



Fred Grau (r), as well known as a speaker as he is a writer on turf topics, addressed a recent meeting of the Pocono Turfgrass Assn. at Shawnee-on-the-Delaware, Pa. In the photo at left are (l to r): Paul C. Grant, inkeeper, Shawnee Inn; Paul E. Weiss Shawnee supt.; George Smith, pres. of the assn. and supt. at Allentown Municipal; Grau; Fred Waring Shawnee proprietor; John Patterson, vp of the assn., of Sparrow Bush, N. Y.; and Francis Leferts, Pocono sec.-treas., of Port Jarvis, N. Y.



### Need Is Desperate

# Wanted: Tougher Grasses for the Transition Zone

By **FRED V. GRAU**

Tougher grasses that snap back more rapidly desperately are needed for tees and fairways. Better equipment and management methods deserve attention simultaneously. The inferior grasses on many tees and fairways simply vanished in 1961 during periods of high temperatures and humidity. The destruction was greatest in the twilight or transition zone where too much reliance has been placed on bents and bluegrasses. Not all the grass was hacked to death. Water, traffic and disease played a big part. Countless acres of turf will be renovated this fall and reseeded to what with what results?

The normal putting green problems

appeared. They were minor compared to tees and fairways, and were mostly man made. The tragic episodes on greens were those where rebuilding was necessary before the new course was properly in play. Improved grasses with modern equipment and knowhow have provided golfers with more and better greens than at any time in history in spite of the useless deterioration of turf caused by human error. Water, more than any one thing, was the villain in disguise. Too many golfers and green chairmen insist that the greens be kept soft with excess water. In one instance (not an isolated one) the greens were watered 4 to 5 hours in the front, then 4 to 5 hours in the back, using a set sprinkler. Poa was the only grass that

could grow but the question was, "What can we do about Poa?" We still have a long way to go in the educational field on the simplest basic management procedures.

A great deal of grass needlessly is injured by burning with excessive and uneven applications of "hot" fertilizers, another example of human error.

#### Renovation of Greens

Complete rebuilding is the best cure for many old, unsatisfactory greens. Lack of drainage basically is responsible for poor performance. This fault should be the first to be corrected during reconstruction.

Decisions on proportions of sand, soil and organic material largely are individual propositions. Sands vary widely in particle size and shape, silt content and gradation. Soil ranges from sand to loam to clay and no two are the same. There are many sources of organic matter which have individual characteristics. Should we use calcined clay — leavened lava — or modified mica? Agreement on "ideal" mixtures remains to be developed. Much dissatisfaction is heard concerning greens built with "high-sand" mixtures because they do not hold enough water. It becomes clear that mixtures for greens need to be defined more precisely in more technical terms so that final mixtures that work can be more nearly reproduced. Work in this direction is in progress. The most ambitious program known is under the direction of Joseph Duich at Penn State where 80 mixtures of 9 materials in varying percentages are placed on a uniformly well-drained base for a long-term study under turf.

#### Improving Mediocre Ones

Many mediocre greens are being improved by a process of frequent cultivation, thatching, spiking, vertical mowing, fertilization, top dressing and replanting. Seed most commonly is used in renovation. Pennecross and Seaside are employed with something less than total agreement on the pros and cons of each.

Hydroseeding is a term familiar in highway development. The Finn Co. in Cincinnati has developed remarkable equipment for planting seed mixed with water, lime, fertilizer and inoculant. Some use has been made of this equipment for planting golf courses.

Recently a notable first was achieved whereby a power sprayer was used for hydroseeding established greens. The scene was Maple Bluff CC, Madison,

Wis. The idea was related by this writer to Roger Larson, course supt., and to Ralph Christopherson of Janesville during a visit in August. In Sept. the plan was executed and pictures were taken to record the event.

