

How Science Has Helped My Greenkeeping

By WILLIAM LYONS

How to prevent or control diseases in greens with fungicides takes up time on every greenkeeping short course or turf conference. But how to reduce risk of disease outbreaks by a feeding program gets less attention. Perhaps the subject is too complex to encourage much positive talk.

A few years ago the greenkeeper who could look at a green and say, "that green needs nitrogen," or, "that green needs phosphorous," or, "this one needs potash," or other elements, was considered a genius. Frankly he was not and is not! He often was guessing with too many chances of being wrong. He, of course, may have been right. Could he tell a green that had been over-fed nitrogen or something else? Greenkeeping today requires scientific precision rather than surmises and experiments.

Several years ago a greenkeeper was having one outbreak after another of

"browning" on his greens. Soil tests showed he had not a trace of potash under his grass. Very little phosphorous showed in the test. (The color reading was since shown to be coming from heavy applications of arsenate of lead.) There are so many factors affecting the feeding of greens that it is difficult to do an intelligent job of feeding based solely on soil tests. Even these are better than guessing. The pH reaction tests must be made from the soils.

It is a habit with many greenkeepers that when the turf goes a little off color to give the plants a light feeding of nitrogen, either as sulfate of ammonia or some form of organic nitrogen.

Let's see what happens in the soil when we feed sulfate. The potash that was normally present in the soil becomes a free agent and is leached away in the drainage system. So it's easy to see that con-

(Continued on page 78)

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the trend is for the average golfer to play balls with lower compression."

Bowman also advised that the company planned to make more bags in 1948 than 1947 and expected to fill every order.

L. R. Freeburg, company sec'y., pointed out that golf has changed. "The butcher, baker, barkeeper, all play. The priest, the preacher and the professional all can be found on the same course. Out of the service came 1,000,000 new golfers and there's 1,000,000 more waiting the chance to play."

Science Helps Greenkeeping

(Continued from page 57)

tinued feedings of sulfate are going to cause trouble. The trace elements in soils can likewise be lost by nitrogen feeding; boron, copper, zinc, iron, manganese and others. The plant must have these if it is to be healthy.

A greenhouse technician pointed out to our greenkeeping association that when their flowers get too much nitrogen they get soft, lush and will not stand shipping. To make the flowers more turgid and tough they wash out the bench and feed potash. If that applies in the greenhouse, why won't it apply to a green? We want a tough healthy turf that will take the abuse of 500 pair of spiked shoes a day and come back smiling.

Then, is it the thing to do to apply more nitrogen and one or two ounces of mercury compound per week and pray for the weather to be just right? That hardly seems like business methods. It may be a waste of both nitrogen and fungicide plus time.

Feeding What Plants Need

There are greenkeepers who are "spoon feeding" the tiny plants on their greens by a system that is based on "asking" the plants what they need to grow in a healthy way.

Dr. G. N. Hoffer, American Potash Institute, described plant tissue testing at the Purdue University short course in 1945 and again at the Midwest Regional Turf Conference March 17-19, 1947.

Those using the system know it is not perfect. A bit of common sense has to be used in interpreting the readings of the tests. No set quantity of materials can be specified to meet the needs of the plants.

And yet, the tests do show the major plant foods that are needed.

Here are some results of "spoon feeding" that are worthy of noting: On one course only 4 ounces of fungicide per 1000 sq. ft. was used during an entire season. Proper feeding is cheap, and one can have confidence in the results if science is substituted for guess work.

Greenkeepers from so many states have asked the writer for his program of green feeding that it is being presented here for argument in the hope that it will induce more examination and discussion of greens fertilization.

As soon as mat or "winter nap" is removed and the bent shows signs of new life I feed 40 lbs. of 6-10-4 or other good grade of lawn fertilizer as my spring feeding.

After 4 to 6 weeks ask the plants what if anything they need by tissue testing. Then if weather is cool I feed:

- 2 to 3 lbs. of sulfate of ammonia;
- 1 to 2 lbs. of mono calcium phosphate;
- 1 to 2 lbs. of 60% muriate of potash per 1000 sq. ft.

Add 1 lb. of Es-Min-El per green of 6000 sq. ft. or less. More if larger.

Apply the mixture in 150 gallons of water, follow immediately from a shower nozzle making "rain" on the green.

If fungicide is to be used it can be applied with this mixture.

Weigh chemicals accurately. Know exact size of every green. Grinding chemicals helps hold in suspension in the sprayer.

Dissolve 50 lbs. of Es-Min-El in 50 gals. of water. One gal. of solution will be same as the soluble nutrients from 1 lb. of material. It's only the water soluble material the plant can use.

Two or 3 light feedings per season of organic nitrogen applied dry are made when tests show the plants need only nitrogen.

In putting our greens to bed for the winter, 20 to 30 lbs. of 0-12-12 is applied per 1000 sq. ft.

To reduce snow mold greens are spiked just before winter freeze and 3 oz. of fungicide applied per 1000 sq. ft. Some greenkeepers claim the spiking is enough if greens are taken into the winter well aerated. But this does not always hold true.