

Toughening Up Turf Through Fall Feeding

Joseph Slater
Plant Marvel Laboratories, Inc.

Fall is the time of year when we want to toughen up our turf before it goes dormant. Properly prepared turf will stay greener longer in the fall, withstand the stresses of cold temperatures and drying winds better through winter dormancy, and green up earlier in the spring. The object of fall fertility is to build up and strengthen the turf while keeping any tender new growth to a minimum. The ratio of N to P and K can almost be reversed from the turf's needs in spring and summer.

High potash fertilizers are a good practice and provide many rewards in strengthening the plant. Potash thickens cell walls building up the plant's resistance, consequently reducing the effectiveness of cold season pathogens. It is also responsible for a metabolic change within the cellular cytoplasm allowing the plant to better withstand severe cold temperatures. Once potash has entered the plant, it aids in the production of a powerful carbohydrate reserve. This reserve will help in the healing and repair of damaged tissue as well as help the plant get an earlier start next spring.

Unfortunately, there are many obstacles that stand in our way preventing us from providing these benefits to our turfgrass. Decreasing soil temperatures become a major roadblock for the plant's potassium utilization. Microbial activity is slowed causing decreased conversion of

organics and coated inorganics into usable forms. This loss in soil temperature also decreases the percentage of diffusion movement in and around the soil particles. So even if the potassium were in a usable form, its ability to get to the plant is restricted.

Nitrogen also plays a role in potassium uptake. Although we want to avoid nitrogen fertilization, we need some nitrate nitrogen to increase potassium

Potash thickens cell walls building up the plant's resistance, consequently reducing the effectiveness of cold season pathogens.

uptake by the plant. Ammonium base N or ammoniacal N tends to depress potash accumulation, whereas nitrate N will increase the plant's ability to uptake potash. When soil temperatures are low, nitrosoma and nitrobacter bacteria are slowed in the nitrification process, and the plant receives the nitrogen in the ammonium form, thus reducing potash uptake. These forms of nitrogen will be listed under total nitrogen in a fertilizer's guaranteed analysis statement. Slow release and water insoluble

(WIN) forms of N will also be listed but will play little part in a fall fertilization because they generally become less available as soil temperatures decrease.

Phosphorus and micronutrients also play an essential role in a fall fertilization program. Phosphorus aids the plant in the movement of the starches formed by potassium into the primary energy-storing capillary, the root. At the same time, the micro nutrients assure that we avoid any deficiencies and have an overall healthy plant. The aid of these nutrients becomes more crucial in the late fall when the plant's metabolism has slowed down.

With all of this in mind, a good fall fertility program will begin while soil temperatures are still warm enough to allow soil bacteria to do their job. As cooler temperatures arrive, it becomes increasingly more important to select a fertilizer that has a 1:2:3 ratio of NPK with a high percentage of the nitrogen in the nitrate form. In addition, if the fertilizer nutrients are in liquid form when applied, they will be assimilated by the plant immediately without dependence on soil microbial activity. There are not a lot of products that have the ability to overcome all of the obstacles and still provide us with all these great results, but using a water soluble fertilizer in this proper ratio has proven to be a good way to avoid nutrient tie-ups and increase potassium utilization. Water solubles are also compatible with most fungicides

(continued on page 34)

The View From M.S.U.

(continued from page 24)

The studies conducted here at Michigan State by Eric Miltner, Bruce Branham and myself compared late fall nitrogen treatments with those emphasizing spring applications. There was no significant leaching of nitrates from either treatment. If the nitrogen is applied while the plant is still physiologically active, the soluble nitrogen should be taken up and used so it will not be available for leaching over the winter.

While there may be a small increase in growth during the fall or spring, most turf managers are satisfied the benefits are far greater than the potential negative effects. There is no evidence that late fall N increases susceptibility to low temperature or crown hydration injury. In fact, if there is such winter injury, recovery may be faster if late fall N has been applied. There is evidence from a study done at Ohio State that late fall nitrogen may increase thatch accumulation to some degree.

Benefits of late fall nitrogen include good carbohydrate levels in the turf the next spring, good early spring root growth, good fall and spring color and good turf density so there is less potential for establishment of spring weeds.

With many advantages apparent for late fall nitrogen and few disadvantages, it is clear why so many turf managers have adopted this practice. I have not talked to anyone who has tried late fall nitrogen fertilization who has not continued to utilize the practice for agronomic reasons. This is the best testimonial for late fall fertilization. ■

Toughening Up Turf Through Fall Feeding

(continued from page 16)

and herbicides, which makes its inclusion in a preventative spray program a basic part of fall maintenance at no added cost in labor.

We demand a lot from our turf. We want it green at all times and to heal itself, even after we repeatedly drive over it, trample it, and beat it with a club. There aren't many plants that would survive all that we put our turf through. Most gardens would be devastated just to have someone carelessly walk through them. All of this resiliency demands specialized care and feeding. Pushing here and tweaking there. Giving the turf what it needs to survive winter stress is one of those little things that can pay off big. ■

What to Do If You're Pulled Over

(continued from page 28)

cer's name badge matches the name on the ticket. Mistakes could result in the dismissal of the ticket.

There are three ways to respond to a ticket. First, you can plead guilty. This is usually handled by mailing the fine. Second, you can negotiate a plea bargain which may result in fewer points on your MVR but may result in a larger fine. And finally, you can fight the ticket and hope to have it dismissed. Whatever you do, don't just ignore the ticket. This can result in suspension of your license and a warrant for your arrest.

Drive safely and remember that avoiding a ticket is always your best defense. So keep on trucking—safely! ■

Credit: New World Van Lines

Greg Johnson -N- Eagle Brook C.C.

(continued from page 12)

yard hole has an island green surrounded by wetlands. After you survive that hole, you will be glad to relax in the new \$7+ million clubhouse. Eagle Brook can play to a demanding 6,736 yards from the green and gold tees.

Throughout Greg's tenure at Eagle Brook, his first year was the most challenging. "The summer of '95, right after Southwest bought it," Greg said, "our maintenance facility was an old barn with a dirt floor—and you remember the summer of '95?" Yes, Greg, I think we all do; and thank God for the law of averages. "The biggest challenge now is trying to keep pace with the competition, the other private country clubs, in the Chicagoland area," Johnson noted.

Johnson gave special praise to his assistant Tod Hopphan. "Eagle Brook is a very environmentally sensitive property. With over eighty acres of wetlands, Tod has been very instrumental in working towards the Audubon Cooperative Sanctuary Program certification." (Note Tod's article in the June 1997 issue of *On Course*, "Membership Has Its Price!")

Greg and his bride Cathy have been married for 19+ years and have a future quarterback, Alex, that is eight. Greg states that "Alex is very athletic, and I would not be surprised to see him in a Packer uniform some day." Sounds like Greg's boyhood dream?

I have had the sincere pleasure to know Greg for a number of years. I know his FAVREite colors are green and gold. I know his aspirations ten years down the road are not to stay at Eagle Brook; but if you ever want Packer/Bear tickets, call the superintendent in Titledown, and ask for Greg. ■