#### Madison Experiment

The half green (2,000 sq. ft.) was power-spiked in three directions to provide a multitude of "pits" to catch and hold seed and fertilizer in contact with soil. All screens were removed from the sprayer. The tank was loaded with 75 gals. of water, 10 lbs. of insoluble powdered nitrogen fertilizer (no P&K needed) and one lb. of improved bent seed. The agitated mixture, with a wetting agent added to cause seed to blend, was sprayed in three passes to exhaust the tank. Counts made on a tee towel laid out for a check showed 35 to 40 seeds per square inch with excellent uniformity of distribution. The operation was declared an unqualified success.

A similar procedure was carried out at Tyranaena GC in Lake Mills, Wis. Tom Lees, owner, soaked the improved bent seed for 2 hours before adding it to the spray tank. For 4,000 sq. ft. the tank was charged with 75 gals. of water, 2 lbs. of seed and 20 lbs. of 38-0-0 insoluble powdered fertilizer, well agitated. Greens were prepared by 2-way vertical mowing, hollow-tine aerating, calcined-clay topdressing, 2-way power spiking, and complete fertilizer with trace elements. Five days after hydroseeding the bent seeds were showing visible green sprouts.

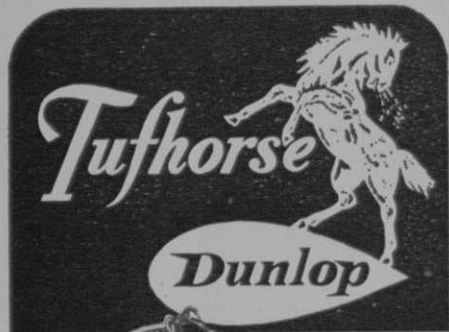
Overseeding Bermuda greens with improved creeping red fescues, and mixtures containing red fescue, will be popular following the research work of Schmidt and Blaser of VPI and others. Never before has such high quality winter turf been experienced for such a long period of time and up until the new Bermuda growth takes over in late spring. Hydroseeding fescue and fescue mixtures offers distinct possibilities for uniform distribution of seed and fertilizer.

#### Fairway Problems

Considerations for better fairways (and tees) must be approached on the basis of the dominant grass involved.

Bermudagrasses furnish excellent turf, resistant to wear, heat, close mowing, diseases and insects especially when managed intelligently. Improved cold-tolerant types permit this grass to be used on the

*(Continued on page 128)*



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## Wanted: Tougher Grasses for Transition Zone

(Continued from page 87)

fringes of bent-bluegrass territory. The high nitrogen requirements cause many clubs to say, "We can't afford it." Starved Bermuda forces expenditures for water and for herbicides and control of weeds (encouraged by water). Adequately fed Bermuda produces greener turf with less irrigation than any other grass. The excess grass produced complicates the problem of thatch removal and disposal which, if not cared for, provides matted, fluffy turf that is highly unsatisfactory for play. Many superintendents express dissatisfaction with equipment and techniques available for coping with the problem.

### How About Bluegrass?

Bluegrass fairways can be objects of great beauty and there are many that qualify. Most are old, unwatered, and are maintained at low levels of fertility and high cut. Herbicides and mowing keep weeds under decent control. The unanswered question is, "Why aren't there more good bluegrass fairways?" Three possible answers are suggested: 1) Close mowing—golfers seem to prefer close-mowed, dense turf. 2) Diseases—leafspot in spring ruins susceptible varieties and footrot completes the job. There are others. 3) Water—summer irrigation to provide green turf during drought periods has caused heavy weed invasion and great deterioration of bluegrass turf. Brown bluegrass during summer drought is nature's way of providing good, well-rested bluegrass during cool seasons. Improved bluegrass strains have not been accepted as the answer by most supts. Heavier fertilization without irrigation is a reasonable approach to better bluegrass.

### Bents So-So on Fairways

Bents have given more trouble, have been more disappointing and have been more costly to maintain than other grasses for fairways. There are some beautiful bent fairways—and there are many sad ones. Bent usually is described as "lush." This usually means "fluffy," giving poor playing conditions. This is particularly true of creeping types with which colonial bents are infested. When bents suffer, poa usually comes in. When poa goes out fairways have to be renovated. Too often they are reseeded with the grass that failed before—bent. A change seems overdue.

