Summer turf fertilization relies on balanced nutrients

Match nutrient applications to the plant’s growth: more fertilizer in the fall and spring. But it’s important to maintain some growth during the summer.

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Summer fertilization can help provide a strong, healthy turf when demands on the grass are the greatest. The key is understanding how the plant grows when temperature and moisture may not be optimum, and adjusting fertilization accordingly.

Too much fertilizer in the summer can decrease turf stress tolerance and increase occurrences of some diseases. Too little fertilizer will result in turf with poor recuperative potential, and, in some cases, turf unable to compete with summer germinating weeds.

Turf managers must strike a balance between the two extremes.

Understand plant growth—Cool-season turfgrasses generally show best shoot growth in air temperatures of 60 to 75°F and best root growth at soil temperatures of 50 to 65°F. As temperatures increase from these ranges, growth slows and eventually, at a high enough temperature, stops.

This is probably because, at the higher temperatures, the plant uses more of its food supply (referred to as carbohydrate reserves) than it produces. There isn’t enough available for sustained root growth. Also, nitrogen applications cause the shoot system to grow preferentially over the root system.

Nitrogen applications, then, can make a bad situation worse by further reducing energy available for root growth. Most turf managers also realize that, as water becomes limited, growth declines and then stops. It’s important to limit nitrogen applications during times of drought stress. Conversely, a moderate nitrogen application can help a plant recover from drought-induced dormancy.

Warm-season grasses, which exhibit optimum shoot growth at air temperatures of 80 to 95°F and best root growth at soil temperatures of 70 to 85°F, are easier to deal with, since they are growing at their peak over the summer months. They have more efficient photosynthetic mechanisms, and are more drought tolerant than cool-season grasses. However, they still need water. Too much fertilizer should be avoided during very dry periods.

Designing N programs—In designing an N fertilization program, match nutrient applications to the plant’s growth. That is why you should apply more fertilizer in the fall and spring when the plants are actively growing than in the summer. However, it is important, however, to maintain some growth during the summer.

The turfgrass manager can approach summer N fertilization by either making several small applications of a quick-release N source or by applying a slow-release N source.

In situations where the turf manager is located at the site, apply 0.25 to 0.50 lbs of actual N per 1000 sq.ft. from a quick-release fertilizer during the summer when it is necessary to increase the turf’s growth.

The alternative strategy is to apply a slow-release fertilizer (1 to 2 lbs. of actual N per 1000 sq.ft.) early in the summer. This may be more feasible where it is difficul
Applications of 1 to 2 lbs. of actual iron per acre to Kentucky bluegrass resulted in a darker-green color that lasted for several weeks depending on the grass’s growth rate (the faster the growth, the shorter the response period). Because of this, it may not be feasible to use iron where the turf manager is not able to frequently monitor results. Also, iron is more expensive to use than nitrogen.

Several considerations relative to using iron are listed in Table 3. Note that iron is not a replacement for a sound N fertilization program but rather a supplement.

Experiment with application rates to determine what provides the best results for the species of grass and conditions that you are working with.

Healthy plants—Insect or disease problems can further reduce the plant’s ability to withstand stress periods. This is particularly important when diseases affect the roots, as is the case with summer patch and necrotic ring spot on Kentucky bluegrass, or where nematodes may be present. Compact or water-logged soil will reduce rooting, thus weakening the plant.

Researchers have observed stress problems where soil phosphorus has declined to low levels, such as on creeping bentgrass putting greens where phosphorus was withheld to help combat annual bluegrass encroachment.

Also, the plant must have enough phosphorus and potassium. Researchers have observed stress problems where soil phosphorus has declined to very low levels, such as on creeping bentgrass putting greens where phosphorus was withheld to help combat annual bluegrass encroachment.

Soil tests should be taken every two to three years to monitor pH and nutrient levels.

Strategy for success—By starting with a healthy plant and carefully matching fertilizer applications to existing growing conditions, the turf manager can ensure that the turf stand will survive the summer stress period with minimal problems.

Addendums to fertilization, insect control

- The insecticide Crusade was inadvertently omitted from the cool-season insect control article in the April issue of Landscape Management.

- Crusade is registered for control of insects in professional turf areas such as golf courses and commercial sod growing areas. Applied in the spring, summer or fall, at 4 lb. ai/acre, it is effective against white grub larvae such as Japanese beetle, black turfgrass ataenius, chafer, "Phyllophaga spp., green June beetle and Asiatic garden beetle. At 3 to 4 lb. ai/acre, Crusade is also labelled for controlling chinchbugs, cutworms and sod webworms.

- All applicable directions, restrictions, and precautions on the EPA-registered label are to be followed.

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