending. Next year at Kansas City, you may find poor Dave sweating it out in Paul's sauna.



With Mal McLaren (2nd from left) are an unidentified green chairman from a Cleveland area club, Dave Loeser, Frank Wuliger and John Dunlop.

#### Third Session — I

### Agronomists Report on Turf Studies

The third education assembly, held on Tuesday afternoon, was split into two sections. Research reports on cool season grasses were given at one, and the other was devoted to new developments in warm season turf.

Bill Daniel of Purdue University was the moderator of the cool season session. His speakers included Eliot C. Roberts,

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John McNamara, Chartiers CC, Crafton, Pa., Carroll Hitchcock, Woodholme CC, Pikesville, Md. and Paul Weiss, Lehigh CC, Allentown, Pa., didn't seem to be worrying about pythium when this photo was taken.

an agronomist from Iowa State University; **Richard R. Davis** of the Ohio agricultural experiment station; and **James B. Beard**, assistant professor of agronomy at Michigan State University.

**James B. Moncrief**, USGA green section agronomist, presided at the warm season assembly. He presented **Granville C. Horn**, turf research specialist at the University of Florida; **William B. Gilbert** of the University of North Carolina's turf research staff; and **Ray A. Keen**, professor of ornamental horticulture at Kansas State University, and an officer in the Central Plains turf foundation.

### Ohio Governor Speaks

Ohio governor, **Jim Rhodes**, appeared briefly at both sessions. A onetime caddie and now a devoted golfer who would play every day if he could slip out a side door at the statehouse, the governor titillated the two audiences with several good golf yarns. Then, he told the Northern supts. that they would win the full appreciation of their members if they were to take just one vacation between Aug. 1 and Sept. 1. For Southern greenmasters, he recommended a January sabbatical, although he conceded he never could figure out where people from the South go when they take wintertime leaves.

### Turfgrass Response

Eliot C. Roberts, the scholarly Iowa State agronomist, gave an excellent description of the work in turfgrass responses that his school has been carrying

on for the last two or three years. The project is based on the quality, color, density, vigor and bud count of various grasses in light of the weather conditions in which they grow, and the various irrigation, fertilizer and pre-emergence herbicide applications with which they are treated.

### Improves in Hot Weather

The quality of bluegrasses, according to the Iowa State findings, improves in hot weather, is relatively stable with Astoria, but drops off in Pennlawn red fescue plantings. Color qualities of the latter two follow the same general pattern between June and August.

Bud yield, upon which Roberts places great import, increases sharply in Astoria during hot weather, is cut in half in Pennlawn and remains about the same through June, July and Aug. where the bluegrasses are involved. Astoria and Pennlawn simply don't tolerate dry conditions during the warm months, although the bluegrasses seem to hold their own in semi-arid weather.

Other findings: Toronto bents apparently do best under both low and high nitrogen feedings in comparison with Metropolitan and Washington strains, but response among the three is exactly reversed when pre-emergence herbicide is applied. Both of these tests are based on bud count.

### Describes Fertilizer Studies

Dick Davis, who has carried on extensive fertilizer studies at the Ohio experiment station for the last eight years, described the results of experimental feedings of Common Kentucky and Merion with ammonia nitrate, sludge and urea-form. In all applications of these nutrients, lime, phosphate and potash have been kept at what are accepted as adequate and equal levels. Response was judged on clipping yield, per cent of N in clippings, weed content of plots and color.

Results were shown through a series of charts based on April-August performance. Generally, ammonia nitrate gives a high initial yield, drops off toward July 1 and then slowly picks up to reach a secondary high in mid-August. Sludge starts at a comparatively medium rate,

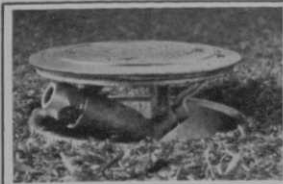


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Here's a man in the lion's den. It's Clem (otherwise Tom Leonard) attempting to explain things he doesn't understand to Paul Weiss, Sherwood Moore and Tom Sams.

reaches its peak around July 1 and then slowly tapers off. Ureaform, slowest starting of the three, climbs steadily to a mid-July peak and then falls off slowly.

Davis conceded that there is some difference of opinion on the results of various applications. He noted that the curves on all the fertilizer release or availability charts tend to reach pretty much of a common level in August in the treatment of both Common Kentucky and Merion. This was also generally borne out in cases where three split applications totalling six pounds of both ammonia nitrate and sludge, and one application totalling five pounds of ureaform, were made.

