

WHY FERTILIZE IN LATE FALL?

Compiled from The Ohio State University, Penn State University and Purdue University – J.W. Rimelspanch

Late fall fertilization has been promoted as a means of prolonging turf color of cool-season grasses into early winter and increasing turfgrass health. Improved winter color is more noticeable in regions where winters are warmer (Mid-Atlantic and transition-zone states) and during mild winters. In Ohio this will depend on how soon harsh winter conditions develop after the application and the duration and severity of the winter. Many of the benefits of late fall fertilization are seen the next year as earlier green-up, improved turf density, increased tolerance to spring diseases, and fewer weeds.

A small but potentially important increase in the plant's carbohydrate reserves can occur when fertilizer is applied in late fall. Turfgrasses accumulate carbohydrates in stems and rhizomes during fall. These carbohydrates help turf resist winter injury and aid in environmental stress resistance the following spring and summer. Because carbohydrates are tapped for energy by roots and shoots during periods of rapid growth, forcing excess growth with fertilizer applications at any time can deplete carbohydrates quickly, leaving turf vulnerable to stresses.

Another reported benefit of late fall fertilization is an increase in rooting, though precisely when and how this increase occurs is a source of some debate. Maximum root growth of cool-season turfgrasses occurs in spring and fall. Some root growth will occur in winter if temperatures are above freezing, whereas little if any growth occurs in summer. Fertilizer applications are made in spring and late summer in attempts to promote root growth.

One problem in using this approach is that much of the fertilizer is used by the shoots, sometimes preferentially over roots. One reported advantage of late fall fertilization is that roots are still growing at a time when shoot growth has ceased, thus allowing the roots to make full use of the fertilizer. However, during this period root growth is very slow, and if the soil is frozen, they do not grow at all. Consequently, the benefit of increased root growth in response to fall fertilization is questionable.

One study in Virginia showed that moderate rates of soluble nitrogen (1 lb. nitrogen/1000 sq. ft.) in late fall increased rooting of turfgrass without a noticeable increase in shoot growth. In contrast, a study in Ohio showed no increase in root growth during late fall or winter following late fall fertilizer applications. However, when compared to early spring applications of nitrogen, late fall fertilization allowed more

rooting in spring. Presumably, this benefit was due to early spring green-up from late fall applications.

Late fall fertilization is occasionally blamed for increased winter injury, snow mold, and annual bluegrass encroachment. A few studies have been designed to examine the influence of late fall fertilization on winter injury. None have conclusively demonstrated detrimental effects. Heavy (excessive nitrogen) fertilization in mid-fall when grass shoots are actively growing can enhance snow mold diseases due to increased growth and more succulent leaf tissue. Increased plant growth and succulence should not occur with late fall fertilization. In fact, some research has shown that late fall fertilization may actually reduce winter diseases.

While some studies have shown increased annual bluegrass populations in fall, there is no good evidence to show that this increase is related to late fall fertilization.

When to Apply

Most agree that late fall fertilization should take place when foliar growth stops (or slows to the point that turf no longer needs to be mowed), grass is still green, and before the soil freezes. In Ohio, this period often occurs sometime in November. Application timing may vary from year to year depending on weather conditions and location.

Fertilizer sources and rates

Most late fall fertilization programs focus on nitrogen. Rates vary and may range from approximately 0.75 to 1.5 lb. of mostly soluble nitrogen/1000 sq. ft. The success of late fall fertilization is based on a late summer/early fall application being made for the turf to recover from summer stress and to maximize utilization of the late fall fertilizer. One study at the University of Illinois showed that when nitrogen was applied at moderate rates in late fall (1 lb. of nitrogen/1000 sq. ft.) both urea and sulfur-coated urea provided a better early spring color response than Milorganite. However, when Milorganite or sulfur-coated urea was applied in late fall at a higher rate of nitrogen (2 lb. of nitrogen/1000 sq. ft.), spring green-up was similar to that obtained from applying urea at a lower rate (1 lb. of nitrogen/1000 sq. ft. in late fall).

Slow or controlled-release nitrogen sources may be a better choice than soluble sources on sandy soils because of reduced potential for leaching. Nitrogen fertilizer should never be applied to frozen soil due to the increased chance of nutrient runoff.

Although application timing is not as critical with phosphorus and potassium as it is with nitrogen, these elements can benefit turf when applied in late fall. Phosphorus is important for root growth and maturation of turfgrasses and application rates should be determined according to soil test recommendations.

continued on page 8

continued from page 7

If your soil test report indicates a need for phosphorus, late fall is a good time to fertilize. However, there is no need to apply additional phosphorus if it is present at sufficient levels or if there are concerns about movement off the turf area.

Summary

Late fall fertilization should take place when shoot growth ceases, the grass is still green, and before the soil freezes. Benefits of fertilizing in late fall include better winter color, enhanced spring green-up, possibly increased rooting, improved turf density, increased tolerance to spring diseases, and fewer weeds the next year.

To avoid potential leaching and runoff problems, use slow-release nitrogen sources on sandy soils. Do not apply fertilizer to frozen soils.

Keep in mind that late fall fertilization should be one component of a properly designed fertility plan for the client and to accomplish a sound integrated turfgrass health management program. A healthy dense stand of turfgrass provides many environmental benefits such as: carbon storage (sequestration), soil and water stabilization (erosion control), prevention of nutrient runoff, cooling effect, recreational use, increased property value and an improved environment.

MARK YOUR CALENDAR!

NOVEMBER 8:

A Grateful Embrace
Dayton National Veterans Cemetery – Dayton, OH
Ohio Western Reserve Cemetery – Rittman, OH

NOVEMBER 10:

Applicator of the Year Award Deadline
Scholarship Application Deadline

OLCA SUMMER SEMINARS WERE A SUCCESS!

OLCA held the 12th Annual Northeast Ohio Lawn Care Seminar on June 19 at The Ohio State University/OARDC Fisher Auditorium in Wooster with 132 attendees receiving 1.5 credit hours in Category 8; 0.5 credit hours in Core and 1.0 credit hour in Category 6.

The 20th Annual Ohio Lawn Care Outdoor Summer Seminar took place on August 7 at The Ohio Turfgrass Foundation Research & Education Facility in Columbus with 197 attendees receiving 1.0 credit hour in Category 8; 0.5 credit hours of Core and 1.0 credit hour in Category 6.

These events were sponsored by Agrium Advanced Technologies Direct Solutions, CareWorks, Nufarm and Syngenta. Thank you for your continued support!

