

duce usable seed while others do not? (Mo.)

A—The grasses have become intermixed over the years through cross pollination and some do not hold true to type where seed is used. Three vegetatively-produced parents were used in the production of the Penncross strain. Many off-types were produced and discarded before the best three were put together.

Q—Of what benefit is it to have roots in a putting green below the depth of $2\frac{1}{2}$ "? (Mass.)

A—Some of the good putting greens that we have seen have roots occupying the full depth of the top 12 ins. of soil. Some go even deeper. Grasses that are growing with deep extensive root systems like this are better able to withstand shock and they can go longer periods without water because the roots are ranging through a greater depth and volume of soil for moisture and nutrients.

The extra root cushion will mean a great deal in playing conditions giving a resilience to the turf that cannot be obtained with a shallow-rooted grass.

The grass growing on a deep extensive root system like this is much more likely to be healthy because it is more able to obtain a steady constant supply of moisture and nutrients and proper balance thereby enabling the grass to keep ahead of diseases. A deep extensive root system constantly dying and decaying is continually improving soil structure.

Q—Is methyl bromide dangerous to use? (Texas)

A—There is little horizontal movement of this material so only the treated area is affected.

However, caution should be observed for shrub roots growing near treated area. Usually treatment should be no closer to the base of a tree than the drip line, although it has been reported that citrus trees have been treated very near the trunk with no adverse effects.

Contact with the material is hazardous to personnel. Sensible precautions should be observed and do be accurate in following the manufacturer's directions for use.

Q—Is there yet a chemical treatment to control poa annua? (Ill.)

A—One of the things you can do is to apply lead arsenate at the rate of 10 lbs. to 1000 sq. ft. To obtain uniform distribution mix the material with topdressing and put it on early in the spring when the poa annua is just beginning to grow. This will retard the poa annua consider-

ably and should help the situation until we have something better.

However, where there is a high level of phosphorous in the soil the results may be disappointing.

Q—I believe I can save our club money by building a fairway spray rig. What width and capacity do you recommend?

A—Frankly, we don't recommend building your own equipment. There is a considerable investment in the turf on a golf course and it is well worth while to invest the money in good standard equipment to take care of that turf.

Although "tailor-made" equipment may be slightly more expensive than home made, it has the advantage that replacement parts will always be available from the local supplier.

In case of a breakdown repairs can be made almost immediately to avoid possible loss of grass. Very often standard parts will not fit pieced-together "bastard" equipment, and then there may be a delay of days or even weeks before parts can be obtained. There can be a serious loss of turf during that waiting period.

We have seen too many cases where supposed savings on equipment turned out to be very poor economy. It is better to buy a standard make so parts and service will be available promptly.

Q—Is it absolutely necessary to water after fertilizing? (W. Va.)

A—The reason for watering after fertilizing is to wash fertilizer off the grass blades so it will not burn.

Brushing the fertilizer off the grass blades with a dragmat will accomplish the same thing. If an organic fertilizer is used there is less likelihood of burning the grass.

Q—Our fairways have had no fertilizer since the course was built over 25 years ago. We want to start on a program of fairway improvement but we can't agree on procedure. What do you suggest? (Calif.)

A—The first step is to make as complete an inventory as possible, including photographs. This will be for the record and for the guidance and information of you and your officials and those who will come after you.

Get a complete soil test—ask your county agent, your experiment station or other service bureau for details.

Make a record of the types of grasses and approximate per cent coverage of each—weeds, too. Now, with soil test reports and vegetation population figures in

front of you, start calculating quantities of limestone (if it is needed) and fertilizer required.

Here you might use the help of a trained agronomist together with the advice of your fellow superintendents who have developed successful fairway improvement programs. Don't neglect to evaluate soil physical conditions, compaction and water infiltration.

Success in the use of water, lime or fertilizer will be more sure when soil is rendered porous and receptive to water infiltration.

This may be the best time to introduce by seed or sprigs the improved fairway grasses for the long-term program.

Q—We have not been very successful in controlling grubs in the soil even though we apply Chlordane (dry form) at the recommended rate. Any suggestions? (N. Y.)

A—Your trouble may be that you are not getting enough of the material down into the soil where the grubs live.

Aerify thoroughly before applying the insecticide, then water to wash the material down into the openings. If water is not available, use a dragmat to help work the chemical down into the openings.

If the soil is high in lime, chlorinated hydrocarbon type insecticides will break down and become ineffective more quickly than they otherwise would. Take this into consideration when determining how often to apply the chemicals.

Q—I am a student in high school. During the summer I work on a golf course and now I would like to study more about the subjects that will give me better training to be a superintendent. Where can I write to get information on undergraduate course work? (Mo.)

A—Several schools offer course work in Turf Management. We would suggest that you write to these institutions for full information.

Prof. H. B. Musser
Agronomy Department
Pennsylvania State University
University Park, Pa.

Dr. W. H. Daniel
Agronomy Department
Purdue University
Lafayette, Indiana

Dr. R. E. Engel
Agronomy Department
Rutgers University
New Brunswick, New Jersey

Dr. R. C. Potts
Agronomy Department
Texas A and M College
College Station, Texas

Prof. L. S. Dickinson
Agronomy Department
University of Massachusetts
Amherst, Massachusetts

Dr. G. W. Burton
Georgia Coastal Plains Experimental
Station
Tifton, Georgia (Abraham Baldwin
College, Tifton, Ga.)

We would suggest that courses in business management and personnel relations are equally important with basic technical courses in soils, chemistry, physiology, ecology and others.

"Doc" Treacy's Son Killed in Notre Dame Explosion

Dr. John W. Treacy, 30, son of the late R. W. (Doc) Treacy, for many years prominent in PGA affairs, was killed March 31, in an explosion during fuel tests in a rocket test cell at the University of Notre Dame. Dr. Treacy, an asst. professor of chemical engineering, was born when his father was pro at Danville (Ill.) CC. He graduated from Notre Dame in 1945. He took his master's degree there in 1947 and obtained a doctor's degree from the University of Wisconsin in 1949.

He was married to the former Mary Ann Owens of South Bend. They had three children. His mother now lives in Grand Rapids, Mich.



"LIGHT HORSE" STILL GOOD

Johnny Inglis (L), founder of the PGA Quarter Century trophy, presents Harry Cooper with Metz-Harper trophy for winning the club's second annual championship at Dunedin.

It was Harry's first start in the event.