#### Winter Injury Factors

Jim Beard of Michigan State discussed the causative factors in winter injury. He described several experiments in which both bents and bluegrasses were frozen at from plus 30 degrees to minus 10, and concluded there is no absolute temperature at which it can be said any variety of either type of turf is killed. Factors such as the hardiness of the turf, rate of freeze, rate of thaw and post-thaw treatment have to be considered in trying to determine what are critical temperatures for the different varieties.

Among the bents, the Toronto varieties, Penncross and Seaside seem to be well inured to low temperatures, but Astoria suffers quite extensively when the ther-

момeter drops below zero. Of the bluegrasses, Merion and Newport, according to Michigan State tests, hold up best in extreme cold weather.

Desiccation, low-temperature fungi, permanent snow cover, heaving and oxygen suffocation, Beard said, are the most common causes of winter damage. But it shouldn't be overlooked that a great deal of injury is caused by the following: Increased hydration level due to poor soil drainage; too heavy late fall fertilization; potassium deficiency; winter traffic; late fall cut below 1½ inches; a bad thatch condition; and probably premature spring fertilization.

#### Third Session II

## Florida Researchers Investigate Nematodes

Speaking on the subject of nematode investigation at the South-Southwest section of the turf research program, Granville C. Horn said that little was known about nematodes until about 15 years ago when it was found that the parasites have an extremely destructive effect on grass roots. Three products derived from ethylene, heptachlor and dichloropropene were used in early control tests made at Mayfair CC in Sanford, Fla., and from

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these Nemagon and Fumazon, both effective nematocides have been developed.

It was first thought that only Bermudas and St. Augustine were damaged by nematodes, but by 1955 it was found that they also infest bents and bluegrass, causing as much damage to Northern courses as those in the South. Samples taken at Florida courses have shown that as many as 25 million ring nematodes may infect less than five pounds of soil. In one study of a Florida green it was found that 95 per cent of the samples harbored nematodes, and 65 per cent of these were heavily infested.

In the last five years, the University of Florida has intensified its efforts to eradicate nematodes. At the moment, five major control projects are being carried on. The parasites feed on one another to some extent and soil protozoa also help to keep the nematode population in check. Where Nemagon has been used effectively, nematodes have been largely wiped out and turf roots have rapidly regained strength.

#### Describes Bermuda Studies

W. B. Gilbert reported on a Bermuda winter hardiness study that has been carried on at North Carolina State University for the last two years, and was prompted by the deep freeze that struck the Mid- and Deep South in 1962-63. Observations have been concentrated on temperature conditions, hydration, fertilization and management practices.

It is thought that exposed Bermuda can safely withstand temperatures as low as 5 degrees F. Where greens have been covered with straw, turf has not been seriously injured at as low as minus 20. The hydration level in both cases, however, must be in the medium range. It has been observed that when plant tissue is saturated, mere freezing temperatures can have an explosively harmful effect. The different types of Bermudas can be quite seriously injured by desiccation.

#### Nitrogen Imbalance Effect

A nitrogen imbalance, Gilbert pointed out, has about the same effect on Bermudagrass as it does on cool season turf. Best results are obtained if fall fertilization is carried out about three weeks be-



Elwin Deal, University of Maryland agronomist (r), is shown with two Mid-Atlantic supts. who are not identified.

fore courses are overseeded in late Sept. or early October. Ample potash should be applied to give turf the hardness it needs to carry it through the winter. Phosphorus studies, as yet, aren't complete.

#### Aprons Hold Up

As for management, the N.C.S. turf researcher said that there isn't any doubt that Bermuda aprons survive freezing conditions much better than the putting surfaces. This, of course, is due to the insulation and deeper root structure that is built up from a cut that is consistently  $\frac{1}{4}$  to  $\frac{1}{2}$ -inch higher on the aprons throughout the year.

#### Fourth Session

### Irrigation Program Runs Into Overtime

Roy W. Nelson, supt. of Ravisloe CC, Homewood, Ill., was the chairman of this program in which all facets of irrigation were covered. His roster of speakers included John F. Schrunk, an irrigation consultant; Harry J. McSloy, supt. of Wilmington (Del.) CC; Donald E. Wright, supt. at Camargo CC in Cincinnati; Tom Topp of Bellevue CC, Syracuse, N. Y.; Walter Boysen, supt. at Sequoyah CC in Oakland, Calif.; and Ralph E. Engel, Rutgers University agronomist.

