case, more frequent applications to compensate for leaching may be needed. The extra feeding helps the grass to put down deep roots, thus less frequent irrigation is required.

Q-What is a good fertilizer to use on bent greens to start them out in the spring? What rate would you use? Would you add arsenate of lead to control worms? (Wis.)

A-A well balanced fertilizer for early spring use is 10-10-10 (or similar) used at the rate of 10 lb. to 1,000 sq. ft., or, sufficient to supply one pound of nitrogen to 1,000, plus phosphorous and potash.

It is well to have part of the nitrogen quickly available—the remainder slowly available derived from natural or synthet-

ic organics.

Applying the spring fertilizer immediately following thorough aeration will serve to get deeper penetration of the fertilizer

more quickly to aid root growth.

I have seen countless good examples of the value of adding 5 lbs. arsenate of lead to the fertilizer. Not only does it check worms but also chickweed, poa annua, etc.

Don't forget that soil test to keep a check on your "soil bank."

Q-You recommended 10-10-10 fertilizer

for early spring use. Should this be applied "as is" or should it be mixed with black dirt or Milorganite to keep it from burning? Did we understand also that we could add 5 lbs. of arenate of lead per 1,000 sq. ft. or was it 5 lbs. per green? (Wis.)

A—If you apply the mixed fertilizer (10-10-10) to the green immediately after you have aerified and before you break the plugs and drag them in, you will not need to mix it. It will be mixed sufficiently with the soil of the plugs to keep it from burning, particularly since you will water the green well when it has been finished. If you apply the fertilizer on the grass without aerating of any kind it will be a good idea to mix it with some non-burning material and water it in well. The rate for arsenate of lead is 5 pounds to 1,000 sq. ft.

Q-We have a watering system which we use to draw directly from the lake. The big question is, when is the best time to water; in the real early morning or at night? Please give us your opinion. (Wis.)

A-The best time to water is in the early morning. This washes the dew and the guttated water off the grass blades into

(Continued on page 114)

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## Grau on Turfgrass

(Continued from page 87)

the soil. This reduces the chances for diseases to spread. The 'dew' contains dissolved nutrients which are helpful to disease. This recommendation of early morning watering was developed in the early 1930's by Monteith and Dahl on putting greens on the old Bannockburn course.

The exception to this recommendation is mid-afternoon "syringing" or "showering off" when grass starts to wilt during high temperatures, even when the soil is wet.

Q-What damages would you expect in the summertime if golfers use the tees and greens during the month of March when the ground is soggy and wet? (N. Y.)

A—Summertime damage resulting from March play could be severe or negligible depending upon the follow-up treatment in April and May. It is not always possible to close the course when the soil is wet. Some tees and greens are wetter than others, even when the course is open and on these the damage is likely to be more severe.

If the members insist on playing and if the chairman agrees and overrides your veto, be sure to explain in writing that there will be some very necessary interruptions to play in April and May. At this time, in order to repair the damage done by a few players in March, you will have to temporarily close to play a green or a tee at a time while you thoroughly aerify verti-cut, fertilize, topdress, plug, sod, seed, sprig — or whatever else is needed — to restore good playing surfaces for the summer.

Players, caddies, and carts leave dents and ruts in soft turf. Roots are shallow in early spring and turf may actually slide when walked upon. This disturbed sod may die if dry weather follows.

Some of the soggy wetness may be a good indication of the need for drainage — maybe you have seepage. The sooner it is located and corrected the better.

Q-What causes velvet bent greens to appear chlorotic until very late in the spring? (Conn.)

A—Several factors might be involved. Excessive amount of water might be the cause. A badly matted condition could do it. Cold, cloudy weather retards growth and color. Or, an excess of phosphorus, a deficiency of iron or some other factor might be involved. Regardless of cause, the best way to correct the condition is with regular applications of soluble iron. Iron sulfate often is used. Chelated iron is another recommended material.