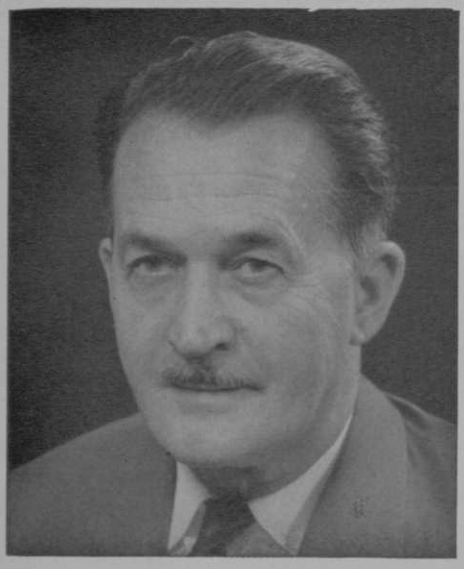
Grau's Answers to Turf Questions



Attitude on Lime Application Is Distressingly Casual

Lime is important to turfgrass in humid, high-rainfall areas where soils tend to become increasingly acid. In arid regions where evapo-transpiration exceeds rainfall, lime accumulates in the surface to the extent that measures often must be taken to counteract the excess lime and other salts.

Where lime is needed, often it is neglected with damaging effects on soil microorganisms, on fertility relationships and, consequently, on turfgrasses. Applications of lime seldom produce dramatic effects with the result that there is a distressingly casual attitude on the subject.

Old-time "green keepers" demonstrated their awareness of the value of lime when they built their compost piles of alternate layers of sod, peat, manure, lime and soil.

Historical turfgrass literature is liberally sprinkled with items on the use of lime. Here and there we find that agricultural ground limestone on half a fairway had something to do with producing nearly disease-free turf when an attack of dollarspot occurred. One could cite many such instances.

Two Important Functions

Louis N. Wise in "The Lawn Book" (W. R. Thompson, State College, Miss.) calls attention to two important functions of lime: (1) it supplies calcium and magnesium, both essential plant nutrients; and (2) it influences soil reaction, reduces acidity and thus affects the availability and utilization of other nutrients.

Wise goes on to say that lime improves the availability of phosphorus and reduces toxic elements. It encourages soil microorganisms and thus discourages mat and thatch formation. Lime improves soil structures, stimulates root development and improves resistance to certain fungus diseases such as dollarspot and brownpatch. Drought tolerance is increased.

Check on Disease

Hydrated lime (essentially calcium hydroxide) is a valued member of the lime family for turf application. Many supts. maintain a stock of hydrated lime at all times and use it weekly during the summer. Light applications (1 or 2 lbs. to 1,000 sq. ft.) to greens in late evening, dusted on, allowed to lie on the grass until it is rinsed the next morning, check diseases and algae and renew turf vigor. Upon touching the surfaces of leaves and soil there is a sudden and dramatic rise in pH above the point where fungi can live. The net result is greater freedom from disease and an accrual of other benefits previously described.

Note: Carpetgrass and centipedegrass grow best at low pH ranges (4.5 to 5.5).

Supts. are urged to seek out publications on lime from state experiment stations and elsewhere in order to become more familiar with the benefits to be derived from its use.

Readers of the Agronomy Journal may have noted a paper entitled "Trace Elements in Agricultural Limestones of the U.S." by P. Chichilo and Colin W. Whittaker, Vol. 53: 139-144, 1961, a contribution from the Soil and Water Conservation Research Div., ARS, U.S.D.A., Beltsville, Maryland. The findings of these researchers and their co-workers point up some extremely interesting and valuable information. One sentence in the synopsis deserves direct quotation:

"At normal liming rates many limestones contribute significant amounts of

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certain trace elements and a few limestones contain amounts sufficient for correction of deficiencies".

Beneficial Side Effects

The whole subject of trace elements rapidly is coming in for well-deserved attention where there is heavy crop removal. Putting greens qualify in this category. This new information on trace elements in limestone gives us a new concept of the beneficial side effects of lime.

Most of the samples studied came from the eastern half of the U.S. (Central Neb. through central Tex. eastward). Fla. rock averaged high in fluorine and phosphorus; Neb. material was high in zinc, vanadium and molybdenum; Kan. limestone averaged high in aluminum, cobalt, sodium and copper; Minn. material yielded potassium and iron; and sulfur was found in Ky. limestone.

Wide variation in analyses occurred, leading authorities to suggest that a knowledge of the composition of agricultural limestones could lead to a more advantageous selection of materials containing quantities of trace elements desired.

Space limits further discussion of the subject here. The topic well could be discussed further at local meetings where experiment station personnel are invited to participate. The research reported here further emphasizes the value of lime. Don't sell lime short.

Lime for Golf Courses

Q. Our firm manufactures agricultural limestone, used to neutralize the acid in the soil. Attached is an analysis sheet on our pulverized limestone. You will note it is a high magnesium limestone which gives it a high neutralizing power of 108. In addition, the limestone also contains calcium and it is ground very fine in that it will pass 75 per cent through a 100 mesh screen.

Due to the high neutralizing power and fineness, our limestone does provide rapid neutralization of soil acid. We have quite a bit of information on the use of limestone in agriculture, but very little on its use on golf courses. We have sold some materials to courses in Ohio and would like to broaden our market. But we feel we should have some information as to whether or not limestone should be included in a course fertilization program.

Agronomists tell us that a pH level of 6.5 should be the goal for the farmer. While this is true for agricultural crops it might not be true for grass. Also, a supt. will use one type of grass on greens and possibly another on fair-