

# Fertilizing While Irrigating: A Reality?

Doggett Fison Company has developed a way of injecting water soluble fertilizers into both manual and automatic irrigation systems. If the claims of the company are correct, it could mean savings in time, labor and money, and also give superintendents greater control over the growth rate, color and texture of turf

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The idea of fertilizing while irrigating would seem an obvious and logical means of saving time and labor in the care of any plant life. Indeed, the concept has existed for three decades and has been applied in the flower growing and nursery industries since the forties.

However, the many and varied problems of turf maintenance, plus the lack of sophisticated irrigation systems, have delayed the feasibility of wide-scale im-

plementation of the method on golf courses—that is, until now, according to Albert K. Doggett, president of Doggett Fison Company, Moonachie, N.J.

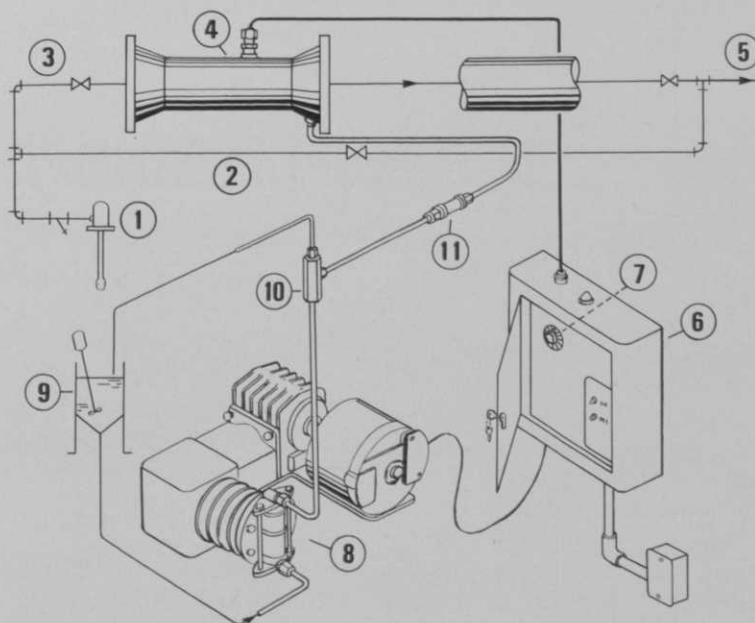
The firm's Hydro-matic Div. has put "the first fertilizer injection system on the market for turf maintenance that can be utilized with any type of irrigation system—automatic, semi-automatic or manual," says Doggett.

Doggett Fison, a wholly-owned subsidiary of Fison Corp. U.S.A.,

is no newcomer to the fertilizer industry. The company was a pioneer in the field of high analysis water-soluble fertilizers for the flower growing trade during the thirties. These nutrients made possible the industry's application of the fertilizing-irrigation concept.

With various types of proportioning and injecting devices, the flower grower introduces water-soluble fertilizers into the main

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1. MAIN WELL PUMP
2. MAIN PIPE LINE
3. BY-PASS LINE
4. WATER SENSING DEVICE
5. TO IRRIGATION SYSTEM
6. TRANSLATOR
7. FINGER-TIP RATIO CONTROL
8. FEED CONTROL PUMP
9. AGITATOR/NURSE TANK
10. PRESSURE LIMITING VALVE
11. STAINLESS STEEL RETURN FEED LINE

## FERTILIZING WHILE IRRIGATING

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line of his irrigation system. Since timing is a primary concern in the industry, the fertilizing-irrigation method has proven to be a boon to the flower grower. Various flower crops must reach maturity in time to serve seasonal markets (Christmas, Easter and Mother's Day). To do this, the flower grower must have strict control over the growth rate of his plants. This degree of control had been difficult to attain with dry fertilizers. But by injecting water-soluble fertilizers into his irrigation system, the flower grower is able to conduct a continuous feeding program in which minute amounts of nutrients are applied, and growth rate is so controlled that plants are brought to maturity almost on a given day.

Although application of the method has been limited to the flower growing, nursery and agricultural industries, a few systems for combining fertilization with irrigation already are in existence at some golf courses. However, these devices generally have been developed on an individual basis by superintendents and are usually rather primitive and inaccurate. And over the years, many other similar devices were abandoned after much painstaking work brought highly inaccurate results.

Doggett believes his firm has finally developed a system with universal implementation capability and has conquered the "bugs" that have plagued past experimentation. The system consists of a water sensing device that measures each gallon of water pumped from the main well pump. This measurement is carried electronically to the "translator" which directs the feed control pump to automatically inject a pre-set ratio of fertilizer solution into the irrigation system in direct proportion to the water flow. The system maintains ac-

curacy of 1/10 of 1 per cent at all rates of flow and operating pressures.

The amount of space required for the system is minimal: The pipe housing the water sensing device is 34 inches, the feed control pump is about 18 inches by 12 inches and the tamper-proof translator box is 12 inches by 12 inches.

Cost for the fertilization system to serve an average 18-hole course, depending on the capacity of the irrigation system, ranges from \$5,500 (650 gallons a minute) to \$7,500 (2,000 gallons a minute). In addition, there are installation costs which vary according to the distance of the fertilizer storage tank from the unit and which also are dependent on the elaborateness of the system's housing. A storage tank of good quality with an agitator costs approximately \$1 a gallon, according to Doggett. A 500-gallon tank is the maximum size required for a 650-gallon a minute system. Lead time for delivery on the system is about four weeks.

Among the system's advantages claimed by the company are:

- Savings on fertilizer. By applying only the precise amounts of plant nutrients that the turf can immediately utilize, waste is eliminated and total plant food requirement per acre is reduced.

- Reduced equipment and application costs. Save fuel, labor, maintenance and equipment costs by "eliminating tractors, field applicators and operators."

- Reduced storage and handling costs. High analysis soluble concentrates greatly reduce the number of bags to be stored and hauled.

The company's president claims that through these savings, a golf course could make up the initial investment for the Hydro-matic system in two to three years. But he is quick to point out what he considers the primary advantage of the system: "The superintendent has control

over the rate of growth, color and texture he desires through accurate control of fertilizer application at each watering."

Those in favor of the fertilizing while irrigating method, however, do not go unchallenged. The method is a source of controversy in the turf maintenance field, and many highly respected individuals have strong reservations.

The major argument centers around the belief that water application is not uniform, due to such factors as winds and variance of infiltration rates; and therefore, fertilizer application would not be uniform. Perhaps, the most difficult point to refute is variance in infiltration rates, since it has been found that soil conditions and soil compaction differ from one area to another, only short distances apart. However, Doggett points out that the fertilizer coverage of his company's system is "no better than the water coverage of the irrigation system to which it is hooked up." He feels a good irrigation system, properly set up, should take into account the prevailing wind situation, precipitation, compaction, soil structure and water infiltration. Winds also can blow dry fertilizers about and cause inconsistencies in quantity of nutrients from area to area, he says.

This controversy, as it effects the Doggett-Fison system, will not be settled until actual installations are finally set up and the industry has had the opportunity to evaluate the results. Plans presently are in the works for installations at courses located in Florida, Ohio, New Jersey and New York.

But Doggett has sufficient confidence in the system to speak of future possibilities connected with it. He believes that with some experience superintendents will be able to formulate their own fertilizer mixtures for the system. Also in time, the system may be used for the application of insecticides as well. □