Zoysia grasses have great potential for

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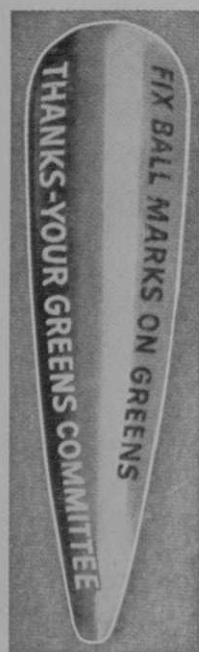
tees and fairways, especially in the transition zone. First, they need to be understood better. Second, they need to be given a fair chance to perform. One objection voiced is, "Zoysia is so slow!" This situation is relative and temporary. Once established zoysia keeps right on spreading, even when neglected. Another is, "It turns brown in winter." So does bluegrass. So does bent. The least golf is played in winter. Color does not affect the playing of a golf shot. Overseeding or painting are possible solutions. There are hundreds of instances where zoysia is producing weed-free, trouble-free turf of excellent playing quality without irrigation. Here is a grass that responds to fertilization. The "best" zoysia for fairways has not been designated or released. Hundreds of strains have been tested in several states. In spite of some poor results with seed, interest in establishing turf from seed is running high. Seed comes from Korea and Japan—there is no domestic production. Considerable information is available.

Fescues seem to be limited by diseases and high temperatures, especially the red fescues. Tall fescues are more adaptable but less well accepted because of coarse

texture and bunchiness. Creeping red fescue seems to be filling a supporting role as a companion grass. Examples include overseeding warm-season grasses for winter play, for filling a mixture which is predominantly bluegrass, and for quickly covering raw subsoils until the main permanent slope cover, crownvetch and similar, dominate the site.

Tall fescues must be appreciated for deep rooting in unfavorable soils, for resistance to heat, cold, insects, diseases, drought and wet soils, for ability to stay green without irrigation and for responding to fertilization. Improvement work with tall fescues has only begun. The future looks bright for tall fescues with all the good qualities, including spreading from rhizomes and the ability to form dense smooth non-clumpy, weed-free turf.

Fertilizers can receive only a short mention. A discussion on trends could well occupy all the space in this issue. Golf courses are using more fertilizers with special emphasis on nitrogen. One new 18-hole club recently purchased 21,000 lbs. of actual nitrogen to be incorporated into seedbeds of greens, tees, and fairways before planting the grass—bal-



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anced with lime, phosphorus and potash, of course. Some clubs regard fertilizer as a luxury item that is the first to be cut if money is needed for something else.

### Special Mixtures

Close attention to soil tests have some supts. ordering special mixes designed especially for their conditions. This is a growing trend. It is senseless to spend good money for an element that already is present in excess.

Four states (Pennsylvania, Delaware, Maryland and New Jersey) recently announced jointly a new list of approved fertilizer grades. For turf the "On Trial" grade (in use for 8 years) is 10-5-5 with 75 per cent of the nitrogen from urea-form.

Proper titles are important. Very few supts. today speak of a fellow supt. as a "greenkeeper." The title "golf course supt." implies stature and dignity. Firms that address mail to "The Greenkeeper" do nothing to endear their products to the supt. at that club.

Nurseries still are conspicuous by their absence at too many otherwise top rated clubs. But enough already has been said on this topic.

### Trouble-Free Sprayer

One of the most delightful surprises of the year came to us recently when we assembled and operated Walter Lapp's people-powered, trouble-free, engineless power sprayer. Spraying uniformly a path 12 to 15 feet wide from a center-mounted nozzle, with no more effort than pushing a fertilizer spreader, it must be experienced to be believed. No similar piece of equipment exists, to the best of our knowledge.

Weed control, like fertilizers, could take all the space available. Good progress is being made in weed control with chemicals and with strong grasses adequately fertilized and well managed. Most authorities still say that the best approach to weed control is a dense turf.

Lime was discussed in Sept. GOLF-DOM. It is an important factor in producing good turf.

Commonsense is the best ingredient in any product, or in any procedure used for turfgrass improvement.

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