

# Turfgrass Questions Answered

By FRED V. GRAU

Dr. Grau will welcome questions on course maintenance subjects from superintendents, green chairmen, club and public course officials. There is no charge or obligation attached to this service. Address Queries—Grau, Golfdom, 407 S. Dearborn St., Chicago 5, Ill.

**W**ATER . . . WATER . . . WATER . . . How much is enough—too much—too little? How often—what rate—what method?

The use and misuse of water on turf-grasses makes a fascinating study across the continent. A few studies have been made on the subject and a few articles have been written. For the most part, statements have been cautious and guarded. It would be unfair to appear to criticize anyone who has not yet been taught how to use water properly. There rests upon the shoulders of each of us the responsibility of teaching the lessons of proper water use.

Water and Diseases . . . Nearly 25 years ago I was working with Monteith and Dahl when the now classic experiments were conducted on when to water to reduce diseases on bentgrass putting greens. The answer came out clearly — **EARLY MORNING!**

If this were more generally known and appreciated there would be fewer sprinklers set on greens in the evening and allowed to run until the workmen came in the morning.

It hurts to see an excess of water used on turf in arid climates where water is precious and where control of moisture is a sure bet. Here, if anywhere, it should be possible to use just enough and no more. In climates where torrential downpours may be expected it makes sense to keep the turf slightly underwatered so that, when the anticipated deluge comes, the unavoidable overwatering will not be so severe.

Chlorosis, most frequently ascribed to a deficiency of iron or an excess of phosphorous or calcium, often can be traced to the fact that the moisture relationships have been out of balance in some way. Fortunately, the application of iron restores

grass to a normal healthy color. The true role of water in this disturbance to turf-grasses is worthy of further investigations.

Hand watering is a practice that deserves far more attention. A man with a hose and a rose nozzle can be taught to direct water to the high points on a green and to stop watering when runoff into the low places occurs. A set sprinkler has no brains to apply water only where it is needed. Drowned grass cannot well resist the invasion of *Poa annua* which thrives on ample moisture—which dies when water is denied it.

Water must be applied only as fast as the soil can absorb it without runoff. Mechanical conditioning of the soil will increase the rate of infiltration.

Deep infrequent soaking on established turf is superior to light frequent sprinkling. Every known device to increase root depth should be studied and brought into operation.

Excess surface water will serve to increase crusting and compaction. Rapid penetration of water into the subsurface materially will improve the playability of turfgrass areas. The more rapidly water can infiltrate, the drier the surface can be kept. Dry grass is less subject to disease.

We have sought to encourage the practice of thoroughly and frequently aerifying all banks, collars and approaches, and keeping these areas well-watered. By doing this it has been evident that much less water is needed on the putting surface.

Every golfer should read this next statement:

**"WHEN THE GREENS GET HARD THE CORRECT ANSWER IS NOT TO TELL THE SUPERINTENDENT THAT**

HE NEEDS TO USE MORE WATER TO 'SOFTEN' THEM."

More good grass has been ruined by too much water poured onto putting greens in a vain attempt to keep them soft enough to hold a poorly-played shot and to mollify a small segment of high-handicap golfers.

Many balls that hit on a hard approach or collar bound high in the air but the green gets the blame. This is another good reason to keep banks, collars and approaches well-watered.

Mechanical conditioning of putting green soils will do more good than water to hold a shot to the green.

It is hoped that a better understanding of the needs for, and the functions of, water can be brought about between the player and the superintendent.

Quite often the demands for a green turf can be met better and more economically by aerifying and fertilizing than by the addition of more water. Water is necessary for life but so is air. We can go for many hours without a drink of water but how long can we stay under water without air?

A balance of water and air, then, greatly is to be desired.

Q—Every time a green is analyzed in our area, the report comes back 'very high phosphorous'. I understand that the same report is more or less national. What effect does a high phosphorous condition have on the greens and what are the symptoms, if any? I also understand that much of the phosphorous is locked up and is not active. (Wis.)

A—Yes, this condition of high phosphorous in greens is more or less a national problem. This is the result of years and years of applying fertilizer high in phosphorous.

Phosphorous is not a soluble material and it remains in the soil with very little leaching. Nitrogen and potash both are soluble and not only do they leach but they are more quickly taken up by the plants and removed in clippings. This situation probably would not exist had we been able to make recommendations more nearly in accord with the needs of the plants.

A high phosphorous content in the soil in a putting green does not necessarily do any harm. If the nitrogen and potash levels are too low in relation to the phosphate level then there is a tendency for more seeds and more coarse stems to be

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