

ESCALATING PROBLEMS OF THE GOLF COURSE TURF: THE DISEASE DISASTER OF 1977

The growing complexities of our daily lives in the atomic age are spilling over to turf management. The problems of maintaining a healthy turf are becoming more complex and demanding. A little more than a decade ago, many superintendents encountered problems that bordered on disaster:

"... USGA Midwestern Section Agronomist James Holmes says that Pythium blight and other fungi killed up to 75 percent of the fairways". Hardest hit courses were in the Chicago and Minneapolis-St. Paul areas..." Curiously it was the better courses with the big maintenance budgets that suffered the most!!!"

Golf Course Operations, November, 1964

"... Never has the Chicago area experienced such generalized golf course troubles in turf maintenance. Fairways were hardest hit, but many courses had problems on greens and tees as well..."

"... Turf-grasses lose vigor, are severely weakened and fail to respond to even maximum maintenance. Consequently, a myriad of pathogens such as diseases causing fungi become damaging".

The Golf Course Reporter, September-October 1964

In 1977, the problems appear to have deepened. Adverse weather conditions brought up to the surface problems that many superintendents feel are worse than those encountered in the past. Under these conditions it is essential that we focus on some fundamentals of the turf management.

Combating the Turf Disease Through Balance Nutrition

Over time, virtually every industry moves from pioneering experiences to the adoption of modern, scientific production methods. This same development occurred in the Golf Course Maintenance industry. In the past, dark green and beautiful turf was based on empirical experience. Now, it requires engineering, scientific knowledge and artistic ability on the part of the Superintendent. Nutrition of grasses and the battle against so-called "diseases" is based today on scientific principles. These are, invariably, derived from a detailed, extensive knowledge about the condition of the soil. Thus, soil testing is an essential part of a systematic approach to dealing with turf diseases. However, most soil testing today is based on primitive knowledge of the soil. Many of these tests are incomplete both in scope and depth. They fail to take into consideration scientific advances in the chemistry of the soil and irrigation water. Only a complete quantitative analysis can provide a basis necessary for the maintenance of vigorous and healthy turf.

Main Advantages Resulting from Quantitative Soil and Irrigation Water Analysis

- 1) Elimination of "diseases from deficiencies and harmful excesses of essential macronutrients and either high or low pH.
- 2) Elimination of "diseases from deficiencies and toxicities of essential minor elements.
- 3) Elimination of "diseases which have origin in backward effects of sprays and other chemicals.
- 4) Elimination or limitation of "diseases" from polluted irrigation water.
- 5) Recovery of vigorous growth of grasses of balanced nutrition and rebuilding of the physiological defense of grasses against infectious diseases and fungi.

6) New strains of diseases and varieties of fungi such as the new variety of Pythium sp. would find it more difficult to survive if proper nutrition was practiced resulting in healthier plants which would be more resistant.

7) Agronomist operation for the balance soil environment for turf grasses.

Efficient Testing Program for Golf Courses Consist of:

1) Samples of soil from each tee, fairway and green separately are taken scientifically by specially trained personnel.

2) Sample of irrigation water for analyses.

3) The soil analysis performed in modern laboratories, for major and minor elements and other important factors for the growing plants (grasses).

4) The best soil testing concept, scientifically up to date is inevitable.

5) Scientific report based on the results of analysis includes interpretation of analytical figures and recommendations nutrients (elements) for the balance of soils on each green, fairway and tee by fertilizing program for 3 years.

Based on the Report of the Analysis and the Resulting Recommendations a Practical Program Should be Made for the Golf Course Including:

1) Fertilizing plan for the golf course with time-tables for soil, grass requirements and seasonal variations:

2) Purchasing plan for fertilizers per year (kind, amount, price per unit, etc.)

3) Top-dressing plan for greens, tees, lime-material must be analyzed and fit for the balance of soil environment.

Direct Financial Advantages Resulting from Practical Program

1) Expenses for sprays (chemicals) and labor are actually decreased because diseases are eliminated or limited.

2) Considerable savings are realized because rebuilding of greens and tees are not necessary, with the exception of greens that are poorly located, poorly constructed or absolutely ruined.

3) Eliminating expenses for labor and fertilizers which increase deficiency and toxicity of certain elements in the soil or influence unfavorable pH, as well as nutrients which are in excess in soil and do not contribute to a vigorous growth of grasses.

4) The most economical investment is realized for labor and acquisition of fertilizers for elimination of deficiencies or toxicities and balance of pH through proper nutrition of the grasses on certain tees, greens, and fairways.

5) The highest financial profit results from a better turf which attracts more golfers on the course.

Quantitative Soil Analysis or Rebuilding of Course

Expensive, new, rebuilt, or renewed golf courses are worthwhile to take under control because the danger of diseases, fungi, winter injuries, etc., exists in unbalanced soil environment. Law of the minimum and harmful maximum remains the same for new or old golf courses.

Maintaining a beautiful golf course is possible either by complete soil analysis with proper treatment, or, by rebuilding to change the basic soil environment. However, the cost of performing a complete soil analysis is only a fraction of the cost of rebuilding a green. Therefore, the expense for soil analysis is the best and most profitable investment in golf course business.

There are many things which add to the attractiveness and beauty of golf courses, as an example, the irrigation system, decorative trees and flowers, to name a few. However, the control of soil environment (by means of quantitative soil analysis) is basically essential for a green, healthy and vigorous turf which attracts golfers. Maintenance of a golf course at the top level of attractiveness is quite difficult and requires engineering skill and artistic ability based on scientific principles and natural laws - an immense responsibility for golf course Superintendents in the atomic age.

Vaclav Zolman

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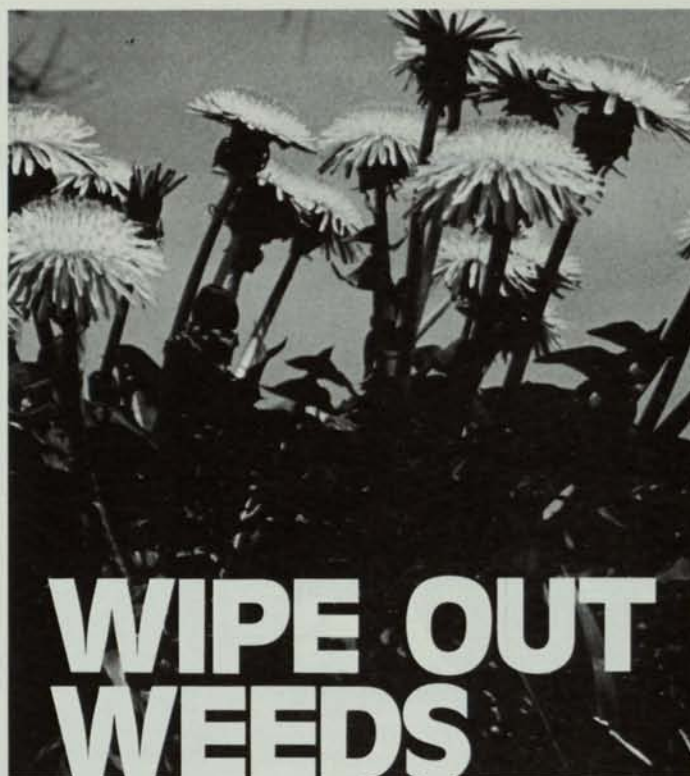
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