Spring fertilization 'jump starts' turf

Spring fertility programs are needed for vigorous turf root growth. But go easy on the nitrogen.

by John Roberts, Ph.D.

■ Spring represents a season to initiate new growth for turfgrass, and often signals a time for turf managers to fertilize.

Following winter dormancy, both warm- and cool-season turf begins an important period of growth. For northern turf, spring and fall represent the peak seasons for shoot and root development when temperatures range between 50 degrees and 75 degrees Fahrenheit.

Root initiation occurs first in early spring when soils begin to thaw. Active shoot development follows, as temperatures climb b between 60 and 75 degrees Fahrenheit.

For warm season turf, late spring through summer represents the optimum time for development as temperatures reach between 75 and 90 degrees. Fertilization programs often coincide with these peaks.

While"Mother Nature" alone helps stimulate spring green-up, most turfgrasses need additional fertilization to achieve their maximum growth potential. Spring fertilization is especially critical on recreational turf areas, such as soccer fields, which receive intense traffic. Without additional fertilization, they often become severely worn and weed-infested.

'Starter' formulations—For cool-season turf, 'starter type' formulations are popular. These products supply nitrogen, phosphorous and potassium in ratios which are desirable for spring shoot and root growth. Unlike high nitrogen formulations which promote mostly topgrowth, starter types contain higher proportions of phosphorous (i.e., a 1:2:1 ratio).

The additional phosphorous helps initiate root development and early turf establishment of new seedlings.

Nitrogen in moderation—Nitrogen is the most important element in a turfgrass fertilization program. However, there are limits to its use. In fact, there are advantages of having the grass greener on the other side of the fence!

When turfgrasses are over-fertilized with spring nitrogen, excessive topgrowth—which requires extra mowing—and shallow rooting result. (See photographs). There is also a greater threat of nitrate leaching, a higher incidence of disease, and reduced environmental stress tolerance —including summer drought—is more likely.

In most situations, avoid applications of more than one pound of N/1000 sq. ft, when using "fast release" or highly water soluble nitrogen.

When using only fast release nitrogen sources, light applications—1/8- to 1/2 lbs. of N/1000 sq. ft.—are more desirable, and should be applied more frequently.

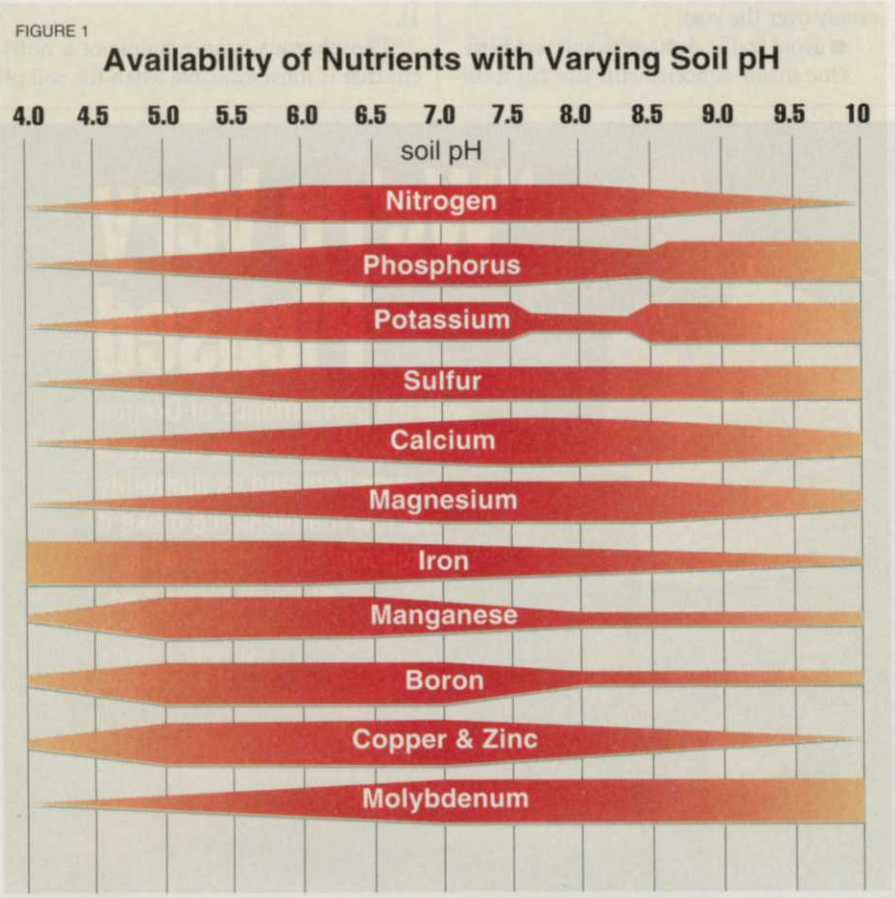
This "spoon-feeding" approach has become increasingly popular on golf course putting greens.

Fast- vs. slow-release—A widely-used strategy in the spring is to fertilize with products having a combination of fast- and slow-release nitrogen sources. Fast-release nitrogen stimulates earlier green-up and growth which is often sought in recreational and landscaped settings. Slow-release nitrogen sources, wither synthetic or natural organic, last eight to 15 weeks, are less likely to burn the turf and release nitrogen more uniformly than inorganic N sources.

