

Fertigation Offers Advantages In Environmental Safety

By Bruce Shank, Managing Editor

Fertigation makes so much sense it's amazing that it isn't found more often in the golf and sports turf maintenance business. Gentle feeding, less labor, smaller growth spurts and maximum turf performance, who doesn't want these things?

Environmental issues of runoff and groundwater contamination actually favor fertigation. But all these benefits occur only when sprinkler coverage and uniformity are known and under control. Injecting fertilizer into a main line that distributes it through all zones makes control difficult. Isolating key stations for fertigation allows the superintendent more certainty that overspray won't gather on paved surfaces and enter storm drains.

The ultimate advantage of fertigation is that extremely little nitrate is on the surface or in soil solution. There are no granules or complex chains of slow-release nitrogen exposed to surface runoff or maximum percolation during major rain events. A dilute amount of nitrogen is contained in the irrigation water. So little, in fact, that it is consumed by the turf in a matter of hours. The plant uses it for metabolism and carbohydrate production. Once in the plant, the nitrogen can't be dissolved in rain water, even as clippings.

Contamination Sources

The primary potential source of nitrogen from fertigation is water from sprinklers running into culverts and catch basins and from there into storm drains or lakes. This can be prevented by controlling the sprinkler patterns of heads used for fertigation. Heads in the range of culverts, cart paths and catch basins should not be used for fertigation.

Another is leakage from a fertilizer storage tank connected to the fertigation injector. Precautions should be taken to catch

any leak, such as a concrete or plastic liner for the area surrounding the tank. These tanks should be protected from vandalism.

With computer-operated central control systems, nutrient applications can be precisely applied and recorded. Tissue samples can confirm plant nutrient levels to prevent overapplication. Computers can track the performance of multiple fertigation pumps in carefully designed contamination-free irrigation zones.

Seasonal adjustments for moisture will probably change the amounts and frequency of fertilizer applications. The shorter the irrigation cycle, the more uniform the sprinklers in fertigation zones need to be. Sprinkler spacing might need adjustment, pressure might need to be regulated or boosted in some zones and nozzles must be matched for precipitation. All these things should be done regardless of fertigation for the maximum uniformity of water application.

Since most fertigation pump manufacturers tend to be smaller, they need the interest and involvement of superintendents to reach their full potential. They might not have large development budgets to sponsor university research like larger companies. You might need to make the first move to improve the way fertigation can help your course.

Another limitation to fertigation can be the availability of fertilizer solutions in your area. Agricultural suppliers might be your best bet. Many agricultural crops, both sprinkler and drip irrigated, are fertilized by irrigation systems.

Fertigation needs to be taken much more seriously than it is today for fertilizing large turf areas. Golf courses and sports fields often represent a major percentage of watershed in urban areas. Planners do not take lightly the chance for contamination. You can reduce the chance for contamination and improve your turf by borrowing a tool from agriculture: fertigation.