

GRAU'S ANSWERS TO TURF QUESTIONS

BY FRED V. GRAU



Our Strongest Tools Are Soil Tests

In everything we do there is a compelling need to achieve an equitable distribution, a balance, among the various phases of our day-to-day life. We need to balance work and play, vocation and vacation, joy and sorrow for the complete life. Some sports have not had a vacation in years; others take them regularly. "All work and no play makes Jack . . ." but who wants a narrow, one-sided employee even if he's rich.

Balance is essential in producing high-quality turf. The soil must have a balance between air and water; the air balanced as to oxygen and carbon dioxide. Soil acids and alkalis must be balanced to avoid excesses of either. Traffic must be controlled in relation to soil compaction to avoid excesses and the death of grass.

Protective Mechanism

Soil microorganisms apparently automatically achieve balance with external factors when provided ample supplies of food and energy and chemical necessities which are identical to those required by grasses. Well-nourished organisms continue increasingly to produce colloids (glue-like) which bind tiny grains of sand, silt and clay together into large grape-like bunches called aggregates which then act like large coarse soil particles. Soils then can breathe, resist compaction, absorb traffic shocks, absorb water and stay alive.

Balanced nutrition, which feeds soil organisms first and grass second, consists of supplying all nutritive factors in proper proportions. When soil tests show excessive soil acidity we must apply calcium and magnesium to counteract the hydrogen ions, thus restoring balance. Nitrogen, of course, must be kept in constant ample supply so that soil organisms never, never go hungry.

Phosphorus, essential for root growth, is needed in moderate supply. When great

excesses, detected by soil tests, accumulate, it can be eliminated from the diet until levels become moderate. Potash, essential for many things, needs to be present in adequate amounts. Excesses may be harmful, always are wasteful. Soil tests can be so useful. Iron, copper, boron, zinc, manganese and other trace elements may be needed occasionally to maintain growth and color.

The complex dynamic biological system of soil-plant relationships has the inherent ability to absorb many shocks and to achieve balance if provided with reasonably adequate mineral nutrition and water when needed. Chances for satisfactory growth improve as we provide nutrient elements balanced according to the supply in the soil and to the needs of the plant. Our strongest tools are soil tests, intelligently interpreted and meticulously heeded.

Turf Feeding Plan

Q. For years before I took over our course the main fertilizer used was a 1-1-1 inorganic mixture. At times, my predecessor used animal residues and occasionally a little muriate of potash. Recent soil tests show 1500+ pounds P_2O_5 to the acre on greens and tees, about 1,000 lbs./A on fairways. Potash varies from L to M. What do you suggest for a feeding plan? (North Carolina)

A. This is becoming a rather common thing over a large part of the U.S. and Canada. To some extent the high readings for P may be attributed to arsenic but hardly to the extremely high levels that show up in the tests. Many courses that are plagued by VH readings for P (and often plagued with poa annua, too) now are developing programs of feeding straight nitrogen materials (no phosphorus) and sulfate