

Liming & fertilizing

If you are applying fertilizers and limestone at the same time, you should reconsider the practice. When you apply fertilizer and limestone within two weeks of each other, a substantial part of the nitrogen will be lost to a phenomenon known as "ammonia volatilization." In a rising pH environment, ammonium (a form of ammonia) becomes a gas. It volatilizes, and is lost from the soil into the air. The amount of nitrogen that is lost to volatilization is higher with fast release fertilizers and less with slow release fertilizers.

Why lime turf?

When soil acidifies, the hydrogen ion concentration increases. These hydrogen ions become electrically bound to electro-magnetic exchange sites that are the nutrient holding areas in the soil. As these exchange sites become bound up, there are fewer areas to hold plant nutrients. With fewer sites available, plant nutrients are more vulnerable to leaching and volatilization. Under very low pH conditions 80-90% of the nutrient-holding sites can be bound up, causing severe turf starvation.

A further note—always use a soil test to determine what type and how much lime to use.

Focus on turf roots or leaves?

If there was ever a question as to what part of the turfgrass plant—leaves or roots—turfgrass managers should emphasize, consider these two facts:



- UP TO 90% of the mass by weight of the turfgrass plant is roots and
- UP TO 80% of the root structure of the turfgrass plant is regenerated each year.

Potassium's value confirmed

Recent studies have demonstrated why potassium is important to healthy plant growth:

- HIGH LEVELS OF POTASSIUM increase cell wall thickness and cell turgor or internal pressure, which help to increase wear tolerance,
- POTASSIUM DECREASES THE LOSS OF WATER through transpiration,
- LATE FALL APPLICATIONS of high potassium and low nitrogen fertilizers can improve winter hardiness,
 - POTASSIUM INCREASES ROOTING and, therefore, increases drought tolerance.



Lower risks of herbicide exposure

A recent study of exposure to 2,4-D by researchers at the University of Guelph's Centre for Toxicology in Ontario, Canada, showed interesting results. They tested exposures of applicators, mixers and bystanders to 2,4-D and other broadleaf herbicides.

The average applicator exposure per day was approximately 1/90th of the acceptable daily limit set by the World Health Organization (WHO). The highest exposure levels occurred to applicators who used poor handling techniques or poor personal hygiene. Although mixers have a higher potential for exposure than applicators, their exposure was 1/330th of the daily limit.

Homeowners who have their lawns commercially sprayed with 2,4-D showed no exposure. As a part of the study, two groups actively exposed themselves one hour after spraying by alternately walking, sitting, and laying for one hour on treated areas. The group that wore long pants, shoes, and t-shirts did not show any exposure. The group that wore shorts and went barefoot had an exposure that did not exceed 1/60th of the WHO standard. Two groups that waited 24 hours before exposing themselves to test areas showed no signs of exposure.

The researchers concluded that applicators should wear recommended clothing when applying the herbicide and follow training guidelines. Homeowners, children and pets should stay off sprayed lawns for 24 hours.

Consider options when replacing spray tips

While brass spraying tips are the traditional choice, the next time you replace your spraying tips you might consider using tips made of alternative materials. New polymer tips cost about the same as brass tips, but can give up to four times the useful life. Stainless and hardened stainless tips cost approximately twice as much as their brass counterparts, but last five to 15 times longer. The new ceramic tips are three times as expensive as brass, but last an impressive 50 times longer.

Your final choice should be determined by the materials that you spray, but clearly automatically going with brass tips may not be the best choice in the long run.