

or lower it slightly. I favor an acid-forming fertilizer such as sulfate when soil pH is high, not so much to change the reaction but for beneficial effects from the sulfur in the fertilizer.

Q. Please examine the samples of soil and sand I am sending you and give me your opinion of the best mixture for topdressing my bent greens. (Pa.)

The soil appears to be clay loam with good physical structure. The sand is graded from coarse to fine but most of it is what I would call coarse. This is good. With a good grade of peat or well decomposed sawdust on hand, I would suggest this mixture:

Sand	7 parts by volume
Clay loam	2 parts by volume
Organic Material	1 part by volume

I'm sure that you will be much better satisfied with this mixture if you can make it up a year ahead, treat it for weed seeds (sterilize with cyanamid or methyl bromide), and let it develop a "bond" between particles. This will give the micro-organisms a chance to operate and develop some aggregates before you use it. It will be best if you continue to use the same mixture year after year.

Q. I am considering introducing Certified Meyer (Z-52) Zoysia into my fairways. We have recently installed a complete fairway watering system on 9 old fairways (carpet grass and Bermuda) and 9 new fairways which are seeded with Bermuda. I want your advice regard-

ing Zoysia for fairways. I intend to start a small nursery, then plug and sprig small portions of the fairways from the nursery. (La.)

A. Meyer Zoysia does not appear to me to be one of the better fairway grasses because of a tendency to become a "deep cushion." This quality may be wonderful in a lawn but, if allowed to develop it would give golfers an insecure stance and footing. A heavy cushion of turf makes tiresome walking. Zoysia clippings decay slowly and build up an undesirable mat.

By all means start a small nursery. When you have solid turf, have your members play from it and walk on it. But remember a few steps on a small plot is not the same as walking several miles.

Had you planned to start a similar nursery with improved Bermuda grasses? It should be very worthwhile. Renovation will be less costly and much faster with the right Bermuda.

Q. What are other reasons in addition to disease control in favor of early morning watering over night watering? The only standard I have to go by for swishing greens is when the temp. is above 88-92 degs., there is high humidity, and the green feels hot to touch. Are there more things to look for? How often should a green be swished during hot weather? 10 minutes per time is about standard isn't it? What are other factors to consider in watering beside puddling and runoff? What are the symp-



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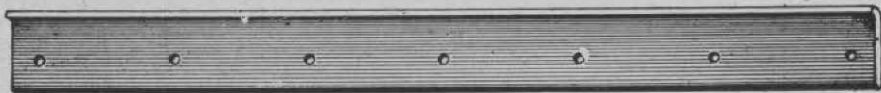
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toms of different types of wilt? (Ky.)

A. Early morning watering helps grass to dry more quickly for pleasurable play and for machinery operation. Disease reduction still is the big reason. There is no standard for "swishing" (syndring, showering-off). This largely is a case of judgment and constant watching. The cold water cools the grass, brings dissolved oxygen to the suffocating grass. Hot water contains very little oxygen.

The differences between "wet wilt" and "dry wilt" are subtle and difficult to describe. Dry wilt occurs on hard soil that lacks moisture. Wet wilt might look the same (footprinting) but the soil is wet, may even be "squishy." In the former it is the water that corrects the wilt; in the latter it is the oxygen in the water that once more permits the wilting grass to absorb some of the excess water.

Q. I believe it is generally agreed that it is a poor practice to feed bent greens with nitrogen in warm humid weather, or when we know such weather is approaching. If this is so, then wouldn't a spring application of one of the urea-formaldehyde fertilizers (such as Uramite) in sufficient quantity to last all sea-

son be injurious to the extent that you would lose control of nitrogen feeding in hot weather? I realize this form of nitrogen is released gradually all season, but in warm, humid weather there would be no way to stop nitrogen release, thus increasing the chance of more rapid spread of disease. (Wis.)

A. It does not appear that the U-F fertilizers (Uramite, for example) release nitrogen "explosively" when hot weather comes as we have observed at times with natural organics under conditions of high heat and humidity. Release rate appears to be nearly constant and is not dependent upon temperature and humidity. Research data do not indicate any loss of control of nitrogen or any additional disease with the season's supply of N being applied at one time in the spring. It helps, naturally, to have a good sturdy strain of grass to start with. To date, it appears that we can say with assurance that the U-F fertilizers tested thus far are equal to the best organics in performance and N release is more constant.

Q. With winds of 35-45 m.p.h. I have trouble keeping sand in my traps in spite of steeply
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