FERTIGATION: Double Duty

". . . an excellent complement to our regular fertilizing methods"

By LARRY A. WEBER*

One of the more serious problems facing a golf course superintendent is finding the time to fertilize during the season. A little over a year ago, after the pro shop and I failed to reach a common shut-down time for fertilizing, I decided it was time to look into other methods of fertilization.

The method that showed the most promise was fertigation. Fertigation is the practice of applying fertilizer through an irrigation system.

Inverrary Country Club is a 54 hole golf complex within a 1000 acre development in Ft. Lauderdale, Florida. It includes two — eighteen hole championship courses and one — eighteen hole executive course. The Jackie Gleason Inverrary Classic golf tournament is played here each February.

I chose the executive course as a trial area for fertigation. The course covers 65 acres and has a perfect wall to wall Toro Varitime irrigation system. The greens are planted in Tifton-328 Bermudagrass, fairways and tees are planted in Tifton-419 Bermudagrass and the roughs are seeded in common Bermudagrass.

The fertigation system consists of a few basic components. These include:

1. 1200 gallon storage tank with 6 ton capacity.
2. In line filter.
3. High pressure injector pump.
4. Check valve to prevent water pressure from going back into fertilizer tank.
5. Electric pump start and isolation switches.

My vertical shaft turbine pump station requires a high pressure injector pump. With a centrifugal pump station, the high pressure injector pump can be replaced with a metering valve. The isolation switches allow the flexibility of fertilizing greens only, fairways only or roughs only or any combination of the three.

The fertilizer used was of two analysis. During the summer months I used 12-0-6 with magnesium, manganese, and iron. In the cooler months I used 11-0-5 with same minors to prevent salting out at the lower temperatures. Phosphorous was not applied throughout the year due to an adequate amount in the soil as indicated by soil tests.

The rate of application of fertilizer is based on the number of days irrigation is needed. Our average rate is 20 days per month. We used 13 gallons of fertilizer per hour for 11 hours per night or a total of 143 gallons of fertilizer per night. I used this low rate to compensate for changing wind conditions, to keep the soluble salt level down and to keep the growth rate of the grass at a constant level.

The total amount of fertilizer used throughout the year was far less than I expected. I use a total of 63 tons of the liquid blend, 2 tons of granular 7-3-7 greens mix and 10 tons of Milorganite on slopes and trap fingers. The dry material was used during periods of heavy rainfall when I did not need to irrigate.

The actual amount of fertilizer elements used over the year proved very interesting. The total amount of Nitrogen applied was 250

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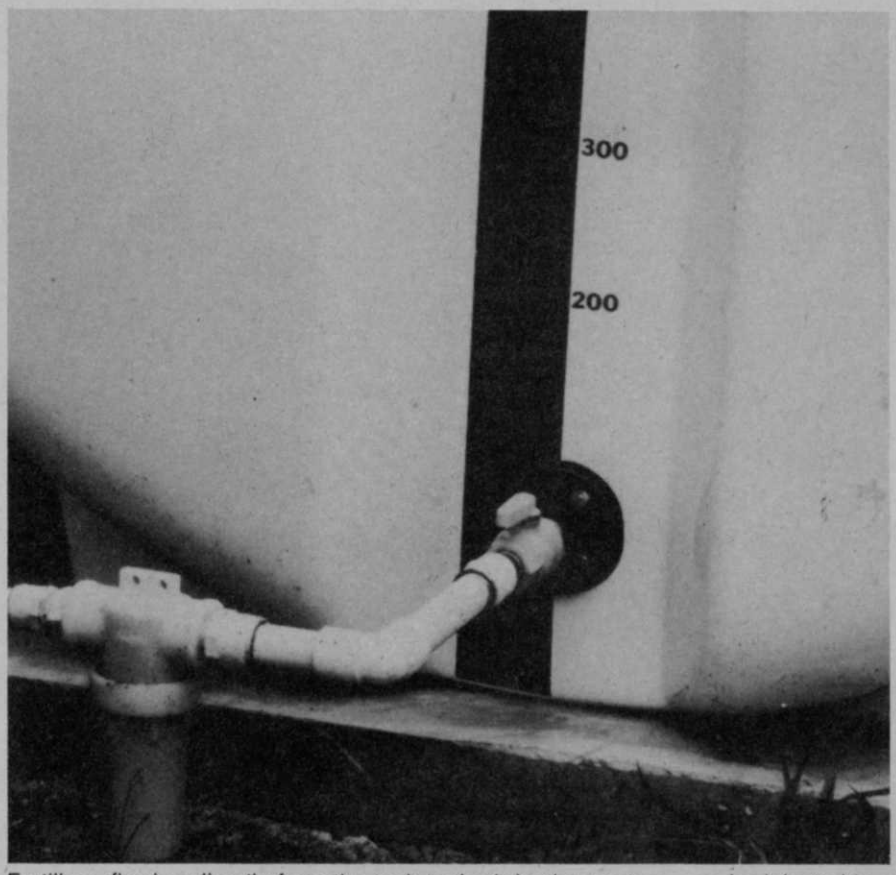
*The author is the golf course superintendent of Inverrary Country Club where the Jackie Gleason Inverrary Classic is played in February.



Fertilizer, flowing directly from the tank to the irrigation system, can be injected in a precise, preselected concentration regardless if one sprinkler or many are operating.

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lbs/acre or 5.74 lbs/1000 sq. ft. This is about one-half the amount recommended by our state for our area. Their recommendation is 9-12 lbs. N./1000 sq. ft./year. Likewise, the amount of potassium was greatly reduced. I applied 112 lbs of K20/acre or 2.57 lbs/1000 sq. ft.

The most pleasing results of fertigation were in the reduction of costs. The total amount spent for fertilizer figured out to $80.37/acre/year. The average cost per ton of the material used was $60.00 to $80.00/ton. With the ever increasing cost of fertilizer materials, the liquid system looks much better all the time.

Some of the main advantages of fertigation are:

1. No labor costs for spreading fertilizer.
2. No disruption of golf play.
3. No storage area required as for dry fertilizer.
4. Grass can be maintained at an even growth rate.
5. Cost of liquid is less per ton than dry.

There are also a few disadvantages, too.

1. It may be necessary to irrigate just to fertilize.
2. Uneven distribution of sprinklers — some running longer than others, therefore putting out more fertilizer.

At Inverrary, our play is very heavy in the winter months. This is also the time of year when the Bermudagrass requires more fertilizer. This is why I chose fertigation.

To see if fertigation was the best method of fertilizing, I had to compare it to the conventional methods of fertilizing. I have gone on a complete Scotts program on the West course and on the East course I am on a granular dry fertilizer program. It will be several months before I have enough data to accurately compare the three methods.

I don't feel at this time that fertigation is the complete answer to all our fertilization problems. I do feel that it is an excellent complement to our regular fertilizing methods especially during the winter months in Florida.