Turf managers often must strike a balance between which combinations to use in each situation.

Sometimes this requires supplementing small amounts of fast-release nitrogen

FIGURE 1



into the spring feeding.

Late fall substitute—A late fall or dormant fertilization can provide a successful alternative to an early spring application. This strategy is primarily used by athletic field managers to:

- accelerate spring green-up and growth;
- help distribute the workload more evenly over the year;
- avoid traffic damage to soft wet turf.

One major concern with late fall fertilization is the increased potential of nitrate leaching during the winter. Using lighter rates of slow-release nitrogen will help minimize this threat. However, this strategy will generally be slower to stimulate growth in cold spring soils.

Soil pH and nutrients—The soil pH has a considerable influence on the nutrient availability of most nutrients (See Fig. 1).

Phosphorous is an example of a nutrient that is most available when the soil pH is between 6.0 and 7.0. However, in highly acidic soils with pH of less than 5.0, phosphorous gets "tied up" with iron and aluminum to form complexes which are unavailable to turfgrasses.

Maintaining near neutral soil pH values also favors the activity of beneficial soil microorganisms, the release of nitrate from nitrogen fertilizers and more vigorous growth of most turfgrasses.

In highly acidic soils, toxic concentrations of aluminum, iron and manganese may develop and cause impaired rooting—roots are short, brown and spindly—a decrease in overall turf vigor, shoot growth, drought tolerance and recuperative potential.

Potassium for all seasons—

continued on page 52

Turfgrass in the top photo received high nitrogen without potassium and phosphorous. Topgrowth is more vigorous, but root development is poorer than turf in the bottom photo, which received lower N levels.

FERTILIZATION *from page 50*

The best thing to do is have the soil analyzed.

Potassium plays a vital role in plant nutrition, and deserves more attention in many fertility programs.

Research continues to demonstrate the importance of maintaining high potassium levels throughout the growing season. Potassium is recognized for enhancing turf tolerance to various environmental and biological stresses, including cold, traffic, disease and drought tolerance.

A nitrogen to potassium ratio of 3:2 has generally been considered desirable. However, higher potassium ratios to nitrogen, such as 1:1 or 1:2 have improved stress tolerance in some investigations, even when soil tests indicate potassium levels are adequate.

Watch for rapid change. Potassium is highly water soluble and subject to rapid leaching both within the leaf tissues and in soils with low cation exchange capacities. Potassium deficiencies can occur just a few days following a fertilization especially on intensely-managed, irrigated turf growing in sandy soils.

Light, frequent potassium applications with slow-release carriers helps to reduce potassium leaching in these situations.

Soil tests revealing The best way to know a soil pH, overall nutrient status and soluble salt content is to have the soil analyzed. Most state universities have soil testing laboratories and provide this service at a reasonable cost. Commercial testing labs are also available. Several soil pH and leaf tissue test kits can be purchased for immediate on-site readings.

There are many choices for the turf manager developing a spring fertility strategy. The challenge is to select one that best suits the turf's needs in your management program.

—Dr. Roberts is an extension specialist in turf science at the University of New Hampshire.

Learn to identify snow molds

by Joe Rimelspach

■ As snow and ice melt away and spring weather arrives, home owners will have many questions about the condition of their lawns and how to help them recover from the harsh winter weather. Many lawns will see symptoms of snow mold.

These fungi commonly grow where there is snow cover or during cool, wet periods of winter and spring. All cool-season grasses are susceptible, and many bentgrasses are highly susceptible. The two diseases may occur together or individually, usually extensively on lush turf with wet, unfrozen soil and snow cover.

Symptoms—Patches (more or less circular) may be a whitish-tan straw color from 1 inch to 3 feet in diameter, though they are usually 3 to 12 inches in diameter. Leaves are matted together and the patch appears sunken. When the patches are wet, they appear slimy; when dry, the texture is more like a crust of dead leaves.

During some periods, pink snow mold may have a slight pinkish color on the outer edge of the patch. Gray snow mold can be positively identified by the presence of sclerotia (small seed-like structures) 1/16 to 1/8 inch in diameter. Sclerotia are dark reddish-brown to black and found on leaves of diseased plants.

Management—To minimize damage:

1) Rake damaged turfgrass to let light and air into the crowns to encourage growth and recovery.

2) If the lawn is tall and has a lot of dead leaves, mow it short one time to remove dead grass and rake it away.

If areas are dead, renovation will be needed. Check the crowns or plants for life. Living crowns will be white and have a moist, healthy appearance. If you don't know about possible re-growth, take a section of damaged turf and try to grow it indoors to see if new leaves develop.

Spring applications may accelerate turf recovery. Follow all label instructions.

For gray snow molds—pentachloronitobenzen (PCNB) or iprodione + chlorothalonil;

For pink snow molds—PCNB, iprodione, vinclozolin or thiophanate-methyl.

—The author is turfgrass extension pathologist at Ohio State University. He has more than 20 years experience with the lawn and landscape industry in the Midwest.