



GRAU'S Answers to Turf Questions

BY FRED V. GRAU

Coordination of Agronomic And Irrigation Factors

About a year ago I was in the Dominican Republic to assist in the reclamation of turf at the Santo Domingo CC. The water situation was reminiscent of that of today — insufficient, erratic and unpredictable. When there was any water it would trickle lazily out of the end of a half-inch hose laid on a 328 Bermuda green. Gravity had to assist in its distribution. Pressure, nearly non-existent, couldn't operate a sprinkler. Fairways of Sourgrass were irrigated only by the rain, but they were surprisingly good.

Few architects would take it upon themselves to design and build a course where the water supply isn't ample. Fully automated irrigation systems would be useless without water. Yet, there are situations where the only requirement is that the greens be watered.

Behind every type of watering system, primitive or sophisticated, there are basic agronomic factors which, if ignored, can lead to disappointment, often in the extreme.

Turf's First Requirement

I have always contended that the first requirement of turf is a program whereby nitrogen is adequately provided along with an optimum balance of other nutrients. Water is secondary and should supplement natural rainfall. A fertility pro-

gram, not properly balanced, will produce less than satisfactory results.

Where water is adequate and easily supplied, too often it is called upon to fill the deficiency in a fertilizer program. When this happens, the product is weeds and, of course, an excess of *poa annua*. Once *poa* becomes dominant it enlists a larger army of shoulder-shruggers who say, "If you can't lick it, join it."

Try and Let It Dry Out!

At many courses, unfortunately, members dictate the irrigation policy. Many supts. have told me they would like to skip watering for a while and let the soil dry out to further downward root extension. But when the soil begins to get firm, there are the old complaints from the golfers. Then an order comes from the green chairman: "Start watering!" Under such circumstances, how can any supt. conduct a planned sensible water program?

It is an established agronomic fact that plants make much more efficient use of water when fertility levels are adequate. Well-fed turf will retain its green color much longer than hungry turf, even if water is held back.

Need or Habit

Research stated at Penn State in 1946 has shown conclusively that the best golf turf receives water only when needed. At the 1965 Purdue University turf conference, a speaker asked for a show of hands on the frequency of fairway irrigation. The majority of supts. indicated

Certification

The word "certified" means "assured, made certain, or endorsed authoritatively." To merit the term, the product must be produced under certain rules and regulations prescribed by an official certifying agency.

Certified, applied to seed, means that the product has known or assured parentage and that it has been produced under rules and regulations which insure preservation of its identity and its genetic purity.

Certified seed is produced by growers who cooperate with crop improvement associations or with state departments of agriculture. Either or both may serve as the certifying agency. A **Blue Tag** is the well-known mark of certified seed.

Blue Tag certified seed can be traced by lot number to the "mother" or breeder seed. Breeder seed of Merion Kentucky bluegrass was produced at Penn State from a pound of seed sent by Fred Grau at Beltsville to Bert Musser at Penn State. A few ounces of breeder seed were planted under close supervision to produce foundation seed. Growers planted seed to produce Blue Tag certified seed which would be sold to golf courses and sod farms where discriminating supts. and operators wanted to be sure that they were getting only Merion.

Another example is Penngift Coronilla (crownvetch). The Breeder seed is produced only from the tiny farm where it was discovered in

1935. Planted in isolated protected fields, breeder seed produces foundation seed which is furnished to growers who desire to produce Blue Tag certified seed. Each generation is carefully protected to assure the buyer that the product he plants is genuine Penngift.

Penncross bentgrass seed can be certified only if the three vegetative parents (breeder stock) are purchased from qualified growers and if not more than three (3) crops of seed are taken from the fields. Apparently some growers continue to harvest seed after the three-year limitation. It is sold as Penncross but does not merit the Blue Tag and, therefore, can't be certified.

Uncertified seed carries no assurance of genetic purity. Everyone should be familiar with the Latin expression, "caveat emptor" which means "Let the buyer beware" or "He buys at his own risk." He who buys uncertified seed has no redress when plants, which are other than those expected, emerge. There is discussion on a proposed ruling that a variety name may not be used for any seeds not eligible to carry the Blue Tag of certification.

Certification usually implies that the seed also is of high mechanical purity and has excellent germination. This is not always true but most producer-processors pride themselves on a high-quality product in all respects when it merits the Blue Tag. Certification is denied when purity falls below an accepted standard or when weed seed content is higher than acceptable.

that they water fairways three times a week. Obviously, their courses are not being watered on the basis of need, but from habit. It may have been a coincidence that the main topic of the conference was "Poa Annua Control."

Another conclusion of researchers is

that water should be supplied only as fast as the soil can absorb it. Thus, the infiltration rate is an important agronomic consideration. Development of soil cultivating equipment has made it possible to improve infiltration capacity, but its

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Grau's Answers

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use has to be understood by the supt. or water-logging can result. Some day computers may be put to work to coordinate agronomic factors, infiltration and the use of cultivation devices. Then something like perfect turf, impervious to poa annua, and green all summer will be realized. Unless, of course, the members intervene!

Research also has shown that the rooting depth of different species of turf has much to do with water needs. I know, for example, where Merion Blue survived after a month of zero irrigation in arid country. Bermuda held color and life for over 100 days under the same conditions. Numerous other examples such as these can be cited.

Researchers, agronomists, irrigation specialists and, of course, supts. need to get together and put irrigation and fertility levels in the proper perspective. There is a needless waste of water and turf because their thinking has never been fully coordinated.

Penncross Vetch

Q. Please send further information on Penn-crow vetch as mentioned in **GOLFDOM** in a recent issue. We plan to seed our irrigated fairways to Highland bent and the greens to Penncross. What is your opinion? (Ohio)

A. Penncross for greens is a good choice. It is the best seeded bent for putting greens. Vegetated creeping bents are still very much in the picture but superiority depends heavily upon management.

A mixture of Colonial bents (Astoria and Highland) would be better than either one alone. Since all Colonial bent seed carries a certain percentage of creeping types, it is a safe bet that your fairways will become creeping bent. Why not go one step further and add five pounds per acre of Penncross seed to hasten the day when you can begin at once to manage for creeping bent. Those who warn that Penncross will develop thatch are right. But, since all turfgrasses develop thatch, why not start using current knowhow, improved fertilizers, lime, and specialized equipment to prevent thatch from becoming a nuisance. Certainly, you will be able to mow Penncross creeping bent fairways more closely and to irrigate less frequently. Diseases and poa will be less of a problem.

Incidentally, have you considered hydroseeding your bent seeds? Distribution is more nearly perfect, seeding rate can be lower and more accurate, and germination time is reduced.



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