GRAU'S ANSWERS TO TURF QUESTIONS

BY FRED V. GRAU

Love That Lime!

Many supts. have reason to hold hydrated lime in considerable regard since their experiences last summer. They either had not heard about the value of midsummer use of hydrated lime or they had forgotten about it. The whole chain of events was triggered by trouble on greens in the Omaha-Lincoln (Neb.) area. The diagnosis made by Dean Peterson, formerly of Omaha CC, was that a leafspot complex (Helminthosporium and Curvularia) was running rampant, apparently unchecked by varied treatments and the best of cultural care. Temperatures of 95 degs. F for weeks or more, plus high humidity in the micro-climate due to "cooling" with water, created conditions favorable to the "melting or wearing out" of the turf. One complaint was that "the grass won't grow".

My suggestion was: "½ to 1 lb. hydrated lime plus two lbs. of powdered insoluble nitrogen material to 1,000 sq. ft." Sprayers went into action at once and results were dramatic. Even with continued ugly heat the disease complex stopped and grass started to grow. To date there has been nothing but sighs of relief that wholesale destruction of grass was averted. No unfavorable results have been reported except where the lime dosage exceeded the recommended rate.

Golfdom's Q & A department has referred previously to the beneficial effects of hydrated lime during unfavorable weather when fungi and algae are having a "field day". At no time has it been referred to as a "fungicide". At best, it creates conditions in which any good fungicide can be more effective.

Water — Too Much and Not Enough

As the population increases cities expand, industry grows, and fresh water is in ever greater demand. There is a growing problem of providing adequate water for irrigating golf courses. The situation will become more and more troublesome.

In the face of low rainfall and dwindling water supplies it is distressing to see course turf over-irrigated to the point of severe damage to turf. Not only is precious water being wasted but future heavy repair costs are being incurred. Already many courses have faced replanting of greens and fairways which, if the truth were known, suffered severe losses partly because the turf was predisposed to damage by overwatering.

Putting greens of hybrid Bermudagrasses certainly do not need to be watered every night. Bermudagrass fairways can provide excellent playable turf with far less water than many of them receive. Water is used profusely in the effort to keep grass green. It is often forgotten that sturdy grasses such as Bermuda and Zoysia can remain green for weeks with no irrigation if they are adequately supplied with nitrogen. Bluegrass comes in this same category. Often it is said that "we can't afford to fertilize" but there seems to be no limit on the amount of water used.

Water with inadequate nitrogen tends to increase weed population. We have seen many fairways that should be solid bluegrass. With more than enough water and less than enough nitrogen the "turf" is made up of knotweed, poa and clover for the most part.

Potash for Healthier Turf

Regular periodic applications of sulfate of potash are becoming the rule on the

This is the second of two annual round-up articles by Fred V. Grau. The first appeared in October Golfdom (page 72).

putting greens of many courses. The trend is toward the fine, white, soluble powder that can be used perfectly with other nutrients suspended in water or dissolved in the spray tank. Convenience of application of the powdered form of potash through the spray tank, alone or in combination with nitrogen or sulfate of iron (powdered, if you please), tends to rule out the crystalline form which dissolves slowly and often clogs the sprayer.

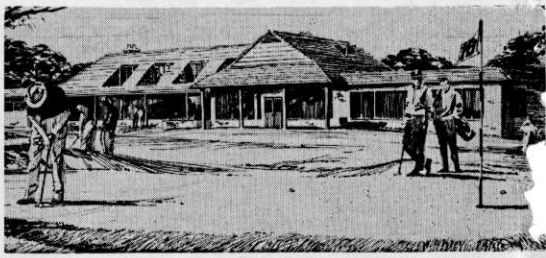
Some ask, "Why sulfate or potash? What's wrong with muriate?" The answer is, "Nothing, but the sulfate form provides sulfur(s) which is another nutrient for bacteria and for plants". In the modern concept of nutrition of turfgrasses, we are committed to providing the best balance possible.

To some it may seem that there is undue emphasis on nitrogen and potash. The reason is that there has been unwarranted use of phosphates to the point where the high levels of P in turf soils only add to the difficulties of producing high-quality turf. Excess P encourages coarse stemmy growth and heavy seedhead formation. Excess P precipitates iron in the transporting vessels inside the plant. Clogged tubes are unable to move nutrients properly from leaf to root and vice versa. Potash, in balance with nitrogen, helps to unclog the tubes and let the nutrients flow as they should. Potash further aids in producing stiffer stems and blades which can take traffic better. Plants supplied adequately with potash have greater disease resistance.

A reasonable balance over a wide area seems to be about 3 N or 4 N to 1 K. For each 3 or 4 pounds of actual N used, one pound of actual potash (equivalent to 2 pounds sulfate of potash) provides an excellent balance. If soil tests show P to be medium to high there seems to be no need for additional phosphorus.

Practical Mathematics for Maintenance Men

The first order of importance in golf maintenance work is that of accurate measurements. Many reliable recommendations have fallen flat simply because turfgrass areas were not known accurately. Most rate recommendations are given for 1,000 sq. ft. (written as M^2) or for an acre. It would be extremely helpful if every supt. would mark off with an edger an area 20x50 feet or 25x40 feet for every man on his staff to study and remember.



The 18th green and clubhouse of the new Prestwick CC, located 20 miles southwest of Chicago's loop, is shown in this sketch. Lawrence Packard designed the 6,500 yard course and Bertram A. Weber was the clubhouse designer.

If a green contains 7,000 M^2 it should be treated for precisely this area. There really is no excuse for not knowing exactly the size of every green and every tee.

We were impressed recently when we were discussing a program with a green chairman and a supt. In answer to the question, "How many acres do you have in mowed fairways?" we immediately got the reply, "41 acres". How refreshing it was, and how simple it was to state exact quantities needed.

Another point of practical mathematics is the simple problem of calculating the season's nutrient requirements. For the sake of simplicity in the example we will set up nitrogen requirements only although other nutrients can be figured just as easily.

An 18-hole course usually has the equivalent of 20 greens which includes the nursery and practice green. If greens average 6500 sq. ft. there will be a total of 130,000 sq. ft. If the greens are bentgrass and require 9 pounds of N/M^2 for the season, the total for greens will be 130 x 9 = 1170 pounds N. This figure will be higher for Bermuda greens.

Tees may be somewhat smaller than greens. For example, we will say a total of 100,000 sq. ft. which require 6 pounds N/M^2 for the season or 100x6 = 600 lbs. N.

Fairways may be bent, Bermuda or bluegrass. Just as an example we will take a low figure of 4 pounds N/M^2 for the season and assume that there will be 45 acres. There are 43,560 square feet in an acre. 43.56x4 = 174.24 or, in round figures, 175 lbs. N/A. For 45 acres we need 45 x 175 = 7875 lbs. N for the season.

We have figured nothing for lawns, roughs or other areas. These can be calculated the same way.