This meeting went the equivalent of 14 innings. It was obvious that the education committee was wringing the last molecule of water out of what is recognized as an extremely important subject.



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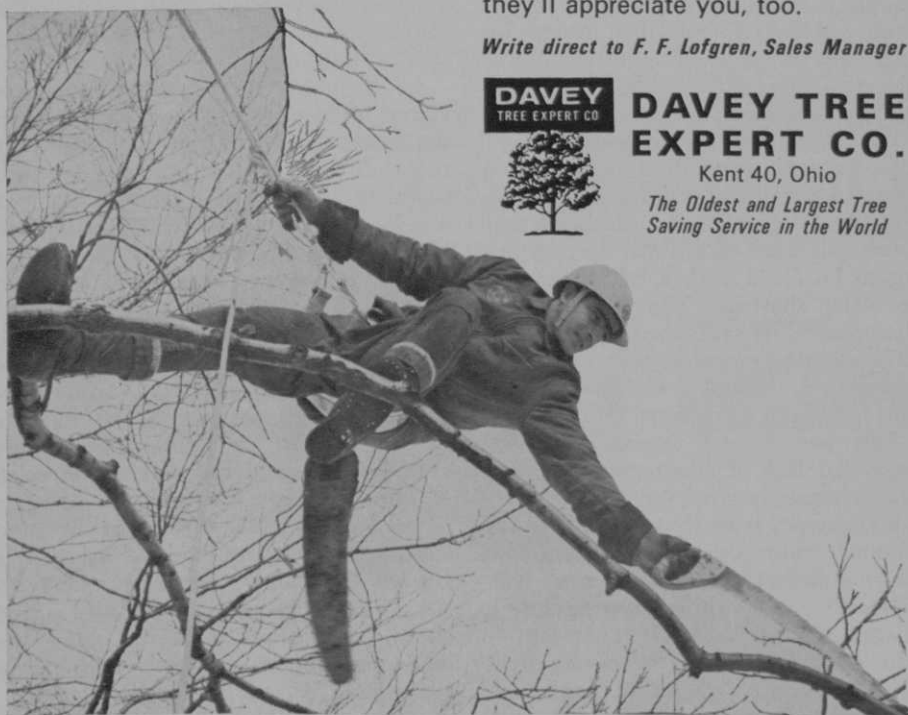
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There isn't any doubt that this is front cover material. These women, all supts.' wives, are shown at one of the luncheons the always thoughtful GCSA planned for them during convention week.

But it shouldn't be forgotten that an education session, like a green, should be built with an eye toward runoff. However, the day was partially saved by Tom Topp, who told an amusing tale of his six-month search for a contractor who had agreed to supply a trenching machine for an irrigation installation, and then went into hiding, and by Don Wright, who gave a masterful description of how to install an automatic system.

#### Faced with Water Crisis

John Schrunk, who must have chosen his occupation with his tongue in his cheek considering his name, declared that if Americans don't soon wake up they are going to be faced with a critical nationwide water shortage. The Western half of the country, he said, already is imperiled and a kind of creeping drought is moving eastward. Shrunk, who has served as an irrigation consultant in the Middle East and is well familiar with the distress that lack of adequate water supplies can cause, pointed out that a fumbling bureaucracy is partly to blame for our threatened water crisis. No government bureau actually has control over conservation, he said, although several federal agencies are involved in it.

"Our water problems stem from at least four factors," Schrunk explained. "There is a deep water shortage in addition to a ground water shortage. Salt

water seepage threatens our coastal water supplies, and inland, pollution in heavy population areas, causes many problems. If we don't find ways to save water by controlling evaporation, sealing against seepage and generally conserving this great natural resource, we are going to see the day when water will be rationed."

#### Recommends Use of Probe

In discussing good watering practices, Harry McSloy pointed out that perhaps the best test of irrigation methods is the probe. If a rod used in probing penetrates easily to a depth of six inches, there is a correct amount of moisture in the soil. If it falls short, compaction can be suspected. If the probe goes much deeper than six inches, a tract is over-watered.

McSloy said that tees are more apt to become compacted than any other course area. To keep them in reasonably good shape, he recommended that they be aerified at least once a year and probed every week. Rainfall usually is adequate to take care of fairway irrigation except in the warm months when wilt threatens. Localized dry spots, however, should be treated the same as tees. In summary, the Wilmington greenmaster said a constant study of root health should be made because it is "what's down under that counts."

#### Star of the Program?

When Camargo's automatic irrigation